

3-1 INTRODUCTION

Potential environmental, social, and economic impacts of the Tappan Zee Hudson River Crossing 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 project alternatives described in Section 2 of this *Scoping Summary Report*. This section begins with a description of the environmental review process and permits and approvals needed for the Tappan Zee Hudson River Crossing Project (the “project”), followed by the framework for the analyses to be included in the EIS.

3-2 ENVIRONMENTAL REVIEW PROCESS**3-2-1 NATIONAL ENVIRONMENTAL POLICY ACT**

The New York State Department of Transportation (NYSDOT) and the New York State Thruway Authority (NYSTA) will be requesting certain approvals from the Federal Highway Administration (FHWA) and other federal agencies for implementation of the project. These federal approvals are subject to environmental review under the 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.

The project is classified as a NEPA Class I project in accordance with 23 CFR Part 771.115, which requires an EIS to determine the likely impacts a project will have on the environment. As this project involves facilities on an interstate highway, FHWA is serving as the federal lead agency for NEPA review.

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. The NOI for the project was published in the Federal Register on October 12, 2011.
- **Scoping.** The NOI for this project *included* a notice of scoping, which *initiated* the public comment period on the scope of the project. This Scoping Information Packet *introduced* the public to the project and *included* a description of its purpose and need, its goals and objectives, alternatives to be considered in the EIS, and the framework of analysis for the EIS. The public *was* invited to comment on the alternatives under consideration and the scope of analysis for the EIS. The public *could* provide comments in writing or at the *two* public scoping meetings. FHWA is responsible for ensuring that the EIS responds to all relevant comments on *the*

Tappan Zee Hudson River Crossing Project Scoping Summary Report

Scoping Information Packet *and has issued this Scoping Summary Report to identify the comments and responses to them.*

- **Draft Environmental Impact Statement.** Following scoping, a Draft Environmental Impact Statement (DEIS) will be prepared to assess the environmental effects of the project consistent with NEPA and other appropriate regulations and requirements. FHWA 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, establishing a public review period for the DEIS.
- **Public Review.** The public review of the DEIS includes distribution of the document to government agencies, elected officials, civic and interest groups, and members of the public. 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 during the public comment period, at which members of the public can offer oral testimony on the findings of the DEIS. Comments will also be accepted in writing.
- **Final Environmental Impact Statement.** After the public comment period on the DEIS closes, a Final Environmental Impact Statement (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.
- **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 also respond to any public comments on the FEIS and will provide a process to evaluate any subsequent changes in the project consistent with NEPA. The ROD will conclude the NEPA process.

3-2-2 STATE ENVIRONMENTAL QUALITY REVIEW ACT (SEQRA)

In 1975, the New York State legislature enacted the State Environmental Quality Review Act (SEQRA) which 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 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 Type I action (6 NYCRR § 617.4 *and* 17 NYCRR § 15.6), indicating that it has the potential for environmental impacts that should be evaluated under SEQRA. Therefore, this EIS will also meet the requirements of SEQRA.

In accordance with 6 NYCRR § 617.15 *and* 17 NYCRR § 15.6, the NEPA and SEQRA processes are coordinated. Accordingly, when an EIS for an action has been prepared under NEPA, a New York State agency has no obligation to prepare an additional EIS

under SEQRA, provided that the NEPA EIS is sufficient to make required SEQRA findings. For all actions under SEQRA, no involved New York State agency may undertake, fund, or approve the action until review under SEQRA is complete and SEQRA findings have been issued.

3-2-3 PERMITS AND APPROVALS

Implementation and construction of the Tappan Zee Hudson River Crossing Project is subject to a number of state and federal permits and approvals in addition to complying with the requirements of NEPA and SEQRA. The list below is a summary of the regulatory requirements identified thus far that may be applicable to this project.

- **Clean Air Act (42 USC § 7506(c); 40 CFR Part 93).** *Clean Air Act and New York State Air Permits (42 USC § 7506(c); 40 CFR Part 93). The conformity requirements of the Clean Air Act (CAA) limit the ability of federal agencies to assist, fund, permit, and approve projects in non-attainment or maintenance areas that do not conform to the applicable State Implementation Plan (SIP). Conformity determinations for federal actions related to transportation plans, programs, and projects approved under 23 Code of Federal Regulations (CFR) must be made by the project's lead federal transportation agency, FHWA in this case. A transportation conformity determination for the project will be made by FHWA prior to the ROD.*

Since the U.S. Army Corps of Engineers (USACE) would be authorizing the discharge of dredged material (see "Marine Protection, Research and Sanctuaries Act" below), USACE would be responsible for demonstrating conformity of that action with state implementation plans as per the general conformity regulations (40 CFR § 93, Subpart B).

Under Section 309 of the CAA, the U.S. Environmental Protection Agency (USEPA) must review and comment in writing on the environmental impact of any matter relating to its responsibilities under the CAA. In the event that USEPA determines that federal legislation, regulations, or actions are unsatisfactory from the standpoint of public health or welfare related to environmental quality, the determination is published and the matter is referred to the Council on Environmental Quality.

- **Clean Water Act (33 USC §§ 1251-1387):** The New York State Department of Environmental Conservation (NYSDEC) administers provisions of the Clean Water Act in New York State. Under Section 401 of the Act, any applicant for a federal permit or license 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 Clean Water Act.

Section 404 of the Act requires authorization from the Secretary of the Army, acting through the U.S. Army Corps of Engineers (USACE), for the discharge of any

Tappan Zee Hudson River Crossing Project Scoping Summary Report

dredged or fill material into waters of the United States. Activities authorized under Section 404 must comply with Section 401 of the Act.

- **Coastal Zone Management Act (16 USC §§ 1451 et seq.; 15 CFR Part 930; New York Executive Law Article 42; 19 NYCRR Part 600).** Projects affecting New York's coastal zone must be consistent with the Coastal Zone Management Act, through the New York State Department of State's (NYSDOS) Coastal Management Program and local municipalities' approved Local Waterfront Revitalization Plans (LWRP). NYSDOS will make a determination of the project's consistency with the Coastal Zone Management Act.
- **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 this 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. Coordination with the National Marine Fisheries Service (NMFS) will also be required for this project due to its location in a marine environment.
- **Environmental Justice (Executive Order 12898 of 1994, 59 CFR Part 7629, February 16, 1994; 1997 U.S. Department of Transportation [USDOT] "Order to Address Environmental Justice in Minority Populations and Low-Income Populations," 62 CFR Part 18377, April 15, 1997).** 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, "Floodplain Management and Protection," 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.
- **General Bridge Act of 1946 (22 USC § 403).** *Bridges over navigable waters of the United States require a bridge permit under the General Bridge Act of 1946 issued by the U.S. Coast Guard (USCG) and/or the USACE.*
- **Grant or License of Land Underwater (New York State Public Lands Law § 6-75.7b).** A license or grant may be required from the New York State Office of General Services for use of state-owned land under water.
- **Incidental Take Permit (6 NYCRR Part 182.11).** NYSDEC *will have to* issue a permit that authorizes the incidental take of a species listed as endangered or threatened in 6 NYCRR Part 182. An incidental take permit must include an

Section 3: Environmental Analysis Framework

endangered or threatened species mitigation plan that NYSDEC has determined will result in a net conservation benefit to the listed species.

- ***Magnuson-Stevens Fishery Conservation and Management Act (16 USC §§ 1801-1884).*** This act mandates an identification of Essential Fish Habitat (EFH) for managed aquatic species and requires measures to conserve and enhance the habitat needed by fish carry out their life cycle. The Act requires consultation with NMFS for any effects on EFH.
- ***Marine Protection, Research and Sanctuaries Act (16 USC §§ 1431, et seq. and 33 USC § 1401, et seq.).*** Ocean dumping of dredged material is prohibited by this Act unless a Section 103 permit is issued. The USACE District office is responsible for coordination of all federal actions, including USEPA concurrences, pertaining to Section 103 applications.
- ***National Historic Preservation Act (16 USC § 470A; 36 CFR Part 800).*** Projects potentially affecting historic and archaeological resources must comply with the National Historic Preservation Act 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). *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)).*
- ***Rivers and Harbors Act of 1899 (33 U.S.C. 403).*** *Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army acting through USACE for the construction of any structure in or over any navigable waters of the United States; the excavation from or deposition of material in these waters; or any obstruction or alteration in these waters. USACE must evaluate, in the public interest, the benefits of the proposed activity versus potential detriments. In addition, authorization required under the Rivers and Harbors Act of 1899 is for Section 9 for issuance of a Bridge Permit by the USCG, as described above.*
- ***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 spelled out in §6-0105 of the Act.
- ***State Pollutant Discharge Elimination System (6 NYCRR Part 750).*** A State Pollutant Discharge Elimination System (SPDES) permit will be required since construction would involve more than one acre of land. The applicability of an individual SPDES permit for operation of the proposed bridge will be confirmed through consultation with NYSDEC.

Tappan Zee Hudson River Crossing Project Scoping Summary Report

- **Tidal Wetlands Law (ECL Article 25).** Under the Tidal Wetlands Act, NYSDEC administers a permit program regulating activities in tidal wetlands and their adjacent areas. NYSDEC requires a permit for almost any activity which will alter the wetlands or the adjacent areas.
- **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 771.135).** *Section 4(f) prohibits the Secretary of Transportation from approving 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. 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.

3-3 METHODOLOGY

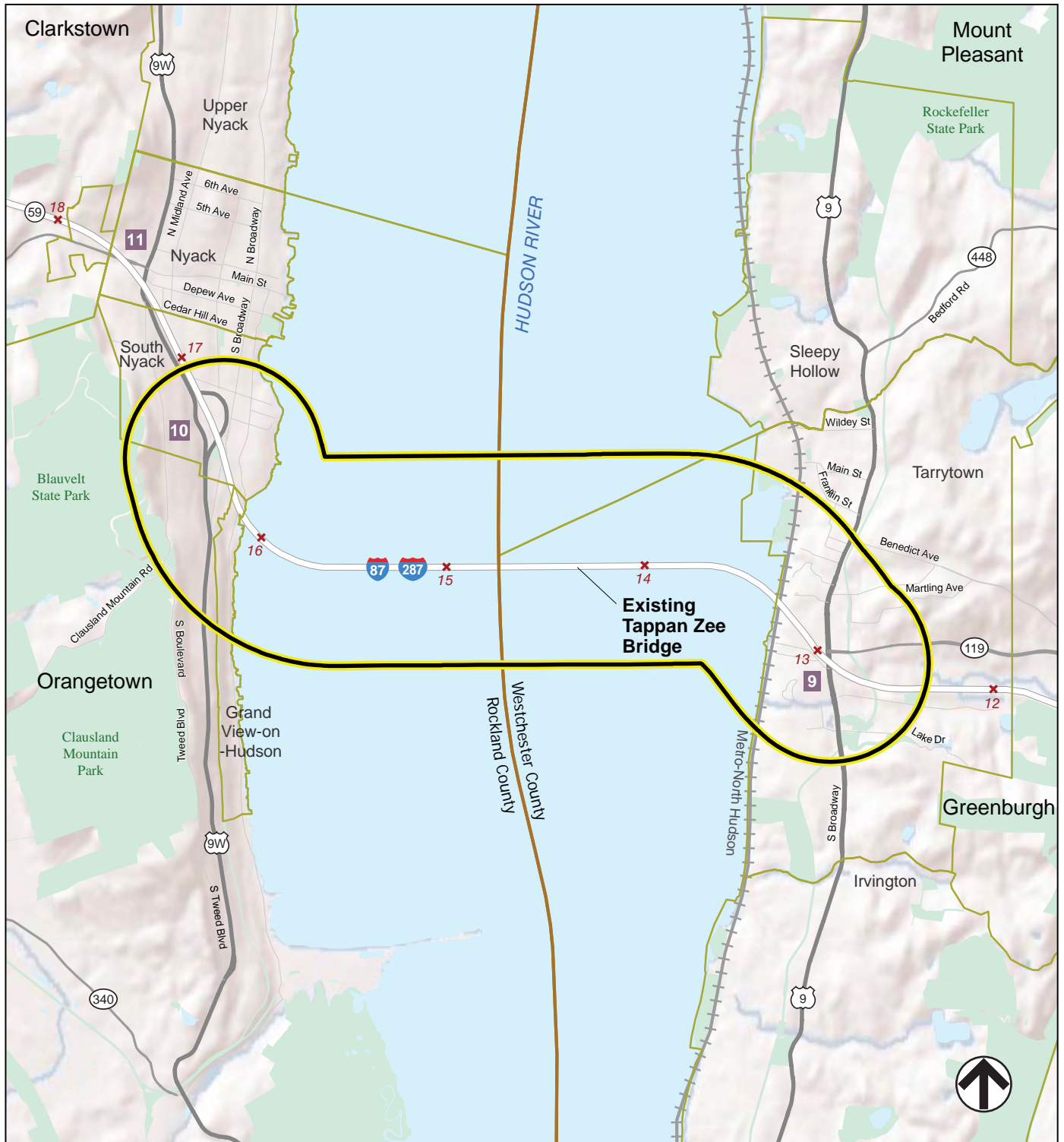
The environmental analysis will consider all potential direct, indirect, and cumulative effects of the project upon the social, economic, and environmental resources within the defined study area.

3-3-1 STUDY AREA

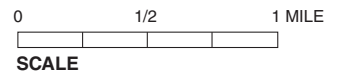
To account for both in-water and upland effects of the project’s construction and operation, a study area has been generally defined as the area along and extending ½ mile north and south of the Interstate 87/287 (New York State Thruway) right-of-way generally between Interchange 10 (Route 9W) in Rockland County and Interchange 9 (Route 9) in Westchester County (see **Figure 3-1**). Some impact assessments are confined to direct areas of disturbance. Others may include a larger area to account for the potential effects on nearby sensitive uses from construction or operation of the project.

3-3-2 ANALYSIS YEARS

The EIS will consider both the short-term (construction) and long-term (operational) impacts of the *No Build and Replacement Bridge Alternatives*.



- Study Area
- x 15 Mile Post
- Municipal Boundary
- County Boundary
- 14 Interchange Number
- 87 Interstate Highway
- 9W U.S. Highway
- 59 State Highway
- Other Major Road
- ++++ Railroad



- **2013-2017—Construction Years.** The short-term (construction) analysis will be undertaken for the period during which bridge construction would occur (2013 to 2017). 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.
- **2017—Estimated Time of Completion (ETC) / Opening Year.** The operational and permanent effects of the project alternatives (i.e., build year conditions) will be evaluated in 2017, the anticipated opening year *of the Replacement Bridge Alternative*.
- **2047—Estimated Time of Completion +30 (ETC +30) / Long-Term Horizon Year (2047).** Consistent with FHWA and NYSDOT guidance, the EIS will include an assessment of conditions well into the future to determine the long-term impacts of the project on the surrounding built and natural environment.

3-3-3 ASSESSMENT METHODOLOGY AND IMPACT CRITERIA

FHWA and other federal agencies 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 federal agencies, the EIS will rely on the NYSDOT's *The Environmental Manual (TEM)*. If no methodology is available either at the federal level or as part of the EPM or TEM, then previously approved EISs would be consulted to determine a proper means to evaluate the project alternatives. The individual chapters of the EIS will identify the procedures followed to assess the project and the criteria used to identify its potential impacts.

The general format of each EIS chapter will be as follows:

- **Affected Environment:** This section will evaluate the 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.
- **Environmental *Effects*:** This section will provide an analysis of potential impacts associated with each project alternative. This section will also consider the no build condition, which describes future conditions without the project.
- **Mitigation:** Where potential adverse impacts are identified, proposed measures that would avoid, minimize, or mitigate these adverse impacts will be discussed in this section.

3-4 ENVIRONMENTAL ANALYSIS

The subject areas to be evaluated in the EIS are described below. 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 environment resource areas.

3-4-1 TRANSPORTATION

The transportation analysis will include assessments of vehicular traffic (including trucks), marine transport, *transit*, bicyclists, and pedestrians. The project would not increase *the* peak-direction capacity of the *Tappan Zee crossing* or result in long-term operational changes to traffic patterns or transit services. The project is intended to improve traffic safety and operations by creating a Hudson River crossing more consistent with current highway and bridge design standards while also providing structural and service redundancy.

Existing traffic conditions will be evaluated based on NYSTA, NYSDOT, and Westchester and Rockland County resources, along with data collected in the field, as needed. Traffic forecasts will be based on a recalibrated version of the New York Metropolitan Transportation Council's (NYMTC's) Best Practice Model (BPM) for use in the Westchester/Rockland County study area. Since the project would not increase peak-direction capacity, traffic volumes under the build alternative would be essentially unchanged from the no build alternative. Therefore, the build-year analysis will be based on the projected no build traffic volumes.

Construction has the potential to affect movement along the Hudson River shipping channel (to be evaluated in the *Construction Impacts* chapter), but the navigable channel would return to existing conditions once construction is complete. The impact analysis will also evaluate potentially improved movement of goods along the Interstate 87/287 corridor. The analysis will qualitatively assess the potential benefits and impacts of the project on transportation infrastructure and services on and near the project.

A shared bike/pedestrian path would be included with the project to connect existing and future pathways on each side of the Hudson River. The current bridge does not provide a bicycle and pedestrian pathway. Therefore, the analysis will describe proposed changes to the bridge and approaches, including both traffic and pedestrian spaces. This section will also discuss the improved pedestrian and bike trail connectivity between Westchester and Rockland Counties.

3-4-2 COMMUNITY CHARACTER

The community character analysis will evaluate potential impacts related to land use, zoning, public policy, community facilities and services, neighborhood character, and community cohesion. Potential impacts on social groups, neighborhoods, and housing will be evaluated based on FHWA Technical Advisory T6640.8A. Because the project would replace an existing use, and the majority of upland work would occur within the existing New York State Thruway right-of-way, potential adverse impacts would be primarily short-term during construction. This chapter will analyze whether any existing uses would be permanently displaced or relocated as a direct result of the project. In addition, this chapter will evaluate whether the project would significantly alter community character or affect operation and functionality of any municipal facilities and services. Further, this chapter will analyze compatibility of the project with any local zoning ordinances and any other applicable local or regional public policy documents. As part of this analysis, future development plans and anticipated future public policy actions that would affect land use and development trends in the study area will be

described. Mitigation measures to minimize any adverse impacts to land uses or local, state, or regional development plans will be discussed in this chapter.

3-4-3 LAND ACQUISITION, DISPLACEMENT, AND RELOCATION

The project may require acquisition, displacement, permanent easements or relocation of properties as a result of the modified alignment of the proposed bridge approaches. Analysis of these potential impacts 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. This chapter will evaluate potential impacts related to permanent land acquisition or displacement. The number and type of acquisitions will be identified, including both partial and complete property takings. GIS data will be used to the extent possible, with confirmations obtained through field verifications and through correspondence with local assessors' offices, as necessary. Feasibility and potential impacts of relocating displaced land uses will be assessed. This chapter will describe efforts to avoid or minimize land acquisition and provide a discussion of mitigation as appropriate.

3-4-4 PARKLANDS AND RECREATIONAL RESOURCES

This chapter will evaluate potential effects on parklands and recreational resources in the study area, including the Hudson River. Potential impacts may include displacement of a recreational resource or change in character of a recreational use. Any mitigation measures to minimize or avoid adverse impacts will be discussed. This chapter will describe any future local or regional parkland enhancement plans or planned recreational projects (e.g., trailways, parks, etc.) within the affected environment and how the project would affect those initiatives. This chapter will also describe *the* planned *shared-use (bicycle/pedestrian) path* on the proposed bridge that would improve connectivity between parks and areas of open space. Considerations associated with federal regulations established under Section 4(f) of the U.S. Department of Transportation Act will be identified in this chapter and discussed further in the Section 4(f) Evaluation.

3-4-5 SOCIOECONOMIC CONDITIONS

The analysis of socioeconomic conditions will assess potential impacts related to population and employment characteristics of the study area. This chapter will be based on guidance from FHWA's *Environmental Toolkit* and NYSDOT's *Project Development Manual*. Potential impacts on community demographics and housing will be evaluated based on FHWA Technical Advisory T6640.8A. Demographic and economic information for the study area will be based on data from the most recent available U.S. Census, resources from the New York State Department of Labor (NYSDOL), and projections from NYMTC.

This chapter will evaluate potential socioeconomic impacts on both a local and regional scale. Potential adverse impacts as well as potential economic benefits from the project will be discussed. Adverse impacts to local businesses may result from changes in travel patterns that discourage patrons, particularly during construction. Benefits may include employment for construction workers as well as increased patronization to local businesses from construction workers. As part of the impacts analysis, potential effects on jurisdictions' tax bases as result of land acquisitions and displacement of businesses

Tappan Zee Hudson River Crossing Project Scoping Summary Report

or individuals will be evaluated. Any potential for induced economic growth as result of the project will be discussed. Appropriate mitigation measures to minimize any identified adverse economic impacts will be presented in this chapter.

3-4-6 VISUAL AND AESTHETIC RESOURCES

The project may result in the replacement of an existing bridge in a similar alignment, although the new bridge would have a different appearance, thereby altering the visual character of a bridge that has been a prominent fixture in the existing viewscape. The effect of the change in the structure on the surrounding visual environment, and whether it may affect or block views to existing visual resources, will be evaluated. A visual resource analysis will be conducted pursuant to the guidelines of USDOT for visual analysis under NEPA. The visual analysis will follow guidelines suggested by USDOT/FHWA Technical Advisory T6640.8A (October 30, 1987), FHWA recommended procedures cited in *Guidance Material on the Preparation of Visual Impact Assessments* (1986), and the NYSDOT Engineering Bulletin (EB) 03-052.

The existing environment of each visible project element and its surrounding study area will be described. Existing visual resources and important view corridors or viewsheds in the study area will be identified, and existing views toward any potentially visible project elements from surrounding neighborhoods will be discussed. Topography, vegetation, and existing buildings and structures will be taken into consideration, and viewer groups and duration of views will be identified. The existing visual character of the study area will be captured through photographs and other graphics, as needed.

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 VIA will consider visual significance based on the quality of a resource, duration of views, and sensitivity of viewer groups. Photo-simulations and other graphics will be used to demonstrate potential visual impacts. If potential negative impacts are identified, appropriate and feasible mitigation measures to reduce those impacts will be discussed.

3-4-7 HISTORIC AND CULTURAL RESOURCES

This chapter will focus on two primary areas of study: historic resources and archaeological resources.

3-4-7-1 HISTORIC RESOURCES

The analysis of historic resources will be undertaken in accordance with Section 106 of the National Historic Preservation Act (NHPA). Section 106 of the NHPA requires that federal agencies consider the effects of their actions on properties listed on or determined eligible for listing in the State and National Registers of Historic Places (S/NR). The applicant will undertake a formal consultation under Section 106 to solicit input from SHPO to identify the potential adverse effects of the project and to develop measures to avoid, minimize, or mitigate any adverse effects.

An Area of Potential Effect (APE) for historic resources will be established in consideration of direct and indirect impacts. This chapter will identify any locally, state,

Section 3: Environmental Analysis Framework

and federally designated historic and architectural resources within the project's APE, including resources listed on or determined eligible for listing in the S/NR. Locally-designated resources will be identified through consultation with affected municipalities. The historic resources survey and screening will be performed in accordance with the standards of Section 106 as well as the New York State Education Department (NYSED) *Cultural Resources Survey Program Work Scope Specifications for Cultural Resource Investigations on NYSDOT Projects* (March 2004). In addition, any known architectural resources designated or determined eligible for listing as a National Historic Landmarks (NHL) will be identified. This chapter will evaluate potential impacts to any historic resources, including direct impacts (e.g., demolition, alteration, or damage from construction), indirect impacts (e.g., change in setting or character of the surrounding area), and cumulative impacts. The historic status of the existing Tappan Zee Bridge will be discussed as well as any potential adverse effects related to its removal. Mitigation measures to minimize any potential adverse effects to historic resources will also be discussed in this chapter.

3-4-7-2 ARCHAEOLOGICAL RESOURCES

This section of the Historic and Cultural Resources chapter will identify any potentially sensitive archaeological resources in the archaeological APE. The APE will be based on the expected limits of disturbance of the project. The APE will include both upland areas as well as affected portions of the Hudson River where any archaeological resources may be submerged. In addition to complying with regulations implementing Section 106 and Section 4(f), the archaeological assessments and surveys will be conducted pursuant to the standards of the NYSED *Cultural Resources Survey Program Work Scope Specifications for Cultural Resource Investigations on NYSDOT Projects* (March 2004).

Archaeological resources will be identified through Phase IA archaeological surveys, as well as Phase IB surveys, if necessary. Further archaeological testing and analysis will be conducted based on the outcome of the initial surveys and as design of the project progresses. Potential adverse effects will be assessed in consultation with the NYSHPO, Tribal Government Organizations, and other Section 106 consulting parties. If any areas of archaeological sensitivity could be disturbed by the project's construction, measures to minimize or mitigate these adverse effects will be identified.

3-4-8 AIR QUALITY

NEPA requires an assessment of potential impacts on air quality to demonstrate compliance with the Clean Air Act, including State Implementation Plans. The air quality analysis will follow guidance from the USEPA, NYSDOT's *EPM*, and NYSDOT's Environmental Science Bureau (ESB). The analysis will consider the potential impacts and benefits of the project on air quality and examine whether the project could result in any new exceedances of or any exacerbation in any existing exceedances of National Ambient Air Quality Standards (NAAQS). Since the project would not involve an increase in peak-direction capacity, an analysis for microscale carbon monoxide (CO) and particulate matter (PM_{2.5} and PM₁₀) will focus on the new bridge alignment and approach roadways in Westchester and Rockland Counties. This analysis will be conducted for the project's estimated time of completion (ETC) and ETC+30. Mitigation measures to reduce or avoid any air quality impacts will be described in this chapter.

3-4-9 NOISE AND VIBRATION

While the project would not result in any substantive changes to traffic patterns or volumes, the change in the bridge alignment may affect ambient noise levels at sensitive receptors in close proximity to the bridge approaches. The noise and vibration analysis will be conducted in accordance with the most recent *Noise Impact Assessment Protocol* adopted by the NYSDOT ESB, 23 CFR 772 (*Procedures for Abatement of Highway Traffic Noise and Construction Noise*, July 2010), and FHWA's *Highway Traffic Noise: Analysis and Abatement Guidance* (January 2011).

This chapter will describe existing ambient noise in the study area based on measurements at sensitive receptors adjacent to the roadway. Existing and future noise conditions will be evaluated using the FHWA Traffic Noise Model (TNM). The impact assessment will be based on 2047 traffic volumes with and without the new proposed bridge alignments. Mitigation measures for any noise impacts, including a noise wall analysis, will be conducted and discussed in this chapter.

3-4-10 ENERGY AND CLIMATE CHANGE

This assessment will include a qualitative discussion of the potential benefits and/or impacts on energy consumption and greenhouse gas emissions. It will include a discussion of energy consumption and greenhouse gas production for both marine and vehicular traffic over the long-term operational phase of the project. Direct energy consumption associated with vehicle operations will be estimated based on forecasts of vehicle miles traveled. Indirect energy consumption during construction will also be estimated. The analysis will be consistent with NYSDOT guidance. Mitigation measures to minimize or avoid any adverse impacts will be discussed in this chapter.

3-4-11 TOPOGRAPHY, GEOLOGY, AND SOILS

This chapter will examine the existing topographic, geologic, and soil characteristics of the study area and potential impacts associated with these features. Many of the geologic and soils considerations are related to construction, which will be discussed more fully in the Construction chapter. This analysis will include a discussion of geologic and soil characteristics in terms of their suitability for construction, the quantity of earth material to be exported (including bedrock), permanent regrading or disturbance to steep slopes, and mitigation measures that would reduce any potential adverse effects. Sources for this analysis will include the U.S. Geological Survey (USGS), the New York State Museum (NYSM), the Natural Resources Conservation Service (NRCS), and local government.

3-4-12 WATER RESOURCES

The Water Resources chapter will analyze issues related to surface water and groundwater resources (including aquifers), floodplains, and stormwater runoff. The analysis of impacts to water resources will consider regulations pursuant to all applicable state and federal statutes including the Clean Water Act (CWA) and the New York State Environmental Conservation Law (ECL). A list of anticipated permits and approvals required is provided in Section 3-1-1 above.

Existing water resources and quality classifications will be identified and described based on data from NYSDEC, the USACE, the USEPA, and field investigations, as

needed. Floodplain mapping will be based on Flood Insurance Rate Maps (FIRMs) prepared by the Federal Emergency Management Agency (FEMA).

Evaluation of potential impacts to water resources will include analysis of direct permanent disturbance resulting from construction of the project, sediment scouring around bridge piers, and potential water quality impacts related to stormwater runoff from new impervious surfaces. The effect of stormwater runoff on both upland water resources and the Hudson River will be assessed. This chapter will describe post-development stormwater runoff volumes, potential pollutant loading quantities, and potential erosion and sedimentation concerns. Any mitigation measures to attenuate and treat stormwater runoff will be described in this chapter. As applicable, a conceptual Stormwater Pollution Prevention Plan (SWPPP) will be discussed in this chapter, and measures detailed to minimize any water quality impacts will be summarized in the Water Resources chapter.

3-4-13 ECOLOGY

The Ecology chapter will assess potential impacts to freshwater and tidal wetlands, terrestrial vegetation and wildlife habitat, aquatic wildlife and habitat, and threatened and endangered species. This chapter will consider the project's location within a sensitive estuarial ecosystem and will discuss all mitigation measures aimed at minimizing adverse impacts. The greatest potential for impacts is expected to be associated with the construction period.

Identification and evaluation of upland and aquatic ecological resources will be conducted through coordination with NYSDEC and its Natural Heritage Program (NHP), the USFWS, NMFS, the USACE, and any other applicable agencies. Anticipated permits associated with these agencies are listed in Section 3-1-1 above.

Existing conditions will be confirmed with field surveys, as necessary. An Essential Fish Habitat (EFH) assessment per the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) and a Section 7 Biological Assessment (BA) for Atlantic and shortnose sturgeon performed through consultation with NMFS, as required, will be summarized in this chapter. Any potential impacts to ecological resources and proposed mitigation measures to reduce or avoid any adverse impacts will also be discussed in this chapter.

3-4-14 HAZARDOUS WASTES AND CONTAMINATED MATERIALS

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). The hazardous and contaminated materials analysis will summarize results of a database review and any previous studies or investigations in the area to document any hazardous or contaminated soils or substances within the proposed area of construction, including within the existing bridge. The EIS will identify protocols and measures to be undertaken during construction to avoid adverse effects on human health from project-related exposure to hazardous materials. Handling requirements for potentially hazardous or contaminated materials will be identified, which will outline the procedure for removal of these substances during construction.

3-4-15 CONSTRUCTION IMPACTS

Construction impacts, though temporary, can result in adverse impacts to surrounding areas. The primary significant impacts related to construction activities are typically traffic, noise, air quality, and disturbance of contaminated materials.

The analysis will be based on certain assumptions made in consultation with the contracting community and will include a schedule of construction activities, estimated number of workers on-site, the number of truck trips to and from the site by type of truck, and the number and types of equipment being used on-site, as well as the location of construction activities. In addition, the quantity of marine traffic (barges, tugs, etc.) associated with construction of the proposed bridge will also be evaluated. The analysis will account for the various types of equipment, the size and type of the engines, the time of use, and any unusual features of the equipment. Measures to avoid, minimize and/or mitigate potential impacts will also be included.

In an effort to avoid and/or minimize potential adverse effects during construction of the project, NYSDOT and NYSTA will identify Environmental Performance Commitments (EPCs), which will be included as part of the project's construction contracts. EPCs may include measures to avoid or minimize effects on vehicular and maritime transport, air quality, noise and vibration, water quality, and ecological resources. The EIS will identify the EPCs to be undertaken and the analysis will include the EPCs as part of the project's construction.

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

- **Transportation:**
 - **Vehicular Traffic.** 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 impacts related to any road closures will be identified and evaluated. Mitigation measures to avoid any traffic impacts will be discussed. This analysis will also provide a description of how traffic flow will be maintained along the bridge and approaches during construction.
 - **Marine Traffic.** It is expected that a portion of supplies will be delivered by barge or ship. In addition, the majority of construction work would occur in or above the Hudson River. This section will analyze the number of barges/tugs/boats expected and potential impacts related to the Hudson River's role as an important navigational waterway in the Northeast.
- **Community Character:** This section will discuss potential temporary construction impacts related to land use, neighborhood character, community facilities, and public policy. Mitigation measures to minimize or avoid any adverse impacts will be described.
- **Land Acquisition, Displacement, and Relocation:** This section will describe any potential temporary easements or land takings that would be required during construction. Potential impacts associated with temporary land acquisition will be discussed. Mitigation measures to minimize or avoid any adverse impacts will be described.

Section 3: Environmental Analysis Framework

- **Parklands and Recreational Resources:** A discussion of potential impacts to parklands and recreational resources during the construction period will be included in this section. Mitigation measures to minimize or avoid any adverse impacts will be described.
- **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 model. The analysis will include a discussion of potential employment during construction and potential impacts on local businesses. Mitigation measures to minimize or avoid any adverse impacts will be described.
- **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. Mitigation measures to minimize or avoid any adverse impacts will be described.
- **Historic and Cultural Resources.** Potential construction-period impacts on historic resources will be considered. Historic resources within and adjacent to the project site will be evaluated for their sensitivity to potential adverse impacts from construction vibrations, as well as visual-related impacts associated with construction activities. Mitigation measures to minimize or avoid any adverse impacts will be described.
- **Air Quality.** An air quality analysis will be conducted to determine the potential for air quality impacts due to construction activities for the project, including construction traffic (mobile sources) on local roadways. The analysis of emissions within the construction zone will be quantitative and based on peak equipment usage and reasonable worst-case meteorological conditions.

Air pollutant sources include combustion exhaust associated with non-road engines (e.g., cranes) and on-road engines operating on-site (concrete delivery trucks), as well as on-site activities that generate fugitive dust (e.g., excavation, demolition). The pollutants of concern will include carbon monoxide (CO), particulate matter (PM), and nitrogen dioxide (NO₂). The ambient concentrations of each pollutant will be determined for peak construction periods based on an emissions profile. The potential for impacts will be determined by a comparison of the predicted total concentrations to the NAAQS, and by comparison of the predicted increase in concentrations to applicable federal, state, and local thresholds. The air quality analysis will also include a discussion of strategies to reduce project-related air pollutant emissions associated with construction activities and any potential mitigation measures that can be applied during the construction period.

- **Noise and Vibration.** Noise generated from the construction activity on nearby sensitive receptors will be determined utilizing the FHWA's RCNM and the CadnaA model. Based on a review of construction plans, sensitive receptor locations will be identified for impact assessment. At each location, reasonable worst-case noise from construction activities will be determined. Construction noise impacts will be assessed using relevant federal and state guidance. Mitigation measures to minimize or avoid any adverse impacts will be described.

Tappan Zee Hudson River Crossing Project Scoping Summary Report

- **Energy and Climate Change:** Following NYSDOT guidance, this section will include an evaluation of energy consumed for construction and greenhouse gas production. Any mitigation measures to reduce or avoid any potential adverse impacts related to energy consumption and greenhouse gas emissions will be discussed.
- **Topography, Geology, and Soils:** Potential impacts to topography, geology, and soils during construction are primarily related to soil erosion and stabilization. Any potential impacts as well as any appropriate mitigation measures will be discussed in this section.
- **Stormwater and Water Resources.** Potential water quality impacts will be considered. This discussion will include an analysis of stormwater runoff, potential erosion and sedimentation, and turbidity of the Hudson River related to construction activities. Any measures to avoid or minimize any water quality impacts will be described, including a conceptual level SWPPP in accordance with NYSDEC requirements.
- **Ecology.** Because of the sensitive estuarial marine environment in the area of the existing and proposed bridge, a detailed assessment of potential impacts to fish and other aqua-fauna and flora will be included in the Construction chapter. Hydro-acoustic impacts from pile driving, dredging, and habitat disturbance will be among the areas of focus. Mitigation measures that can be implemented to minimize or avoid any adverse impacts to sensitive ecological resources will be described.
- **Hazardous Materials.** In coordination with the work performed for hazardous materials, above, actions to be taken during project construction (including deconstruction of the existing Tappan Zee Bridge) to limit exposure of construction workers to potential contaminants will be summarized. Mitigation measures to minimize or avoid any adverse impacts will be described.

3-4-16 ENVIRONMENTAL JUSTICE

Pursuant to Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (February 11, 1994), and in accordance with the Council on Environmental Quality (CEQ) and USDOT guidance, an environmental justice analysis will be prepared to identify and address any disproportionate and adverse impacts on minority or low-income populations that could result from the project. Demographic and economic characteristics will be based on the most recent available U.S. Census data and any other applicable sources.

This analysis will first identify whether there are environmental justice communities in the vicinity of the project. The analysis will then examine the potential effects of the project for the full range of environmental topic areas and determine whether the project would result in disproportionately high direct or indirect effects on minority and low-income populations. Potential mitigation measures to minimize or avoid adverse impacts to these communities will also be discussed in this chapter.

3-4-17 COASTAL AREA MANAGEMENT

This chapter will address the project's compliance and compatibility with the Coastal Zone Management Act of 1972 (CMZA), administered in New York State by NYSDOS,

due to the project's location within the New York State Coastal Boundary. Consistency with coastal management policies will be evaluated based on the *New York State Department of State Coastal Area Management Program Consistency Assessment Form*. This chapter will also identify any LWRPs established under the Waterfront Revitalization and Coastal Resources Act of 1981 that are within the vicinity of the study area and evaluate the project's consistency with these municipal waterfront planning initiatives. Any potential adverse impacts and measures that will be taken to mitigate these impacts will be discussed in this chapter.

3-4-18 INDIRECT AND CUMULATIVE EFFECTS

CEQ 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 water and natural resources. This chapter will evaluate any indirect effects, both adverse and beneficial, that may occur as a result of the project. Because the project would replace an existing use and would not increase peak-direction capacity, there are not expected to be any induced growth effects.

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 that could be potentially affected by the project in combination with other reasonably foreseeable projects.

3-4-19 OTHER NEPA AND SEQRA CONSIDERATIONS

In accordance with NEPA and SEQRA guidelines, this chapter will *identify and assess* the Irreversible and Irrecoverable Commitment of Resources, *the Relationship between Short-term Uses versus Long-term Productivity, Unavoidable Impacts, and consistency with the New York State Smart Growth Public Infrastructure Policy Act*. Unavoidable impacts would result when there are no feasible or practical project alternatives that would avoid certain impacts. Irreversible and irretrievable commitment of resources will occur as some human and environmental resources would be committed to the project and would remain unavailable for future use. Such resources would include manpower and labor hours, materials used in construction, and so on. *The analysis of project consistency with the New York State Smart Growth Public Infrastructure Policy Act will identify project elements that do or do not support the 10 policy initiatives of the Act.*

3-4-20 SECTION 4(f) EVALUATION

Section 4(f) of the U.S. Department of Transportation Act of 1966 prohibits the Secretary of Transportation from approving any program or project that uses any publicly owned land from a public park, recreation area, wildlife and waterfowl refuge, or historic site of national, state, or local significance unless there is no feasible and prudent alternative to the use of such land, and unless the program includes all possible planning to minimize harm to the site or resource. A Section 4(f) evaluation will be

**Tappan Zee Hudson River Crossing Project
Scoping Summary Report**

prepared and will build on the findings in the Historic and Cultural Resources and Parks and Recreational Resources chapters. In compliance with Section 4(f), this evaluation will assess potential impacts to any publicly owned parks and recreation lands, wildlife refuges, and historic sites that are afforded protection under said act. Where Section 4(f) resources are identified, the evaluation will discuss whether there are feasible or prudent project alternatives that would avoid use of affected properties. Where prudent or feasible alternatives for avoidance of a resource cannot be identified, the evaluation will identify all possible planning efforts to minimize harm to the resource.