Federal Railroad Administration
New York State Department of Transportation

High Speed Rail Empire Corridor
Tier 1 Environmental Impact Statement

Environmental Impact Assessment
Methodologies

(DRAFT - 3/16/11)

Prepared by
HNTB
March 2011
Table of Contents

Table of Contents..........................................................................................................................................................i

I. Introduction .................................................................................................................................................................1
   A. Project Overview .................................................................................................................................................. 1
   B. Tier 1 EIS Framework ..................................................................................................................................... 1

II. Environmental Impact Assessment Methodologies ............................................................................................. 4
   A. Transportation .................................................................................................................................................. 5
       1. Regulatory Context ................................................................................................................................. 5
       2. Methodology ........................................................................................................................................... 5
   B. Public Safety ..................................................................................................................................................... 7
       1. Regulatory Context ................................................................................................................................. 7
       2. Methodology ........................................................................................................................................... 8
   C. Land Use, Social and Economic Conditions .................................................................................................. 8
       1. Land Use and Public Policy .................................................................................................................. 9
       2. Socioeconomic Conditions and Economic Effects ............................................................................ 10
       3. Environmental Justice ............................................................................................................................... 11
   D. Farmlands .......................................................................................................................................................... 12
       1. Regulatory Context ................................................................................................................................. 12
       2. Methodology ........................................................................................................................................... 13
   E. Parklands and Recreation Areas ....................................................................................................................... 14
       1. Regulatory Context ................................................................................................................................. 14
       2. Methodology ........................................................................................................................................... 14
   F. Historic and Cultural Resources ...................................................................................................................... 15
       1. Regulatory Context ................................................................................................................................. 15
       2. Methodology ........................................................................................................................................... 16
   G. Visual Assessment ............................................................................................................................................. 18
       1. Regulatory Context ................................................................................................................................. 18
       2. Methodology ........................................................................................................................................... 18
   H. Water and Natural Resources ............................................................................................................................ 19
       1. Ground and Surface Water Resources/Floodplains ........................................................................... 19
       2. Ecology and Environment ...................................................................................................................... 22
   I. Air Quality .......................................................................................................................................................... 24
1. Regulatory Context .......................................................................................................................... 24
2. Methodology ................................................................................................................................... 24
J. Greenhouse Gases and Energy ............................................................................................................... 25
   1. Regulatory Context .......................................................................................................................... 25
   2. Methodology ................................................................................................................................... 26
K. Noise and Vibration ............................................................................................................................. 27
   1. Regulatory Context .......................................................................................................................... 27
   2. Methodology ................................................................................................................................... 27
L. Hazardous Materials ............................................................................................................................ 28
   1. Regulatory Context .......................................................................................................................... 28
   2. Methodology ................................................................................................................................... 29
M. Construction Impacts ............................................................................................................................ 30
I. Introduction

A. Project Overview

The Federal Railroad Administration (FRA) and the New York State Department of Transportation (NYSDOT) are jointly preparing a Tier 1 Environmental Impact Statement (EIS) that will evaluate proposed system improvements to intercity passenger rail services along the 463-mile Empire Corridor, connecting Penn Station in New York City with Niagara Falls, New York (Niagara County) (see Figure 1). The EIS will be developed in accordance with the National Environmental Policy Act of 1969 (NEPA) and its implementing regulations (40 C.F.R. Parts 1500-1508; 64 FR 28545 and 23 C.F.R. Part 7710); the environmental review provisions of Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU); and the New York State Environmental Quality Review Act (SEQR).

The FRA and the NYSDOT will use a tiered process, as provided for in 40 CFR 1508.28, in the completion of the environmental review of the project. “Tiering” is a staged environmental review process applied to environmental reviews for complex projects. The initial phase (“Tier 1 EIS”) of this process will refine purpose and need, identify project goals and objectives, and address broad corridor-level issues and proposals. Subsequent phases or tiers will analyze, at a greater level of detail, narrower site-specific proposals based on the decisions made in Tier 1.

This document discusses the methodologies that will be used to assess environmental impacts in the first phase (Tier 1) of the project that will culminate in preparation of a Tier 1 Draft EIS to comply with NEPA and SEQR.

B. Tier 1 EIS Framework

The High Speed Rail Empire Corridor Project EIS is being conducted using “tiering,” in accordance with the National Environmental Policy Act (40 CFR 1508.28), which is a staged process applied to the environmental review of complex projects. FRA published a Notice of Intent (NOI) to prepare an environmental impact statement in the Federal Register; Volume 74, No. 184, September 24, 2009. The following Purpose and Need statement is excerpted from the NOI.

Purpose and Need: In 2008, Amtrak carried 315.79 million passenger miles along the Empire Corridor. However, overall on-time performance (OTP) for Amtrak in 2008 was poor, with 68% OTP for trains operating between Penn Station and Albany-Rensselaer, and OTP of 41% for trains operating between Penn Station and Niagara Falls. Trip times are competitive with automobile and air travel between Penn Station and Albany-Rensselaer, but are considerably slower in the Penn Station to Niagara Falls market. Mobility choices were limited, primarily west of Albany, due to limited train frequency. Poor on-time performance, non-competitive trip times, and infrequent service are all factors known to adversely affect passenger rail ridership.
The 2009 New York State Rail Plan identified a need for improvements to passenger rail services as a means to reduce highway congestion, reduce airport congestion, reduce greenhouse gas emissions, and limit the consumption of fossil fuels, and to support economic growth and smart land use development. The New York State Rail Plan also identified several potential investments to expand, enhance and grow intercity passenger rail services in the Empire HSR corridor. The FRA and NYS DOT will establish specific goals for train frequency, trip time, and on-time performance on a corridor-wide basis and identify the operational changes and investments in infrastructure and equipment necessary to achieve those goals.

Throughout the environmental review process, a broad-based public involvement plan, as described in the project’s Public Involvement Plan, dated September 2010, will be implemented to obtain agency and public input into the project development process. The Tier 1 EIS will result in a NEPA and SEQR document with the appropriate level of detail for corridor-level decisions and will address broad overall issues of concerns, including but limited to:

- Refine and confirm the purpose and need for the proposed action;
- Define the study area appropriate to assess reasonable alternatives;
- Identify a comprehensive set of goals and objectives for the corridor in conjunction with the project advisory committee known as the Empire Project Advisory Committee (EPAC) and other stakeholders;
- Identify the range of reasonable alternatives to be considered, consistent with the current and planned use of the corridor, existing services within and adjacent to the project area, and other planned improvements;
- Develop criteria and screen alternatives to eliminate those that do not meet the purpose and need of the proposed action;
- Identify the general alignment(s) and general right-of-way requirements of the reasonable alternatives;
- Identify the infrastructure and equipment investment requirements for each of the reasonable alternatives;
- Identify the operational changes (travel times, service schedule, frequencies, stations serviced) for the reasonable alternative(s);
- Identify environmental constraints and considerations and perform environmental impact analysis of conceptual alternatives under consideration, and characterize the environmental consequences;
- Establish the timing and sequencing of individual capital improvements to implement the proposed action.

The Tier 2 NEPA document(s) would then explore in greater detail the component projects of the preferred corridor-level alternative chosen in Tier 1. Tier 2 would include detailed analyses based on refined engineering designs and operational plans and would identify site-specific environmental consequences, and development of site-specific mitigation measures for the preferred alternative. Input from the public and from reviewing agencies will be solicited during both tiers.
Figure 1—Project Location Map
II. Environmental Impact Assessment Methodologies

The Tier 1 analysis will examine various alternatives for implementing the proposed service, which may vary in terms of routing, operating speeds, frequency of service, etc., and may consider other transportation modes that address the need. The types of environmental impacts that may be associated with the alternatives will be assessed at a general level of detail. The Tier 1 Draft EIS will generally describe the potential for impacts of the conceptual alternatives (No Build and Build Alternatives) under consideration to the level of detail appropriate for corridor level decision making. This screening of impacts for further analysis in Tier 1 will identify where detailed impact analyses may be required in any Tier 2 environmental reviews. The mapping of existing land use and environmental resources will be primarily GIS-based, supplemented with field observations at specific unique or sensitive areas. The environmental screening will consider areas of potential effect that will vary for each parameter evaluated and may include those areas immediately disturbed (e.g., for archaeological impacts) or may include an impact buffer area of 300 feet to ½ mile of the corridor. The detailed assessment of site-specific environmental impacts of individual capital improvements recommended at the conclusion of Tier 1 will be addressed in the Tier 2 NEPA document(s).

The assessment of environmental impacts will require consultations with federal and state agencies with jurisdiction. Information available from regional planning commissions (RPC) will be researched and/or information will be requested directly from the RPCs. Federal/state regulatory and resource agencies with jurisdiction and regional planning commissions will be consulted in identifying issues of concern and for collecting GIS data and resource information.

Key issues that will be addressed in the Tier 1 assessments can be grouped into the following broad categories:

- Transportation
- Public Safety
- Land Use, Social and Economic Conditions
- Parklands and Recreation Areas
- Historic and Cultural Resources
- Visual and Aesthetic Resources
- Water and Natural Resources
- Air Quality
- Greenhouse Gases and Energy
- Noise and Vibration
- Hazardous Materials
- Construction Impacts
A. Transportation

1. Regulatory Context

The Federal Railroad Administration (FRA) *Procedures for Considering Environmental Impacts* (FRA Docket No. EP-1, Notice 5, May 26, 1999) states, “The EIS should assess the impacts on both passenger and freight transportation, by all modes, from local, regional, national and international perspectives.” The EIS will include a discussion of both construction period and long-term impacts on vehicular traffic congestion.” Vehicular highway traffic, commuter and intercity passenger rail, freight rail and parking issues will be broadly compared to potential impacts on intercity rail travel demand, traffic, and parking along the route and at stations for the Build Alternatives. Potential impacts of the Build Alternatives will be compared to the No Build Alternative.

2. Methodology

The transportation analysis will be informed by the market assessment and ridership forecasts being performed for the corridor to aid in alternatives development. These forecasts will consider travel distances, current and future population forecasts, alternative modes, trips by city pair, speeds, and service frequency and reliability. The analysis will consider auto, bus, air and rail modes. Specifically, the following will be assessed:

- Development of No Build highway vehicular traffic and vehicle miles traveled (VMT), commuter and intercity passenger rail and freight rail operations and ridership, and intercity train station parking facilities will occur.
  - The No Build Alternative highway network is the baseline for all evaluations of the impacts of the Build Alternatives. Regional and corridor impacts on highway congestion will be measured through changes in VMT. Average daily traffic volumes will be identified using the most current NYSDOT average daily traffic volumes publication. No highway network simulation will be conducted for the Tier 1 analysis.
  - A description of the methodology for estimating travel demand, or ridership, used in this analysis will be contained in a Travel Demand Methodology Report.
  - Commuter (MetroNorth) and intercity (Amtrak) passenger rail service will be analyzed based on current and future service plans and contractual agreements. Where such data is readily available, items such as: trip purpose, arrival and departure modes, trip destinations, time of operation, connecting bus services and cost, operating schedule, trip length distribution and ridership will be analyzed.
  - Service reliability will be assessed.
Estimates of parking demand at each intercity rail station will be determined and qualitatively assessed. No detailed intersection or arterial simulations will be conducted in this Tier 1 EIS. The traffic and transportation impacts for each rail station will be developed by examining the forecasted total annual ridership. Existing Amtrak, MetroNorth or other state/local agency station ridership data will be gathered and analyzed to determine the mode of station access/egress (i.e. vehicular, bus, pedestrian, bike).

A high level review of vehicular, pedestrian, and bicycle access and egress to intercity passenger rail stations will be performed.

Impacts on freight rail operations will be assessed.

Capital, operating, and maintenance costs will be estimated.

Comparison of the above No Build transportation conditions to the Build Alternatives.

Reduction in regional vehicle miles traveled (VMT) will be developed from the increase in ridership that each alternative is forecast to produce utilizing forecast travel demand model data that is closest to 2035 design year. Annual trips generated, average daily traffic volumes and average peak hour trip volumes will be identified using the most current New York State Department of Transportation reference material in the market analysis section and also in this analysis.

No detailed intersection or arterial simulations will be conducted in this Tier 1 EIS.

Commuter (MetroNorth) and intercity (Amtrak) passenger rail service will be analyzed based on future service plans and contractual agreements. Ridership forecast information for each of the alternatives will be summarized.

Service reliability will be assessed.

Estimates of parking demand at each intercity rail station will be determined and qualitatively assessed. Traffic and transportation impacts for each intercity passenger rail station will be determined by examining the total annual ridership. Where ridership forecasts do not examine mode of access/egress (i.e. does not differentiate between park-and-ride trips and drop-off trips), previously developed estimates from other surveys and/or interviews with Amtrak, MetroNorth and other state/local officials will be used to determine such figures. Average daily auto trips will be computed by assuming an average automobile mode share. Average peak-hour auto trips will be calculated by using travel demand modeling forecast. Sources of data will include the travel demand forecast developed for each of the MPO’s in each station area.

A high level review of vehicular, pedestrian, and bicycle access and egress to intercity rail stations will be performed.

Changes in grade crossing gate down times will be qualitatively discussed.

Freight rail operations will be assessed. Potential effects on freight rail operations will be identified through the alternatives analysis, conceptual engineering and service development plan sections of this study. The focus of this analysis will be on areas along existing rail lines which would have capacity restrictions due to increased intercity passenger rail train frequencies or operational speeds.
Capital, operating, and maintenance costs will be estimated.

- Conceptual mitigation strategies will be identified for further consideration in Tier 2 documents.
- The need for further traffic and transportation assessments and to develop detailed mitigation in Tier 2 will be identified. Transportation topics recommended for more detailed analysis in a Tier 2 document (e.g., traffic studies in the vicinity of station site(s)) will be developed.

### B. Public Safety

#### 1. Regulatory Context

The Federal Railroad Administration (FRA) Procedures for Considering Environmental Impacts (64 Fed. Reg. 28545 (May 26, 1999)), under the topic of transportation states, "The EIS should assess the impacts on both passenger and freight transportation, by all modes, from local, regional, national and international perspectives. The EIS should include a discussion of both construction period and long-term impacts on vehicular traffic congestion." Under the topic of public safety, the docket states, "The EIS should assess the transportation or use of any hazardous materials which may be involved in the alternatives, and the level of protection afforded residents of the affected environment from construction period and long-term operations associated with the alternatives."

Both FRA and the Federal Highway Administration (FHWA) have responsibility for highway-rail grade crossing safety. The FRA regulates the aspects of grade crossing safety related specifically to train activated warning devices. The FHWA is responsible for public grade crossing issues that affect highway safety.

The FRA provides guidance pertaining to highway-rail crossings through several publications, such as “Highway-Rail Grade Crossings – A Guide to Crossing Consolidation and Closure” and “Guidance on Traffic Control Devices at Highway-Rail Grade Crossings.” The FRA has also published the “Compilation of State Laws and Regulations on Matters Affecting Highway-Rail Crossings.” This compilation provides information on various state laws and regulations pertaining to safety issues and railroads. Under New York Railroad Law, the New York State Department of Transportation has regulatory authority for grade crossing safety over all public highway-railroad crossings in New York as well as private crossings along intercity (Amtrak) and commuter railroad (Metro-North Railroad and Long Island Rail Road) corridors. The Grade Crossing Safety and Regulations Section assists in managing the regulatory process. The authority to order elimination of a highway-rail grade crossings lies with the Commissioner of Transportation.

The FHWA provides regulations guiding highway traffic control devices such as circular advance warnings, crossbucks, pavement markings, bells, gates, and flashing lights. The FHWA provides guidance for traffic controls at highway-rail crossings in the “Manual on Uniform Traffic Control Devices for Streets and Highway, Part 8 Traffic Controls for Highway-Rail Grade Crossings, November 2003.” Additional guidance that will be followed, as applicable, includes:

- Rail Safety Improvement Act of 2008 (P.L. Public Law 110-432)
2. Methodology
Specifically, the following will be assessed:

- Existing public and private highway-rail grade crossings along CSXT, Metro-North, Amtrak and other alternative rail right-of-way sections will be identified.
- Potential impacts to pedestrian safety related to grade crossings and at intercity and commuter rail stations will be broadly assessed. Only general areas of potential conflict will be identified with more specific analysis to take place in Tier 2 analysis.
- This analysis will not identify particular grade crossings that would merit closure. It will be necessary to have further design analysis and consultations with the public, rail owners/operators and elected officials to further identify any potential grade crossing closures or separations which will be identified in the Tier 2 analysis.
- General mitigation measures to improve the public safety at grade crossings will be identified and qualitatively described.
- Public safety topics recommended for more detailed analysis in a Tier 2 document will be developed.

C. Land Use, Social and Economic Conditions

This analysis will evaluate the land use and social conditions for areas potentially affected by the project alternatives. This evaluation will consider current and future land uses, public policy, community facilities, land acquisition, and socioeconomic conditions within the project study areas. This assessment will also include a qualitative discussion of effects on the regional economy and local business districts.
1. **Land Use and Public Policy**

   a. **Regulatory Context**

   The assessment of land use and public policy will follow the Federal Railroad Administration (FRA) guidelines and internal procedures dated May 26, 1999 as well as guidance from NYSDOT's Environmental Procedures Manual. These procedures stipulate consideration of a proposed project's impacts on existing and planned land uses.

   b. **Methodology**

   1. **Provide a broad overview of land uses and public policy initiatives along the Empire Corridor** — This overview will utilize Geographic Information Systems (GIS) land use data to identify and describe existing land use conditions and predominant land use patterns along the Empire Corridor. Using existing GIS land use mapping, land uses within at least 300 feet of the corridor and ½ mile of station sites will be characterized. This section will also describe statewide and regional public policy initiatives that affect the corridor. The livability principles of the U.S. HUD/U.S. DOT/U.S. EPA Partnership for Sustainable Communities will be addressed.

   2. **Identify areas where the project alternatives could result in land use impacts** — Because the alternatives would primarily affect rail uses within the existing right-of-way, it is expected that the potential for land use changes would be limited to areas where land acquisition would be required. Where land acquisition would be required, the following tasks would be undertaken:

      a. Develop appropriate study areas based on the extent of the proposed acquisition. It is expected that the study area would be narrowly defined to include only the immediately adjacent areas.

      b. Describe existing land uses and land use patterns within the study areas with a focus on sensitive or otherwise notable land uses such as residential areas, community facilities, recreation areas, and farmland. This section will rely on available GIS-based land use data, mapping, and aerial photography.

      c. Describe the potential land use impacts that would occur with each alternative, using a qualitative evaluation.

      d. Identify areas where the project would have the potential to conflict with surrounding land uses and statewide and regional public policy initiatives.

   3. **Identify impacts on Community Facilities** — Review of aerial photography and available GIS mapping will be used to identify potential impacts on community facilities. Facilities within 300 feet of the project corridor will be identified, and impacts will be addressed qualitatively.

   4. **Identify additional work for the Tier 2 document** — Where the potential for land use conflicts has been identified, the detailed assessment that would be undertaken in the Tier 2 document will be described.
2. Socioeconomic Conditions and Economic Effects

a. Regulatory Context

Following FRA's procedures, this EIS evaluation will consider the project alternatives' potential to adversely impact the socioeconomic environment—including community disruption or cohesion, demographic shifts, and impacts on commerce. Potential effects could result from an increase in economic activity along the corridor and from property acquisition necessary for the project alternatives.

b. Methodology

The potential impacts on existing businesses and local government services and revenues are also considered.

1. Define study areas for each station along the Empire Corridor — As is appropriate for a Tier 1 EIS, the socioeconomic study areas may be limited to the areas near rail stations because these are the areas that would be likely to experience additional economic activity under the project alternatives. The potential for the project alternatives to result in socioeconomic impacts away from the station locations will be discussed in the property acquisition analysis (detailed below).

2. Compile a socioeconomic profile of each study area — Using GIS-based data from the 2000 Census (or 2010 Census, if available) and other sources as appropriate, present demographic, social, and economic data for each study area. Identify notable areas of economic activity in the study areas, such as business districts located adjacent to the train stations. The socioeconomic profile will identify key labor markets and employment areas that will be made more accessible by the project and will also identify disadvantaged areas as defined by the American Recovery and Resource Act in broad terms (by counties or other appropriate political subdivision).

3. Identify changes to socioeconomic conditions that may occur as a result of the project alternatives — The analysis will provide a discussion of the potential effects of the project alternatives on the socioeconomic environment of the study areas. This assessment will be qualitative in nature and will focus on general socioeconomic effects that could occur along the corridor.

4. Describe the economic effects of the project alternatives — The assessment will provide a general qualitative discussion of the potential effects on the regional economy and local business districts. The extent of quantitative assessment would be limited to referencing other case studies on economic effects of rail and economic projections developed for the Empire Corridor as part of other studies (e.g., U.S. Conference of Mayors). The number of construction jobs generated will be estimated using estimators such as the FHWA jobs estimator and/or professional judgment. A description of the analysis of economic benefits that would be undertaken in the Tier 2 document will be described.

5. Identify the range of mitigation measures — Where the potential for significant adverse impacts on socioeconomic conditions are identified, mitigation strategies to minimize or avoid these impacts will be discussed. The measures, including identifying availability of relocation housing, will be further refined during Tier 2 of the EIS when site-specific impacts are known.
3. Environmental Justice

a. Regulatory Context

The regulatory context includes the following:

- Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*;
- Executive Order, USDOT's *Final Order on Environmental Justice*;
- CEQ Guidance on Environmental Justice assessments;
- NYSDEC Environmental Justice Policy, *Commissioner's Policy (CP)-29 Environmental Justice and Permitting*, which requires consideration of environmental justice concerns in projects subject to the State Environmental Quality Review Act (SEQRA) where NYSDEC has a Lead Agency role.

The New York State Department of Environmental Conservation (NYSDEC) has developed their own policies for incorporating environmental justice concerns into environmental review. NYSDEC, pursuant to *Commissioner's Policy (CP)-29 Environmental Justice and Permitting* requires consideration of environmental justice concerns in projects subject to the State Environmental Quality Review Act (SEQRA) where NYSDEC has a Lead Agency role. While NYSDEC is not a lead agency for the project, this guidance provides useful background information for an environmental justice analysis.

According to NYSDEC's Policy, potential environmental justice areas include minority or low-income communities. Those communities are defined as follows:

- **Minority communities**: NYSDEC's EJ Policy defines minorities to include Hispanics, African-Americans or Black persons, Asian Americans and Pacific Islanders, and American Indians. This environmental justice analysis also considers minority populations to include Alaskan Natives as well as persons who identified themselves as being either “some other race” or “two or more races” in *Census 2000*. Following NYSDEC guidance, a minority community is a census block group, or contiguous area with multiple census block groups, having a minority population equal to or greater than 51.1 percent of the total population in an urban area and 33.8 percent of the total population in a rural area. The environmental justice study area is located within an urban area, as established by the U.S. Census Bureau. Therefore, any census block group with a minority population equal to or greater than 51.1 percent was considered to be a potential environmental justice area.

- **Low-income communities**: The EJ Policy defines a low-income population as a population with an annual income below the poverty threshold as defined by the U.S. Census Bureau. The poverty threshold depends on the size of the household and the age of the principal householders; it is not adjusted to account for regional differences in the cost of living. For each census block group in the study area, data were compiled on the percentage of persons living below the poverty threshold. The EJ Policy defines a low-income community to be any area...
where the low-income population (i.e., persons living below the poverty threshold) is equal to or greater than 23.59 percent of the total population.

b. Methodology

1. **Identify the thresholds for determining the presence of minority or low-income populations** — Where several analysis thresholds may apply, the most stringent definitions will be used.

2. **Identify minority and low-income populations within the local study areas, based on the demographic information presented in the Land Use and Socioeconomic Resources and Impacts section** — The analysis would determine whether low-income or minority communities (“potential environmental justice areas”) are present in the study area, which will likely be defined to include areas within 300 feet of the project corridor. To identify significant minority and low-income populations within the study area, demographic information will be obtained from the U.S. Census Bureau’s Census 2000 or if available, Census 2010. Demographic data including total population, race and ethnicity, and poverty status will be compiled at the census tract level and county level in the environmental justice study area.

3. **Identify potential significant adverse project impacts on minority and low-income populations in the vicinity of project elements, based on the Tier 1 analysis conducted within the various technical sections** — The impacts will be qualitatively described, which may be direct—such as acquisition or displacement of residences, changes in access to community facilities, loss in open space—or indirect, such as increased noise, vibration or air pollutant emissions from additional train operations. Once impacts are qualitatively identified, determine whether they would disproportionately affect low-income and minority populations.

4. **Identify potential for disproportionate adverse impacts** — Where potential adverse impacts are identified, an assessment will be conducted to determine whether these potential impacts would be disproportionately high and adverse upon the affected communities within the context of the overall project effects.

5. **Identify potential measures and additional work for the Tier 2 document** — Where the potential for disproportionately high and adverse impacts on low-income and minority communities exist, measures to avoid or reduce those impacts will be explored to the degree feasible for the Tier 1 assessment.

6. **Identify future work for Tier 2 assessment and public outreach** — In conjunction with the public outreach program, where the potential for disproportionate adverse effects exist measures to reduce or avoid the effects will be discussed with the appropriate communities.

**D. Farmlands**

1. **Regulatory Context**
Farmlands protection is provided by the Federal Farmland Protection Policy Act (FPPA). For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Protected farmlands under FPPA is defined based on soil types and excludes urbanized areas. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

The State of New York farmland protection programs will be described, including protections for Agricultural Districts.

2. Methodology

1. **Potential impacts on farmlands will be identified through review of aerial photography and GIS mapping.** GIS mapping that will be reviewed will include Natural Resources Conservation Service mapping of prime farmland soils, unique farmland soils, and farmland soils of statewide importance. The extent of Census-defined urbanized area will be determined using available GIS mapping to assess the limits of FPPA protection for farmland soils. Federally protected prime and unique farmlands within 300 feet of the project corridor will be characterized using available GIS mapping.

2. **State protected farmlands will be identified through use of GIS mapping of state-protected Agricultural Districts.** The districts within 300 feet of the project corridor will be identified.

3. **Review of USDA 2009 Croplands and aerials photography will be used to identify actively farmed areas.** The farmlands within 300 feet of the project corridor will be characterized using available GIS mapping.

4. **The Tier 1 assessment will qualitatively address the potential for impact to farmland soils and actively farmed areas.** In areas where right-of-way acquisition may be required, estimates of direct farmland impact will be made.

5. **The analysis appropriate for Tier 2 will be identified, along with mitigation strategies that will be further developed.**
E. Parklands and Recreation Areas

1. Regulatory Context

Section 4(f) of the USDOT Act (49 U.S.C. Section 303(c)) of 1969, as amended, compels the Secretary of USDOT to cooperate with other federal departments and states in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of the lands traversed. It states that the Secretary of USDOT shall not approve any program or project that requires the “use” of any land from a public park, recreation area, wildlife and waterfowl refuge, or historic site, unless there is no feasible and prudent alternative, and such project or program includes all possible planning to minimize harm.

Federal protection of parklands is also provided under Section 6(f) of the U.S. Land and Water Conservation Fund (LWCF) Act (for LWCF-funded parks). The United States Department of the Interior (DOI) provides funding for state and local efforts to plan, acquire, or develop land to advance outdoor recreational activities. Using LWCF funds, however, creates certain limitations on future changes to LWCF-funded projects. Once LWCF funds are utilized for a particular recreation project, conversion of that park facility for any non-recreational purpose is prohibited unless alternatives are assessed and steps are taken to identify, evaluate, and supply replacement parkland. In addition, DOI must grant prior approval for the conversion and replacement parkland.

2. Methodology

Potential parkland resources will be identified in the Tier 1 analysis based on available GIS mapping and review of Google earth mapping. A preliminary determination would be made if any permanent acquisition of public parkland may trigger further evaluations under Section 4(f) of the U.S. Department of Transportation Act and Section 6(f) of Land and Water Conservation Fund Act, based on review of existing GIS parkland information and information readily available from the LWCF website and New York State Office of Parks, Recreation, and Historic Preservation. GIS mapping to be reviewed includes federal, state, county, and municipal recreation areas, scenic areas, state campgrounds, and national wildlife refuges.

A Section 4(f) Evaluation is required for projects that involve both the direct use (i.e. conversion of parkland to transportation use) of as well as the “constructive use” (indirect effects such as noise on adjacent parklands) of publicly owned parks, recreational areas, and wildlife refuges. In Tier 1, potential impacts to parks, recreational areas and wildlife refuges, including temporary construction impacts and noise impacts that could constitute a “use” of 4(f) resources, will be identified for prospective alternatives. Historic resources and National Register-eligible archaeological resources that warrant preservation in place are also protected under Section 4(f).
If required, a Section 4(f) Evaluation and a Section 6(f) Evaluation would be performed as part of Tier 2. The Tier 1 analysis will document the Section 4(f) process to be followed in the Tier 2 Section 4(f) assessment, which would:

• Formally identify public parks, recreation areas, and wildlife and waterfowl refuges that may be affected by project alternatives, including coordination with officials with jurisdiction to determine significance of areas and potential impacts. Historic resources will be identified through the Section 106 process.

• Determine potential impacts or “use” of resources from project alternatives. “Use” may be direct (i.e., direct impact, disturbance, or demolition) or indirect (effects on context, setting, or access, which is known as a “constructive” use).

• Identify potential avoidance alternatives. For each use of a Section 4(f) resource, a qualitative assessment of potential avoidance alternatives will be discussed.

• Identify potential measures to minimize harm. For resources that are likely to be affected and may not be avoided measures to minimize harm will be explored.

The Tier 1 analysis will also document the procedures which will be required in any Tier 2 Section 6(f) assessment including findings that:

• all practical alternatives to the proposed conversion have been evaluated;

• the fair market value of the park property to be converted has been established and that the property proposed for substitution is of at least equal fair market value;

• the proposed replacement property is of reasonably equivalent usefulness and location as the converted property;

• the proposed conversion and substitution are in accordance with the applicable statewide comprehensive outdoor recreation plan.

F. Historic and Cultural Resources

1. Regulatory Context

A succinct summary of federal, state, and local cultural resources legislation and guidance that are applicable or relevant to the proposed project will be provided, including, but not limited to, the following:

• Section 106 of the National Historic Preservation Act of 1966 (as amended)

• Section 4(f) of the U.S. Department of Transportation Act

• New York State Historic Preservation Act of 1980 (separate review not required if Section 106 applies)
2. Methodology

1. Delineation of Preliminary APEs and Methodology—An Area of Potential Effect (APE), in accordance with Section 106 of the National Historic Preservation Act, will be developed and submitted to the New York State Historic Preservation Office (SHPO) for review and concurrence. In addition, the proposed APE will be submitted to any appropriate Tribal Historic Preservation Officer/s (THPOs) and/or designated tribal representative for review and concurrence. Preliminary areas of potential effect (APEs) for archaeological resources and historic architectural resources in the project corridor will be delineated. The archaeological APE will be delineated to include any areas where ground disturbance could occur (the project site itself). The historic architectural APE will be delineated to account for potential direct and indirect (such as visual) effects. The boundaries of the historic architectural APE may vary from one portion of the corridor to another based on project plans and the potential of the proposed project to result in direct and indirect effects in a given area. In locations where the proposed project may result in the introduction of visible new elements, the architectural APE may extend up to 500 feet from the project site.

2. Historic Context – A brief historic context will be prepared that would present the results of limited background research on the prehistory, history, and environmental setting of the project site vicinity in order to provide a context within which to evaluate architectural and archaeological resources in the Tier 1 analysis.

3. Historic Architectural Resources Existing Conditions (Previously Identified Resources) – Previously designated architectural resources in the APE will be identified, including National Historic Landmarks (NHLs), properties listed on the State and National Registers of Historic Places (S/NR), and properties that the SHPO has previously determined eligible for S/NR listing. These resources will be mapped and tabulated. Historic architectural resources data will be collected using online systems such as the SHPO online database.

4. Historic Architectural Resources Existing Conditions (Potential Architectural Resources) – Potential architectural resources are properties that have not been previously evaluated for S/NR eligibility by SHPO/THPO but which appear to meet the S/NR criteria. While formal evaluation of potential architectural resources would be undertaken during Tier 2 analysis, initial flagging of potential architectural resources would be undertaken as part of the Tier 1 analysis to serve as a tool for assessing the potential effects of each alternative.

For the purposes of the Tier 1 analysis, it will be assumed that the railroad corridor itself represents a potential architectural resource. Railroad bridges and other railroad infrastructure that meet the age criterion for S/NR eligibility (50 years old or older) will also be considered potential architectural resources for the purposes of the Tier 1 analysis. The Tier 1 analysis will present a brief summary of the railroad corridor’s history and physical characteristics and will assess the appropriateness of formally evaluating the S/NR eligibility of the resource as part of the Tier 2 analysis. Formal evaluation of the S/NR eligibility of the railroad and railroad-related infrastructure will be made during Tier 2 analysis.

As part of the Tier 1 analysis, preliminary identification of potential architectural resources outside of the railroad corridor that may be directly affected (taken, physically altered or demolished) by the proposed project would be undertaken based on Tier 1 conceptual alignments. Potential architectural resources would be identified by a qualified architectural historian based on a preliminary application of the National Register criteria. Historic Structure
Inventory Forms would not be prepared for each resource as part of Tier 1 analysis nor would official determinations of eligibility from SHPO be sought as part of this analysis. A reconnaissance level architectural resources survey of the entire project site and architectural APE will not be conducted as part of the Tier 1 analysis. Rather, field survey and the preliminary identification of potential architectural resources at this stage will be limited to areas of concern, defined as locations where the proposed project may result in either takings of or direct physical impacts to buildings or structures that meet the 50-year age criterion for S/NR eligibility. It is assumed that no more than 100 buildings, structures, or districts that meet the 50-year age criterion would be subject to preliminary identification as potential architectural resources as part of the Tier 1 analysis. Additional identification of potential architectural resources during Tier 2 will be necessary.

5. **Archaeological Resources Existing Conditions** – Basic locational data on previously identified archaeological sites and previously identified areas of archaeological sensitivity will be collected within the project’s archaeological APE. Data collected will include the locations of previously identified archaeological sites and areas of sensitivity on file at the SHPO and the New York State Museum (NYSM). Detailed information on the character and significance of each previously identified site will not be compiled as part of the Tier 1 analysis.

6. **Effects Analysis** – For the purposes of the Tier 1 analysis, it is assumed that all of the Build alternatives have the potential to adversely affect cultural resources. A preliminary assessment of magnitude of potential effects for each project build alternative would be conducted as part of the Tier 1 analysis to serve as a tool for ongoing project planning. A formal determination of effects pursuant to NEPA, NHPA, and other applicable legislation would not be made as part of the Tier 1 analysis. The preliminary effects analysis as part of Tier 1 would include projected quantifications of the following:

- Previously designated (NHL and S/NR-listed and eligible) architectural resources in the architectural APE that may be directly affected by the proposed project.

- Previously designated (NHL and S/NR-listed and eligible) architectural resources in the architectural APE that may be indirectly affected by the proposed project.

- Potential architectural resources that may be directly affected by the proposed project. As described above, this analysis would take into account resources flagged as potentially meeting the S/NR eligibility criteria. Formal evaluations and determinations of eligibility would not be conducted as part of the Tier 1 analysis. As described above, the railroad corridor itself and railroad infrastructure features (such as bridges) that are known to be 50 years old or older will be considered potential architectural resources for the purposes of the Tier 1 analysis.

- Previously identified archaeological sites or areas of archaeological concern that may be directly affected by the proposed project.

7. **Develop a plan for inclusion in a Programmatic Agreement (PA) that will serve as a basis for conducting the analysis for the Tier 2 documentation in accordance with Section 106 of NHPA and other applicable legislation.** The PA will outline a protocol for cultural resources analyses in future stages of the project, including but not necessarily limited to the following:
• A methodology for public outreach, including:
  o A methodology for the identification of and coordination with potential consulting and interested parties, and
  o A methodology for the identification of and coordination with representatives of federally-recognized tribes.
• A protocol for the formal identification of architectural resources that meet the S/NR eligibility criteria but have not been previously evaluated by SHPO for S/NR eligibility and for gaining an official determination of S/NR eligibility for such resources.
• A protocol for identification of archaeological resources that could be affected by the proposed project.
• Protocols and procedures for the analysis of indirect and direct effects on identified historic properties and measures to avoid, minimize, and mitigate project effect.
• A protocol for continued coordination with SHPO and THPO(s) and/or designated representative of Federally-recognized tribes.

G. Visual Assessment

1. Regulatory Context

The Federal Railroad Administration Procedures for Considering Environmental Impacts (FRA Docket No EP-1, Notice 5, May 26, 1999) states that evaluation of environmental impacts should include a consideration of aesthetics and design quality. Under the topic of aesthetic environment and scenic resources, the FRA NEPA guidance states that: “The EIS should identify any significant changes likely to occur in the natural landscape and in the developed environment.”

2. Methodology

The assessment will consider the visual impacts of high-speed rail trains for all viewer groups, including adjacent land users (views of the project) as well as high-speed train users (views from the train). Potential physical changes to the environment such as elevated structures, water crossings, and loss of major vegetation and urban development will be identified. In addition, the assessment will identify those viewers who would be sensitive to visual changes, such as residents, park users, and travelers along the proposed facility.

1. Identify sensitive receptors in selected sections of the project area– In locations where project alternatives would introduce new structures, embankments, or other substantial physical
change to the viewshed, sensitive visual features will be mapped using readily available GIS and aerial photographs including, but not limited to, residential areas, areas of scenic beauty, parks and recreational areas, historic and/or culturally significant features, entry to urban areas, water bodies, and public facilities. Research will be performed to identify designated scenic areas, including roads and highways.

2. **Characterize the project area in terms of the built environment and natural environmental** – For areas identified in Task 1, above, the built environment (historical and cultural significance) and the natural environment including land uses, scenic features, landforms, and open spaces will be documented.

3. **Identify major infrastructure improvements, which could represent a permanent visual change in the project area** – Major improvements such as new structures, right-of-way clearing, and new tracks will be identified.

4. **Document potential impacts to visual quality of the environment** – The degree of impact, either positive or detrimental, will depend on the visual quality of the environment affected and the sensitivity of the receptor(s). An assessment of general landscape units by county and the visual quality will be made based on the visual character inventory. The views from and of the proposed project will be described. This includes the location of sensitive or special areas, unique architectural features, and locations described as potential “high impact areas”. Visual impacts will be characterized as adverse or beneficial on a rating scale from low to very high.

5. **Identification of views and impacts from and to the alternatives** – User views from the proposed alignment, station, or other constructed transportation facility and from the train and sensitive receptor views of the facilities will be identified. Where potential adverse impacts exist, an assessment of the alternatives will be conducted. Areas where further visual analysis would be necessary in Tier 2 will be identified. A more detailed aesthetic impact assessment will be performed in Tier 2, based on the final station plans and railroad designs proposed.

6. **Identification of general mitigation strategies** – Mitigation strategies such as landscaping and visual enhancements will be identified.

7. **Identify potential mitigation measures for the Tier 2 assessment** – Where potential for adverse impacts exist, measures to avoid or reduce these impacts will be explored.

## H. Water and Natural Resources

1. **Ground and Surface Water Resources/Floodplains**

   a. **Regulatory Context**

   In compliance with the U.S. Clean Water Act, as amended by the Water Quality Act of 1987, water resources and water quality within the project area including surface water and groundwater will be analyzed. Special emphasis will be placed on the watercourses that intersect the project corridor, or are within 300 feet of a project component (such as a station or structure).

   The regulations that the analysis will consider and comply with will include the following:
b. **Analysis Methodology**

The data inventory will be based on agency consultations, literature review, and GIS mapping. The methodology for the environmental and impact assessments is described below.

1. **Surface waters in the project area** will be identified, with a discussion by watershed. Scenic rivers and navigability (as it relates to U.S. Coast Guard and NYSDEC jurisdiction) will be addressed, with a focus on major crossing waterways (e.g., Hudson River and New York State Canal System). Data sources may include the following, depending on the availability of GIS files:

b. New York Wild, Scenic, and Recreational Rivers (http://www.dec.ny.gov/lands/32739.html) as referenced in New York Environmental Conservation Law – Article 15; and


2. Areas protected under the New York State Coastal Management Program and the New York State Waterfront Revitalization of Coastal Areas and Inland Waterways Act will be identified, including Coastal Areas and Inland Waterways.

3. Protected groundwater resources will be identified, including public water sources, EPA-designated sole source aquifers, primary and principal aquifers identified by New York State, watersheds, and wellhead protection areas in the vicinity of the project area.

4. A discussion of water quality will be focused on those water bodies that are known to be exceeding water quality standards based on the state 303(d) list of impaired waters requiring development of a Total Maximum Daily Load or other restoration strategy.

5. Areas of 100-year floodplain within the project area will be characterized within 300 feet of the project corridor or by watershed. These areas will be mapped and included in the Geographic Information System (GIS) database using Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs).

6. GIS mapping will be prepared of the data collection and literature search and will provide the basis for evaluation of impacts. The number of acres of wetlands or water of the US will be calculated within 300 feet of the alignment/project using available GIS mapping. Mapping available on the types of wetlands will be used to characterize wetlands in accordance with the U.S. Fish and Wildlife Service Wetland and Deepwater Habitat Classification System (Cowardin et. al. 1979) and the New York Environmental Conservation Law Section 24-0105.

7. Potential impacts to floodplains and floodways will be addressed qualitatively. Potential impacts such as changes to the floodplain elevations and changes to areas subject to flooding will be identified for each alternative.

8. Direct impacts to water resources will be qualitatively described.

9. Indirect impacts will be addressed within the identified project area.

10. Potential adverse impacts to water resources in the project area and what permits may be required for construction of the alternatives will be identified. Areas where further analysis would be necessary in the Tier 2 documentation to more fully evaluate potential project impacts at specific locations will be identified.

11. Mitigation strategies such as Best Management Practices will be identified. Mitigation measures that may be considered and evaluated in more detail in the Tier 2 assessment will be identified. Where potential for adverse impacts exist, measures to avoid or reduce these impacts will be explored in Tier 2.
2. Ecology and Environment

   a. Regulatory Context

The natural resources analysis will consider the impacts of project activities on the environment and will be consistent with the approach to environmental impact assessment described in the Council on Environmental Quality (CEQ) report, *Incorporating Biodiversity Considerations into Environmental Impact Analysis under the National Environmental Policy Act* and FRAs Procedures for Considering Environmental Impacts (65 FR 28545). The analysis will include the identification of existing natural resources and habitats along the Empire Corridor using a combination of literature review, and existing databases and mapping tools.

The regulations that the analysis will consider and comply with will include the following:

- U.S. Endangered Species Act (16 U.S.C. 1531-1543) and Section 7 consultation requirements at 16 U.S.C. 1536;
- U.S. Fish and Wildlife Coordination Act, (16 U.S.C. 661-667d);
- U.S. Fish and Wildlife Service Migratory Bird Treaty Act of 1918;
- U.S. Magnuson Stevens Fisheries Conservation and Management Act;
- New York State Department of Transportation (NYSDOT) The Environmental Manual (TEM) including New York Natural Heritage Program (NYNHP) “red flag” maps (maintained by the Regional Environmental Contact [REC]);
- 6 New York Code of Rules and Regulations (NYCRR) Part 182 (Environmental Conservation Law—Endangered and Threatened Species) and Part 193 (Protected Native Plants);

   b. Methodology

The data inventory will be based on agency consultations, literature review, and GIS mapping. The methodology for the environmental and impact assessments is described below.

1. Ecological and natural resources will be evaluated based on existing GIS data sets within at least ½ mile of the alignment, station, or other constructed transportation facilities. A literature search will be used to identify any known rare, threatened, endangered, or candidate species, potential habitat, and wildlife and wildlife corridors in the study area.

Data sources may include the following, depending on the availability of GIS files:

- Aerial photography;
- New York State Department of Environmental Conservation (NYSDEC) Bird Conservation Area Program, Breeding Bird Atlas Project, and Herp Atlas project;
- State Environmental Quality Review (SEQR) Critical Environmental Areas;
- NYSDEC Environmental Resource Mapper tool for freshwater wetlands, classified streams and rivers, endangered or threatened species, and significant communities at [http://www.dec.ny.gov/imsmaps/ERM/viewer.htm](http://www.dec.ny.gov/imsmaps/ERM/viewer.htm);
- New York Nature Explorer online tool for rare, threatened or endangered species or natural communities;
- New York Natural Heritage Program (NYNHP) “red flag” maps (maintained by the Regional Environmental Contact [REC]);

2. Information requests will be submitted to the U.S. Fish and Wildlife Service; National Marine Fisheries Service; and State Natural Heritage Program to identify federally and state-threatened, endangered, or other species of special concern.

3. Essential Fish Habitats subject to protection under the U.S. Magnuson-Stevens Fisheries Conservation and Management Act, will be identified for major waterways (e.g., Hudson River) based on information available from the National Marine Fisheries Service.

4. Critical Environmental Areas protected under the New York Environmental Quality Review Act, as areas designated by a state or local agency having exceptional or unique environmental characteristics, will be identified.

5. GIS mapping will be prepared of the data collection and literature search and will provide the basis for evaluation of impacts. The GIS mapping would define all habitats intersecting an alignment, station or other constructed transportation facilities and all other habitats with minimum of 300 feet to up to ½ mile (for rare species, NYSDOT TEM States that projects within ½ mile of “Red Flag Maps’ require further coordination with NYSDEC) of an alignment, station or other constructed transportation facility. The presence of common and sensitive biological resources will be documented, and the habitat’s potential for indicating presence of sensitive species will be evaluated.

6. Potential adverse impacts to ecology and environment in the project area will be qualitatively identified. Where potential for adverse impacts exist, measures to avoid or reduce these impacts will be explored. Areas where further analysis would be necessary in Tier 2 will be identified. The potential for impacts on Essential Fish Habitats (EFH) and federally and state-protected species and habitats, will be addressed, although detailed EFH assessments and Biological Assessments under Section 7 of the U.S. Endangered Species Act would occur as part of Tier 2.

7. Identification of general mitigation strategies. Mitigation strategies such as Best Management Practices will be identified. The Tier 1 EIS document will describe general methods to avoid, minimize or mitigate any adverse effects, but detailed quantification of impacts and development of mitigation measures will occur in Tier 2. Potential permitting that may apply will be identified, although specific permit requirements will be confirmed in Tier 2.
I. Air Quality

1. Regulatory Context

Pollutants of concern identified in the U.S. Clean Air Act and Amendments will be addressed on a regional level. General analyses procedures will be based on NYSDOT guidance (e.g., the Environmental Procedures Manual) and general modeling guidance from EPA, or other methods determined in coordination with NYSDOT if necessary and appropriate.

2. Methodology

Existing air quality and attainment status for criteria pollutants regulated under the U.S. Clean Air Act and Amendments will be characterized. The study will include a review of existing air quality in the study areas, based on the air quality monitoring stations operated by NYSDEC. Potentially relevant nonattainment (NAA) areas include:

- The New York, New Jersey, Long Island, New York NAA (ozone, particulate matter less than 2.5 microns in size or PM$_{2.5}$), carbon monoxide (CO) maintenance area;
- The New York County-NY NAA (particulate matter less than 10 microns in size or PM$_{10}$);
- The Poughkeepsie, NY NAA (ozone);
- The Albany-Schenectady-Troy, NY NAA (ozone);
- The Rochester, NY NAA (ozone);
- The Syracuse, NY NAA (CO maintenance area);
- The Buffalo-Niagara Falls, NY NAA (ozone).

The Tier 1 EIS will quantitatively assess potential regional (mesoscale) effects and will qualitatively assess potential local (microscale) effects from the proposed project on ambient air quality. The proposed project is expected to provide regional air quality benefits by shifting person-trips from on-road vehicles to the more efficient rail, thereby potentially reducing future vehicle miles travelled (VMT) and congestion on study area roadways. The study area roadways will be based on the market travel demand study.

The various project alternatives will generate emissions primarily from non-road sources, mostly diesel-powered locomotives, and reduce on-road automotive emissions. Some increases in local emissions from vehicles on roadways or diesel-powered rail locomotives in the vicinity of proposed stations may also occur. The analysis will determine pollutants of concern and study areas (identifying the various relevant nonattainment areas) and then consider potential mesoscale effects on air quality to determine the proposed project’s effect on air quality in the defined airsheds. In general, the pollutants of concern will include carbon monoxide (CO), nitrogen...
dioxides (NO₂), and particulate matter (PM) ) and mobile source air toxics (MSATs) for local effects,
and volatile organic compounds, CO, nitrogen oxides (NOₓ), MSATs, and PM for mesoscale analyses.

The analysis will also examine the project’s conformity with the New York State Implementation
Plans (SIPs), as required by the U.S. Clean Air Act and Amendments. If significant increases in
emissions (i.e., exceeding the de minimis levels in the federal general conformity regulations),
including construction, are expected, general conformity determinations may be required for the
approval, funding, or implementation of the FRA project. This will be discussed in the context of the
mesoscale analyses.

The analysis of potential local (microscale) impacts adjacent to diesel railways where increased rail
traffic would be expected cannot be prepared in detail at the Tier 1 level since the details of location
and receptors will not be available. However, a qualitative discussion evaluating the types of local
air quality impacts that might occur will be prepared. The types of local analyses that may be
required in the Tier 2 analysis for a microscale evaluation will be identified, although this task will
not include any quantitative emissions or dispersion modeling.

The analysis of potential regional (mesoscale) impact on pollutant emission will assess the net
change in emissions (both criteria pollutants and MSATs), including the increment in locomotive
emissions and the reduction in on-road emissions. The locomotive emissions will be produced
using projected locomotive trip and distance data by region and information on the types of
locomotives and loads to be expected to operate. On-road regional emissions will be calculated
using emission factors from EPA’s MOBILE6, or from the newer MOVES model if model application
guidance is available at the state level from NYSDOT or NYSDEC, and applying appropriate
assumptions regarding the roadway and vehicle classifications and the vehicle speeds for reduced
VMT, and the projected VMT reductions in each NAA and statewide. The emissions will be
disclosed for each non-attainment area and state wide. The mesoscale analyses will be conducted
for the analysis years of 2018, the Estimated Time of Completion (ETC) and 2035 the future
forecasting year for the project

J. Greenhouse Gases and Energy

1. Regulatory Context

The analysis will be prepared according to New York State Department of Transportation
(NYSDOT) guidance and tools, including the document Draft Energy Analysis Guidelines for Project-
Level Analysis, November 25, 2003 (NYSDOT guidance) and the MOVES–RREGGAE 2009 analysis
model which updates the guidance, and will also generally follow the draft CEQ document NEPA
Guidance On Consideration Of The Effects Of Climate Change And Greenhouse Gas Emissions.
2. Methodology

The Tier 1 EIS will assess potential impacts from the construction and operation of the project alternatives on greenhouse gas emissions and energy consumption in the region-wide study area. The proposed project aims to increase rail ridership, and as a result may shift some trips from road to rail—a more energy-efficient mode of transportation. This shift may also contribute to a reduction in roadway congestion and associated greenhouse gas emissions. The analysis will identify the state and federal energy policies and greenhouse gas emission reduction goals relevant to the project and the project’s consistency with these policies. To that end, region-wide changes in greenhouse gas emissions will be estimated, based on the projected reduction in on-road trips and increase in diesel and/or electric locomotive trips.

The NYSDOT guidance and model include calculations of on-road energy and GHG emissions based on EPA’s MOVES model, and also calculates energy and GHG emissions associated with the construction, operation, and maintenance of railways. Additional sources of data will be used as necessary, including data from the U.S. Department of Energy's Energy Information Administration and others.
K. Noise and Vibration

1. Regulatory Context

An assessment of potential noise and vibration impacts for the proposed alternatives will be prepared following the assessment methodologies described in the Federal Railroad Administration (FRA) guidance document, *High Speed Ground Transportation Noise and Vibration Assessment*, and the Federal Transit Administration (FTA) guidance document, *Transit Noise and Vibration Impact Assessment*, and any successor documents by those agencies. The FTA and FRA impact analysis criteria are essentially the same; while the FTA manual covers most forms of transit, the FRA document fundamentally serves as a supplemental document to address high speed rail. The noise assessment analysis will follow the assessment methodology used for general noise assessments. Similarly, the vibration assessment analysis will follow the assessment methodology used for general noise assessments. The analysis will take into account operating conditions (i.e., number and length of trains, speed, hourly schedule, etc.) and alternative rail alignments.

2. Methodology

Specifically the noise assessment will include the following steps:

- **Determine the noise impact criteria based on land use categories;**
- **Select sensitive noise receptor locations (based upon existing land use information), as well as representative noise receptor locations at varying distances from the track for corridor sections;**
- **Determine corridor segments for individual analysis. The Empire Corridor will be divided into areas with common operating parameters, such as between major stations, to allow prediction of noise exposure throughout the segment. Where speeds may vary in a given segment, the maximum authorized speed (MAS) will be conservatively used in the noise prediction methodology.**
- **Determine of existing noise levels based upon data on characteristics at the receptor locations and/or computation of noise levels based upon current rail parameters at the locations (existing noise levels will be estimated based on the FTA/FRA manuals’ procedures for estimating existing noise levels.);**
- **Calculate noise levels, in each corridor segment, due to the proposed Empire Corridor HSR Program using the methodology contained in the FTA/FRA guidance documents for general noise assessments and the operating characteristics and rail/receptor geometry of the proposed program (per FTA/FRA guidance, the first step would be to perform a noise screening**
procedure and depending on the results of the noise screening procedure, the FTA/FRA general noise assessment would be performed, where necessary);

- Assess locations where the change in noise levels would result in severe, moderate, or no impact; and
- Examine the feasibility of potential mitigation measures for reducing or eliminating severe or moderate noise impacts.

The vibration assessment will include the following steps:

- Determine of the vibration impact criteria;
- Select sensitive receptor locations (based upon existing land use information), as well as representative receptor locations at varying distances from the track for corridor sections;
- Calculate vibration levels due to the proposed Empire Corridor HSR Program using the methodology contained in the FTA/FRA guidance documents for general vibration assessments and the operating characteristics and rail/receptor geometry of the proposed program;
- The vibration levels will be calculated as a function of speed versus distance and based upon the proposed track design at a generic number of locations. Per FTA/FRA guidance, the first step would be to perform a vibration screening procedure. Depending on the results of the vibration screening procedure, the FTA/FRA general vibration assessment would be performed, where necessary. The assessment will be used to determine the distance to the onset of impact and if any potential uses exist within the zone of impact;
- Assess locations where vibration levels would result in exceedances of the impact criteria; and
- Examine the feasibility of potential mitigation measures for reducing vibration impacts.

## L. Hazardous Materials

### 1. Regulatory Context

For purposes of this document, the term hazardous materials is used to collectively describe hazardous substances, as defined by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); hazardous and solid wastes, as defined by the Resource Conservation Recovery Act (RCRA); asbestos; and petroleum products.

Transportation projects that include the purchase of new right-of-way, excavation, and/or structure demolition or modification have the potential to encounter hazardous materials. The presence or release of hazardous materials on construction sites can expose workers, residents and ecosystems to contaminants that may compromise their health and can result in liability for NYSDOT. In addition, the identification of hazardous materials during construction can lead to
project delays and can be costly. Incorporating the evaluation of hazardous materials into the design phase allows for early detection, evaluation and remediation to minimize these project delays and change orders and to protect the environment.

2. Methodology

The assessment of the potential for releases that could impact project construction would be performed as described below.

1. Areas of known releases will be identified within ½ mile of the project using available federal and state databases. Coordination with NYSDOT will be performed to determine what information is available through NYSDOT, and which databases will be included in the assessment. Data sources that are to be consulted in accordance with the NYSDOT Environmental Manual are listed below. However, only those sources with GIS data layers can and will be incorporated into project base map, due to the size of the project area. A more refined site-specific data base search would be performed as part of any Tier 2 investigation and impact assessment.
   - NPL
   - CERCLIS
   - RCRA or Resource Conservation and Recovery Information System (RCRIS)
   - Hazardous Materials Information Reporting System (HMIR)
   - Toxic Release Inventory System (TRIS)
   - NYS Chemical Bulk Storage System (CBS)
   - NYS Petroleum Bulk Storage System (PBS)
   - Oil and Chemical Spills System Database (Spills)
   - Major Oil Storage Facility Database (MOSF)
   - NYSDEC Division of Environmental Remediation Spills Database

2. The areas will be evaluated based on current status based information provided in federal and state databases and proximity to project.

3. The areas where significant right-of-way may be required will be evaluated. For these right-of-way areas, current and past land uses will be identified to document areas with a high likelihood of contamination.

4. Direct impacts will be qualitatively described. Areas where further analysis would be necessary in Tier 2 will be identified. It is assumed that site visits and owner interviews will not be performed in Tier 1, but may be appropriate for a more detailed Environmental Site Assessment as part of Tier 2.

5. Indirect impacts will be identified within the defined project area.
6. General mitigation strategies will be identified, such as preparation of Materials Management Plans (MMPs), Phase II Environmental Site Assessments and Remediation Plans when applicable. The need for additional assessments to be performed as part of Tier 2 will be identified.

**M. Construction Impacts**

The Tier 1 analysis will assess potential construction impacts of the proposed alternatives for the corridor. Specifically, the following will be assessed:

- Construction impacts will be qualitatively assessed based on typical construction means and methods used on similar projects. This will include defining a general construction duration schedule for various elements for each build alternative.

- The analysis will begin by discussing the compatibility of project elements with existing land use, zoning, and neighborhood character and whether project elements would significantly alter the character of local study areas or block access to area amenities.

- Where sensitive land uses exist in close proximity to the areas of potential construction activities, they will be disclosed.

- Potential temporary disruptions during construction to existing freight and passenger rail operations will be discussed.

- A series of mitigation measures and Best Management Practices to minimize the effect on sensitive areas (i.e. waterways, wetlands, threatened and endangered species, etc.) will be identified and qualitatively described. Quantification of any impacts will not be included.

- Construction topics recommended for more detailed analysis in a Tier 2 document will be developed. This may include topics such as air and noise assessments, access and mobility, time of year restrictions for work in water, and temporary construction easement needs.