SECTION 4: ENVIRONMENTAL CONSIDERATIONS

- What federal and state regulations and requirements are pertinent to this project?
- What is the proposed study area for the environmental analysis?
- How will the EIS be organized?
- What environmental resources will be studied in the EIS and how will potential impacts be identified?

4-1 INTRODUCTION

The potential social, economic, and environmental impacts (beneficial and adverse) of the Interstate 81 (I-81) Viaduct Project (the “project”) will be evaluated in an Environmental Impact Statement (EIS). This section describes the analysis framework for the EIS, which will evaluate potential impacts of the reasonable project alternatives described in Section 3, Project Alternatives of this Draft Scoping Report. This section begins with a description of the environmental review process and permits and approvals needed for the project, followed by the framework for the analyses to be included in the EIS.

4-2 THE ENVIRONMENTAL REVIEW PROCESS

The Federal Highway Administration (FHWA), in cooperation with the New York State Department of Transportation (NYS DOT), will prepare the EIS in accordance with the National Environmental Policy Act (NEPA). The EIS will also meet the requirements of the New York State Environmental Quality Review Act (SEQRA). FHWA and NYS DOT are the NEPA joint lead agencies and NYS DOT is the SEQRA lead agency for this project.

The EIS will be prepared in accordance with the NYS DOT Project Development Manual, NYS DOT Procedures for Implementation of the State Environmental Quality Review Act (17 NYCRR [New York Codes, Rules, and Regulations] Part 15) and FHWA Environmental Impact and Related Procedures (23 CFR [Code of Federal Regulations] 771). In accordance with 17 NYCRR Part 15, the NEPA and SEQRA processes for this project are being coordinated; therefore, NYS DOT and other New York State agencies undertaking a discretionary action for this project have no obligation to prepare an additional EIS under SEQRA. NYS DOT will give full consideration to the federal Final EIS (FEIS) and will prepare a Record of Decision (ROD) in accordance with Section 15.9 of 17 NYCRR Part 15.
4-2-1 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The procedural provisions of NEPA (set forth in 40 CFR §§ 1500-1508) require federal agencies to consider the environmental consequences of their actions, including not only direct and indirect effects but also cumulative effects with other projects.

The project is classified as a NEPA Class I action in accordance with 23 CFR Part 771.115, which requires preparation of an EIS to determine the likely impacts a project will have on the environment.

The steps in the NEPA process are described below.

- **Notice of Intent.** The EIS process began with publication of a Notice of Intent (NOI) in the *Federal Register* on August 26, 2013.

- **Scoping.** The project is currently in the scoping phase. Scoping introduces the public to the project, including its purpose and need, its goals and objectives, alternatives to be considered in the EIS, the framework of analysis for the EIS, and the public involvement and agency coordination plan.

  The project was first presented in a *Scoping Initiation Packet* (November 2013) and during an Initial Scoping Meeting held on November 13, 2013. This *Draft Scoping Report* expands on the *Scoping Initiation Packet* and provides further details on the development and preliminary evaluation of project alternatives as well as the project's environmental review process. During the Initial Scoping Meeting and throughout the scoping phase, the public was invited to comment on the alternatives under consideration and the scope of analysis for the EIS.

  A Final Scoping Meeting is scheduled for June 26, 2014 to provide the public with another opportunity to comment on the project. Comments can be made verbally at the public scoping meeting or in writing. The public comment period is open throughout the summer, providing an extensive opportunity to provide input. Written comments will be accepted through September 2, 2014 (see “Contact Information” in *Section 5, Public Involvement and Agency Coordination* for further details on submitting comments).

  Following the public review period, FHWA and NYSDOT will publish a *Final Scoping Report* that will identify the comments received and provide responses to substantive comments, as appropriate.

- **Draft Environmental Impact Statement.** Following scoping, a Draft EIS (DEIS) will be prepared to assess the environmental effects of the project consistent with NEPA and other appropriate regulations and requirements. NYSDOT will coordinate review by other federal resource agencies during preparation of the DEIS. After FHWA approves the DEIS, a Notice of Availability will be published in the *Federal Register* and local newspapers, establishing a public review period for the DEIS.

- **Public Review.** The DEIS will be made available to the public at local repositories and on the project website and will be distributed to agencies and elected officials. FHWA will
establish a public comment period for the DEIS. The public comment period will be a minimum of 45 days, and a hearing will be held, at which members of the public can offer oral testimony on the findings of the DEIS. Comments will also be accepted in writing during the public comment period.

- **Final Environmental Impact Statement.** After the public comment period on the DEIS closes, a Final EIS (FEIS) will be prepared. The FEIS will include the comments and responses on the DEIS and any necessary revisions to the DEIS to address the comments. After it is reviewed by FHWA, the FEIS will be published and a Notice of Availability will be printed in the Federal Register and local newspapers.

- **Record of Decision.** No sooner than 30 days after publishing the FEIS, FHWA will prepare its decision document, known as the Record of Decision (ROD). The ROD will describe the preferred alternative for the project, its environmental impacts, and any required mitigation commitments. The ROD will conclude the NEPA process.

4-2-2 **STATE ENVIRONMENTAL QUALITY REVIEW ACT (SEQRA)**

Similar to and modeled after NEPA, the State Environmental Quality Review Act (SEQRA) was enacted by the New York State legislature in 1975. SEQRA requires New York governmental agencies to identify potential environmental effects that would result from their discretionary actions, and—to the extent that adverse impacts are identified—avoid or otherwise mitigate those impacts to the maximum extent practicable, consistent with social, economic, environmental, and other considerations. State agencies must review their discretionary actions in accordance with SEQRA, unless such actions fall within certain statutory or regulatory exemptions, before undertaking, funding, or approving the actions.

The project is classified as a SEQRA non-Type II action (17 NYCRR § 15.6), indicating that it has the potential for environmental impacts that should be evaluated under SEQRA. As previously stated, the EIS will also meet the requirements of SEQRA.

4-2-3 **PERMITS AND APPROVALS**

Implementation and construction of the I-81 Viaduct Project may be subject to a number of federal and state permits and approvals. The list below is a summary of the applicable regulatory requirements identified thus far.

- **Clean Water Act (33 USC §§ 1251-1387).** The Clean Water Act (CWA), also known as the Federal Water Pollution Control Act, is intended to restore and maintain the chemical, physical, and biological integrity of U.S. waters. It regulates point sources of water pollution (i.e., discharges of municipal sewage, industrial wastewater, stormwater); non-point source pollution (i.e., runoff from streets, agricultural fields, construction sites and mining that enter waterbodies, from other than the end of a pipe); and the discharge of dredged or fill material into navigable waters and other waters of the U.S.
Section 404 of the CWA requires authorization from the Secretary of Army, acting through the U.S. Army Corps of Engineers (USACE) before dredged or fill material may be discharged into waters of the United States. Waters of the United States are defined by the USACE regulations, among other things, as: (1) all waters "which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide"; (2) tributaries of such waters; and (3) wetlands adjacent to such waters (33 CFR § 328.3[a]). Wetlands are defined by the USACE regulations as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (33 CFR § 232.3[b]).

Activities authorized under Section 404 must comply with Section 401 of the CWA, which requires that applicants for federal permits or licenses for an activity that may result in a discharge to navigable waters must provide to the federal agency issuing a permit a certificate (either from the state where the discharge would occur or from an interstate water pollution control agency) that the discharge would comply with Sections 301, 302, 303, 306, 307, and 316 (b) of the CWA. However, certain nationwide permits from the USACE do not require Section 401 water quality certifications.

- **Eminent Domain Procedure Law.** Any state action that results in property to be acquired through exercise of eminent domain in New York State must be executed in full compliance with the Eminent Domain Procedure Law (EDPL).
- **Endangered Species Act (16 USC §§ 1531-1544; 50 CFR Part 402).** Section 7 of the Endangered Species Act requires FHWA to consult with the U.S. Fish and Wildlife Service (USFWS) for projects that may jeopardize threatened or endangered species, or destroy or adversely modify their critical habitats.
- **Environmental Justice (Executive Order 12898 of 1994, 59 CFR Part 7629, February 16, 1994; 1997 USDOT Order 5610.2[a], May 2, 2012; FHWA Order 6640.23A, June 14, 2012).** These Orders require that impacts and benefits from a federal transportation project are equitably distributed among all population groups and that minority or low-income areas are not overburdened with the adverse aspects of project alternatives. FHWA is responsible for complying with the Executive Order, including specific outreach efforts to affected communities.
- **Floodplains (Executive Order 11988 of 1977; USDOT Order 5650-2, April 23, 1979).** Federal and state agencies must regulate and limit the location of a project in a floodplain to avoid any adverse impacts associated with the occupancy and modification of floodplains. FHWA will make a floodplain determination for the project in accordance with Executive Order 11988.
- **Freshwater Wetlands Law (ECL Article 24).** Under the Freshwater Wetlands Act, the New York State Department of Environmental Conservation (NYSDEC) administers a permit program regulating activities in wetlands and their adjacent areas. NYSDEC requires a permit for almost any activity which will alter the wetlands or the adjacent areas.

- **Land & Water Conservation Fund Act—Section 6(f) (16 USC §§ 4601-4 to 4601-11).** Property protected under Section 6(f) (i.e., parkland that received funding under the Land & Water Conservation Fund Act [LWCFA]) requires approval for conversion of that park facility for any non-recreational purpose unless alternatives are assessed and steps are taken to identify, evaluate, and supply replacement parkland. The United States Department of the Interior (DOI), through the National Park Service (NPS), must grant prior approval for the conversion and replacement parkland. If any Section 6(f) properties would be affected by the project, FHWA will make a Section 6(f) finding for this project.

- **National Historic Preservation Act (16 USC § 470A; 36 CFR Part 800).** Federal agencies must consider the effect of their undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places. Projects potentially affecting historic and archaeological resources must comply with the National Historic Preservation Act (NHPA) Section 106 review process. FHWA is responsible for carrying out the Section 106 review for this project in consultation with the New York State Historic Preservation Officer (SHPO) at the New York State Office of Parks, Recreation and Historic Preservation (OPRHP). The Section 106 process will be conducted in consultation with the Advisory Council on Historic Preservation (ACHP), Native American Tribes, and Consulting Parties. When a project is being reviewed pursuant to Section 106 of the NHPA, the procedures of Section 14.09 of the New York State Historic Preservation Act do not apply, and any review and comment by SHPO must be within the framework of Section 106 procedures (New York State Historic Preservation Act § 14.09(2)).

- **Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR Part 772).** The Noise Control Act of 1972 gives EPA the authority to establish noise regulations to control major sources of noise, including transportation vehicles and construction equipment. FHWA developed noise regulations as required by Section 136 of the Federal-Aid Highway Act of 1970 (23 U.S.C. 109(i)). The FHWA noise regulation requires a highway agency to assess traffic noise impacts for projects classified as “Type I,” including the construction of a highway on a new location, the physical alteration of an existing highway where there is a substantial horizontal or vertical alteration (as defined in the noise regulation), or the addition of a through traffic lane(s). If the highway agency identifies impacts, it must consider abatement.

- **Smart Growth Public Infrastructure Policy Act (ECL § 6-0101 et seq.).** The Smart Growth Public Infrastructure Policy Act was enacted by the State of New York to maximize social,
economic, and environmental benefits from public infrastructure development while minimizing adverse impacts related to sprawl. Under this act, no state infrastructure agency shall approve, undertake, support, or finance a public infrastructure project, unless, to the extent practicable, the public infrastructure project is consistent with 10 smart growth infrastructure criteria that are contained in §6-0105 of the Act.

- **State Pollutant Discharge Elimination System (6 NYCRR Part 750).** A NYSDEC State Pollutant Discharge Elimination System (SPDES) permit will be required since construction would involve land disturbance of more than one acre. The applicability of an individual SPDES permit for operation of the proposed project will be confirmed through consultation with NYSDEC.

- **Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970 (42 USC § 4601 et seq.).** Federally funded or federally assisted projects that require property acquisition through eminent domain must comply with the Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970.

- **U.S. Department of Transportation Act—Section 4(f) (49 USC § 303; 23 CFR Part 774).** Section 4(f) prohibits the Secretary of Transportation from approving transportation programs or projects that use a property protected under Section 4(f) unless there is no prudent and feasible alternative to the use of such land and the project includes all possible planning to minimize harm to such land. A Section 4(f) property is defined as a publicly owned parkland, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; or land from a historic site of national, state, or local significance, which are properties listed on or eligible for the National Register of Historic Places. If the I-81 Viaduct Project would result in the use of historic resources, parklands, or other properties protected by Section 4(f), FHWA will make a Section 4(f) finding for this project.

- **Wetlands (Executive Order 11990 of 1977; USDOT Order 5660.1A, “Preservation of the Nation’s Wetlands,” August 24, 1978).** Federal and state agencies must avoid adverse impacts from the destruction or modification of wetlands unless there is no practical alternative and all possible measures to minimize harm are taken. FHWA is required to make a formal wetland finding for this project.

### 4-3 ENVIRONMENTAL ANALYSIS FRAMEWORK

#### 4-3-1 PROJECT LIMITS

As described in **Section 1, Overview and Background**, and **Section 2, Purpose and Need**, of this Draft Scoping Report, NYSDOT is proposing to rehabilitate, reconstruct, or replace I-81 from about MLK East to Spencer Street in the City of Syracuse (the “I-81 Viaduct priority area”) and is investigating modifications to interchanges on I-81 between Spencer Street and Hiawatha Boulevard and on I-690 between West Street and Teall Avenue. The portion of I-81
between MLK East and Hiawatha Boulevard and the portion of I-690 between West Street and Teall Avenue is referred to as the “project limits.”

The project limits include an approximately 3.5-mile section of I-81 and an approximately 2.5-mile section of I-690, as shown in Figure 4-1. Also shown in Figure 4-1 are potential expanded project limits, which include several local streets in Downtown Syracuse and adjacent neighborhoods, as well as sections of I-481. These limits capture areas where improvements or changes may occur under the Street-level Alternatives (see Section 3, Project Alternatives). Figure 4-1 also shows potential additional analysis areas along I-81, I-481, and I-690 where physical improvements are not currently proposed, but changes in traffic related to the project may alter conditions. Therefore, the EIS will consider these highway sections, as necessary.

4-3-2 ANALYSIS YEARS

The EIS will consider both the short-term (construction) and long-term (operational) impacts of the project alternatives. The specific analysis years will be identified in the EIS.

- **Construction Years.** The short-term (construction) analysis will be undertaken for the period during which construction would occur. Where a quantified assessment is prepared for potential construction impacts, a peak period condition will be identified and assessed. For other construction impacts, the EIS will reflect potential effects throughout the construction period.

- **Estimated Time of Completion (ETC)/Opening Year.** The operational and permanent effects of the project alternatives (i.e., build year conditions) will be evaluated for the anticipated opening year of the new highway improvements.

- **Estimated Time of Completion +30 (ETC +30)/Long-Term Horizon Year.** Consistent with FHWA and NYSDOT guidance, the EIS will include an assessment of conditions well into the future (30 years) to determine the long-term impacts of the project on the built and natural environment. Note that the mesoscale air quality analysis will also evaluate ETC + 10, as discussed further in Section 4-4-7, Air Quality.

4-3-3 ORGANIZATION OF THE ENVIRONMENTAL IMPACT STATEMENT

The EIS will be organized in two volumes. Volume 1 will consist of the environmental impact analyses with chapters that describe the purpose and need for the project, reasonable range of alternatives considered and evaluated, environmental considerations, public involvement activities, and supporting studies as required by NEPA and SEQRA. Volume 2 will comprise appendices that will consist of technical reports supporting the information provided in Volume 1. Volume 1 (EIS chapters) will contain summaries of the environmental analyses whereas Volume 2 (appendices) will contain more detailed data and analyses, as well as any pertinent agency correspondence.

The general format of the EIS chapters provided in Volume 1 will be as follows:
• **Affected Environment**, which will describe existing conditions within the study area, as defined above or as defined specifically for each subject area. This will provide the baseline data on which potential project impacts will be determined. In some circumstances the environmental analysis requires the determination of future baseline conditions in order to evaluate the impacts of the project alternatives. The future baseline condition reflects anticipated changes in the affected environment without the project. This is accomplished by using accepted analytical methodologies to project population, employment, traffic conditions, noise levels, and air quality concentrations to forecast future conditions in the study area.

• **Environmental Considerations**, which will provide an analysis of potential impacts associated with each project alternative. In addition to the “build” alternatives, this section will consider a “no build” alternative, which describes future conditions without the project.

• **Mitigation**, which will identify proposed measures that would mitigate any adverse impacts identified in the “Environmental Considerations” section of the chapter.

At this time, the appendices provided in Volume 2 are anticipated to include the following technical reports:

• Transportation;
• Social Conditions, Economic Considerations, and Environmental Justice;
• Visual Resources and Aesthetic Considerations;
• Cultural Resources (historic and archaeological resources);
• Air Quality;
• Noise;
• Natural Resources (surface water and groundwater; stormwater runoff; plants and wildlife; and topography, geology, and soils);
• Hazardous Materials; and
• Construction Impacts.

Additional technical reports may be identified as the environmental analysis progresses.

### 4-4 ENVIRONMENTAL ANALYSIS METHODOLOGY

The environmental analysis will consider potential direct, indirect, and cumulative effects of the project on the social, economic, and environmental resources within the study areas. FHWA and NYSDOT have promulgated specific methodologies and criteria to assess potential environmental effects under NEPA, which would be followed in completion of the technical analyses in the EIS. Where specific criteria are not provided by FHWA and NYSDOT, the EIS will rely on methodologies set forth by other relevant federal and state agencies.
The proposed technical analysis methodologies for the I-81 Viaduct Project are outlined below for the subject areas to be evaluated in the EIS. The methodologies herein summarize the study areas, regulatory requirements, analysis tools, and criteria for identifying potential environmental impacts in the EIS. Methodologies will be further detailed in the EIS.

Each chapter of the EIS will focus on potential impacts related to operation (i.e., the post-construction condition) of the project. The construction impacts chapter will identify the potential construction-period (i.e., temporary) impacts on relevant environmental resource areas in the construction analysis years (which, at this time, are anticipated to last 3 to 5 years).

4-4-1 TRANSPORTATION

The transportation analysis considers the system of moving people and goods from place to place. It includes various modes of travel (i.e., cars, buses, trucks, trains, bicycles, and walking) that work collectively to get people and goods to their destinations. The transportation analysis in the EIS will assess the individual modes of travel in the study area to determine whether project alternatives would hinder the safe and/or efficient movement of people and goods. The EIS will consider both the local and regional effects of project alternatives on transportation.

Regional travel patterns are important in understanding the needed capacity for highway and other transportation infrastructure and for projecting regional vehicle emissions and their resultant effects on air quality. Regional travel is projected using a software model, typically developed by the local Metropolitan Planning Organization (MPO). The Syracuse Metropolitan Transportation Council (SMTC) is the MPO for the Syracuse region and has developed a regional model. It currently projects regional travel demand through 2035 and is in the process of being updated.

Local travel patterns are important in understanding the effects of an undertaking on mobility in the surrounding area. The assessment of potential effects on local travel patterns focuses on individual intersections and their capacity to process a projected volume of vehicles (cars, buses, and trucks) as well as pedestrians and cyclists. Computer simulation is often employed for local traffic analysis using a methodology developed by the Transportation Research Board, known as the Highway Capacity Manual.

As described in Chapter 2, “Purpose and Need,” I-81 has several locations where accident rates exceed statewide averages. One of the goals of the project is to improve safety along this corridor; as such, the project would include design features aimed at reducing these accident rates. In addition, the project aims to improve bicycle and pedestrian surface connections on streets across and along the I-81 viaduct.

The following steps will be undertaken to prepare the transportation analysis in the EIS:
• Establish the regional and local transportation study areas: The regional study area will include areas under the jurisdiction of SMTC to provide inputs pertinent to the air quality analysis (see Section 4-4-7, Air Quality). The local traffic study area will include highway segments and local streets where modifications are proposed or where traffic may change as result of a project alternative (see Figure 4-1);
• Coordinate with SMTC to project regional travel patterns and conditions in each analysis year;
• Collect traffic data (volumes, speeds, vehicle types, pedestrian and cyclist volumes, and highway geometric features) at key locations within the local study area, in consultation with SMTC and local transportation agencies;
• Assess traffic operations in the existing, no build, and future build (i.e., with one of the alternatives other than the no build) conditions for the analysis years;
• Identify any locations where traffic impacts may occur as a result of project alternatives and develop reasonable measures to mitigate these impacts to the extent practicable;
• Identify safety enhancements of the build alternatives and describe their potential to reduce accident rates; and
• Identify connectivity and mobility enhancements of the build alternatives and describe their potential to improve vehicular, transit, pedestrian, and bicycle circulation.

4-4-2 LAND USE AND COMMUNITY CHARACTER

Following guidance from FHWA’s Environmental Review Toolkit and Technical Advisory document T6640.8A, the land use and community character evaluation will follow these steps:
• Establish study area: The study area for the analysis of land use and community character would encompass a ¼-mile radius from the project limits, or any additional areas that may be affected by changes in traffic, as needed;
• Identify existing land uses in the study area by categories such as residential, commercial, industrial, institutional (e.g., government, education, or religious uses), recreational, etc. Geographic information systems (GIS) resources and field surveys will be used to collect and verify land use data;
• Describe the overall character of the community and neighborhood cohesion;
• Identify existing zoning regulations;
• Identify existing public policy documents (e.g., local and regional comprehensive or master plans) that indicate community visions for the study area;
• Identify community facilities and services in the study area, including emergency service providers (e.g., fire, police, and emergency medical services [EMS]);
• Identify parklands and recreational resources and determine applicability of Section 4(f) and Section 6(f) evaluations (see further discussion below);
• Determine the potential impacts of the project on existing and proposed future land uses (i.e., planned development), zoning regulations, and public policy documents;
• Determine impacts of the project on parklands, recreational resources, and community facilities and services;
• Describe how the project would affect emergency service access both along the highway and on local streets;
• Describe any mitigation measures that would be implemented if adverse effects are identified.

4-4-3 SOCIOECONOMIC CONDITIONS

Consideration of demographic and employment characteristics is important for any large-scale transportation undertaking with the potential to affect citizens in a widespread area. The I-81 Viaduct Project’s potential effects on socioeconomic conditions, such as population, housing, and primary business sectors, will be evaluated in the EIS following guidance from FHWA’s Environmental Toolkit and Technical Advisory T6640.8A, as well as NYSDOT’s Project Development Manual (PDM). As part of the analysis, the following steps will be conducted:

• Establish study area: The analysis of socioeconomic conditions would consider potential regional effects of the project within the Syracuse metropolitan area (Onondaga, Madison, and Oswego Counties) and potential local effects within an area similar to the land use and community character study area (¼-mile radius).
• Characterize population, housing, employment, and other socioeconomic indicators in the study area using data from the most recent U.S. Census, the New York State Department of Labor (NYSDOL), and SMTC, as appropriate;
• Identify potential adverse and/or beneficial social and economic impacts of the project;
• Determine potential impacts to local businesses that may result from changes in travel patterns;
• Discuss potential effects on tax revenues, particularly as a result of any land acquisitions or displacements; and
• Describe any measures that would be implemented to mitigate adverse impacts, if appropriate.

4-4-4 LAND ACQUISITION, DISPLACEMENT, AND RELOCATION

The project may require acquisition or permanent easements of publicly- or privately-owned properties in the study area. While NYSDOT will strive to minimize the acquisition of developed land, necessary land acquisitions may displace existing residents, businesses, or community uses in the study area. The assessment of land acquisition, displacement, and relocation will consider provisions of the federal Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601) and the New York State EDPL. The analysis will include:
Establish study area: The study area will comprise any parcels that may require complete or partial takings, or permanent or temporary easements. The assessment of effects will include jurisdictions that currently receive tax revenues from these properties (i.e., city, school district, and county).

Based on preliminary designs for the project alternatives, the number and type of any proposed acquisitions will be identified, including both partial and complete property takings. The chapter will identify the current use of each property, the number of residents or employees associated with each property, and its current value. GIS data will be used to the extent possible, with confirmations obtained through field verifications and through correspondence with local assessors’ offices, as necessary.

The potential impacts of relocating displaced land uses will be assessed.

Efforts to avoid or minimize land acquisition will be described and a discussion of mitigation measures will be provided, as appropriate.

### 4-4-5 VISUAL RESOURCES AND AESTHETIC CONSIDERATIONS

Aesthetics is defined as “the science or philosophy concerned with the quality of visual experience.” Aesthetics encompasses the design of a project itself, the relationship between the project and natural and built features nearby, and the overall human reaction to the project’s influence on visual quality.

The aesthetic quality and character of I-81 and I-690 in Syracuse have been identified by the local community as important considerations in project development. The existing I-81 viaduct is a prominent feature in the existing viewshed of Syracuse. Project alternatives may alter or remove the viaduct, which would change the visual and aesthetic character of the surrounding area.

In accordance with FHWA and NYSDOT guidelines, the existing visual character and quality of the affected environment, as well as the viewer response to those resources, will provide the framework for assessing the change in visual character that would occur as a result of the project. Major viewer groups and different levels of sensitivity will be evaluated, such as commuters from the highway, or residents with views of the highway. A Visual Impacts Assessment (VIA) will be prepared based on NYSDOT’s Visual Resource Analysis Procedure (Engineering Instruction 02-025 and Engineering Bulletin 03-052). The visual assessment will be prepared under the guidance of a registered landscape architect experienced in the preparation of visual impact assessments. It will provide the following:

- Identification of the study area, which will include the area within visual range of project elements, accounting for topography, vegetation, and obstructing structures;
- A description of the visual character of the project site and study area;

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Identification of aesthetic/visual resources and viewer groups;
Identification of key views for the visual assessment;
Evaluation of the visibility of the project site in the study area;
A description of visible components of the project under the project alternatives, including any aesthetic design considerations being incorporated into the project;
Assessment of the visual impacts of the project alternatives; and
A description of any measures to be implemented to mitigate adverse impacts, if necessary.

4-4-6 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties. For this project, the term “cultural resources” will be used to collectively refer to historic and archaeological resources. Historic resources may be districts, buildings, monuments, or sites of architectural, cultural, or historic significance. Archaeological resources are buried and may possess cultural or historic significance for either what can be learned by their discovery or for their continued presence in situ (i.e., burial grounds).

The cultural resources assessment for the EIS will be conducted in accordance with the requirements of Section 106 and will include consultation with SHPO, ACHP, Native American Tribes, and Consulting Parties. Consulting Party meetings will be held to identify an area of potential effect and resources within the area of potential effect, provide a focused discussion on potential adverse effects of the project alternatives on historic and archaeological resources, and to develop measures to avoid, minimize, or mitigate adverse effects, as necessary.

The steps to be undertaken in the cultural resources analysis are as follows:

- Establish study area (Area of Potential Effect, or APE): APEs for the assessment of potential direct and indirect effects on archaeological and historic resources will be identified. The Direct APE will comprise areas that may be subject to direct ground disturbance, and is broadly defined as the area within about one block (or 400 feet) from the project limits along I-81 and I-690, and about 800 feet from the two I-81/I-481 interchanges. A potentially expanded APE with respect to surface street enhancements in Downtown Syracuse and improvements along I-481 related to the Street-level Alternatives would include areas within about 100 feet from affected roadways. The Indirect APE will include any areas where historic and archaeological resources may be indirectly affected through changes in setting or changes that would diminish their historic integrity.
- Establish Section 106 Consulting Parties for the project;
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- Identify historic properties within the APE (e.g., properties that are listed or eligible for listing on the New York State and National Register of Historic Places, Local Protected Sites and Local Preservation Districts);
- Research maps, documents, and databases as well as conduct field research to determine the locations and extent of potential archaeological sensitivity within the APE;
- Identify potential direct (i.e., demolition, alteration, or damage from construction) or indirect (i.e., the introduction of visual, audible, or atmospheric elements that may alter the characteristics of the historic property that qualify it for inclusion in the National Register in a manner that would diminish the integrity of the property’s significant historic features) adverse effects of project alternatives on historic properties based on requirements of 36 CFR Part 800.5;
- Identify areas of ground disturbance for project alternatives and determine whether disturbed lands possess archaeological sensitivity;
- Develop a determination of Eligibility and Effect Findings to provide the opportunity for input by Section 106 Consulting Parties;
- Where adverse effects are identified, develop measures to avoid, minimize, or mitigate these effects; and
- Develop a Memorandum of Agreement (MOA) that identifies the project’s effects on historic properties and the measures developed to avoid, minimize, or mitigate these effects.

4-4-7 AIR QUALITY

Air quality studies help determine how a project will affect (increase or decrease) the amount of pollution in the air we breathe. The quality of our air is characterized by levels of certain pollutant gases or microscopic particles. The U.S. Environmental Protection Agency (USEPA) has set National Ambient Air Quality Standards (NAAQS) for six air pollutants of concern to our nation’s air quality (carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide). The Syracuse area (Onondaga County) is in attainment (i.e., does not exceed thresholds) for criteria pollutants. In addition to NAAQS, emissions of other pollutants from vehicles (known as mobile source air toxics, or MSATs) are also often considered for large transportation projects.

The air quality analysis for the EIS will identify whether implementation of project alternatives would result in any exceedances of NAAQS or any substantial increases or decreases in air pollutant emissions. FHWA is required to demonstrate conformance of the I-81 Viaduct Project with the NAAQS or any pertinent plans to achieve them.

The air quality analysis will include a mesoscale (regional) and a microscale (local, or “hot-spot”) analysis. The mesoscale analysis will estimate the net change in emissions associated with the project alternatives, stemming from the projected changes in speed, vehicle miles traveled (VMT), and roadway type and configuration. The microscale analysis will be
conducted to project future carbon monoxide (CO) and particulate matter (PM) levels at intersections where the greatest increase in traffic is projected and where sensitive uses, such as residences, are closest.

The air quality analysis in the EIS will consist of the followings steps:

- Establish study area: The study area for the mesoscale analysis will conform to the transportation (traffic) study area. The study area for the microscale analysis will include up to three worst-case intersections that would be conservatively representative of the entire traffic study area.
- Identify the NAAQS and discuss Onondaga County’s attainment status;
- Describe existing pollutant concentrations based on data from NYSDEC air monitoring stations;
- [Mesoscale Analysis] Using the USEPA MOVES (Motor Vehicle Emission Simulator) model, estimate criteria pollutant and MSAT emissions with the project alternatives (i.e., no build and build alternatives), within the mesoscale study area, for ETC, ETC +10 and ETC +30;
- [Microscale Analysis] Following NYSDOT guidance, perform a CO and PM screening to determine where a detailed air quality analysis would be needed. For locations where a detailed analysis is required, CO and/or PM levels will be modeled using the MOVES model to calculate emissions and the CAL3QHC model to assess the dispersion of the pollutants. CAL3QHC is a model accepted by USEPA for assessing air quality impacts resulting from the operation of highways. The critical analysis year (i.e., the year when the potential for the greatest impact is likely) will be modeled.
- Determine whether build alternatives would result in exceedances of the NAAQS;
- If adverse impacts on air quality are identified, develop mitigation measures, as appropriate.

4-4-8 ENERGY AND CLIMATE CHANGE

Greenhouse gases (GHG) include a variety of chemical compounds in the earth’s atmosphere that absorb and re-emit heat, which warms the planet. However, an overabundance of these gases contribute to an over warming of the planet, which is referred to as global climate change. New York State’s Executive Order 24 establishes a goal to reduce greenhouse gas emissions in the State by 80 percent from 1990 to 2050 and directs agencies to collaborate and develop a Climate Action Plan to offer strategies to meet the goal.¹

The energy and climate change analysis for the EIS will include a quantified assessment of the project’s potential energy consumption and greenhouse gas emissions from the change

in vehicle speeds and miles traveled due to each project alternative. Direct energy consumption and GHG emissions associated with vehicle operations will be estimated using the MOVES model, based on forecasts of vehicle miles traveled. Direct and indirect energy consumption during construction (i.e., energy required to produce and transport construction materials) will also be estimated. The analysis will be consistent with NYSDOT guidance.

**4-4-9 NOISE**

Noise, or unwanted sound, is an important consideration for highway projects. Per FHWA’s implementing regulations (23 CFR Part 772) and NYSDOT Noise Policy, the project is classified as a “Type I” noise project, and thus, requires an analysis of traffic noise.

The following steps will be used to assess noise in the EIS:

- Establish study area: Using FHWA’s Traffic Noise Model (TNM) methodology, the areas and associated activities (i.e., land uses) in proximity to the project limits and other highway segments that could potentially be affected by changes in traffic will be identified;
- Measure existing noise levels and perform simultaneous traffic counts at a representative sample of noise-sensitive receivers along the existing highway alignment and at other locations where roadway improvements may occur as part of the project;
- Establish future traffic noise levels for the build alternatives using FHWA’s TNM;
- Identify any sites where an existing or future noise impact would occur (based on criteria contained in the NYSDOT Noise Policy).
- Where existing or future traffic noise impacts would occur, explore abatement measures and determine if they are reasonable and feasible.

**4-4-10 NATURAL RESOURCES**

43 CFR 11 defines a natural resource as “land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States (including the resources of the fishery conservation zone established by the Magnuson Fishery Conservation and Management Act of 1976), any State or local government, any foreign government, any Indian tribe, or, if such resources are subject to a trust restriction on alienation, any member of an Indian tribe. These natural resources have been categorized into the following five groups: surface water resources, ground water resources, air resources, geologic resources, and biological resources.”

For the EIS, the natural resources chapter will collectively address

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aspects of the natural environment, including topography, geology, and soils; surface water and groundwater quality; stormwater management; floodplains; terrestrial and marine habitats; threatened and endangered species; and plants, wildlife, and organisms. The natural resources assessment will also provide the information necessary to satisfy requirements of Executive Order 11988 (floodplains protection) and Executive Order 11990 (wetlands protection).

The natural resources assessment will follow these steps:

- Establish study area: There are limited natural features within and near the project limits. The study area for the assessment of natural resources will comprise a 100-foot wide area around the project limits. With respect to federally- and state-listed threatened and endangered species and significant ecological communities, a ½-mile radius from the project limits would be evaluated.
- Identify natural features in the study area through consultation with resource agencies and field surveys;
- Characterize the existing natural features in the study area in terms of their location, extent, quality, and uniqueness or commonality within the environmental setting;
- Characterize existing water quality, stormwater management practices, and floodplains within the study area;
- Identify natural features that may be directly impacted (i.e., physically disturbed or removed) or indirectly impacted (i.e., the introduction of topographic, visual, audible, or atmospheric elements that may alter the characteristics of the natural feature in a manner that would diminish its integrity) by implementation of project alternatives.
- Identify any necessary environmental permits needed to implement project alternatives; and
- Where adverse impacts are identified, describe measures or permit conditions that would mitigate the impacts.

### 4-4-11 HAZARDOUS WASTES AND CONTAMINATED MATERIALS

As defined by the Resource Conservation and Recovery Act (RCRA) of 1976 (42 USC § 1609 et seq.), a hazardous waste or contaminated material is a solid, liquid, or gas that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. Standards for identifying potential hazardous and contaminated materials concerns have been established in the American Society for Testing and Materials (ASTM) Standard E1527-05, entitled Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E1527).
Potential exposure to hazardous and contaminated materials is typically greatest during construction when ground disturbance and disturbance to structural materials are occurring. While the analysis in the hazardous wastes and contaminated materials chapter will consider potential exposure during the future operation of the project, the analysis will overlap with the construction analysis provided in the construction effects chapter (described below). The hazardous and contaminated materials analysis will include the following:

- **Establish study area:** The study area for the analysis of hazardous wastes and contaminated material will include areas that may be subject to direct ground disturbance or structures that may be demolished (including highway structures and any acquired buildings).
- **Summarize results of a database review and any previous studies or investigations within the proposed area of construction, including within the existing viaduct structure, to document any hazardous or contaminated soils or substances; and**
- **Identify protocols and measures to be undertaken during construction to avoid adverse effects on human health from project-related exposure to hazardous or contaminated materials.**

**CONSTRUCTION EFFECTS**

Construction effects, though temporary, can result in a nuisance to nearby areas. The primary adverse effects related to construction activities typically involve traffic, noise, air quality, and contaminated materials. The EIS will identify appropriate measures to be implemented during construction to avoid and/or minimize potential temporary adverse effects.

The construction chapter will evaluate the potential construction effects on all subject areas covered in the EIS, as applicable, including the following:

- **Transportation.** This assessment will consider traffic related to construction workers and deliveries, taking into account the time of day that construction traffic would be greatest. Potential effects related to any road closures will be identified and evaluated. This analysis will also provide a description of how interstate traffic will be accommodated during construction.
- **Land Use and Community Character.** This section will discuss potential temporary construction impacts related to land use, neighborhood character, community facilities, public policy, and parklands and recreational resources.
- **Land Acquisition, Displacement, and Relocation.** This section will describe any potential temporary easements or acquisitions that would be required during construction.
- **Socioeconomic Conditions.** This section will evaluate potential economic impacts (both adverse and beneficial) that would result from construction. Economic impacts based on
construction cost estimates will be assessed using the IMPLAN\(^1\) model. The analysis will include a discussion of potential employment during construction and potential impacts on local businesses.

- **Visual Resources.** The potential for construction of the project to affect important views and visual resources in the study area will be evaluated in this section.

- **Cultural Resources.** Potential construction impacts on historic resources will be evaluated.

- **Air Quality.** The potential for air quality impacts due to construction activities for the project, including construction traffic (mobile sources) on local roadways, will be evaluated. Air pollutant sources include combustion exhaust associated with non-road engines (e.g., cranes) and on-road engines operating on-site (e.g., concrete delivery trucks), as well as on-site activities that generate fugitive dust (e.g., excavation and demolition). The pollutants of concern include carbon monoxide (CO), particulate matter (PM), and nitrogen dioxide (NO\(_2\)).

- **Energy and Climate Change.** Following NYSDOT guidance, this section will include an evaluation of energy consumed for construction and greenhouse gas production.

- **Noise and Vibration.** Noise generated from the construction activity on nearby sensitive receivers will be determined utilizing FHWA's Roadway Construction Noise Model (RCNM). Based on a review of construction plans, sensitive receiver locations will be identified for impact assessment. At each location, reasonable worst-case noise from construction activities will be determined.

- **Natural Resources.** Although the project is located in an urban environment, potential effects to any sensitive ecological resources will be addressed.

- **Hazardous Wastes and Contaminated Materials.** In coordination with the work performed for hazardous materials, actions to be taken during project construction (including deconstruction of the existing I-81 viaduct) to limit exposure of construction workers and the general public to potential contaminants will be summarized.

### 4-4-13 INDIRECT AND CUMULATIVE EFFECTS

Council of Environmental Quality regulations (40 CFR Part 1500-1508) define indirect impacts as those that are “caused by an action and are later in time or farther removed in distance, but are still reasonably foreseeable.” Generally, these impacts are induced by a project. Indirect effects can occur within the full range of impact areas, such as changes in land use, economic conditions, traffic congestion, air quality, noise, vibration, and natural

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\(^1\) IMPLAN (IMpact analysis for PLANning) is an input-output modeling system developed by the U.S. government and subsequently privatized by professors at the University of Minnesota that uses data (from U.S. agencies such as the Bureau of Economic Analysis, the Bureau of Labor Statistics, and the Census Bureau) to predict effects on the local economy from changes in direct spending (e.g., during construction) or employment (e.g., during annual operation).
resources. This chapter will evaluate any indirect effects, both adverse and beneficial, that may occur as a result of the project.

NEPA also requires consideration of cumulative effects of a project. Cumulative impacts may result from the incremental consequences of an action when added to other past and reasonably foreseeable future actions (40 CFR 1508.8). The analysis will address cumulative impacts to both environmental resources and socioeconomic conditions.

4-4-14 ENVIRONMENTAL JUSTICE

Pursuant to Executive Order 12898, an environmental justice analysis will be prepared to identify any disproportionately high and adverse impacts on minority or low-income populations that could result from the project. The analysis will follow methodologies and guidance established by the Council on Environmental Quality (CEQ), USDOT Order 5610.2(a), and FHWA Order 6640.23A. In accordance with USDOT policy, this analysis will help ensure that “positive corrective action can be taken” to avoid or minimize disproportionately high and adverse impacts.¹

- Establish study area: In general, the environmental justice analysis study area will include block groups (consistent with 2010 U.S. Census geographies) within ¼-mile radius from the project limits. If the technical analyses for the subject areas described previously indicate potential for adverse impacts in areas outside this radius, the study area will be expanded accordingly.
- Environmental justice communities (i.e., minority or low-income populations) within the study area will be identified (as defined by FHWA Order 6640.23A) using data from the 2010 U.S. Census and the most recent American Community Survey (ACS).
- The analysis will examine the potential effects of the project for the full range of environmental topic areas addressed in the EIS and then determine whether the project would result in disproportionately high and adverse (direct or indirect) impacts on minority and low-income populations.
- If potential disproportionately high and adverse impacts are identified, potential measures to mitigate impacts on environmental justice communities will be discussed.
- This analysis will also identify and describe efforts to engage environmental justice communities in the project.

4-4-15 OTHER NEPA AND SEQRA CONSIDERATIONS

In addition to the technical areas discussed above, NEPA and SEQRA guidance provides for the consideration of several more general or global aspects of a project. Such additional considerations to be discussed in the EIS will include:

¹ USDOT, “Department of Transportation Updated Environmental Justice Order 5610.2(a).” May 2012.
• **Relationship between Short-Term Uses versus Long-Term Productivity**, which considers the potential short-term effects of a project necessary to realize its long-term public benefits;

• **Irreversible and Irretrievable Commitment of Resources**, which considers materials and resources—such as land, building materials, energy, human labor, and fiscal resources—that will be committed to the project, and therefore unavailable either during the lifetime of the project (e.g., irreversible use of land) or in perpetuity (e.g., irretrievable commitment of human labor);

• **Unavoidable Impacts**, which summarizes any adverse impacts identified in the technical chapters of the EIS for which there is no reasonable or practicable mitigation and therefore cannot be avoided; and

• **Smart Growth Assessment**, which evaluates consistency with the New York State Smart Growth Public Infrastructure Policy Act, aimed at ensuring that public infrastructure projects move forward in an environmentally and socially conscious manner; i.e., in the spirit of principles of smart growth.

### 4-16 RELATED DOCUMENTATION

Projects that involve NEPA may also be subject to federal regulations with specific documentation requirements. Since these studies rely on analyses presented in the EIS, they are also documented as part of NEPA and are incorporated into the EIS. In addition to the Section 106 process that would be incorporated into the cultural resources evaluation (see **Section 4-4-6, Cultural Resources**, above), the EIS would address requirements of Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 and Section 6(f) of the Land and Water Conservation Fund Act (LWCFA), as needed:

• **Section 4(f)**. Section 4(f) prohibits USDOT (which includes FHWA) from approving any project that “uses” or adversely effects public parks, wildlife refuges, or historic resources unless there is no feasible and prudent alternative to that use and all measures to minimize harm have been implemented. The Section 4(f) evaluation will build on the findings of the Cultural Resources chapter and the Land Use and Community Character chapter (with respect to parks and recreational resources). Potential uses of Section 4(f) properties will be identified, as will any feasible and prudent alternatives to avoid those uses and all planning efforts to minimize harm of unavoidable uses.

• **Section 6(f)**. The U.S. Department of Interior provides funding under the LWCFA for state and local efforts to plan, acquire, or develop land to advance outdoor recreational activities. When a project may incorporate lands that may have received LWCFA improvement funds, the project sponsor must undertake a Section 6(f) evaluation. NYSDOT and FHWA will determine whether any such properties would be affected by the project and conduct a Section 6(f) evaluation if necessary. The National Park Service (NPS) is responsible for granting approval, provided that prior to any conversion of
parkland, all practical alternatives have been evaluated, converted parkland would be
replaced or substituted at a location of equal or better land value and usefulness, and
any proposed conversion and substitution are in accordance with the applicable
statewide comprehensive outdoor recreation plan (SCORP).