SECTION 6-4-8
GENERAL ECOLOGY AND WILDLIFE RESOURCES

This section describes the potential effects of the Project on the general ecology and wildlife resources (i.e., ecological communities, wildlife, and Threatened or Endangered species) within the Project Area. **Appendix J** provides additional information to support this section.

As described in **Section 6-1, Introduction**, the Project Area consists of the following study areas: Central Study Area; I-481 South Study Area; I-481 East Study Area; and I-481 North Study Area (see **Figure 6-1-1**). As per Section 4.4.9.3 "Endangered and Threatened Species" and Appendix G "FHWA ESA Section 7 Process (August 2011 & June 2020, respectively) of NYSDOT's *The Environmental Manual* (TEM),[1] the study areas used for the assessment of effects to Threatened or Endangered species encompass larger areas around each of the four study areas. These study areas vary by species as per the TEM and are presented in the Threatened and Endangered species section below.

This section describes the Federal legislation pertaining to the general ecology and wildlife resources. Regulations include the U.S. Fish and Wildlife Service (USFWS) Endangered Species Act (ESA) (16 U.S.C. §1531), the USFWS Migratory Bird Treaty Act (16 U.S.C. §703-712), USFWS Bald and Golden Eagle Protection Act (16 USC § 668-668c), and "Safeguarding the Nation from the Impacts of Invasive Species" (Executive Order 13112). These regulations are detailed in **Appendix J-1**.

With respect to New York State regulations, the general ecology and wildlife resources of the study areas are covered under the New York State Department of Environmental Conservation (NYSDEC) Endangered Species Regulation (6 NYCRR Part 182), NYSDEC's Protected Native Plant Program (6 NYCRR Part 193.3), and NYSDEC's Invasive Species Regulations (6 NYCRR Part 575). These regulations are outlined in **Appendix J-1**.

Prior to conducting the general ecology and wildlife resources assessment, methodologies were reviewed and an approach was developed as per the TEM (see **Appendix J-1**). As part of these methodologies several mapping and database resources were reviewed (as discussed in **Appendix J-1**) and information from these resources was incorporated into this assessment, as applicable. To document existing ecological communities, site reconnaissance investigations by a plant ecologist were conducted on June 29 and 30, 2016; July 8, 2016; August 1, 2016; September 16, 2016; August 28, 2017; and September 13, 2019 in the I-481/Route 5 Interchange; June 24 and 25, 2020 in the I-690/I-481 interchange in the I-481 East Study Area, and May 11, 2021 in the vicinity of Noise Barrier 16A&B in the I-481 North Study Area. Threatened or Endangered plant species surveys were conducted on April 18, 19, and 20, 2017; June 27 and 28, 2017; July 13, 2017; August 28, 29, 30, and 31, 2017; September 1, 2017; and July 10, 11, 12, and 16, 2019 as detailed in **Appendix J-7**. Wildlife was documented during a site reconnaissance investigation conducted by a wildlife ecologist on July 29, 2016. Following the 2016 wildlife survey, design refinements were made and the limits of disturbance were expanded. On July 13, 2017, a wildlife biologist conducted a wildlife reconnaissance survey in the expanded portions of the I-481 East and I-481 North Study Areas. In 2019 and 2020, additional refinements to the Project alternatives were made, resulting in the expansion of the I-481 East and I-

[1] NYSDOT. *The Environmental Manual.* https://www.dot.ny.gov/divisions/engineering/environmental-analysis/manuals-and-guidance/epm

481 North Study Areas. Additional incidental wildlife observations were recorded during ecological communities reconnaissance investigations conducted on September 13, 2019 in the I-481/Route 5 Interchange and on June 24 and 25, 2020 in the I-690/I-481 interchange in the I-481 East Study Area, on June 25, 2020 in the northern portion of the I-481 North Study Area, and May 11, 2021 in the vicinity of Noise Barrier 16A&B in the I-481 North Study Area.

Permanent effects to terrestrial ecological communities caused by the Project are discussed in the Permanent/Operational Effects sections. Temporary effects resulting from the construction of the Project are detailed in the Construction Effects sections.

6-4-8.1 AFFECTED ENVIRONMENT

6-4-8.1.1 TERRESTRIAL RESOURCES

Seven ecological communities comprising an estimated 1,828.4 acres were identified within the Project Area and are listed by study area in **Table 6-4-8-1**. The largest ecological community, estimated at 1,249.4 acres, is classified as a "terrestrial cultural" ecological community. Terrestrial cultural ecological communities are those that are: "either created and maintained by human activities; are modified by human influence to such a degree that the physical conformation of the substrate; or the biological composition of the resident community is substantially different from the character of the substrate or community as it existed prior to human influence (Edinger et al. 2014)." Examples of terrestrial cultural ecological communities within the Project Area include paved road/path, ditch, railroad, junkyard, urban vacant lot, mowed lawn, mowed lawn with trees, and garden (see **Appendix J-2**). Other communities present within the Project Area occupy a much smaller portion of the area. These communities, although characterized by moderate levels of disturbance, are generally less disturbed than terrestrial cultural ecological communities. These communities include successional southern hardwoods (estimated 117.9 acres),[2] successional old fields (estimated 121.4 acres), successional shrublands (estimated 54.1 acres), floodplain forests (estimated 133.4 acres), freshwater wetlands (132.9 acres), and open surface waters (19.3. acres).[3] Definitions of these ecological communities (as per Edinger et al. 2014) and descriptions of these communities are provided in **Appendix J-2**.

In general, the ecological communities are dominated by species that are non-native and invasive or native pioneer species of low ecological value. Furthermore, a large portion of these communities are maintained (e.g., by mowing) or altered to such a degree that the physical conformation and biological composition are of little ecological value. While floodplain and southern successional hardwood forests, successional old field and shrubland communities, and freshwater wetlands and surface waters are present, these consist primarily of edge communities bordering the maintained right-of-way (ROW) and are characterized by moderate levels of disturbance and/or non-native invasive species. For these reasons, most of the ecological communities that are present are characterized by

[2] A roadcut cliff/slope ecological community is present in the I-481 South Study Area. The vegetation of this community consists of successional southern hardwoods. Therefore, roadcut cliff/slope ecological community acreages (6.0 acres) are counted with the successional southern hardwoods acreages.

[3] The freshwater wetlands and open surface waters acreages are based on wetland delineations conducted in the Project Area in 2017 and 2019 and wetland mapping in 2020 and 2021. Acreages overlap with some of the ecological communities within the Project Area.

disturbance and are considered to be of low ecological value. (See **Section 6-4-7, Water Resources** for discussion of wetlands and aquatic communities.)

Table 6-4-8-1
Summary of Terrestrial Ecological Communities within the Project Area

Ecological Community	Definition Summary	Study Area	Approximate Acreage
Terrestrial Cultural	A community created, maintained, or modified by human activity.	All Study Areas	1,249.4
Successional Southern Hardwoods*	A hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed.	All Study Areas	117.9
Successional Old Field	A meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed, and then abandoned.	All Study Areas	121.4
Successional Shrubland	A shrubland that occurs on sites that have been cleared (for farming, logging, development, etc.) or that are otherwise disturbed.	All Study Areas	54.1
Floodplain Forest	A hardwood forest that occurs on the mineral soils of low terraces of river floodplains and of river deltas.	Central I-481 East I-481 North	133.4
Freshwater Wetland**	A community that contains hydrology, hydrophytic vegetation, and hydric soils as defined by the USACE.	Central I-481 East I-481 North	132.9
Open Surface Water	Open water such as creeks, ponds, and lakes.	Central I-481 East I-481 North	19.3
Total Estimated Acreage			**1,828.4**

Notes: The acreages are for the 100-ft study area for where roadway and potential noise barriers overlap. Ecological community observations were made during field investigations in 2016, 2017, 2019, 2020, and 2021 (see **Appendix J-2**).
(*) A roadcut cliff/slope (6.0 acres) ecological community is present in the I-481 South Study Area. The vegetation of this community consists of successional southern hardwoods. Therefore, roadcut cliff/slope ecological community acreages (6.0 acres) are counted with the successional southern hardwoods acreages.
(**) Wetlands were delineated using the United States Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual in 2017 and 2019. Additional wetlands were mapped in 2020 and 2021 in the I-481 North and I-481 East Study Areas.
Source: Ecological community names and descriptions are derived from "Ecological Communities of New York State" (Edinger et al. 2014).

6-4-8.1.2 WILDLIFE

The Project is located in a heavily urbanized setting and dominated by transportation infrastructure, buildings, and other impervious surfaces. Habitat available to wildlife is primarily limited to roadside margins and forest and wetland fragments that are adjacent to portions of I-81 and I-481, located outside the City of Syracuse and surrounded by other development. Traffic noise on I-81 and I-481 further degrades habitat quality in these remnant patches and contributes to diminished wildlife communities. Most wildlife in the study areas is limited to urban-adapted, disturbance-tolerant generalist species, although some areas, such as the large wetland (i.e., Wetland E-6 as described in **Section 6-4-7, Water Resources**) north of the CSX rail line in the I-481 East Study Area, support a more diverse assemblage of species.

The New York State Breeding Bird Atlas is a periodic census of the distribution of the State's breeding birds. The most recent census was conducted from 2000 to 2005 and documented 105 species within the atlas block that comprises the Central Study Area, 100 species in the atlas block that comprises the I-481 South Study Area, 107 species in the atlas block that comprises the I-481 East Study Area, and 111 species in the atlas block that comprises the I-481 North Study Area.

The NYSDEC Herp Atlas Project is a survey that was conducted from 1990 to 1999 that documented the geographic distribution of New York's reptile and amphibian species. The Herp Atlas documented 21 species within the census block in which the Central Study Area is located, 25 species within the census blocks in which the I-481 South Study Area is located, 19 species in the census block in which the I-481 East Study Area is located, and 29 species within the census blocks in which the I-481 North Study Area is located. However, these census blocks span larger and less disturbed habitats, as well as different habitat types from those that are present in the vicinity of the Project Area. Therefore, many of the species documented within the census blocks are unlikely to occur within the study areas because of a lack of suitable habitat. **Appendix J-3** provides the species found in the Breeding Bird Atlas and Herp Atlas, the subset of those expected to occur within the study areas, and results from site investigations conducted in July of 2016 and 2017, September 2019, June 2020, and May 2021.

No NYSDEC "Critical Environmental Areas" or Federal "Wildlife and Waterfowl Refuges" are present within the study areas. The Cicero Swamp Wildlife Management Area (WMA) occurs less than one mile outside of the I-481 North Study Area. The Cicero Swamp WMA is used for wildlife management, wildlife habitat management, and wildlife-dependent recreation. It is a wetland complex containing upland islands scattered throughout its 4,949 acres. As such, the habitats of this WMA support a variety of wildlife (NYSDEC 2020) including Federally- and State-listed Threatened and Endangered species.[4]

6-4-8.1.3 THREATENED OR ENDANGERED SPECIES AND SIGNIFICANT ECOLOGICAL COMMUNITIES

NYSDOT reviewed the USFWS Information for Planning and Consultation System (IPaC) database most recently on March 25, 2021 and May 17, 2021[5] and the New York Natural Heritage Program (NYNHP) databases for Federally- and State-listed species for the study areas on March 26, 2021 and May 11, 2021.[6] The species identified as having the potential to occur near the study areas are summarized in **Table 6-4-8-2**.

[4] http://www.dec.ny.gov/outdoor/68681.html

[5] The May 2021 IPaC System review was conducted for the area in the vicinity of Noise Barrier 16A&B, only.

[6] The May 2021 NYNHP database review was conducted only for the area in the vicinity of Noise Barrier 16A&B.

Table 6-4-8-2
Threatened or Endangered Species and Significant Ecological Communities

Common Name	Scientific Name	State Status	Federal Status	NYNHP Record Near Study Area	IPaC Potential Near Study Area
Indiana bat	*Myotis sodalis*	Endangered	Endangered	I-481 South I-481 East	I-481 South I-481 East I-481 North
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Threatened	I-481 South I-481 East I-481 North	I-481 South I-481 East
Eastern massasauga	*Sistrurus catenatus*	Endangered	Threatened	I-481 North	I-481 South I-481 East I-481 North
American hart's-tongue fern	*Asplenium scolopendrium* var. *americanum*	Threatened	Threatened	I-481 South	I-481 South
Peregrine falcon[1]	*Falco peregrinus*	Endangered	N/A	Central[2]	No
Bald eagle[1]	*Halieaeetus leucocephalus*	Threatened	Protected	Central	No
Least bittern	*Ixobrychus exilis*	Threatened	N/A	I-481 North	No
Northern harrier[1]	*Circus cyaneus*	Threatened	N/A	I-481 North	No
Lake sturgeon	*Acipenser fulvescens*	Threatened	N/A	Central[3]	No
Bog elfin	*Callophrys lanoraieensis*	Critically imperiled[4]	N/A	I-481 North	No
Eastern small-footed bat	*Myotis leibii*	Special Concern	N/A	I-481 South	No
Seaside bulrush	*Bolboschoemus maritimus* ssp. *paludosus*	Threatened	N/A	Central	No
Midland sedge	*Carex mesochorea*	Threatened	N/A	Central I-481 South	No
Saltmarsh aster	*Symphyotrichum subulatum* var. *subulatum*	Threatened	N/A	Central	No
Reflexed sedge	*Carex retroflexa*	Threatened	N/A	Central I-481 South	No
Straight-leaved pondweed	*Potamogeton strictifolius*	Endangered	N/A	Central	No
Glomerate sedge	*Carex aggregata*	Endangered	N/A	Central[2]	No
Marsh arrowgrass	*Triglochin palustris*	Threatened	N/A	I-481 South I-481 East	No
Thread-leaved pondweed	*Stuckenia filiformis*	Endangered	N/A	I-481 East	No
Blunt-lobed grape fern	*Botrychium oneidense*	Threatened	N/A	I-481 East	No
Ohio goldenrod	*Oligoneuron ohioense*	Threatened	N/A	I-481 East	No
Troublesome sedge	*Carex molesta*	Threatened	N/A	I-481 North	No
Southern twayblade	*Neottia bifolia*	Endangered	N/A	I-481 North	No
Large twayblade	*Liparis liliifolia*	Endangered	N/A	I-481 North	No
Red Pigweed	*Oxybasis rubra var. rubra*	Threatened	N/A	I-481 North	No

Table 6-4-8-2 (cont'd)
Threatened or Endangered Species and Significant Ecological Communities

Common Name	Scientific Name	State Status	Federal Status	NYNHP Record Near Study Area	IPaC Potential Near Study Area
Limestone woodland[5]	N/A	Significant natural community	N/A	I-481 South	No
Black spruce-tamarack bog[5]	N/A	Significant natural community	N/A	I-481 North	No

Notes:

(1) State status has been proposed to be changed to "special concern" as per the *NYSDEC Draft List Under Part 182.5 Pre-proposal—October 2019*.
(2) Documented within the vicinity of the Central Study Area.
(3) Documented within the Central Study Area.
(4) Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
(5) This is a significant natural community and therefore does not have a scientific name.

Sources: NYNHP database review March 26, 2021; USFWS IPaC Official Species List dated March 25, 2021 and May 17, 2021 (see **Appendix J-4**).

The study areas were reviewed for Federally- and State-listed Threatened or Endangered species and significant ecological communities following the guidance outlined in Section 4.4.9.3 "Endangered and Threatened Species" (August 2011) of the TEM. Additional guidance, as outlined in FHWA's New York Division: Environmental Procedures "Endangered Species Act, Section 7, Essential Fish Habitat, and Marine Mammal Protection Act: Process for Compliance and Consultation" (June 2020) of NYSDOT's TEM (Issued by NYSDOT as TEM Section 4.4.9.3.11 Appendix G), is followed to assess the effects of the Project on Federally- listed species.[7] Unless otherwise specified in the list below, the NYNHP review areas for Federally- and State-listed species and significant ecological communities are within a 1.5-mile radius around the Central, I-481 South, I-481 East, and I-481 North Study Areas. The New York Natural Heritage Program's "Notes for Data Users" also provides species-specific screening distances for the following species/habitats:

- Indiana bat (*Myotis sodalis*) (2.5-mile radius [hibernacula]);
- Northern long-eared bat (*Myotis septentrionalis*) (5-mile radius [hibernacula] and 1.5-mile radius [roost tree, non-winter locations]);
- Bog turtle (*Glyptemys muhlenbergii*) (1-mile radius);
- Blanding's turtle (*Emydoidea blandingii*) (0.8-mile radius);
- Timber rattlesnake (*Crotalus horridus*) (1.5-mile radius); and
- Aquatic species (up to 2 miles downstream).

There are no documented IPaC or NYNHP records of bog turtle, Blanding's turtle, or timber rattlesnake within the review areas. Discussions of the species listed by IPaC and NYNHP as having the potential to occur within the Project Area are below.

[7] Available:https://www.dot.ny.gov/divisions/engineering/environmental-analysis/manuals-and-guidance/epm/repository/4.4.9.3_AppG_FHWA_ESA_Section_7.pdf (accessed on October 1, 2020).

Federal

As described above and shown in **Table 6-4-8-2**, the USFWS IPaC System lists the State and Federally Endangered Indiana bat, State and Federally Threatened northern long-eared bat, State-Endangered and Federally Threatened eastern massasauga, and the Federally and State Threatened American hart's-tongue fern (*Asplenium scolopendrium* var. *americanum*) as having the potential to occur within the vicinity of the study areas. The bald eagle (*Haliaeetus leucocephalus*), which is Federally protected under the Bald and Golden Eagle Protection Act, also has the potential to occur. The IPaC "Official Species Lists" (dated March 25, 2021 and May 17, 2021[8]) for the study areas are provided in **Appendix J-4**. NYSDOT reviewed the most up to date information on the NYNHP database on March 26, 2021 and May 11, 2021[9] for Federally- and State-listed species in the vicinity of the study areas. The NYNHP database review indicated that Indiana bat maternity colonies and hibernaculum have been documented near the I-481 South and the I-481 East Study Areas, and a northern long-eared bat hibernaculum has been documented near the I-481 South and the I-481 East Study Areas. Eastern massasauga has been documented adjacent to the I-481 North Study Area, and American hart's tongue fern has been documented adjacent to the I-481 South Study Area.

Discussions of habitat for each Federally-listed species identified in **Table 6-4-8-2** are included below.

- **Indiana Bat:** The Indiana bat is a temperate, insectivorous bat that is Federally- and State-listed as Endangered. In the spring, Indiana bats emerge from the caves or mines in which they hibernate and travel to breeding habitat where they roost under loose bark or in the crevices of trees. Roosting trees are usually in riparian, bottomland/floodplain, and upland forests (Humphrey et al. 1977, Britzke et al. 2006, Watrous et al. 2006) often within agricultural landscapes (Murray and Kurta 2004, Watrous et al. 2006, USFWS 2007a). Indiana bats have also been found roosting under bridges (Keeley and Tuttle 1999). Indiana bats forage in the forest canopy, over open fields, over impounded waterbodies, along riparian corridors, and along forest edges (USFWS 2007a). Maternity colonies are commonly located in areas with abundant natural or artificial freshwater sources (Carter et al. 2002, Kurta et al. 2002, Watrous et al. 2006, and USFWS 2007a).

  The woodland fragments bordering the east and west portions of the I-481 South Study Area represent suitable roosting habitat for Indiana bats. Therefore, they have the potential to occur in the I-481 South Study Area. The closest summer habitat to the I-481 East Study Area that is most suitable for Indiana bats is the woodland area east of I-481 and south of I-90 (New York State Thruway). Suitable roost trees are likely abundant in this area and two utility rights-of-way intersecting the woodland may provide foraging corridors and commuting routes for Indiana bats. The wooded area around Butternut Creek northeast of the CSX rail line in the I-481 East Study Area also has the potential to support Indiana bats. Indiana bats are not likely to occur in the areas near the Central and I-481 North Study Areas due to the high density of urban development.

  Indiana bats have been documented roosting under bridges in other parts of their range (Keeley and Tuttle 1999). As such, all existing bridges involving work as part of this Project in the I-481 South, I-481 East, and I-481 North Study Areas would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30)

[8] The May 2021 IPaC System review was conducted only for the area in the vicinity of Noise Barrier 16A&B.

[9] The May 2021 NYNHP database review was conducted only for the area in the vicinity of Noise Barrier 16A&B location.

and prior to construction to determine if there is any evidence of bats actively using them. Bridges in the Central Study area will not require Bridge Bat Survey as the IPaC System does not identify the Indiana bat. If any bridges in the other three study areas are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA "Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat" would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

- **Northern Long-eared Bat:** The northern long-eared bat is Federally- and State-listed as Threatened, is a temperate, insectivorous bat that hibernates in caves and mines during winter, and then emerges in early spring to disperse to summer habitat. Summer habitat typically includes mature, closed-canopy, upland and riparian forest within heavily forested landscapes (Ford et al. 2005, Henderson et al. 2008), usually within about 60 miles of the hibernaculum (Caceras and Barclay 2000, USFWS 2014). The northern long-eared bat is considered to be an interior forest-dependent species that is sensitive to urbanization and fragmentation and requires large tracts of unbroken forest for both foraging and breeding (Foster and Kurta 1999, Broders et al. 2006, Henderson et al. 2008, Segers and Broders 2014). Northern long-eared bats do not concentrate along riparian corridors or other linear landscape features as much as strictly aerial-foraging species do (Owen et al. 2003, Ford et al. 2005, Harvey et al. 2011, USFWS 2014), and most radio-telemetry and acoustic studies have found that they typically avoid roads and other sharp forest edges (Owen et al. 2003, Patriquin and Barclay 2003, Carter and Feldhammer 2005, Morris et al. 2010, Segers and Broders 2014). Mature forest is considered to be the most important foraging habitat for the northern long-eared bat (USFWS 2013, 2014). Roost trees are also usually in intact forest, close to the core and away from large clearings, roads, or other sharp edges (Menzel et al. 2002, Owen et al. 2003, Carter and Feldhammer 2005). Roosts are usually in cavities or, less often, under exfoliating bark of large-diameter trees that form a high and dense canopy (Foster and Kurta 1999, Menzel et al. 2002, Carter and Feldhammer 2005; reviewed by Barclay and Kurta 2007).

  Northern long-eared bats are sensitive to urbanization and fragmentation and prefer large tracts of interior forest for roosting and foraging. The woodland fragments bordering the east and west sides of the I-481 South Study Area represent suitable roosting habitat for the northern long-eared bat. Therefore, the species has the potential to occur in the I-481 South Study Area. The closest summer habitat to the I-481 East Study Area that is most suitable for northern long-eared bat is the woodland area east of I-481 and south of I-90 (New York State Thruway). Suitable roost trees are likely abundant in this area and two utility ROWs intersecting the woodland may provide foraging corridors and commuting routes for northern long-eared bat. The wooded area around Butternut Creek to the northeast of the CSX rail line in the I-481 East Study Area represents suitable roosting habitat for northern long-eared bats.

  Northern long-eared bats have been documented roosting under bridges (Feldhamer et al. 2003). As such, all existing bridges involving work as part of this Project in the I-481 South, I-481 East, and I-481 North Study Areas would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. Bridges in the Central Study area will not require Bridge Bat Survey as the IPaC System does not identify the

northern long-eared bat as having the potential to occur within this study area. If any bridges in the other three study areas have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA "Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat" would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

- **Eastern Massasauga:** The eastern massasauga is a rattlesnake that is Federally Threatened and State-listed Endangered. The eastern massasauga inhabits fens, marshes, and wet prairies (Gibbs et al. 2007). Wetlands within the I-481 North Study Area are limited to drainage ditches, disturbed common reed, and forested wetlands along I-481 within the quadrants at the I-81/I-481 interchange and along I-81 north of the interchange. Therefore, no habitat that is suitable for eastern massasaugas is present in the I-481 North Study Area, and eastern massasaugas would not likely occur in the area. The Central, I-481 South, and I-481 East Study Areas also lack suitable habitat to support eastern massasaugas.

- **American Hart's-tongue Fern:** American hart's-tongue fern is a Federally- and State-listed Threatened perennial and evergreen fern. This species requires deep shade and grows in cool, moist, rocky, calcareous substrates, usually within small cracks in large rocks. American hart's-tongue fern is found in close association with outcrops of dolomitic limestone and other calcareous rocks. American hart's-tongue fern has been found in cave entrances, coulees, gorges, and sinkholes in mature hardwood forests (NYNHP 2015, USFWS 2015). Populations of American hart's-tongue fern tend to be scattered due to its habitat requirements. In New York, native populations of this fern are restricted to glacial plunge basins near Syracuse.

  The upland ecological communities of the study areas are associated with maintained ROWs, successional old fields and shrublands, and successional and floodplain forests located along the edges of the ROW. All of these ecological communities are associated with disturbance. Although roadcut cliff/slope communities (6.0 acres) are present within the I-481 South Study Area, they are located directly along the highway, are associated with disturbance, and are not characterized by cool, moist conditions. American's hart's-tongue was not found during targeted surveys conducted on April 18, 19, and 20, 2017.[10] Based on the lack of preferred habitat and the results of targeted surveys, the American hart's-tongue fern has low potential to occur within the I-481 South Study Area. The American hart's-tongue fern also does not likely occur within the Central, I-481 East, or I-481 North Study Areas.

- **Bald Eagle:** The bald eagle is not Federally-listed as Threatened or Endangered, but is Federally protected under the Bald and Golden Eagle Protection Act. As discussed below, it is also State-listed as Threatened and is addressed in the State-listed species sections throughout the chapter.

New York State

Federally-listed species are automatically State-listed regardless of whether the species has been identified as Threatened or Endangered by NYSDEC or mapped by NYNHP. In addition to the

[10] A habitat investigation was conducted in the area of proposed Noise Barrier 9 in the I-481 South Study Area on July 13, 2017. Habitat is not present for American hart's tongue-fern at this location.

Federally-listed species discussed above, the NYNHP database indicated the potential for the following State-listed animal and plant species and natural communities (as listed in **Table 6-4-8-2** and outlined in **Appendix J-7**):

- **Peregrine Falcon:** The peregrine falcon is a State-listed Endangered bird. It is globally widespread and common in many areas (White et al. 2002). Populations in New York State have grown dramatically since the 1980s. As a result, the State status of the peregrine falcon has been proposed to be changed to "Special Concern" as per the *NYSDEC Draft List Under Part 182.5 Pre-proposal—October 2019* (NYSDEC 2019). Peregrine falcons have become increasingly common in urban areas, demonstrating a tolerance of human disturbance and an ability to exploit resources in human-modified environments (Cade et al. 1996, White et al. 2002). It has been stated that peregrine falcons will tolerate almost any level of human activity taking place below their nest provided that the nest is inaccessible (Ratcliffe 1972) to humans and predators. Urban peregrine falcons appear to have particularly high tolerance thresholds compared with those in more remote areas (White et al. 2002). In several cities within New York State, peregrine falcons nest in bridges and high-rise buildings among high levels of noise and human activity associated with the urban environment (Frank 1994, Cade et al. 1996, Loucks and Nadaraski 2005).

  The NYNHP database indicated that there is a peregrine falcon's nest adjacent to the Central Study Area, but there were no known occurrences of the peregrine falcon within the I-481 South, I-481 East, and I-481 North Study Areas.

- **Bald Eagle**: The bald eagle is a State-listed Threatened bird of prey that was removed from the Federal Endangered Species List in 2007 because of a strong recovery from population declines that had occurred throughout the mid- and late-1900s. Bald eagle populations in New York State have grown dramatically over the past few decades (Nye 2008). There were a state record-breaking 323 breeding pairs estimated to be in New York as of the most recently released census information from 2016 (NYSDEC 2017). As a result, the State status of the bald eagle has been proposed to be changed to "Special Concern" as per the *NYSDEC Draft List Under Part 182.5 Pre-proposal—October 2019* (NYSDEC 2019). The recovery of bald eagles throughout their range is largely attributable to their consistently growing, generational habituation to human activity and development (Johnson 2010, Guinn 2013). According to the NYNHP database, non-breeding bald eagles have been observed perching and foraging along the shoreline of Onondaga Lake. This area is on the periphery of the Central Study Area, and therefore, non-breeding bald eagles have the potential to occur there. There are no lakes or rivers that would provide suitable habitat for breeding or non-breeding bald eagles in the I-481 South, I-481 East, and I-481 North Study Areas.

- **Least Bittern:** The least bittern is a State-listed Threatened waterbird that inhabits freshwater and brackish marshes with tall, dense vegetation including cattails, sedges, reeds, bulrushes, sawgrass, smartweed, arrowhead, buttonbush, and other emergent wetland vegetation. It can also be found at the edges of lakes and rivers with emergent and tall vegetation but prefers marshes with scattered bushes or other woody growth. The least bittern is tolerant of moderate levels of human disturbance and can be found in urban settings (Poole et al. 2009). The NYNHP has a record of least bitterns nesting within 600 feet of the I-481 North Study Area. Wetland habitat within and around the I-481 North Study Area is limited to drainage ditches along I-481 and within the I-81 and I-481 highway interchange and is not suitable for least bitterns. The closest potentially suitable

habitat is to the west, west of South Bay Road and south of Frontage Road outside the I-481 North Study Area. Least bitterns are not considered to have the potential to occur within the I-481 North Study Area. There are no records of least bitterns anywhere else in the Project Area. As such, the least bittern is unlikely to occur in the Central, I-481 South, or the I-481 East Study Areas. As such, the least bittern is not expected to occur.

- **Northern Harrier:** The northern harrier is a State-listed Threatened bird of prey. The State status of the northern harrier has been proposed to be changed to "special concern" as per the *NYSDEC Draft List Under Part 182.5 Pre-proposal—October 2019* (NYSDEC 2019). Local populations have gradually declined in recent decades likely in response to habitat development and reversion of much of the state's former farmland into forest. Northern harriers primarily occupy open areas such as grasslands, old fields, pastures, croplands, and salt marshes during both the breeding and non-breeding periods (Smith et al. 2011). They are present in New York year-round (Post 2008). The NYNHP has a record of northern harriers breeding within 1.5 miles of the I-481 North Study Area. There is potentially suitable breeding and non-breeding habitat for northern harriers in the vicinity of the I-481 North Study Area, in the marshes of the Cicero Swamp Wildlife Management Area and agricultural fields 1.2 to 1.5 miles to the east, and the marshes of a large wetland complex 1.2 miles to the west, along State Route 481. Non-breeding northern harriers might also be expected to occur in the open fields of the Syracuse Hancock International Airport. There is no suitable breeding or non-breeding habitat for northern harriers within the I-481 North Study Area, which is primarily limited to roadside grass, small and degraded common reed-dominated wetlands bordering drainage ditches and within clover leaves of the I-481 and I-81 interchange, and small fragments of woodland. None of these habitat types would support breeding or non-breeding northern harriers, and therefore, northern harriers are not considered to have the potential to occur within the I-481 North Study Area. The NYNHP has no records of northern harriers within or near any of the other study areas, and northern harriers are not expected to occur in those other study areas.
- **Lake Sturgeon:** The lake sturgeon is a State-listed Threatened freshwater fish that occurs in several lakes, rivers, and canals in northern New York State. The NYNHP has records of lake sturgeon occurring in Onondaga Lake. Onondaga Creek and Ley Creek, which are both tributaries to Onondaga Lake, are within the Central Study Area. Thus, lake sturgeon has the potential to occur in the Central Study Area. Lake sturgeon do not have the potential to occur within the I-481 South, I-481 East, and I-481 North Study Areas.
- **Bog Elfin:** The bog elfin is a State-listed critically imperiled[11] butterfly. It is primarily found in the black spruce-tamarack bog ecological community and peat bogs associated with its hostplant, black spruce (*Picea mariana*) (Shepherd 2005). New York represents the southern extent of the bog elfin's range and only one population has been documented in the state (Miller 1995). The NYNHP has a record of bog elfin within the vicinity of the I-481 North Study Area. However, the black spruce-tamarack bog community, the bog elfin's primary associated ecological community, does not occur within the I-481 North Study Area. Furthermore, the last documented

[11] Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State (NYNHP 2020).

observation of bog elfin in New York State was made in 1988 (Miller 1995), and the species is now considered extirpated from the state (NYSDEC 2016). Habitat is not present within the vicinity of the I-481 North Study Area for the bog elfin and this species was not observed during wildlife field investigations. Therefore, bog elfins are not considered to have the potential to occur within the I-481 North Study Area. Bog elfins are not documented or expected to occur within the Central, I-481 South, and I-481 East Study Areas.

- **Eastern Small-footed Bat:** The eastern small-footed bat is a species of special concern in New York State. It is a temperate, insectivorous bat that is nocturnal (Hammerson et al. 2014). During the spring and summer, eastern small-footed bats most commonly roost and raise their young in accumulations of rocks, caves, mines, tunnels, cliff faces, talus slopes, quarries, rocky outcrops, road cuts, buildings, or concrete bridges with good sun exposure (Stegemann and Hicks 2008, Harvey et al. 2011, Scott 2014). They move to new roost sites every day, usually within 50 meters of the previous day's roost (Johnson and Gates 2008, Johnson et al. 2011). Beginning in mid-November, eastern small-footed bats enter caves or mines for hibernation, usually within a mile of their summer breeding habitat (Johnson and Gates 2008, Scott 2014, Hammerson et al. 2014). In the wild, they can live from 6 to 12 years, depending on predation pressures, habitat availability, and exposure to parasites and fungi; males have a higher rate of survival than females (Scott 2014). Predators include domestic cats, mink, raccoons, opossum, fish, frogs, snakes, and birds of prey (Hammerson et al. 2014). Eastern small-footed bats are affected by white-nose syndrome (WNS), a fungal disease that disturbs hibernation and results in mass deaths due to loss of metabolic resources (Scott 2014).

  The NYNHP has a record of a bachelor colony of eastern small-footed bats located approximately 0.4 miles from the I-481 South Study Area, where there is a protected area that features rugged cliffs and rocky outcrops to support this species. There are also rocky slopes in the ROW of the I-481 South Study Area, but the I-81 northbound and southbound lanes have been cut through portions of these slopes, thereby disturbing their form. These areas are best described as a disturbed roadcut cliff/slope community (as defined by Edinger *et al.* 2014). Eastern small-footed bats have the potential to occur in these areas on rare occasions, for temporary use as day-roosts. In addition, there are bridges located in the I-481 South Study Area, and eastern small-footed bats have been documented roosting in crevices of bridges (Harvey et al. 2011, Scott 2014).

  Because there are Federally-listed bat species (i.e., Indiana and northern long-eared bats) records for the I-481 South, I-481 East, and I-481 North Study Areas, all existing bridges involving work as part of this Project in the I-481 South, I-481 East, and I-481 North Study Areas would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, avoidance and minimization measures established for the Federally listed species (i.e., Indiana bat and long eared bat), described above, would also be adopted for protection of the small-footed bat to the greatest extent possible, as applicable, and in consultation with NYSDEC. Small-footed bats are not documented or expected to occur within the Central, I-481 East, and I-481 North Study Areas.

- **Seaside Bulrush:** Seaside bulrush is a State-listed Threatened perennial plant. It is found in Long Island salt marshes and inland salt ponds and marshes (NYNHP). It is listed as an OBL (i.e., almost always occurs in wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). Its habitat includes a variety of open, saltwater, or brackish wetlands. Seaside bulrush may also be found in disturbed areas like roadsides and ditches. A known population of seaside bulrush exists in the vicinity of the Central Study Area (NYNHP). Confirmed ecological communities associated with seaside bulrush include artificial pools, brackish interdunal swales, brackish intertidal mudflats, coastal salt ponds, and high salt marshes (NYNHP). These communities are not present within the Project Area. Furthermore, seaside bulrush was not found during targeted searches (conducted on August 30, 2017) for this species in the Central Study Area. For these reasons, seaside bulrush has a low potential to occur in the Central Study Area. Seaside bulrush is not documented or expected to occur within the I-481 South, I-481 East, and I-481 North Study Areas.
- **Midland Sedge:** Midland sedge is a State-listed Threatened plant found in dry, sandy soils in maritime grasslands, oak woods, mowed cemeteries, railroads, paths, and fields. It is listed as an UPL (i.e., almost always occurs in non-wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). Its range in New York is from Long Island to the Hudson Highlands and central New York. In New York, confirmed ecological communities associated with midland sedge include Hempstead Plains grasslands, maritime grasslands, mowed lawn, rocky summit grasslands, and successional old fields (NYNHP). A known population exists in the vicinity of the Central and I-481 South Study Areas (NYNHP) and habitat is present within these two study areas. However, Midland sedge was not found during targeted searches (conducted on June 27 and 28, 2017) for this species in the Central and I-481 South Study Areas (conducted on July 10, 11, 12, and 16, 2019). Midland sedge is not documented or expected to occur within the I-481 East or the I-481 North Study Areas.
- **Saltmarsh Aster:** Saltmarsh aster is a State-listed Threatened species that is found in coastal areas in salt or brackish marshes, along tidal channels and creeks, in the swales of coastal dunes, and occasionally in disturbed habitats that are salt influenced. It is listed as a FACW (i.e., usually occurs in wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). In New York, saltmarsh aster primarily occurs along the shores of Long Island, Brooklyn, and Staten Island and along the shore of the Hudson River between the New York Harbor and Putnam and Rockland Counties. However, a known population exists in the vicinity of the Central Study Area (NYNHP). Confirmed ecological communities associated with saltmarsh aster include brackish interdunal swales, brackish meadows, brackish tidal marshes, coastal salt ponds, estuarine riprap/artificial shores, high salt marshes, inland salt marshes, salt shrubs, and sea level fens (NYNHP). These communities are not present within the Project Area. Additionally, saltmarsh aster was not found during targeted searches (conducted on August 30, 2017) in the Central Study Area. Due to habitat requirements, saltmarsh aster has a low potential to occur within the Central Study Area. Saltmarsh aster is not documented or expected to occur in the I-481 South, I-481 East, or I-481 North Study Areas.
- **Reflexed Sedge:** Reflexed sedge is a State-listed Threatened plant that prefers successional areas with open tree canopies. Its habitat includes dry-mesic to mesic deciduous forests, forest openings

and edges, and rocky summits and ledges. Reflexed sedge is known to grow along and in paths, forest roads, and abandoned railroad lines. It can grow in poor soil conditions or waste places as well. It is listed as a FACU (i.e., usually occurs in non-wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). In New York, it has been documented throughout the Hudson Valley and in scattered locations within central New York. Confirmed ecological communities associated with reflexed sedge include acidic talus slope woodlands, Appalachian-oak hickory forests, Appalachian oak-pine forests, red cedar rocky summits, rocky summit grasslands, and successional southern hardwoods (NYNHP). Successional southern hardwoods communities occur within the Project Area. Furthermore, a known population of reflexed sedge exists in the vicinity of the Central and I-481 South Study Areas (NYNHP). Reflexed sedge was not found during targeted searches (conducted on June 27 and 28, 2017 and July 10, 11, 12, and 16, 2019). There are no records of reflexed sedge within the I-481 East or I-481 North Study Areas. Therefore, this species has a low potential to occur within the I-481 East and I-481 North Study Areas.

- **Straight-leaved Pondweed:** Straight-leaved pondweed is a State-listed Endangered species which occurs in shallow water habitats of natural and artificial lakes and slow-moving streams. It prefers alkaline water. It is listed as an OBL (i.e., almost always occurs in wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). New York is the eastern edge of this species' range; it is found in central and eastern New York (NYNHP). In New York, straight-leaved pondweed does not have confirmed associated ecological communities (NYNHP). A known population exists in the vicinity of the Central Study Area (NYNHP). However, straight-leaved pondweed was not found during targeted searches (conducted on August 30, 2017) for this species in the Central Study Area. Therefore, given its habitat requirements, straight-leaved pondweed has low potential to occur within wetlands and surface waters of the Central Study Area. Straight-leaved pondweed is not documented or expected to occur in the I-481 South, I-481 East, or I-481 North Study Areas.

- **Glomerate Sedge:** Glomerate sedge is a State-listed Endangered species that occurs in calcareous soils in meadows, thickets, open forests, moist woods, cemeteries, and ditches. It is not listed as a wetland plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). In New York, confirmed associated ecological communities associated with glomerate sedge are not documented by NYNHP. A known population exists in the vicinity of the Central Study Area (NYNHP). Within the Central Study Area, thicket, cemetery, and ditch habitats are present. Targeted searches (conducted on June 27 and 28, 2017 and July 10, 11, 12, and 16, 2019) for the presence or absence of this species within the Central Study Area were inconclusive and, for this reason, further survey work for this species would be conducted during final design. Glomerate sedge is not documented or expected to occur in the I-481 South, I-481 East, or I-481 North Study Areas.

- **Marsh Arrowgrass:** Marsh arrowgrass is a State-listed Threatened plant that occurs in open calcareous mires, soligenous mires, limestone areas, peat bogs, open meadows, narrow coastal strips, and salt marshes (Metcalf et al. 1917, Norton 1933, Thomas et al. 1980, Van Straaten et al. 1982, Wheeler 1980) brackish and salt marshes and flats, river or stream floodplains, marshes, intertidal, subtidal, shores of rivers or lakes (GoBotany 2018). It is listed as an OBL (i.e., almost always occurs in wetlands) plant by the 2018 National Wetland Plant List: Northcentral and

Northeast Region (USACE 2018). New York is located at the southern range-limit of for this species. A known population exists in the vicinity of the I-481 South and I-481 East Study Areas (NYNHP). Given its habitat requirements, the potential for marsh arrowgrass to occur would be limited to ditches and narrow channels located in the vicinity of proposed noise barriers within the I-481 South and I-481 East Study Areas and to wetlands and channels within the I-481 East Study Area. It was not found during targeted searches in the I-481 South Study Area (conducted on July 10, 11, 12, and 16, 2019). Survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 East Study Area during final design of the Project. Marsh arrowgrass is not documented or expected to occur in the Central or I-481 North Study Areas.

- **Thread-leaved Pondweed:** Thread-leaved pondweed is a State-listed Endangered species that occurs in shallow, still, or slow-moving water of lakes and rivers. It prefers neutral to alkaline water (NYNHP). It is listed as an OBL (i.e., almost always occurs in wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). In New York, thread-leaved pondweed has been found in only two alkaline settings, including a small stream and a lake. Confirmed ecological communities associated with thread-leaved pondweed include deepwater river, marsh headwater stream, sand beach, and summer-stratified monomictic lake. These communities are not present within the Project Area. A known population of thread-leaved pondweed exists in the vicinity of the I-481 East Study Area (NYNHP). Given its habitat requirements, thread-leaved pondweed has low potential to occur within wetlands and surface waters of the I-481 East Study Area. Survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 East Study Area during final design of the Project. Thread-leaved pondweed is not documented or expected to occur in the Central, I-481 South, or I-481 North Study Areas.

- **Blunt-lobed Grape Fern:** Blunt-lobed grape fern is a State-listed Threatened species that occurs in highly organic moist soils and sandy soils of mixed deciduous hardwood forests (NYNHP). It is listed as a FAC (i.e., occurs in wetlands and non-wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). In New York, blunt-lobed grape fern is scattered across the state south of the Adirondacks. Confirmed ecological communities associated with blunt-lobed grape fern include beech-maple mesic forest, floodplain forest, maple-basswood rich mesic forest, red maple-blackgum swamp, red maple-hardwood swamp, rich mesophytic forest, and successional northern hardwoods (NYNHP). Floodplain forest occurs within all four study areas. Furthermore, a known population exists in the vicinity of the I-481 East Study Area (NYNHP). Given its habitat requirements, blunt-lobed grape fern has the potential to occur within the I-481 East Study Area. Survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 East Study Area during final design of the Project. Blunt-lobed grape fern is not documented or expected to occur in the Central, I-481 South, or I-481 North Study Areas.

- **Ohio goldenrod:** Ohio goldenrod is a State-listed Threatened plant that grows in rich fens including sloping and marl fens. It occasionally occurs in rich peat swamps, calcareous dripping cliffs, and banks of large rivers in the State. In New York, confirmed ecological communities associated with Ohio goldenrod include marl fen, red maple-tamarack peat swamp, rich graminoid fen, and rich sloping fen (NYNHP). Other habitats non-specific to New York include marshes,

wet sand dunes, along rivers, swamps, beaches, and other moist places, calcareous bogs, wet prairies, and sandy shores (NYNHP). It is listed as an OBL (i.e., almost always occur in wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). A known population exists in the vicinity of the I-481 East Study Area (NYNHP). However, none of the confirmed ecological communities listed above is present within the Project Area. Given its habitat requirements, Ohio goldenrod has low potential to occur within the I-481 East Study Area, and it was not found during targeted surveys (conducted on August 28, 29, and 30, 2017). Ohio goldenrod is not documented or expected to occur in the Central, I-481 South, or I-481 North Study Areas.

- **Troublesome Sedge:** Troublesome sedge is a State-listed Threatened plant that prefers open habitats associated with dry fields, wet fields, and native grasslands. This species often has a somewhat weedy habit where it occurs in fields, roadsides, bottomlands, open woods, on dry to wet, often heavy, calcareous soils. It can occurs on open edges of rivers, woodlands, talus slopes, and in waste areas. It is listed as a FAC (i.e., occurs in wetlands and non-wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). In New York, confirmed ecological communities include alvar grassland, alvar pavement grassland, inland calcareous lake shore, oak openings, and successional old field (NYNHP). A known population of troublesome sedge exists in the vicinity of the I-481 North Study Area (NYNHP). Given its habitat requirements, troublesome sedge has the potential to occur within the I-481 North Study Area. However, it was not found during targeted surveys (conducted on August 30, 31, and September 1, 2017 and July 10, 11, 12, and 16, 2019). Troublesome sedge is not documented or expected to occur in the vicinity of the Central, I-481 East, or I-481 South Study Areas.

- **Southern Twayblade:** Southern twayblade is a State-listed Endangered orchid. In New York, it is found along the Coastal Plain of Long Island and over a widely scattered area, ranging from the Adirondacks into central and western New York (NYNHP). It is listed as a FACW (i.e., usually occurs in wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). Its habitat includes peat moss areas such as bogs, poor fens, and wet woods (NYNHP). It is usually associated with cinnamon fern (*Osmunda cinnamomea*) and royal fern (*O. regalis*). Confirmed ecological communities associated with southern twayblade include black spruce-tamarack bog, coastal plain poor fen, dwarf shrub bog, highbush blueberry bog thicket, inland poor fen, red maple-blackgum swamp, red maple-hardwood swamp, red maple-tamarack peat swamp (NYNHP). These communities are not present within the Project Area. A known population of southern twayblade exists in the vicinity of the I-481 North Study Area (NYNHP). Survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 North Study Area during final design. Given its habitat requirements, southern twayblade has a low potential to occur in the I-481 North Study Area**.** However, survey work for this species would be conducted in the I-481 North Study Area during final design. Southern twayblade is not documented or expected to occur in the Central, I-481 South, and I-481 East Study Areas.

- **Large Twayblade:** Large twayblade is a State-listed Endangered perennial orchid. In New York, it is found in both upland and wetland habitats scattered throughout the state, including red maple-dominated swamps, dry woods, wooded talus slopes, and along railroad grades at the edge of swamps (NYNHP). It is listed as an FACU (i.e., usually occurs in non-wetlands) plant by the 2018

National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). It is thought to prefer areas that are recovering from disturbance. Confirmed ecological communities associated with large twayblade include limestone woodland, red cedar rocky summit, red maple-hardwood swamp, and shrub swamp (NYNHP). These communities are not present within the Project Area. A known population of large twayblade exists in the vicinity of the I-481 North Study Area (NYNHP). Given its habitat requirements, large twayblade has the potential to occur in the I-481 North Study Area. Survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 North Study Area during final design. Large twayblade is not documented or expected to occur in the Central, I-481 South, and I-481 East Study Areas.

- **Red Pigweed:** Red pigweed is a State-listed Threatened plant that prefers coastal habitats, shores, wet interdunal swales, stony beaches, saltmarshes, waste places, brackish soils, riverbanks, and ship ballasts. In New York, red pigweed is primarily limited to the saline areas of Long Island and lowest part of the Hudson Valley, although there are historic records of it occurring in salt ponds of Onondaga County. It is listed as an OBL (i.e., almost always occur in wetlands) plant by the 2018 National Wetland Plant List: Northcentral and Northeast Region (USACE 2018). Confirmed ecological communities include brackish interdunal swales, coastal plain pond shore and salt ponds, dredge spoil wetlands, marine dredge spoil shore and intertidal gravel/sand beaches, and maritime freshwater interdunal swales. These communities are not present within the Project Area. Furthermore, the last record of this species was from 1940 in the vicinity of the I-481 North Study Area. Given its habitat requirements, red pigweed has a low potential to occur in the I-481 North Study Area. However, survey work for this species would be conducted in the I-481 North Study Area during final design to confirm its presence or absence. Red pigweed is not expected to occur in the Central, I-481 South, and I-481 East Study Areas.

- **Inland Salt Pond:** Inland salt pond is a globally rare community identified by NYNHP as having the potential to occur as an artificial salt pond in a roadside park in the Central Study Area. Edinger et al. (2014) define this community as an "aquatic community of a small spring-fed pond in which the water is salty from flowing through salt beds in the aquifer. These salt springs occur in central New York and were once common around Onondaga Lake in Syracuse." Most of these springs were used for salt production and thus, can be severely degraded. Inland salt ponds are permanently flooded, but water levels in the pond seasonally fluctuate. No inland salt ponds were observed in the Central, I-481 South, I-481 East, or I-481 North Study Areas during field inspections. Therefore, this habitat does not occur within the Project Area.

- **Maple-basswood Rich Mesic Forest:** Maple-basswood rich mesic forest is an uncommon community type documented by NYNHP in the vicinity of the I-481 South Study Area. NYNHP identified the potential for a high-quality occurrence of maple-basswood rich mesic forest to occur in a protected natural area outside of the I-481 South Study Area. Edinger et al. (2014) define the maple-basswood rich mesic forest community as a "species-rich northern hardwood forest that typically occurs on well-drained, moist soils of circumneutral pH." Herbs common on calcareous bedrock are associated with this community. When bedrock is not exposed, surficial features such as seeps are often present (Edinger et al. 2014, NYNHP). No maple-basswood rich mesic forests were observed in the I-481 South Study Area. Furthermore, this community was not observed in the Central, I-481 East, or I-481 North Study Areas during field investigations. Therefore, this habitat does not occur within the Project Area.

- **Calcareous Cliff Community:** Calcareous cliff community is an uncommon community type documented by NYNHP near the I-481 South Study Area. NYNHP identified the potential for a high-quality occurrence of a calcareous cliff community to occur in a protected natural area outside of the I-481 South Study Area. Edinger et al. (2014) define this community as a "community that occurs on vertical exposures of resistant, calcareous bedrock (such as limestone or dolomite) or consolidated material; these cliffs often include ledges and small areas of talus." There is minimal soil development in calcareous cliff communities, and they are often sparsely vegetated. Plant species vary depending on exposure and moisture conditions, which can range from shady and moist to sun-exposed and dry. Vegetation is generally found in cracks or crevices within the cliff wall or in shallow pockets of soil accumulated on ledges (Edinger et al. 2014, NYNHP).

  Within the I-481 South Study Area, there are small cliffs within the ROW. However, the I-81 northbound and southbound lanes have been cut through portions of these cliffs, thereby disturbing their form. For this reason, within the I-481 South Study Area, these cliffs are best characterized as a disturbed roadcut cliff/slope community (as defined by Edinger et al. 2014) with southern successional forest as the predominant vegetation. Thus, calcareous cliff communities are not present within the I-481 South Study Area. No calcareous cliff communities were observed in the Central, I-481 East, or I-481 North Study Areas during the inspections. Therefore, this habitat does not occur within the Project Area.

- **Calcareous Talus Slope Woodland:** Calcareous talus slope woodlands are an uncommon community documented by NYNHP near the I-481 South Study Area. NYNHP identified the potential for a high-quality occurrence of a calcareous talus slope woodland to occur in a protected natural area outside of the I-481 South Study Area. Edinger et al. (2014) define this community as an "open or closed canopy community dominated by calciphilic plants that occurs on talus slopes composed of calcareous to circumneutral bedrock such as limestone, dolomite, or amphibolite." Rocky outcrops are common. The soil in calcareous talus slope woodlands is generally moist and loamy, and the soil usually has a pH greater than 5.5 (Edinger et al. 2014, NYNHP).

  Within the I-481 South Study Area, there are a number of small talus slopes in the ROW. However, the I-81 northbound and southbound lanes have been cut through portions of these slopes, thereby disturbing their form. For this reason, these cliffs are best described as a disturbed roadcut cliff/slope community (as defined by Edinger et al. 2014) with southern successional forest as the predominant vegetation. Thus, high quality calcareous talus slope woodland communities are not present within the I-481 South Study Area. No calcareous talus slope woodlands were observed in the Central, I-481 East, or I-481 North Study Areas during field inspections. Therefore, this habitat does not occur within the Project Area.

- **Limestone Woodland:** Limestone woodlands are an uncommon community documented by NYNHP as occurring near the I-481 South Study Area. NYNHP identified the potential for a high-quality occurrence of a limestone woodland in a protected natural area outside of the I-481 South Study Area. Edinger et al. (2014) define a limestone woodland community as a "conifer or hardwood community that occurs on shallow soils over limestone bedrock, and usually includes numerous small rock outcrops." Examples of typical bedrock include limestone, dolomite, calcite, marble, amphibolite, and Potsdam sandstone. The tree canopy can be open or closed and is often composed of either one dominant tree species or a few codominant tree species (Edinger et al.

2014, NYNHP). Limestone woodlands were not observed within the I-481 South Study Area. Furthermore, no limestone woodlands were observed in the Central, I-481 East, or I-481 North Study Areas. Therefore, this habitat does not occur within the Project Area.

- **Black Spruce-Tamarack Bog:** Black spruce-tamarack bog is a globally rare community identified by NYNHP as having the potential to occur within the I-481 North Study Area. Edinger et al. (2014) define the community as a "conifer forest or woodland that occurs on acidic peatlands in cool, poorly drained depressions." The characteristic trees are black spruce and tamarack (*Larix laricina*); in any one stand, either tree may be dominant or codominant. Canopy cover is quite variable, ranging from open canopy woodlands with as little as 20 percent cover of evenly spaced canopy trees to closed canopy forests with 80 to 90 percent cover. No black spruce-tamarack bogs were observed in the Project Area during field inspections.

6-4-8.2 NO BUILD ALTERNATIVE

The No Build Alternative would maintain the highway in its existing configuration with routine maintenance and ongoing repairs to ensure the safety of the traveling public. Land cover type and human activity would not differ from existing conditions. As such, there would be no effects related to general ecology and wildlife resources associated with the No Build Alternative.

6-4-8.3 ENVIRONMENTAL CONSEQUENCES OF THE VIADUCT ALTERNATIVE

The Viaduct Alternative would primarily involve effects within the Central Study Area; however, potential noise barriers would be constructed in the I-481 South, I-481 East, and I-481 North Study Areas as part of this alternative.

6-4-8.3.1 PERMANENT/OPERATIONAL EFFECTS

The Viaduct Alternative would alter 305.0 acres of land for a new transportation ROW, build noise barriers, and to provide sufficient area around the viaduct for construction. The majority of permanent land use change would occur adjacent to the I-81 and I-690 interchange.

Terrestrial Resources

Ecological Communities

Under the Viaduct Alternative, 305.0 acres of total land would be affected in the Central, I-481 East, and I-481 North Study Areas. As listed in **Table 6-4-8-3**, 275.7 acres of terrestrial cultural ecological communities, 22.6 acres of successional southern hardwoods, 4.0 acres of successional old field, 2.0 acres of successional shrubland, 0.6 acres of floodplain forest and 0.06 acres of freshwater wetlands would be permanently affected under the Viaduct Alternative. Within the Project Area, all of these communities represent fragmented habitat as they are limited to interchange areas and maintained transportation ROW and are generally characterized by disturbance and non-native or invasive species.

Table 6-4-8-3
Viaduct Alternative: Approximate Ecological Communities Operational Effects within the Project Area

Ecological Community	Approximate Existing Coverage (acres)	Approximate Roadway Footprint—Central Study Area (acres)	Approximate Noise Barrier Footprint—All Study Areas (acres)	Approximate Total Effects (acres)	Approximate Total Unaffected Area (acres)
Terrestrial Cultural*	1,249.4	262.3	13.4	275.7	973.7
Successional Southern Hardwoods**	117.9	18.7	3.9	22.6	95.3
Successional Old Field	121.4	3.3	0.7	4.0	117.4
Successional Shrubland	54.1	1.0	1.0	2.0	52.1
Floodplain Forest	133.4	0.2	0.4	0.6	132.8
Freshwater Wetland***	132.9	0.0	0.06	0.06	132.8
Open Surface Waters***	19.3	0.0	0.0	0.0	19.3
Estimated Total	**1,828.4**	**285.5**	**19.5**	**305.0**	**1,523.4**

Notes: The acreages for the "Approximate Noise Barrier Footprint-All Study Areas (acres)" column include a 10 ft buffer area around each potential noise barrier. Unless otherwise stated, up to approximately 30 percent of the noise barrier effects overlap with the roadway effects (portions of the noise barriers would be built on pavement). This 30 percent is included in these effects calculations as a conservative measure. The areas of roadway/noise barrier overlap are in disturbed communities of the Project Area.

* Includes paved road/path, railroad, junkyard, urban vacant lot, mowed lawn, mowed lawn with trees, and garden communities. Ecological community observations were made during field investigations in 2016, 2017, 2019, 2020, and 2021.

**A roadcut cliff/slope ecological community (6.0 acres) is present in the I-481 South Study Area. The vegetation of this community consists of successional southern hardwoods. Therefore, roadcut cliff/slope ecological community acreages are counted with the successional southern hardwoods acreages.

*** Wetlands and open surface waters calculations are based on wetland delineation and land survey work conducted in 2017 and 2019 and a wetlands mapping and assessment conducted in 2020 and 2021. The effects to wetlands and surface waters are detailed in **Section 6-4-7**, Water Resources.

Source: Ecological community names and descriptions are derived from "Ecological Communities of New York State" (Edinger et al. 2014). Note that the freshwater wetland adjacent area acreages are also included in the terrestrial ecological communities' acreage calculations.

They are common throughout the region and are of low ecological value due to low species diversity, high level of anthropogenic activities, and dominance of non-native and invasive vegetation. In addition, the Project would result in the conversion of one terrestrial cultural community type (e.g., urban vacant lot) to another terrestrial cultural community type (e.g., paved roads, maintained ROW), and therefore would not result in any loss of terrestrial cultural community type overall. Therefore, the conversion of the 305.0 acres of currently disturbed ecological communities of the Project Area from one community type to another would not result in adverse permanent/operational effects to ecological communities throughout the region. Temporary effects of the Project in ecological communities are discussed in **Section 6-4-8.3.2, Construction Effects**.

A total of 10.3 acres of tree removal would occur as part of the Viaduct Alternative. This removal would occur in terrestrial cultural, successional southern hardwood, successional old field, floodplain forest, and freshwater wetland communities.

The disturbed areas not used for transportation infrastructure would be revegetated with species indigenous to Central New York to the extent practicable in accordance with a landscape plan developed for the Project. In addition to the use of native species as part of the planting palate (where

reasonable), non-native and invasive species would not be included in the landscape plan. Therefore, the operation of the Viaduct Alternative would be in compliance with EO 13112, "Safeguarding the Nation from the Impacts of Invasive Species" and NYCRR Part 575 "Invasive Species Regulations."

Wildlife

Because the Central Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces, it contains little habitat to support wildlife other than extremely generalist, urban-adapted species. Levels of human activity and disturbance in the area are extremely high, which further degrades habitat conditions for wildlife and limits the wildlife community to the most disturbance-tolerant species. The Viaduct Alternative would not result in higher levels of human activity and disturbance as compared to the No Build Alternative to the extent that there would be any adverse effects to wildlife in the area, or in the composition of the wildlife community. The small and degraded fragments of habitat within the Central Study Area would support the same assemblage of species. The parkland and woodland fragment habitat of Oakwood Cemetery, which represents the most substantial habitat for native wildlife species in the Central Study Area, would not be directly or indirectly affected by the Viaduct Alternative. Overall, no adverse permanent/operational effects to birds, mammals, reptiles, or amphibians would result from the Viaduct Alternative. Potential for permanent/operational effects to lake sturgeon are discussed below.

Threatened or Endangered Species

Preliminary effect determinations for Federally-listed species and State-listed Species having the potential to occur within the vicinity of the Viaduct Alternative Project Area are presented in the BE (see **Appendix J-8**) and Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**), respectively, and are summarized in **Table 6-4-8-4**. The temporary effects that construction of the Viaduct Alternative would have on Federally-listed and State-listed species are discussed below.

NYSDOT has made the following preliminary effect determinations for Federally-listed species with the potential to occur in the Project Area during the operation of the Viaduct Alternative: "May Affect, Not Likely to Adversely Affect" for Indiana bat and northern long-eared bat; "No Effect-No Habitat" for the eastern massasauga; "No Effect" American hart's-tongue fern; and "Take Unlikely" for the bald eagle.[12] For State-listed species, NYSDOT has made a preliminary effect determination of "Take Not Likely" for all State-listed species with the potential to occur in the Project Area during the operation of the Viaduct Alternative. Coordination among FHWA, USFWS and NYSDEC regarding Federally- and State-listed species is ongoing.

[12] Each Federal Effect Determination is made in accordance with the Endangered Species Act (16 U.S.C. §1531), with the exception of the bald eagle, which is made in accordance with Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

Table 6-4-8-4
Viaduct Alternative:
Threatened and Endangered Species Effect Determinations

Common Name	Scientific Name	State Effect Determination*	Federal Effect Determination**
Indiana bat	*Myotis sodalis*	Take Not Likely	May Affect, Not Likely to Adversely Affect
Northern long-eared bat	*Myotis septentrionalis*	Take Not Likely	May Affect, Not Likely to Adversely Affect
Eastern massasauga	*Sistrurus catenatus*	Take Not Likely	No Effect – No Habitat
American hart's-tongue fern	*Asplenium scolopendrium* var. *americanum*	Take Not Likely	No Effect
Peregrine falcon	*Falco peregrinus*	Take Not Likely	N/A
Bald eagle	*Halieaeetus leucocephalus*	Take Not Likely	Take Unlikely
Least bittern	*Ixobrychus exilis*	Take Not Likely	N/A
Northern harrier	*Circus cyaneus*	Take Not Likely	N/A
Lake sturgeon	*Acipenser fulvescens*	Take Not Likely	N/A
Bog elfin	*Callophrys ianoraieensis*	Take Not Likely	N/A
Eastern small-footed bat	*Myotis leibii*	Take Not Likely	N/A
Seaside bulrush	*Bolboschoemus maritimus* ssp. *paludosus*	Take Not Likely	N/A
Midland sedge	*Carex mesochorea*	Take Not Likely	N/A
Saltmarsh aster	*Symphyotrichum subulatum* var. *subulatum*	Take Not Likely	N/A
Reflexed sedge	*Carex retroflexa*	Take Not Likely	N/A
Straight-leaved pondweed	*Potamogeton strictifolius*	Take Not Likely	N/A
Glomerate sedge	*Carex aggregata*	Take Not Likely	N/A
Marsh arrowgrass	*Triglochin palustris*	Take Not Likely	N/A
Thread-leaved pondweed	*Stuckenia filiformis*	Take Not Likely	N/A
Blunt-lobed grape fern	*Botrychium oneidense*	Take Not Likely	N/A
Ohio goldenrod	*Oligoneuron ohioense*	Take Not Likely	N/A
Troublesome sedge	*Carex molesta*	Take Not Likely	N/A
Southern twayblade	*Neottia bifolia*	Take Not Likely	N/A
Large twayblade	*Liparis liliifolia*	Take Not Likely	N/A
Red Pigweed		Take Not Likely	N/A

Notes: The assessments that support the Federal and State Effect Determinations presented in this table are provided in the Biological Evaluation (**Appendix J-8**) and Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).* "Take Not Likely" is not a legal term used under the 6 NYCRR Part 193.3 Protected native plants. However, this terminology is used in this document for uniformity with the discussion of regulated wildlife species under 6 NYCRR Part 182 Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern; Incidental Take Permits.**Each Federal Effect Determination is made in accordance with the Endangered Species Act (16 U.S.C. §1531), with the exception of the bald eagle, which is made in accordance with Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

Central Study Area

- **Indiana Bat:** USFWS IPaC System results do not identify the Indiana bat as having the potential to occur within the Central Study Area. According to the NYNHP database, the Central Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum, more than 0.25 miles from a known Indiana bat roost tree (USFWS required buffers), and more than 2.5 miles from a known hibernaculum or roost tree (NYSDEC required buffers). A detailed assessment of the potential for permanent/operational effects to Indiana bats (e.g., removal or alteration of suitable

habitat) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Long-eared Bat:** USFWS IPaC System results do not identify the Northern long-eared bat as having the potential to occur within the Central Study Area. According to the NYNHP database, the Central Study Area is located more than 0.5 miles from a known hibernaculum and more than 150 feet from a known northern long-eared bat roost tree (USFWS required buffers) and less than 5.0 miles from a known hibernaculum but more than 1.5 miles from a known northern long-eared bat roost tree (NYSDEC required buffers). A detailed assessment of the potential for permanent/operational effects to northern long-eared bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** The USFWS IPaC System results do not indicate that the eastern massasauga has the potential to occur within the Central Study Area. In addition, the NYNHP has no records of this species in the vicinity of the Central Study Area. A detailed assessment of the potential for permanent/operational effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Peregrine Falcon:** Peregrine falcon currently nests in an artificial nest box on a building adjacent to the Central Study Area, and thus, it has the potential to occur throughout the Central Study Area. The peregrine falcons in this area are already accustomed to an urban environment and would not be further affected by additional noise or activity from the operation of the Project. Peregrine falcons will tolerate almost any level of human activity taking place below their nest provided that the nest itself is inaccessible (Ratcliffe 1972) by humans or predators.

  A detailed assessment of the permanent/operational effects to the peregrine falcon is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Bald Eagle:** Non-breeding bald eagles have been observed perching and foraging along the shoreline of Onondaga Lake. This area is on the periphery of the Central Study Area and therefore non-breeding bald eagles have the potential to occur there. There is no suitable habitat for breeding or non-breeding bald eagles in the I-481 South, I-481 East, and I-481 North Study Areas.

  The sensitivity of bald eagles to human disturbance is greatest during courtship and nest-building, which take place in New York between December and March, and then declines as the nesting period progresses and eventually ends (USFWS 2007b). Decades ago, bald eagles were considered to be sensitive to human disturbance even outside of the breeding season (e.g., Stalmaster and Newman 1978, Nye 1994, Stalmaster and Kaiser 1997), with concern that repeated displacement from important roosting and foraging areas could waste energy reserves at a time of year when energy demands are high (Stalmaster and Gessaman 1984). Since then, however, bald eagles have shown a rapid and substantial generational habituation to human disturbance during both the breeding and non-breeding periods, and an increasing tolerance of development, including urbanization (Johnson 2010, Guinn 2013). In many parts of their range, bald eagles are increasingly nesting and occurring during the non-breeding periods in areas with heavy levels of human activity where they would almost never be found only a few decades ago (Millsap et al. 2004, Guinn 2013).

This includes nesting by bald eagles in recent years within major metropolitan areas, including New York City, Washington D.C., Philadelphia, and Pittsburgh (Sullivan 2016). The use of Onondaga Lake in the City of Syracuse by bald eagles is another such example of bald eagles having acclimated to an urban area with extremely high levels of disturbance. Any non-breeding bald eagles utilizing the lake and its shorelines inherently display a high tolerance of human activity as well as degraded habitat.

Within the Central Study Area, the Viaduct Alternative would include the construction and operation of a reconstructed system of ramps connecting I-81 to Park Street, State Route 370, and Old Liverpool Road. The closest portion of this study area to the lakeshore, where non-breeding bald eagles have the potential to occur, would be approximately 200 feet. Operation of the Viaduct Alternative would not bring motor vehicle traffic any closer to the Onondaga Lake shoreline than at present or increase the already high existing levels of disturbance. Given that paved roads with heavy traffic are already present near the shoreline in this area, operation of the Viaduct Alternative would not eliminate quality habitat or otherwise permanently alter the current conditions on Onondaga Lake for non-breeding bald eagles. The Viaduct Alternative would not "create disruptive activities or development in the direct flight paths of eagles between roost sites and important foraging areas," and in all other aspects would be in accordance with the USFWS Bald Eagle Management Guidelines' "recommendations for avoiding disturbance at foraging areas and communal roost sites" (USFWS 2007b). A detailed assessment of the potential for permanent/operational effects to the bald eagle is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Lake Sturgeon:** Lake sturgeon is present in Onondaga Lake located in the vicinity of the Central Study Area. Under the Viaduct Alternative, a 96-inch-diameter stormwater trunk line and a 42-inch-diameter stormwater trunk line would be installed in Onondaga Creek, a tributary to Onondaga Lake, in order to separate the stormwater from the sanitary sewer and reduce combined sewer overflows, leading to water quality improvements in Onondaga Creek and Onondaga Lake. Under the Viaduct Alternative, the amount of impervious area in the Central Study Area (144.2 acres) would decrease by 2.0 acres, or 1.4 percent, with corresponding reductions in stormwater runoff volumes and pollutant loadings. The new stormwater system would also include BMPs such as hydrodynamic stormwater treatment units and infiltration/detention basins, which would improve stormwater quality prior to it entering the stormwater trunk lines. Despite the overall decrease in impervious area in the Central Study Area, the total highway lane miles in the Central Study Area would increase by 17.9 percent, leading to corresponding increases in chloride loadings to Lower Onondaga Creek, when compared with the No Build Alternative. However, the concentration of chloride in Onondaga Creek, and thus the lake, would not substantially increase under this alternative. The percent increase between the Viaduct Alternative and No Build Alternative is 0.04 percent. The concentration of chloride in Onondaga Lake in 2013, as measured by Onondaga County Department of Water Environment Protection's Ambient Monitoring Program, ranged from 355 to 643 mg/L. The USEPA chronic toxicity water quality criteria concentration of chloride, for the majority of aquatic species, is 230 mg/L, while the acute toxicity concentration is 860 mg/L. The increase in chloride loading would be even less noticeable in Onondaga Lake, as the much larger water body would dilute the chloride concentrations entering from Onondaga Creek. Additionally, the Project would have a reduction in the total amount of

impervious area in the Central Study Area, which could lead to a reduction in chloride applications, and a benefit to water quality not indicated by the analyses.

BMPs that incorporate green infrastructure components (e.g., source-control stormwater management, such as permeable pavements, and bioretention areas, such as rain gardens) would be considered for integration into the public ROW. Where little space is available, underground detention basins and hydrodynamic devices would be considered. These BMPs would ensure there would be no net increase in stormwater flow to receiving surface waters (i.e., Onondaga Creek) within the Central Study Area and that all roadway runoff from the Viaduct Alternative would be treated for water quality prior to discharge to surface waters. A detailed assessment of the potential for permanent/operational effects to the lake sturgeon is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Seaside Bulrush:** Seaside bulrush has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for this species to occur within the Central Study Area. Also, as described above, seaside bulrush was not found during targeted surveys for this species in the Central Study Area. Therefore, no adverse effects to seaside bulrush would result from the operation of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).
- **Midland Sedge:** Midland sedge has been recorded by NYNHP in terrestrial cultural ecological communities in the vicinity of the Central Study Area. Given its habitat requirements, there is the potential for midland sedge to occur in the Central Study Area. However, as described above, Midland sedge was not found during targeted surveys for this species in the Central Study Area. Therefore, no adverse effects to midland sedge would result from the operation of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).
- **Saltmarsh Aster:** Saltmarsh aster is a State-listed Threatened species that has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for salt marsh aster to occur in the Central Study Area. However, as previously described, saltmarsh aster was not found during targeted surveys for this species in the Central Study Area. Therefore, no adverse effects to saltmarsh aster would result from the operation of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).
- **Reflexed Sedge:** Reflexed sedge has been recorded by NYNHP in terrestrial cultural ecological communities in the vicinity of the Central Study Area. Given its habitat requirements, there is the potential for reflexed sedge to occur in the Central Study Area. However, as described above, reflexed sedge was not found during targeted surveys for this species in the Central Study Area. Therefore, no adverse effects to reflexed sedge would result from the operation of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).
- **Straight-leaved Pondweed:** Straight-leaved pondweed has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for straight-leaved pondweed to occur within the vicinity of the Central Study Area. As described above, straight-leaved pondweed was not found during targeted surveys for this species in the Central Study Area. Therefore, no adverse effects to straight-leaved pondweed would result from the operation of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).

- **Glomerate Sedge:** The glomerate sedge was recorded by NYNHP near the Central Study Area. Given its habitat requirements, there is potential for glomerate sedge to occur within the Central Study Area. It is a violation of the Environmental Conservation Law (ECL) S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where glomerate sedge has the potential to occur within the ROW is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of glomerate sedge. If glomerate sedge is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to glomerate sedge as a result of the operation of the Viaduct Alternative (see **Appendix J-7**).
- **Inland Salt Pond:** The inland salt pond ecological community has been documented by NYNHP as occurring in the vicinity of the Central Study Area. However, as described above, based on field surveys this community is not present within Central Study Area. Therefore, no adverse effects to this ecological community would result from operation of the Viaduct Alternative.

I-481 South Study Area

- **Indiana Bat:** According to the NYNHP database, the I-481 South Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum but less than 0.25 miles from a known Indiana bat roost tree (USFWS required buffers). The I-481 South Study Area is located within 2.5 miles from a known hibernaculum, and less than 2.5 miles of a known Indiana bat roost tree (NYSDEC required buffers). As discussed in **Appendix J-8**, trees would not be removed in the I-481 South Study Area for the Viaduct Alternative.

  Any bridges in the I-481 South Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. If any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted if any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for permanent/operational effects to Indiana Bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Northern Long-eared Bat:** According to the NYNHP database, the I-481 South Study Area is located more than 0.5 miles from a known northern long-eared bat hibernaculum and more than 150 feet from a known northern long-eared bat roost tree (USFWS required buffer). The I-481 South Study Area is more than 1.5 miles from a known northern long-eared bat roost tree, but it is less than 5.0 miles from a known northern long-eared bat hibernaculum (NYSDEC required buffers). As discussed in **Appendix J-8**, trees would not be removed in the I-481 South Study Area for the Viaduct Alternative.

Any bridges in the I-481 South Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern long-eared bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

A detailed assessment of the potential for permanent/operational effects to northern long-eared bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** The IPaC system results indicate that the eastern massasauga has the potential to occur within the I-481 South Study Area. However, the I-481 South Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces, and it does not contain suitable habitat of open wetlands with adjacent upland forest openings, old fields, and prairies. In addition, the NYNHP has no records of eastern massasaugas in the vicinity of the I-481 South Study Area. A detailed assessment of the potential for permanent/operational effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Small-footed Bat:** An eastern small-footed bat bachelor colony has been recorded by NYNHP in a protected area with cliffs and rocky outcrops in the vicinity of the I-481 South Study Area. There are small areas of roadcut cliff/slope adjacent to the I-81 ROW within the vicinity of the I-481 South Study Area, which have the potential on unlikely occasions to be used for diurnal roosting by eastern small-footed bats. However, construction within the I-481 South Study Area under the Viaduct Alternative would be limited to the construction of Noise Barrier 9 and would not occur within the roadcut cliff/slope community.

  Given that there are Federally-listed bat species (i.e., Indiana and northern long-eared bats) records for the I-481 South, I-481 East, and I-481 North Study Areas, all existing bridges involving work as part of this Project in the I-481 South, I-481 East, and I-481 North Study Areas would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, avoidance and minimization measures established for the Federally listed species (i.e., Indiana bat and long eared bat), described above, would also be adopted for protection of the small-footed bat to the greatest extent possible, as applicable, and in consultation with NYSDEC.

  A detailed assessment of the potential for permanent/operational effects to eastern small-footed bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **American Hart's-Tongue Fern:** The IPaC results indicate that the American hart's-tongue fern may occur within the I-481 South Study Area. However, the upland ecological communities of the I-481 South Study Area are associated with maintained ROWs, successional old fields and shrublands, and successional forests located along the edges of the ROW. All these ecological communities are associated with disturbance and do not contain the deep shade and cool, moist, rocky, calcareous substrates of its preferred habitat. Remnants of low quality rocky (i.e., roadcut cliff/slope) habitat are present within the I-481 South Study Area. As a conservative measure, targeted surveys for American hart's-tongue fern were conducted within portions of the I-481 South Study Area that contain habitat with the potential to support this species, and none were found. A detailed assessment of the potential for permanent/operational effects to the American hart's-tongue fern is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Midland Sedge:** Midland sedge has been recorded by NYNHP in terrestrial cultural ecological communities in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is the potential for midland sedge to occur in the I-481 South Study Area. However, midland sedge was not found during targeted surveys for this species in the I-481 South Study Area. Therefore, no adverse effects to Midland sedge would result from the operation of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Reflexed Sedge:** Reflexed sedge has been recorded by NYNHP in terrestrial cultural ecological communities in the vicinity of the I-481 South Study Area. Given its habitat requirements, reflexed sedge has the potential to occur in the I-481 South Study Area. However, reflexed sedge was not found during targeted surveys for this species in the I-481 South Study Area. Therefore, no adverse effects to reflexed sedge would result from the operation of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Marsh Arrowgrass:** Marsh arrowgrass has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is the potential for marsh arrowgrass to occur within the I-481 South Study Area. As described above, marsh arrowgrass was not found during targeted surveys for this species in the I-481 South Study Area. Therefore, no adverse effects to arrowgrass would result from the operation of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Maple-basswood Rich Mesic Forest:** Maple-basswood rich mesic forest is an uncommon community type documented by NYNHP near the I-481 South Study Area. However, this community is not present within the I-481 South Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Viaduct Alternative in the I-481 South Study Area.
- **Calcareous Cliff Community:** The calcareous cliff community has been documented by NYNHP as occurring near the I-481 South Study Area. However, as also previously described, remnant cliff communities of the I-481 South Study Area are better characterized as roadcut cliff/slope communities that are disturbed and characterized by a southern successional forest cover type. Therefore, no adverse effects to this ecological community would result from the operation of the Viaduct Alternative in the I-481 South Study Area.

- **Calcareous Talus Slope Woodland:** The calcareous talus slope woodland community has been documented by NYNHP as occurring near the I-481 South Study Area. Remnant talus slopes of the I-481 South Study Area are better characterized as road cut cliff/slope communities in the I-481 South Study Area that are disturbed and characterized by a southern successional forest cover type. Therefore, no adverse effects to this ecological community would result from the operation of the Viaduct Alternative in the I-481 South Study Area.
- **Limestone Woodland:** The limestone woodland ecological community has been documented by NYNHP as occurring near the I-481 South Study Area. However, this community is not present within the I-481 South Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Viaduct Alternative in the I-481 South Study Area.

I-481 East Study Area

- **Indiana Bat:** Indiana bat is a Federally- and State-listed Endangered species. According to the NYNHP database, the I-481 East Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum and more than 0.25 miles from a known Indiana bat roost tree (USFWS required buffers). The I-481 East Study Area is also located more than 2.5 miles from a known hibernaculum and less than 2.5 miles of a known Indiana bat roost tree (NYSDEC required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. A total of 0.02 acres of trees (i.e., mowed lawn with trees), including trees measuring four inches in dbh and greater, are subject to removal in the I-481 East Study Area as part of the Viaduct Alternative.

  Any bridges in the I-481 East Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the permanent/operational effects to Indiana bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Long-eared Bat:** According to NYNHP, the I-481 East Study Area is located more than 0.5 miles from a known northern long-eared bat hibernaculum and more than 150 feet from a known northern long-eared bat roost tree (USFWS required buffer). The I-481 East Study Area is also more than 1.5 miles from a known northern long-eared bat roost tree, but less than 5.0 miles from a known northern long-eared bat hibernaculum (NYSDEC required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. The Viaduct Alternative could remove 0.02 acres of trees (i.e., mowed lawn with trees), including trees measuring four inches in dbh and greater, in the I-481 East Study Area for the Viaduct Alternative.

  Any bridges in the I-481 East Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are

determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

A detailed assessment of the permanent/operational effects to northern long-eared bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga**: The IPaC system results indicate that the eastern massasauga has the potential to occur within the I-481 East Study Area. The NYNHP has no records of eastern massasaugas in the vicinity of the I-481 East Study Area. In addition, the I-481 East Study Area lacks fens, marshes, and wet prairies that are needed to support the eastern massasauga.

  A detailed assessment of the potential for permanent/operational effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Marsh Arrowgrass:** Marsh arrowgrass has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, there is the potential for marsh arrowgrass to occur in the I-481 East Study Area. It is a violation of ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where marsh arrowgrass has the potential to occur within the ROW, including wetlands and channels, is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of marsh arrowgrass. If marsh arrowgrass is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to marsh arrowgrass as a result of the operation of the Viaduct Alternative (see **Appendix J-7**).

- **Thread-leaved Pondweed:** Thread-leaved pondweed has been recorded by NYNHP in the vicinity of the I-481 East Study Area and habitat. Given its habitat requirements, thread-leaved pondweed has low potential to occur within the I-481 East Study Area. It is a violation of ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where thread-leaved pondweed has potential to occur within the ROW is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of thread-leaved pondweed. If thread-leaved pondweed is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to thread-leaved pondweed as a result of the operation of the Viaduct Alternative (see **Appendix J-7**).

- **Blunt-lobed Grape Fern**: Blunt-lobed grape fern has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, there is low potential for the blunt-lobed grape fern to occur within the I-481 East Study Area. It is a violation of ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where blunt-lobed grape fern has the potential to occur within the ROW is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of blunt-lobed grape fern. If blunt-lobed grape fern is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to blunt-lobed grape fern as a result of the operation of the Viaduct Alternative (see **Appendix J-7**).
- **Ohio Goldenrod:** Ohio goldenrod has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, there is low potential for Ohio goldenrod to occur within the I-481 East Study Area and it was not found during targeted surveys for this species in the I-481 East Study Area. Therefore, no adverse effects to Ohio goldenrod would result from the operation of the Viaduct Alternative in the I-481 East Study Area (see **Appendix J-7**).

I-481 North Study Area

- **Indiana Bat:** According to the NYNHP, the I-481 North Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum, more than 0.25 miles from a known Indiana bat roost tree (USFWS required buffers), and more than 2.5 miles from a known hibernaculum or roost tree (NYSDEC required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. A total of 0.75 acres of trees (i.e., floodplain forest [0.1 acres], mowed lawn with trees [0.2 acres], successional old field [0.02 acres], successional southern hardwoods [0.4 acres]), and freshwater wetlands [0.02 acres]), including trees measuring four inches in dbh and greater, are subject to removal in the I-481 North Study Area for the Viaduct Alternative.

  Any bridges in the I-481 North Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action. No new roadway would be built in this study area as part of the Viaduct Alternative.

  A detailed assessment of the potential for permanent/operational effects to Indiana bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Northern Long-eared Bat:** USFWS IPaC System results do not identify the northern long-eared bat as having the potential to occur within the I-481 North Study Area. According to NYNHP,

the I-481 North Study Area is located more than 0.5 miles from a known hibernaculum and more than 150 feet from a known northern long-eared bat roost tree (USFWS required buffers), and more than 5.0 miles from a known hibernaculum, but less than 1.5 miles from a known northern long-eared bat roost tree (NYSDEC required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. A total of 0.75 acres of trees (i.e., floodplain forest [0.1 acres], mowed lawn with trees [0.2 acres], successional old field [0.02 acres], successional southern hardwoods [0.4 acres], and freshwater wetlands [0.02 acres]), including trees measuring four inches in dbh and greater, are subject to removal in the I-481 North Study Area as part of the construction of potential noise barriers under the Viaduct Alternative. No new roadway would be built in this study area as part of the Viaduct Alternative.

A detailed assessment of the potential for permanent/operational effects to northern long-eared bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** The IPaC system results indicated that the eastern massasauga has the potential to occur within the I-481 North Study Area. The NYNHP has a record of eastern massasauga occurring adjacent to the I-481 North Study Area. Mud Creek, on the eastern edge of the I-481 North Study Area, has a hydrological connection to known eastern massasauga habitat. There is no habitat within the I-481 North Study Area that is suitable for supporting eastern massasauga. Nevertheless, as a protective measure to avoid any potential for direct effects to any eastern massasaugas, rattlesnake fencing would be erected around the limits of disturbance prior to construction to prevent eastern massasaugas from being able to enter the construction area.

  A detailed assessment of the potential for permanent/operational effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Least Bittern:** Least bittern has been documented by NYNHP as nesting within 600 feet of the I-481 North Study Area. Least bittern inhabits freshwater and brackish marshes with tall, dense vegetation including cattails, sedges, reeds, bulrushes, sawgrass, smartweed, arrowhead, buttonbush, and other emergent wetland vegetation. It can also be found at the edges of lakes and rivers with emergent and tall vegetation but prefers marshes with scattered bushes or other woody growth. Wetland habitat within and around the I-481 North Study Area is limited to drainage ditches, creeks, and common-reed dominated and forested wetlands along I-481 and within the quadrants of the I-81 and I-481 highway interchange and is not considered ideal habitat for least bitterns. Therefore, least bitterns are not considered to have the potential to occur within the I-481 North Study Area.

  A detailed assessment of the potential for permanent/operational effects to the least bittern is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**.)

- **Northern Harrier:** NYNHP has a record of northern harriers breeding within 1.5 miles of the I-481 North Study Area. Northern harriers inhabit areas such as grasslands, old fields, pastures, croplands, and salt marshes during both the breeding and non-breeding periods (Smith et al. 2011).

The closest such habitat to the I-481 North Study Area that is potentially suitable for northern harriers includes the Cicero Swamp Wildlife Management Area and some agricultural fields that are approximately 1.5 and 1.2 miles to the east, respectively, and the marshes of a large wetland complex that is approximately 1.2 miles to the west, along State Route 481. Non-breeding northern harriers, which are much less sensitive to human disturbance than when breeding, might also be expected to occur in the open fields of the Syracuse Hancock International Airport. There is no suitable breeding or non-breeding habitat for northern harriers within the I-481 North Study Area, which is primarily limited to roadside grass, small and degraded common reed-dominated wetlands bordering drainage ditches and within clover leaves of the I-481 and I-81 interchange, and small fragments of woodland. None of these habitat types would support breeding or non-breeding northern harriers, and therefore, northern harriers are not considered to have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for permanent/operational effects to the northern harrier is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Bog Elfin:** The NYNHP has a record of bog elfins within the vicinity of the I-481 North Study Area. It is primarily found in the black spruce-tamarack bog ecological community and peat bogs associated with its hostplant, black spruce (Shepherd 2005). However, this ecological community does not occur within the I-481 North Study Area. In addition, the last documented observation of bog elfin in New York State was made in 1988 (Miller 1995) and the species is now considered extirpated from the state (NYSDEC 2016). There is no habitat for bog elfin within the I-481 North Study Area, which is primarily limited to roadside grass, small and degraded common reed-dominated wetlands bordering drainage ditches and within clover leaves of the I-481 and I-81 interchange, and small fragments of woodland. Given that the bog elfin is considered extirpated from NY and none of the habitats within the I-481 North Study Area would support the species, bog elfins do not have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for permanent/operational effects to the bog elfin is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Troublesome Sedge:** Troublesome sedge has been recorded by NYNHP in vicinity of the I-481 North Study Area. Given its habitat requirements, troublesome sedge has the potential to occur within the I-481 North Study Area. However, troublesome sedge was not found during targeted surveys for this species in the I-481 North Study Area. Therefore, no adverse effects to troublesome sedge would result from the operation of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Southern Twayblade:** Southern twayblade has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is a low potential for southern twayblade to occur within the I-481 North Study Area. It is a violation of ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where southern twayblade has the potential to occur within the ROW is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of southern twayblade. If southern twayblade is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or

other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to southern twayblade as a result of the operation of the Viaduct Alternative (see **Appendix J-7**).

- **Large Twayblade:** Large twayblade has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is potential for southern twayblade to occur within the I-481 North Study Area. It is a violation of ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where large twayblade has the potential to occur within the ROW is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of large twayblade. If large twayblade is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to large twayblade as a result of the operation of the Viaduct Alternative (see **Appendix J-7**).
- **Red Pigweed:** Red pigweed has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is a low potential for red pigweed to occur within the I-481 North Study Area. It is a violation of ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where red pigweed has the potential to occur within the ROW is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of red pigweed. If red pigweed is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to red pigweed as a result of the operation of the Viaduct Alternative (see **Appendix J-7**).
- **Black Spruce-Tamarack Bog:** The black spruce-tamarack bog community has been documented by NYNHP as occurring in the vicinity of the I-481 North Study Area. However, as described above, this community is not present within the I-481 North Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Viaduct Alternative for the I-481 North Study Area.

6-4-8.3.2 CONSTRUCTION EFFECTS

Construction effects are temporary and short term in nature, such as temporary fill in freshwater wetlands for construction access, associated temporary work related to roadway and bridge improvements, and lighting and noise disturbances to wildlife from construction equipment. This subsection provides a conservative assessment of potential construction effects to natural resources within the Project Area; the effects presented herein could be reduced as the design advances.

Terrestrial Resources

Ecological Communities

As discussed in **Chapter 4, Construction Means and Methods**, the Contractor would be responsible for identifying construction staging sites. It is expected that the Contractor would seek out underutilized sites, such as vacant parcels or land currently used for surface parking, for staging. As described above, the Central Study Area contains disturbed habitats including terrestrial cultural and successional southern hardwoods ecological communities. Temporary staging sites would be located in similar habitats close to the construction zone in the Central Study Area. For potential noise barrier construction in the I-481 East and I-481 North Study Areas, the areas contain disturbed habitats including terrestrial cultural, successional old field, successional shrubland, successional southern hardwood, and floodplain forest ecological communities. These disturbed ecological communities are widespread and common in the region, and the use of these areas for construction staging would represent a negligible reduction in the coverage of these ecological communities within the region. Furthermore, it is expected that the Contractor would select sites close to the construction zone that require minimal pre-construction preparation (e.g., clearing of vegetation and trees) and post-construction restoration (e.g., planting of trees), when practicable.

During construction, measures (i.e., cleaning of construction equipment and proper transportation/disposal of soils containing invasive species) as per Section 4.8.3 "Invasive Species Control Methods for Maintenance and Construction" (September 10, 2004) of the TEM would be implemented to avoid the spread of invasive plant species that may occur in the disturbed ecological communities of these sites. Following construction, these sites would be restored to existing or improved conditions. Restoration would involve revegetation of these temporarily disturbed sites as part a Landscape Restoration Plan. Thus, it is not anticipated that the temporary loss of terrestrial cultural and successional southern hardwoods ecological communities due to construction staging would result in adverse effects under the Viaduct Alternative. Furthermore, the construction measures described above would meet the intent of EO 13112 "Safeguarding the Nation from the Impacts of Invasive Species" and NYCRR Part 575 "Invasive Species Regulations" under the Viaduct Alternative.

Wildlife

Clearing of terrestrial cultural ecological communities would occur as part of the construction of the Viaduct Alternative (**Table 6-4-8-3**). As described above, these habitats are widespread and common in the region, and the use of these areas for construction staging would represent a negligible reduction in the amount of habitat available to wildlife in the area. Any reductions in the number of individuals inhabiting these communities would not affect the size or viability of their local populations and would not change the assemblage of wildlife species present. Overall, land disturbance required to construct the Viaduct Alternative would not have adverse effects to wildlife at the individual, population, or community level. Tree clearing would be conducted during the winter to avoid effects to Indiana and northern long-eared bats (see below), and therefore, there would also be minimal potential for direct effects to tree-nesting birds or their nests. Because construction of the Viaduct Alternative would not result in the direct take of birds, it would be in compliance with the Migratory Bird Treaty Act.

Noises generated during the construction (e.g., heavy machinery or generators) of the Viaduct Alternative would not be likely to have long-lasting effects to wildlife in the Central Study Area due to high existing levels of noise and other human disturbance from automobile traffic and other

sources. As discussed in **Section 6-4-6, Noise**, construction may result in noticeable increases in noise levels in most of the Central Study Area, but these effects would be temporary, shortened by the proposed accelerated construction schedule, and abated by several measures. Wildlife communities in the Central Study Area have been established under noisy existing conditions, and as such, are inherently disturbance-tolerant (cf. Bonier et al. 2007, Francis et al. 2009). Visual and auditory disturbances during construction would potentially displace some individuals of some species from the immediate vicinity of the site of activity. However, overall, construction activities would not be expected to increase levels of disturbance to the extent that there would be alterations in species assemblages or otherwise negative changes to wildlife communities in the surrounding area relative to the present state. Individuals that would potentially briefly relocate in response to the construction noise could easily acquire suitable alternative habitat given that comparable areas of terrestrial cultural and successional southern hardwoods ecological communities are abundant in the area. Any such relocation away from the area of disturbance would not be expected to adversely affect these individuals in the long term (Gill et al. 2001). Overall, noises generated during construction would not have adverse effects to wildlife within the Central Study Area.

Threatened or Endangered Species

Preliminary effect determinations for Federally-listed species and State-listed Species, having the potential to occur within the vicinity of the Viaduct Alternative Project Area, are presented in the BE (see **Appendix J-8**) and Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**), respectively, and are summarized in **Table 6-4-8-4**. A discussion about the temporary effects that construction of the Viaduct Alternative would have on Federally-listed and State-listed species is included below.

NYSDOT has made the following preliminary effect determinations for Federally-listed species with the potential to occur in the Project Area during the construction of the Viaduct Alternative: "May Affect, Not Likely to Adversely Affect" for Indiana bat and northern long-eared bat; "No Effect-No Habitat" for the eastern massasauga; "No Effect" American hart's-tongue fern; and "Take Unlikely" for the bald eagle.[13] For State-listed species NYSDOT has made a preliminary effect determination of "Take Not Likely" for all State-listed species with the potential to occur in the Project Area during the construction of the Viaduct Alternative. Coordination among FHWA, USFWS, and NYSDEC regarding Federally- and State-listed species is ongoing.

Central Study Area

- **Indiana Bat:** USFWS IPaC System results do not identify the Indiana bat as having the potential to occur within the Central Study Area. Indiana bats have a low potential to occur within the Central Study Area and are not expected to be affected by construction of the Viaduct Alternative.

  A detailed assessment of the potential for construction effects to Indiana bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

[13] Each Federal Effect Determination is made in accordance with the Endangered Species Act (16 U.S.C. §1531), with the exception of the bald eagle, which is made in accordance with Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

- **Northern Long-Eared Bat:** USFWS IPaC System results do not identify the northern long-eared bat as having the potential to occur within the Central Study Area. Northern long-eared bats have a low potential to occur within the Central Study Area and would be unlikely affected by construction of the Viaduct Alternative.

  A detailed assessment of the potential for construction effects to northern long-eared bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** Eastern massasauga does not have the potential to occur within the Central Study Area and would not be affected by construction of the Viaduct Alternative. A detailed assessment of the potential for construction effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Peregrine Falcon:** Peregrine falcons will tolerate almost any level of human activity taking place below their nest provided that the nest is inaccessible (Ratcliffe 1972) to humans or predators. The known peregrine falcon nest box is located outside of the area that may be disturbed by construction. Should construction or construction staging take place near the nest box, then measures would be implemented by the Contractor to avoid disruptions to the nest box, including the establishment of any required buffers or monitoring based on coordination with NYSDEC. A detailed assessment of the potential for construction effects to the peregrine falcon is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Bald Eagle**: Non-breeding bald eagles have been observed perching and foraging along the southeastern shoreline of Onondaga Lake. This area is on the periphery of the Central Study Area and therefore non-breeding bald eagles have the potential to occur there.

  The sensitivity of bald eagles to human disturbance is greatest during courtship and nest-building, which take place in New York between December and March, and then declines as the nesting period progresses and eventually ends (USFWS 2007b). Decades ago, bald eagles were considered to be sensitive to human disturbance even outside of the breeding season (e.g., Stalmaster and Newman 1978, Nye 1994, Stalmaster and Kaiser 1997), with concern that repeated displacement from important roosting and foraging areas could waste energy reserves at a time of year when energy demands are high (Stalmaster and Gessaman 1984). Since then, however, bald eagles have shown a rapid and substantial generational habituation to human disturbance during both the breeding and non-breeding periods, and an increasing tolerance of development, including urbanization (Johnson 2010, Guinn 2013). In many parts of their range, bald eagles are increasingly nesting and occurring during the non-breeding periods in areas with heavy levels of human activity where they would almost never be found only a few decades ago (Millsap et al. 2004, Guinn 2013). This includes nesting by bald eagles in recent years within major metropolitan areas (Sullivan 2016). The use of Onondaga Lake in the City of Syracuse by bald eagles is another such example of bald eagles having acclimated to an urban area with extremely high levels of disturbance. Any non-breeding bald eagles utilizing the lake and its shorelines inherently display a high tolerance of human activity as well as degraded habitat.

Construction of the Viaduct Alternative would include the reconstruction of ramps connecting I-81 to Park Street, State Route 370, and Old Liverpool Road. The closest construction activity to Onondaga Lake would consist of road repaving approximately 200 feet away from the southeastern shoreline. At slightly greater distances, the road reconstruction would likely include louder activities such as jack-hammering and pile-driving. The USFWS Bald Eagle Management Guidelines (USFWS 2007b) do not provide guidance on buffer distances for construction disturbance near habitats used by non-breeding eagles but recommend a minimum buffer of 330 feet from nests. Given the much lower sensitivity of bald eagles to disturbance during the non-breeding period compared to the nesting period (USFWS 2007b) and the high existing levels of disturbance and urban setting of the area of Onondaga Lake where non-breeding bald eagles have been observed, a minimum distance of 200 feet from the closest area of construction to the closest point of lakeshore where non-breeding eagles could occur is expected to be more than sufficient for reducing the likelihood of any potential disturbance from construction noise. In the event that any bald eagles would be displaced by construction noise from the small area of the lake and shoreline near the site of construction, the effect would be temporary, and the eagles would be able to easily distance themselves from the activity and utilize nearby areas of the lake and its shoreline without negative consequence. Given that paved roads with heavy traffic are already present near the shoreline in this area, construction of the Viaduct Alternative would not eliminate high quality habitat, introduce human disturbance to a previously disturbance-free area, or otherwise permanently alter the current conditions on Onondaga Lake for non-breeding bald eagles. The Viaduct Alternative would not "create disruptive activities or development in the direct flight paths of eagles between roost sites and important foraging areas," and in all other aspects would be in accordance with the USFWS Bald Eagle Management Guidelines' "recommendations for avoiding disturbance at foraging areas and communal roost sites" (USFWS 2007b). A detailed assessment of the potential for construction effects to bald eagle (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Lake Sturgeon:** Lake sturgeon occur in Onondaga Lake and have the potential to occur in the Onondaga Creek and Ley Creek. As described in **Section 6-4-7, Water Resources**, the implementation of erosion and sediment controls (e.g., silt fences and inlet protection) in accordance with the 2016 New York State Standards and Specifications for Erosion and Sediment Control ("Blue Book"), the SWPPP prepared to meet the requirements of SPDES General Permit GP-0-20-001, and NYSDOT Highway Design Manual, Chapter 8 Highway Drainage would minimize the potential for construction activities to result in adverse effects to surface water quality within the Central Study Area. A detailed assessment of the potential for construction effects to the lake sturgeon is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Seaside Bulrush:** Seaside bulrush has been recorded by NYNHP in the vicinity of the Central Study Area. However, given its habitat requirements, there is the low potential for seaside bulrush to occur in the Central Study Area. As described above, seaside bulrush was not found during targeted surveys for this species within the Central Study Area. Therefore, seaside bulrush would not be adversely affected during the construction of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).

- **Midland Sedge:** Midland sedge has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is the potential for midland sedge to occur in the Central Study Area. As described previously, Midland sedge was not found during targeted surveys for this species within the Central Study Area. Therefore, Midland sedge would not be adversely affected during the construction of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).
- **Saltmarsh Aster:** Saltmarsh aster has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for saltmarsh aster to occur within the Central Study Area. As described above, saltmarsh aster was not found during targeted surveys for this species within the Central Study Area. Therefore, saltmarsh aster would not be adversely affected during the construction of the Viaduct Alternative in the Central Study Area.
- **Reflexed Sedge:** Reflexed sedge has been recorded by NYNHP in the Central Study Area. Given its habitat requirements, reflexed sedge has the potential to occur in the Central Study Area. As described above, reflexed sedge was not found during targeted surveys for this species within the Central Study Area. Therefore, reflexed sedge would not be adversely affected during the construction of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).
- **Straight-Leaved Pondweed:** Straight-leaved pondweed has been recorded by NYNHP in the Central Study Area. Given its habitat requirements, there is low potential for straight-leaved pondweed to occur within the vicinity of the Central Study Area. As described above, straight-leaved pondweed was not found during targeted surveys for this species in the Central Study Area. Therefore, straight-leaf pondweed would not be adversely affected during the construction of the Viaduct Alternative in the Central Study Area.
- **Glomerate Sedge:** Glomerate sedge has been recorded by NYNHP near the Central Study Area. Given its habitat requirements, there is potential for glomerate sedge to occur within the Central Study Area. During final design, efforts would be made to confirm the presence or absence of glomerate sedge within the Central Study Area. If glomerate sedge is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. Therefore, glomerate sedge would not be adversely affected during the construction of the Viaduct Alternative.
- **Inland Salt Pond:** The inland salt pond ecological community is not present within the Central Study Area. Therefore, this ecological community would not be adversely affected during the construction of the Viaduct Alternative.

I-481 South Study Area

- **Indiana Bat:** Indiana bats have a low potential to occur within the I-481 South Study Area and are not expected to be affected by construction of the Viaduct Alternative. As discussed in **Appendix J-8**, trees would not be removed in the I-481 South Study Area for the Viaduct Alternative. Should it be determined that tree clearing would be required, as a precaution, tree

clearing during construction would be limited to the winter hibernation period (November 1 to March 31) when Indiana bats would not be present.

Any bridges in the I-481 South Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

A detailed assessment of the potential for construction effects to Indiana bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Long-Eared Bat:** As described above, northern long-eared bats have a low potential to occur within the I-481 South Study Area and are not expected to be affected by construction of the Viaduct Alternative. As discussed in **Appendix J-8**, trees would not be removed in the I-481 South Study Area for the Viaduct Alternative. Should it be determined that tree clearing would be required, as a precaution, tree clearing during construction would be limited to the winter hibernation period (November 1 to March 31) when northern long-eared bats would not be present.

  Any bridges in the I-481 South Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. If any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted if any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for construction effects to northern long-eared bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** The eastern massasauga unlikely occurs within the I-481 South Study Area and would not be affected by construction of the Viaduct Alternative. A detailed assessment of the potential for construction effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Small-footed Bat:** Eastern small-footed bats have a low potential to occur within the I-481 South Study Area and are not expected to be affected by construction of the Viaduct Alternative. As described above, construction in the I-481 South Study Area would be limited to the immediate vicinity of potential Noise Barrier 9 and no work would occur in the roadcut

cliff/slope community, a habitat potentially used by small-footed bats for temporary day-roosts, during construction of the Viaduct Alternative.

Given that there are Federally-listed bat species (i.e., Indiana and northern long-eared bats) records for the I-481 South, I-481 East, and I-481 North Study Areas, all existing bridges involving work as part of this Project in the I-481 South, I-481 East, and I-481 North Study Areas would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, avoidance and minimization measures established for the Federally-listed species (i.e., Indiana bat and long eared bat), described above, would also be adopted for protection of the small-footed bat to the greatest extent possible, as applicable, and in consultation with NYSDEC.

- **American Hart's-Tongue Fern:** Targeted surveys for American hart's-tongue fern were conducted within portions of the I-481 South Study Area that contains habitat with the potential to support this species, and no American hart's-tongue fern individuals were found. Furthermore, construction of project elements (roadway and noise barriers) is not anticipated in the I-481 South Study Area under the Viaduct Alternative. Therefore, American hart's tongue fern would not be adversely affected during the construction of the Viaduct Alternative in the I-481 South Study Area. A detailed assessment of the potential for permanent/operational effects to the American hart's-tongue fern (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Midland Sedge:** The Midland sedge has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is the potential for midland sedge to occur in the I-481 South Study Area. As described above, midland sedge was not found during targeted surveys for this species within the I-481 South Study Area. Therefore, midland sedge would not be adversely affected during the construction of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Reflexed Sedge:** The reflexed sedge has been recorded by NYNHP in the I-481 South Study Area. Given its habitat requirements, reflexed sedge has the potential to occur in the I-481 South Study Area. As described above, reflexed sedge was not found during surveys for this species in the I-481 South Study Area. Therefore, reflexed sedge would not be adversely affected during the construction of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Marsh Arrowgrass:** The marsh arrowgrass has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is the potential for marsh arrowgrass to occur in the I-481 South Study Area. As described above, marsh arrowgrass was not found during surveys for this species in the I-481 South Study Area. Therefore, marsh arrowgrass would not be adversely affected during the construction of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Maple-basswood Rich Mesic Forest:** The maple-basswood rich mesic forest ecological community is not present within the I-481 South Study Area. Therefore, this community would not be adversely affected by construction of the Viaduct Alternative.
- **Calcareous Cliff Community:** Low quality roadcut cliff/slope ecological communities are present within the I-481 South Study Area. These communities are disturbed and vegetation associated with southern successional forest predominates. Therefore, high quality calcareous cliff community would not be adversely affected by construction of the Viaduct Alternative.
- **Calcareous Talus Slope Woodland:** Low quality roadcut cut cliff/slope ecological communities are present within the I-481 South Study Area. As described above, these communities are disturbed and vegetation associated with southern successional forest predominates. Therefore, high quality calcareous talus slope woodland ecological communities would not be adversely affected by construction of the Viaduct Alternative.
- **Limestone Woodland:** The limestone woodland ecological community is not present within the I-481 South Study Area. Therefore, this community would not be adversely affected by construction of the Viaduct Alternative.

I-481 East Study Area

- **Indiana Bat:** Indiana bats have a low potential to occur within the I-481 East Study Area and are not expected to be affected by construction of the Viaduct Alternative. However, as a precaution, tree clearing during construction would be limited to the winter hibernation period (November 1 to March 31) when Indiana bats would not be present.

  Any bridges in the I-481 East Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for construction effects to Indiana bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Long-Eared Bat:** Northern long-eared bats have low potential to occur within the I-481 East Study Area and are not expected to be affected by construction of the Viaduct Alternative. However, as a precaution, tree clearing during construction would be limited to the winter hibernation period (November 1 to March 31) when northern long-eared bats would not be present.

  Any bridges in the I-481 East Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats

are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

A detailed assessment of the potential for construction effects to northern long-eared bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** The eastern massasauga does not have the potential to occur within the I-481 East Study Area and is not expected to be affected by construction of the Viaduct Alternative. A detailed assessment of the potential for construction effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Marsh Arrowgrass:** Marsh arrowgrass has been recorded by NYNHP near the I-481 East Study Area. Given its habitat requirements, marsh arrowgrass has the potential to occur in the I-481 East Study Area. During final design, efforts would be made to confirm the presence or absence of marsh arrowgrass within the I-481 East Study Area. If marsh arrowgrass is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. Therefore, marsh arrowgrass would not be adversely affected during the construction of the Viaduct Alternative (see **Appendix J-7**).
- **Thread-leaved Pondweed:** Thread-leaved pondweed has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, thread-leaved pondweed has a low potential to occur within the I-481 East Study Area. During final design, efforts would be made to confirm the presence or absence of thread-leaved pondweed within the I-481 East Study Area. If thread-leaved pondweed is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. Therefore, thread-leaved pondweed would not be adversely affected during the construction of the Viaduct Alternative (see **Appendix J-7**).
- **Blunt-lobed Grape Fern:** Blunt-lobed grape fern has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, there is low potential for the blunt-lobed grape fern to occur within the I-481 East Study Area. During final design, efforts would be made to confirm the presence or absence of blunt-lobed grape fern within the I-481 East Study Area. If blunt-lobed grape fern is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. Therefore, blunt-lobed grape fern would not be adversely affected during the construction of the Viaduct Alternative (see **Appendix J-7**).

- **Ohio goldenrod:** Ohio goldenrod has been recorded by NYNHP near the I-481 East Study Area. Given its habitat requirements, there is low potential for Ohio goldenrod to occur within the I-481 East Study Area. As described above, Ohio goldenrod was not found during targeted surveys for this species in the I-481 East Study Area. Therefore, Ohio goldenrod would not be adversely affected during construction of the Viaduct Alternative (see **Appendix J-7**).

I-481 North Study Area

- **Indiana Bat:** Indiana bats have low potential to occur within the I-481 North Study Area and are not expected to be affected by construction of the Viaduct Alternative. However, as a precaution, tree clearing during construction would be limited to the winter hibernation period (November 1 to March 31) when Indiana bats would not be present.

  Any bridges in the I-481 North Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for construction effects to Indiana bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

  Northern Long-Eared Bat: Northern long-eared bats have low potential to occur within the I-481 North Study Area and are not expected to be affected by construction of the Viaduct Alternative. However, as a precaution, tree clearing during construction would be limited to the winter hibernation period (November 1 to March 31) when Indiana bats would not be present.

  Any bridges in the I-481 North Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for construction effects to northern long-eared bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** Eastern massasauga does not occur in the I-481 North Study Area because it lacks preferred habitat. Nevertheless, as a protective measure to avoid any potential for direct effects to any eastern massasaugas, rattlesnake fencing would be erected around the limits of disturbance prior to construction to prevent eastern massasaugas from being able to enter the

construction area. A detailed assessment of the potential for construction effects eastern massasauga (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Least Bittern:** Least bittern has been documented by NYNHP as nesting within 600 feet of the I-481 North Study Area. Least bittern inhabits freshwater and brackish marshes with tall, dense vegetation including cattails, sedges, reeds, bulrushes, sawgrass, smartweed, arrowhead, buttonbush, and other emergent wetland vegetation. It can also be found at the edges of lakes and rivers with emergent and tall vegetation; however, it prefers marshes with scattered bushes or other woody growth. Wetland habitat within and around the I-481 North Study Area is limited to drainage ditches, creeks, and common-reed dominated and forested wetlands along I-481 and within the quadrants of the I-81 and I-481 highway interchange and is not considered ideal habitat for least bitterns. Therefore, least bitterns are not considered to have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for permanent/operational effects to the least bittern is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Northern Harrier:** The NYNHP has a record of northern harriers breeding within 1.5 miles of the I-481 North Study Area. Northern harriers inhabit areas such as grasslands, old fields, pastures, croplands, and salt marshes during both the breeding and non-breeding periods (Smith et al. 2011). As previously discussed, the closest such habitat to the I-481 North Study Area that is potentially suitable for northern harriers includes the Cicero Swamp Wildlife Management Area and some agricultural fields that are approximately 1.5 and 1.2 miles to the east, respectively, and the marshes of a large wetland complex that is approximately 1.2 miles to the west, along State Route 481. Non-breeding northern harriers, which are much less sensitive to human disturbance than when breeding, might also be expected to occur in the open fields of the Syracuse Hancock International Airport. There is no suitable breeding or non-breeding habitat for northern harriers within the I-481 North Study Area, which is primarily limited to roadside grass, small and degraded common reed-dominated wetlands bordering drainage ditches and within clover leaves of the I-481 and I-81 interchange, and small fragments of woodland. None of these habitat types would support breeding or non-breeding northern harriers, and therefore, northern harriers are not considered to have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for construction effects to northern harriers is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Bog Elfin:** The NYNHP has a record of bog elfins within the vicinity of the I-481 North Study Area. As described above, the species is considered extirpated from the state (NYSDEC 2016). Therefore, bog elfins do not have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for construction effects to bog elfins is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Troublesome Sedge:** Troublesome sedge has been recorded by NYNHP in vicinity of the I-481 North Study Area. Given its habitat requirements, troublesome sedge has the potential to occur within the I-481 North Study Area. As described above, troublesome sedge was not found during targeted surveys for this species in the I-481 North Study Area. Therefore, troublesome sedge

would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Southern Twayblade:** Southern twayblade has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is a low potential for southern twayblade to occur within the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of southern twayblade within the I-481 North Study Area. If southern twayblade is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. Therefore, southern twayblade would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area.
- **Large Twayblade:** Large twayblade has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is potential for southern twayblade to occur within the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of large twayblade within the I-481 North Study Area. If large twayblade is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. Therefore, large twayblade would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area (**Appendix J-7**).
- **Red Pigweed:** Red pigweed has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is a low potential for red pigweed to occur within the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of red pigweed within the I-481 North Study Area. If red pigweed is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. Therefore, red pigweed would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area.
- **Black Spruce-Tamarack Bog:** The black spruce-tamarack ecological community is not present within the I-481 North Study Area. Therefore, this community would not be adversely affected by construction of the Viaduct Alternative.

6-4-8.3.3 INDIRECT EFFECTS

The Viaduct Alternative would result in the replacement of an existing use in-kind, and therefore, would not result in any substantial induced development in ecological communities of the Project Area. The Viaduct Alternative would not indirectly result in indirect effects to the general ecology and wildlife of the Project Area. Therefore, no indirect effects would result from the Viaduct Alternative.

6-4-8.3.4 CUMULATIVE EFFECTS

The Viaduct Alternative has the potential to be constructed simultaneously with private and public development projects on vacant or underused land near the Project Area. However, the projects would not be constructed in areas of significant ecological communities nor would they be expected to result in adverse effects on wildlife including Federally- and State-listed species. Therefore, the Viaduct Alternative would not result in adverse cumulative effects to general ecology and wildlife resources.

6-4-8.3.5 MITIGATION

With respect to ecological communities, areas disturbed during construction that are not part of the permanent project footprint would be revegetated to the greatest extent practicable with plant species indigenous to this region of New York in accordance with a Landscape Restoration Plan.

Mitigation may be required for tree cutting in Indiana and northern long-eared bat habitat. As design advances and scheduling for tree cutting is planned, any required mitigation would be coordinated with FHWA, USFWS, and NYSDEC.

6-4-8.4 ENVIRONMENTAL CONSEQUENCES OF THE COMMUNITY GRID ALTERNATIVE

6-4-8.4.1 PERMANENT/OPERATIONAL EFFECTS

The Community Grid Alternative would alter 1,050.4 acres of land in the Project Area.

Terrestrial Resources

Ecological Communities

The Community Grid Alternative would permanently affect 1,050.4 acres of ecological communities as listed in **Table 6-4-8-5**, comprising 771.4 acres of terrestrial cultural ecological communities, 69.4 acres of successional southern hardwood (including 5.7 acres in a roadcut cliff/slope community[14]), 91.7 acres of successional old field, 42.9 acres of successional shrubland, 74.0 acres of floodplain forest, 0.89 acres of freshwater wetlands, and 0.07 acres of open surface waters. Generally, these communities represent fragmented habitat as they are limited to interchange areas, maintained ROW, and edges of the ROW and are characterized by disturbance and/or non-native or invasive species Furthermore, all of the ecological communities affected by the Community Grid Alternative are common to the area. Within the Project Area, they are of low ecological value due to low species diversity, high level of anthropogenic activities, and dominance of non-native and invasive vegetation.

[14] A roadcut cliff/slope ecological community is present in the I-481 South Study Area. The vegetation of this community consists of successional southern hardwoods. Therefore, road cut cliff/slope ecological community acreages are counted with the successional southern hardwoods acreages.

Table 6-4-8-5
Community Grid Alternative: Approximate Ecological Communities Operational Effects within the Project Area

Ecological Community	Approximate Existing Coverage (acres)	Approximate Roadway Footprint—All Study Areas (acres)	Approximate Noise Barrier Footprint—All Study Areas (acres)	Approximate Total Effects (acres)	Approximate Total Unaffected Area (acres)
Terrestrial Cultural*	1,249.4	755.9	15.5	771.4	478.0
Successional Southern Hardwoods**	117.9	66.3	3.1	69.4	48.5
Successional Old Field	121.4	90.4	1.3	91.7	29.7
Successional Shrubland	54.1	40.6	2.3	42.9	11.2
Floodplain Forest	133.4	72.1	1.9	74.0	59.4
Freshwater Wetland***	132.9	0.79	0.11	0.89	132.0
Open Surface Waters***	19.3	0.06	0.01	0.07	19.2
Estimated Total	**1,828.4**	**1,026.2**	**24.2**	**1,050.4**	**778.0**

Notes: The acreages for the "Approximate Noise Barrier Footprint-All Study Areas (acres)" column include a 10 ft buffer area around each potential noise barrier. Unless otherwise stated, up to approximately 30 percent of the noise barrier effects overlap with the roadway effects (portions of the noise barriers would be built on pavement). This 30 percent is included in these effects calculations as a conservative measure. The areas of roadway/noise barrier overlap are in disturbed communities of the Project Area.
*Includes paved road/path, railroad, junkyard, urban vacant lot, mowed lawn, mowed lawn with trees, and garden communities. Ecological community observations were made during field investigations in 2016, 2017, 2019, 2020, and 2021.
**A roadcut cliff/slope ecological community (6.0 acres) is present in the I-481 South Study Area. The vegetation of this community consists of successional southern hardwoods. Therefore, roadcut cliff/slope ecological community acreages are counted with the successional southern hardwoods acreages.
***Wetlands and open surface waters calculations are based wetland delineation and land survey work conducted in 2017 and 2019 and a wetlands mapping and assessment conducted in 2020 and 2021. The effects to wetlands and surface waters are detailed in **Section 6-4-7, Water Resources**.
Source: Ecological community names and descriptions are derived from "Ecological Communities of New York State" (Edinger et al. 2014). Note that the freshwater wetland adjacent area acreages are also included in the terrestrial ecological communities' acreage calculations.

A total of 17.9 acres of permanent tree loss would result from the Community Grid Alternative. This removal would occur in terrestrial ecological, floodplain forest, successional shrubland, successional southern hardwood, successional old field, and freshwater wetland communities.

With respect to terrestrial cultural communities (1,249.4 acres), disturbance (771.4 acres) in these habitats would result in the conversion of one terrestrial cultural community type (e.g., urban vacant lot) to another terrestrial cultural community type (e.g., paved roads, maintained ROW) and the Project would not result in any loss of the terrestrial cultural community type overall. The conversion of currently disturbed ecological communities as part of the Community Grid Alternative from one community type to another would not result in adverse effects to such communities throughout the region. Temporary effects to ecological communities as a result of the Project are discussed in **Section 6-4-8.3.2, Construction Effects**, including the revegetation of temporarily disturbed areas with native plant species in accordance with a Landscape Restoration Plan that would be developed for the Project.

As discussed above and in detail in **Section 6-4-7, Water Resources**, 0.89 acres of freshwater wetlands and a total of 0.07 acres of open surface waters (a total of 0.96 acres) would be permanently affected by the Community Grid Alternative. As described in **Section 6-4-7, Water Resources**,

NYSDOT has been coordinating with the USACE and NYSDEC on possible wetland and stream mitigation options. As a result of this coordination, a conceptual mitigation plan has been accepted by USACE and NYSDEC. The conceptual mitigation for NYSDEC wetlands and stream mitigation for the Project would occur in the I-481 North Study Area ROW where enhancements would be made to Mud Creek and its floodplain. Effects to Federal wetlands would be mitigated through an in lieu fee program.

Non-native and invasive species would not be included in the landscape plan. Therefore, the Community Grid Alternative would be in compliance with EO 13112, "Safeguarding the Nation from the Impacts of Invasive Species" and NYCRR Part 575 "Invasive Species Regulations."

Wildlife

The majority of the study areas are heavily developed with terrestrial ecological communities associated with transportation infrastructure and urban land uses. Following construction, wildlife in the Project Area would not be expected to be displaced or otherwise affected by the operation of the Community Grid Alternative. The Community Grid Alternative would not increase the levels of noise and human activity to the extent that there would be a change in the abundance or community composition of wildlife in the study areas. The common, urban-adapted species present within the study areas would not experience adverse effects from the minor losses of low quality habitat that would result from the Community Grid Alternative. The same species would be expected to continue with the same likelihood and in the same abundance. Overall, no adverse effects to birds, mammals, reptiles, or amphibians would be expected to result from the operation of the Community Grid Alternative. Because construction and operation of the Community Grid Alternative would not result in the direct take of birds, it would be in compliance with the Migratory Bird Treaty Act.

Central Study Area

Because it would not disturb habitat or substantially change noise or activities as compared to the No Build Alternative, the operation of the Community Grid Alternative would not adversely affect wildlife in the Central Study Area, which are already adapted for living in urban environments.

I-481 South Study Area

Other than impervious surface and mowed lawn, most habitat in the I-481 South Study Area is limited to small fragments of successional southern hardwoods, successional old field, and successional shrublands along I-81 and I-481, and within the interchanges of both highways. These small and fragmented habitats are further degraded by the traffic noise on adjacent roads. Wildlife occurring in the area consists primarily of disturbance-tolerant species that are common to degraded habitats. Construction of the Community Grid Alternative within the I-481 South Study Area would disturb a total of 162.3 acres, including 52.5 acres of impervious surface, 38.3 acres of mowed lawn with trees, 27.7 acres of successional southern hardwood forest (including 5.7 acres of road cut cliff/slope), 28.2 acres of successional old field, and 15.6 acres of successional shrubland - all immediately adjacent to or between the existing roadways and interchanges. Thus, reductions of the acreages of these roadside habitats in the I-481 South Study Area would not adversely affect populations of the abundant generalist species inhabiting them, and these same species would occur in the I-481 South Study Area during project operation.

I-481 East Study Area

Similar to the preceding study areas, the removal of terrestrial ecological communities within the I-481 East Study Area would not adversely affect populations of the abundant generalist species that use these habitats. The floodplain forest and wetlands northeast of the CSX rail line in the I-481 East Study Area and the floodplain forests associated with the northern portion of the I-481 East Study Area represent the most substantial habitat for native wildlife in the Project Area. Waterbirds, amphibians, and other wildlife inhabiting that area are already exposed to, and demonstrate a tolerance of, noise levels that emanate from I-481 overhead and the nearby CSX rail line. The limits of disturbance for the Community Grid Alternative in this portion of the I-481 East Study Area would remain immediately adjacent to the existing footings of the I-481 bridge crossing over the rail tracks.

The Community Grid Alternative would permanently disturb a total of 343.6 acres, including 2.9 acres of ditches, 113.3 acres of impervious surface, 122.8 acres of mowed lawn with trees, 4.1 acres of successional southern hardwood forest, 39.7 acres of successional old fields, 10.0 acres of successional shrubland, 50.5 acres of floodplain forests, 0.30 acres of freshwater wetlands, and 0.03 acres of surface water within the I-481 East Study Area. This would represent a negligible reduction in the availability of these habitat types in the Project Area. Furthermore, the affected areas would be roadside, and therefore subjected to high levels of disturbance, and of low ecological value relative to more interior areas. At the northern end of the I-481 East Study Area, the limits of disturbance would be immediately alongside the existing edge of pavement of I-481 and the ramp for Exit 6; thus, only roadside margins containing ruderal vegetation of little value to wildlife would be affected. These communities provide low value habitat, and the loss of some of these communities in the I-481 East Study Area during the operation of the Community Grid Alternative would not adversely affect wildlife throughout the region.

I-481 North Study Area

Modifications to the I-81 and I-481 interchange in the I-481 North Study Area would affect only roadside habitat fragments that are currently subjected to traffic noise and other forms of degradation. The Community Grid Alternative would affect a total of 193.7 acres, including 2.6 acres of ditches, 64.0 acres of impervious surfaces, 61.6 acres of mowed lawns/mowed lawns with trees, 7.6 acres of successional southern hardwood forests, 18.9 acres of successional old field, 15.2 acres of successional shrublands, 23.2 acres of floodplain forests, 0.59 acres of freshwater wetlands, and 0.04 acres of surface water. The areas that would be affected are poor quality habitats and of little value to native wildlife due to their isolation and immediate proximity to interstate highways. The noise levels, to which these roadside habitats are exposed, and their isolation, fragmentation, and small size, limit the wildlife community to disturbance-tolerant generalists. Overall, these communities provide low value habitat, and the loss of some of these communities in the I-481 North Study Area during the operation of the Community Grid Alternative would not adversely affect wildlife throughout the region.

Threatened or Endangered Species

Preliminary effect determinations for Federally-listed species and State-listed Species, having the potential to occur within the vicinity of the Community Grid Alternative Project Area, are presented in the BE (see **Appendix J-8**) and Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**), respectively, and are summarized in **Table 6-4-8-6**. A discussion about the temporary

effects that operation of the Community Grid Alternative would have on Federally-listed and State-listed species is included below.

Table 6-4-8-6
Community Grid Alternative:
Threatened and Endangered Species Effect Determinations

Common Name	Scientific Name	State Effect Determination*	Federal Effect Determination**
Indiana bat	*Myotis sodalis*	Take Not Likely	May Affect, Not Likely to Adversely Affect
Northern long-eared bat	*Myotis septentrionalis*	Take Not Likely	May Affect, Not Likely to Adversely Affect
Eastern massasauga	*Sistrurus catenatus*	Take Not Likely	No Effect – No Habitat
American hart's-tongue fern	*Asplenium scolopendrium* var. *americanum*	Take Not Likely	No Effect
Peregrine falcon	*Falco peregrinus*	Take Not Likely	N/A
Bald eagle	*Halieaeetus leucocephalus*	Take Not Likely	Take Unlikely
Least bittern	*Ixobrychus exilis*	Take Not Likely	N/A
Northern harrier	*Circus cyaneus*	Take Not Likely	N/A
Lake sturgeon	*Acipenser fulvescens*	Take Not Likely	N/A
Bog elfin	*Callophrys lanoraieensis*	Take Not Likely	N/A
Eastern small-footed bat	*Myotis leibii*	Take Not Likely	N/A
Seaside bulrush	*Bolboschoemus maritimus* ssp. *paludosus*	Take Not Likely	N/A
Midland sedge	*Carex mesochorea*	Take Not Likely	N/A
Saltmarsh aster	*Symphyotrichum subulatum* var. *subulatum*	Take Not Likely	N/A
Reflexed sedge	*Carex retroflexa*	Take Not Likely	N/A
Straight-leaved pondweed	*Potamogeton strictifolius*	Take Not Likely	N/A
Glomerate sedge	*Carex aggregata*	Take Not Likely	N/A
Marsh arrowgrass	*Triglochin palustris*	Take Not Likely	N/A
Thread-leaved pondweed	*Stuckenia filiformis*	Take Not Likely	N/A
Blunt-lobed grape fern	*Botrychium oneidense*	Take Not Likely	N/A
Ohio goldenrod	*Oligoneuron ohioense*	Take Not Likely	N/A
Troublesome sedge	*Carex molesta*	Take Not Likely	N/A
Southern twayblade	*Neottia bifolia*	Take Not Likely	N/A
Large twayblade	*Liparis liliifolia*	Take Not Likely	N/A
Red pigweed	*Oxybasis rubra var. rubra*	Take Not Likely	N/A

Notes: The assessments that support the Federal and State Effect Determinations presented in this table are provided in the Biological Evaluation (**Appendix J-8**) and Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

**Each Federal Effect Determination is made in accordance with the Endangered Species Act16 (U.S.C. §1531), with the exception of the bald eagle, which is made in accordance with Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

* "Take Not Likely" is not a legal term used under the 6 NYCRR Part 193.3 Protected native plants. However, this terminology is used in this document for uniformity with the discussion of regulated wildlife species under 6 NYCRR Part 182 Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern; Incidental Take Permits.

NYSDOT has made the following preliminary effect determinations for Federally-listed species with the potential to occur in the Project Area during the operation of the Community Grid Alternative: "May Affect, Not Likely to Adversely Affect" for Indiana bat and northern long-eared bat; "No Effect-No Habitat" for the eastern massasauga; "No Effect" American hart's-tongue fern; and "Take Unlikely" for the bald eagle.[15] For State-listed species NYSDOT has made a preliminary effect

[15] Each Federal Effect Determination is made in accordance with the Endangered Species Act (16 U.S.C. §1531), with the exception of the bald eagle, which is made in accordance with Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

determination of "Take Not Likely" for all State-listed species with the potential to occur in the Project Area during the operation of the Community Grid Alternative. Coordination among FHWA, USFWS and NYSDEC regarding Federally- and State-listed species is ongoing.

Central Study Area

- **Indiana Bat:** USFWS IPaC System results do not identify the Indiana bat as having the potential to occur within the Central Study Area. According to the NYNHP database, the Central Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum, more than 0.25 miles from a known Indiana bat roost tree (USFWS required buffers), and more than 2.5 miles from a known hibernaculum or roost tree (NYSDEC required buffers).

  A detailed assessment of the potential for permanent/operational effects to Indiana bat (e.g., removal or alteration of suitable habitat) is provided in the BE (**Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Northern Long-eared Bat:** USFWS IPaC System results do not identify the northern long-eared bat as having the potential to occur within the Central Study Area. According to the NYNHP database, the Central Study Area is located more than 0.5 miles from a known hibernaculum, more than 150 feet from a known northern long-eared bat roost tree (USFWS required buffers), and less than 5.0 miles from a known hibernaculum but more than 1.5 miles from a known northern long-eared bat roost tree (NYSDEC required buffers).

  A detailed assessment of the potential for permanent/operational effects to northern long-eared bat (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** The IPaC System results do not indicate that the eastern massasauga may occur within the Central Study Area. In addition, the NYNHP has no records of this species in the vicinity of the Central Study Area.

  A detailed assessment of the potential for permanent/operational effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Peregrine Falcon:** The peregrine falcon currently nests in an artificial nest box on a building adjacent to the Central Study Area, and thus, it has the potential to occur throughout the Central Study Area. Peregrine falcons in this area are already accustomed to an urban environment and would not be further affected by additional noise or activity from the operation of the Project. Peregrine falcons will tolerate almost any level of human activity taking place below their nest provided that the nest itself is inaccessible (Ratcliffe 1972) to humans or predators. As such, the peregrine falcon would not be adversely affected by the operation of the Community Grid Alternative. A detailed assessment of the potential for permanent/operational effects to peregrine falcon is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Bald Eagle**: Non-breeding bald eagles have been observed perching and foraging along the southeastern shoreline of Onondaga Lake. This area is on the periphery of the Central Study Area and therefore non-breeding bald eagles have the potential to occur there. There are no other lakes

or rivers that would provide suitable habitat for breeding or non-breeding bald eagles in the I-481 South, I-481 East, and I-481 North Study Areas.

The sensitivity of bald eagles to human disturbance is greatest during courtship and nest building, which take place in New York between December and March, and then declines as the nesting period progresses and eventually ends (USFWS 2007b). Decades ago, bald eagles were considered sensitive to human disturbance even outside of the breeding season (e.g., Stalmaster and Newman 1978, Nye 1994, Stalmaster and Kaiser 1997), with concern that repeated displacement from important roosting and foraging areas could waste energy reserves at a time of year when energy demands are high (Stalmaster and Gessaman 1984). Over time, bald eagles have shown a rapid and substantial generational habituation to human disturbance during both the breeding and non-breeding periods, and an increasing tolerance of development, including urbanization (Johnson 2010, Guinn 2013). In many parts of their range, bald eagles are increasingly nesting and occurring during the non-breeding periods in areas with heavy levels of human activity where they would almost never be found only a few decades ago (Millsap et al. 2004, Guinn 2013). This includes nesting by bald eagles in recent years within major metropolitan areas (Sullivan 2016). The use of Onondaga Lake by bald eagles is another example of bald eagles having acclimated to an urban area with extremely high levels of disturbance. Any non-breeding bald eagles using the lake and its shorelines inherently display a high tolerance of human activity as well as degraded habitat.

Within the Central Study Area, the Community Grid Alternative would include the construction and operation of a reconstructed system of ramps connecting I-81 to Park Street, State Route 370, and Old Liverpool Road. The closest portion of this study area to the lakeshore, where non-breeding bald eagles have the potential to occur, is approximately 200 feet. Operation of the Community Grid Alternative would not bring motor vehicle traffic any closer to the Onondaga Lake shoreline than at present or increase the already high existing levels of disturbance. Given that paved roads with heavy traffic are already present near the shoreline in this area, operation of the Community Grid Alternative would not eliminate quality habitat or otherwise permanently alter the current conditions on Onondaga Lake for non-breeding bald eagles. The Community Grid Alternative would not "create disruptive activities or development in the direct flight paths of eagles between roost sites and important foraging areas," and in all other aspects would be in accordance with the USFWS Bald Eagle Management Guidelines' "recommendations for avoiding disturbance at foraging areas and communal roost sites" (USFWS 2007b). A detailed assessment of the potential for permanent/operational effects to bald eagles is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Lake Sturgeon:** Lake sturgeon are present in Onondaga Lake near the Central Study Area. Within the Central Study Area, there are four active and two additional outfalls along Onondaga Creek, and one active outfall along Ley Creek. These outfalls would remain active under the Community Grid Alternative and would continue to contribute their current loads of stormwater and pollutants to Onondaga and Ley Creeks. In addition, under the Community Grid Alternative, a 96-inch-diameter storm sewer trunk line would be installed in Onondaga Creek, a tributary to Onondaga Lake. However, the Project would be designed with entirely separate runoff conveyance and treatment systems and would not contribute to the combined sewer flows.

As described in **Section 6-4-7, Water Resources**, the reduction in impervious road surface within the Central Study Area under the Community Grid Alternative would result in approximately 11 percent decrease in pollutant loading when compared with the No Build Alternative. The reduction in road surface under this alternative would result in lower stormwater runoff volumes, and thus lower mass loading of pollutants. Chloride loading to Lower Onondaga Creek on an annual basis would be 9.4 percent higher because the Community Grid Alternative would introduce 3.6 more highway miles that would require deicing. As discussed under the Viaduct Alternative, the chloride concentration in Onondaga Lake in 2013, as measured by Onondaga County Department of Water Environment Protection's Ambient Monitoring Program, ranged from 355 to 643 mg/L. Thus, according to the Toler Analysis, the Central Study Area under the Community Grid Alternative would contribute a 9.4 percent increase in the immediate study area, or a 0.022 percent increase when scaled to the full contributing drainage area. This would result in chloride concentrations ranging from 355.1 to 643.1 mg/L under the Community Grid Alternative. The USEPA chronic toxicity water quality criteria concentration of chloride, for most freshwater aquatic species, is 230 mg/L, while the acute toxicity concentration is 860 mg/L. Both high and low concentrations of chloride have effects on diversity and community structure of aquatic invertebrates and may influence reproduction of aquatic organisms. Although commonly found in freshwater systems, lake sturgeon are able to effectively osmoregulate at salinities up to 15 ppt (LeBreton and Beamish 1998), which is equivalent to a chloride concentration of 8,350 mg/L. At lower chloride concentrations, including those that would occur under the Community Grid Alternative, lake sturgeon would not be expected to show any obvious behavioral response (e.g., habitat avoidance, loss of appetite, etc.). This would be especially true in Lake Onondaga, where lake sturgeon occur, because chloride concentrations entering the lake from Onondaga Creek would be diluted. Therefore, lake sturgeon are not likely to be affected by increased chloride concentrations from the Community Grid Alternative.

Since stormwater BMPs do not remove chloride from stormwater, the Community Grid Alternative would result in higher chloride concentration in Lower Onondaga Creek when compared with the No Build Alternative, in which chloride is already elevated above the chronic toxicity water quality criteria. Under both alternatives, chloride concentration would be below the acute toxicity concentration. Therefore, the increase in chloride concentration in Lower Onondaga Creek as a result of the Community Grid Alternative would not result in adverse effects to the Creek.

Although the total lane miles would increase under the Community Grid Alternative, the total impervious area in the Central Study Area would be reduced; restoration of open areas within the NYSDOT ROW would be designed so that no more than 35 percent of these areas would be constructed as impervious surfaces. The reduction in impervious area outside of the roadway but within the NYSDOT ROW could lead to a reduction in chloride applications and a benefit to water quality not indicated by the Toler Analysis. Additionally, while stormwater would no longer be treated at METRO and only a portion of the stormwater runoff volume would be treated by stormwater management BMPs, the overall benefit of the separate storm drainage system would further improve water quality in a way not indicated by the FHWA analysis, by reducing CSO events.

BMPs that incorporate green infrastructure components (e.g., source control stormwater management, such as permeable pavements and bioretention areas such as rain gardens) would be considered for integration into the public ROW. Where little space is available, underground detention basins and hydrodynamic devices would be considered. These BMPs would ensure there would be no net increase in stormwater flow to receiving surface waters (i.e., Onondaga Creek) within the Central Study Area and that all roadway runoff from the Community Grid would be treated for water quality prior to discharge to surface waters. A detailed assessment of the potential for permanent/operational effects to lake sturgeon is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Seaside Bulrush:** Seaside bulrush has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for this species to occur within the Central Study Area. As described above, seaside bulrush was not found during targeted surveys for this species in the Central Study Area. Therefore, seaside bulrush would not be adversely affected during the operation of the Community Grid Alternative in the Central Study Area (see **Appendix J-7**).
- **Midland Sedge:** Midland sedge has been recorded by NYNHP in terrestrial cultural ecological communities in the vicinity of the Central Study Area. Given its habitat requirements, there is the potential for midland sedge to occur in the Central Study Area. As described above, Midland sedge was not found during targeted surveys within the Central Study Area. Therefore, Midland sedge would not be adversely affected during the operation of the Community Grid Alternative in the Central Study Area (see **Appendix J-7**).
- **Saltmarsh Aster:** Saltmarsh aster has been recorded by NYNHP near the Central Study Area. Given its habitat requirements, there is low potential for salt marsh aster to occur within the Central Study Area. As previously described, saltmarsh aster was not found during targeted surveys for this species in the Central Study Area. Therefore, saltmarsh aster would not be adversely affected by the operation of the Community Grid Alternative (see **Appendix J-7**).
- **Reflexed Sedge:** Reflexed sedge has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, reflexed sedge has the potential to occur in the Central Study Area. As described above, reflexed sedge was not found during targeted surveys for this species in the Central Study Area. Therefore, reflexed sedge would not be adversely affected during the operation of the Community Grid Alternative in the Central Study Area.
- **Straight-leaved Pondweed:** Straight-leaved pondweed has been recorded by NYNHP near the Central Study Area. Given its habitat requirements, there is low potential for straight-leaved pondweed has a low potential to occur within the vicinity of the Central Study Area. As described above, straight-leaved pondweed was not found during targeted surveys for this species in the Central Study Area. Therefore, straight-leaved pondweed would not be adversely affected by the operation of the Community Grid Alternative (see **Appendix J-7**).
- **Glomerate Sedge:** Glomerate sedge has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is potential for glomerate sedge to occur within the Central Study Area. Disturbances to areas where glomerate sedge has the potential to occur within the NYSDOT ROW is likely under the Community Grid Alternative. During final design,

efforts would be made to confirm the presence or absence of glomerate sedge. If glomerate sedge is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to glomerate sedge from operation of the Community Grid Alternative (see **Appendix J-7**).

- **Inland Salt Pond:** The inland salt pond ecological community has been documented by NYNHP as occurring in the vicinity of the Central Study Area. However, as described above, based on field surveys this community is not present within Central Study Area. Therefore, no adverse effects to this ecological community would result from operation of the Community Grid Alternative.

I-481 South Study Area

- **Indiana Bat:** According to the NYNHP database, the I-481 South Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum but less than 0.25 miles from a known Indiana bat roost tree (USFWS required buffers). The I-481 South Study Area is located within 2.5 miles from a known hibernaculum but less than 2.5 miles of a known Indiana bat roost tree (NYSDEC required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. A total of 7.6 acres of trees, some of which are over four inches in dbh, in the I-481 South Study Area are subject to removal for the Community Grid Alternative.

  Any bridges in the I-481 South Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for permanent/operational effects to Indiana bats (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Long-eared Bat:** According to the NYNHP database, the I-481 South Study Area is located more than 0.5 miles from a known northern long-eared bat hibernaculum and more than 150 feet from a known northern long-eared bat roost tree (USFWS required buffer). The I-481 South Study Area is more than 1.5 miles from a known northern long-eared bat roost tree, but less than 5.0 miles from a known northern long-eared bat hibernaculum (NYSDEC required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. A total of 7.6 acres of trees, some of which are over four inches in dbh, in the I-481 South Study Area are subject to removal for the Community Grid Alternative.

  Any bridges in the I-481 South Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are

determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

A detailed assessment of the potential for permanent/operational effects to northern long-eared bat (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** The IPaC system results indicated that the eastern massasauga has the potential to occur within the I-481 South Study Area. However, the I-481 South Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces and it does not contain suitable habitat of open wetlands with adjacent upland forest openings, old fields, and prairies. In addition, the NYNHP has no records of eastern massasaugas near the I-481 South Study Area. A detailed assessment of the potential for permanent/operational effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Eastern Small-footed Bat:** An eastern small-footed bat bachelor colony has been recorded by NYNHP as occurring within approximately 0.4 miles of the I-481 South Study Area in a protected area that features cliffs and rocky outcrops to support this species. There are disturbed, roadcut cliffs/slopes adjacent to the I-481 Study Area ROW that have minor potential to represent day-roost sites for eastern small-footed bats. A total of 5.7 acres of roadcut cliff/slope in the I-481 South Study Area would be affected by the Community Grid Alternative. All project work in the I-481 South Study Area would follow the applicable Avoidance and Minimization Measures of the USFWS/FHWA RWPC and any additional NYSDEC protection measures (e.g., construction during the hibernation period between November-March). Furthermore, approximately 0.3 acres of roadcut cliff/slope (which overlaps with the successional southern hardwoods community) would remain in the I-481 South Study Area during the operation of the Community Grid Alternative.

  Given that there are Federally-listed bat species (i.e., Indiana and northern long-eared bats) records for the I-481 South, I-481 East, and I-481 North Study Areas, all existing bridges involving work as part of this Project in the I-481 South, I-481 East, and I-481 North Study Areas would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, avoidance and minimization measures established for the Federally listed species (i.e., Indiana bat and long eared bat), described above, would also be adopted for protection of the small-footed bat to the greatest extent possible, as applicable, and in consultation with NYSDEC.

  A detailed assessment of the potential for permanent/operational effects to eastern small-footed bat (e.g., removal or alteration of suitable habitat, noise disturbance) is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **American Hart's-Tongue Fern:** The IPaC System results indicate that the American hart's-tongue fern has the potential to occur within the I-481 South Study Area. However, the upland ecological communities of the I-481 South Study Area are associated with maintained ROWs, successional old fields and shrublands, and successional forests located along the edges of the ROW. All of these ecological communities are associated with disturbance and do not contain the deep shade and cool, moist, rocky, calcareous substrates of its preferred habitat. As described in **Appendix J-7**, remnants of low quality rocky (i.e., road cut cliff/slope) habitat are present within the I-481 South Study Area. As a conservative measure, targeted surveys for American hart's-tongue fern were conducted within portions of the I-481 South Study Area that contain habitat with the potential to support this species. No American hart's-tongue fern individuals were found. Therefore, American hart's-tongue fern would not be adversely affected during the operation of the Community Grid Alternative in the I-481 South Study Area. A detailed assessment of the potential for permanent/operational effects to American hart's-tongue fern is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Midland Sedge:** Midland sedge has been recorded by NYNHP in terrestrial cultural ecological communities in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is the potential for midland sedge to occur in the I-481 South Study Area. However, midland sedge was not found during targeted surveys within the I-481 South Study Area. Therefore, Midland sedge would not be adversely affected during the operation of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Reflexed Sedge:** Reflexed sedge has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is potential habitat for reflexed sedge in the I-481 South Study Area. As described above, reflexed sedge was not found during targeted surveys in the I-481 South Study Area. Therefore, no adverse effects to reflexed sedge would result from the operation of the Community Grid in the I-481 South Study Area (see **Appendix J-7**).
- **Marsh Arrowgrass:** Marsh arrowgrass has been recorded by NYNHP in the **vicinity** of the I-481 South Study Area. Given its habitat requirements, there is the potential for marsh arrowgrass to occur within the I-481 South Study Area. As described above, marsh arrowgrass was not found during targeted surveys in the I-481 South Study Area. Therefore, no adverse effects to marsh arrowgrass would result from the operation of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Maple-Basswood Rich Mesic Forest:** The maple-basswood rich mesic forest ecological community has been documented by NYNHP as occurring in the vicinity of the I-481 South Study Area. However, as also described, this community is not present within the I-481 South Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Community Grid Alternative in the I-481 South Study Area.
- **Calcareous Cliff Community:** The calcareous cliff community has been documented by NYNHP as occurring near the I-481 South Study Area. However, as also previously described, remnant cliff communities of the I-481 South Study Area are better characterized as road cut cliff/slope communities that are disturbed and characterized by a southern successional forest

cover type. Therefore, no adverse effects to this ecological community would result from the operation of the Community Grid Alternative in the I-481 South Study Area.

- **Calcareous Talus Slope Woodland:** The calcareous talus slope woodland community has been documented by NYNHP near the I-481 South Study Area. However, as also previously described, remnant talus slopes of the I-481 South Study Area are better characterized as road cut cliff/slope communities in the I-481 South Study Area that are disturbed and characterized by a southern successional forest cover type. Therefore, no adverse effects to this ecological community would result from the operation of the Community Grid Alternative in the I-481 South Study Area.
- **Limestone Woodland:** The limestone woodland ecological community has been documented by NYNHP near the I-481 South Study Area. However, this community is not present within the I-481 South Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Community Grid Alternative in the I-481 South Study Area.

I-481 East Study Area

- **Indiana Bat:** According to the NYNHP database, the I-481 East Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum and more than 0.25 miles from a known Indiana bat roost tree (USFWS required buffers). The I-481 East Study Area is located more than 2.5 miles from a known hibernaculum and less than 2.5 miles of a known Indiana bat roost tree (NYSDEC required buffers). The tree cutting area is located within 100 feet of the road surface. Approximately 0.3 acres of trees, some of which are over four inches in dbh, in the I-481 East Study Area are subject to removal for the Community Grid Alternative.

  Any bridges in the I-481 East Study Area that would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for permanent/operational effects to Indiana bats (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Long-eared Bat:** According to NYNHP, the I-481 East Study Area is located more than 0.5 miles from a known northern long-eared bat hibernaculum and more than 150 feet from a known northern long-eared bat roost tree (USFWS required buffer). The I-481 East Study Area is more than 1.5 miles from a known northern long-eared bat roost tree but is less than 5.0 miles from a known northern long-eared bat hibernaculum (NYSDEC required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. Approximately 0.3 acres of trees, some of which are over four inches in dbh, in the I-481 East Study Area are subject to removal for the Community Grid Alternative.

Any bridges in the I-481 East Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

A detailed assessment of the potential for permanent/operational effects to northern long-eared bat (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** The IPaC system results indicated that the eastern massasauga has the potential to occur within the I-481 East Study Area. The NYNHP has no records of eastern massasaugas in the vicinity of the I-481 East Study Area. In addition, the I-481 East Study Area lacks fens, marshes, and wet prairies that are needed to support the eastern massasauga. A detailed assessment of the potential for permanent/operational effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Marsh Arrowgrass:** Marsh arrowgrass has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, there is potential for marsh arrowgrass to occur within the I-481 East Study Area. It is a violation of the ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. During final design, efforts would be made to confirm the presence or absence of marsh arrowgrass. If marsh arrowgrass is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to marsh arrowgrass from operation of the Community Grid Alternative (see **Appendix J-7**).
- **Thread-leaved Pondweed:** Thread-leaved pondweed has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, thread-leaved pondweed has a low potential to occur within the I-481 East Study Area. It is a violation of the ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where thread-leaved pondweed has the potential to occur within the NYSDOT ROW is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of thread-leaved pondweed. If thread-leaved pondweed is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to thread-leaved pondweed from operation of the Community Grid Alternative (see **Appendix J-7**).

- **Blunt-lobed Grape Fern:** Blunt-lobed grape fern has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, there is low potential for the blunt-lobed grape fern to occur within the I-481 East Study Area. . It is a violation of the ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where blunt-lobed grape fern has the potential to occur within the NYSDOT ROW is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of blunt-lobed grape fern. If blunt-lobed grape fern is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to blunt-lobed grape fern from operation of the Community Grid Alternative (see **Appendix J-7**).
- **Ohio Goldenrod:** Ohio goldenrod has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, there is low potential for Ohio goldenrod to occur within the I-481 East Study Area and it was not found during targeted surveys for this species in the I-481 East Study Area. Therefore, Ohio goldenrod would not be adversely affected by operation of the Community Grid Alternative in the I-481 East Study Area (see **Appendix J-7**).

I-481 North Study Area

- **Indiana Bat:** According to the NYNHP, the I-481 North Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum and more than 0.25 miles from a known Indiana bat roost tree (USFWS required buffers) and more than 2.5 miles from a known hibernaculum or roost tree (NYSDEC required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. As discussed in **Appendices J-7** and **J-8**, a total of 2.4 acres of trees, some of which are over four inches in dbh, in the I-481 North Study Area are subject to removal for the Community Grid Alternative.

  Any bridges in the I-481 North Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for permanent/operational effects to Indiana bats (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Long-eared Bat:** USFWS IPaC System results do not identify the northern long-eared bat as having the potential to occur within the I-481 North Study Area. According to NYNHP, the I-481 North Study Area is located more than 0.5 miles from a known hibernaculum and more than 150 feet from a known northern long-eared bat roost tree (USFWS required buffers), and

more than 5.0 miles from a known hibernaculum, but less than 1.5 miles from a known northern long-eared bat roost tree (NYSDEC required buffers). The tree cutting area is located within 100 feet of the road surface. As discussed in **Appendices J-7** and **J-8**, a total of 2.4 acres of trees, some of which are over four inches in dbh, in the I-481 North Study Area may be removed for the Community Grid Alternative.

Any bridges in the I-481 North Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

A detailed assessment of the potential for permanent/operational effects to northern long-eared bat (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Massasauga:** The IPaC system results indicated that the eastern massasauga has the potential to occur within the I-481 North Study Area. The NYNHP has a record of eastern massasauga occurring adjacent to the I-481 North Study Area. Mud Creek, on the eastern edge of the I-481 North Study Area, has a hydrological connection to known eastern massasauga habitat. There is no habitat within the I-481 North Study Area that is suitable for supporting eastern massasauga. Nevertheless, as a protective measure to avoid any potential for direct effects to any eastern massasaugas, rattlesnake fencing would be erected around the limits of disturbance prior to construction to prevent eastern massasaugas from being able to enter the construction area.

  A detailed assessment of the potential for permanent/operational effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Least Bittern:** Least bittern has been documented by NYNHP as nesting within 600 feet of the I-481 North Study Area. Least bittern inhabits freshwater and brackish marshes with tall, dense vegetation including cattails, sedges, reeds, bulrushes, sawgrass, smartweed, arrowhead, buttonbush, and other emergent wetland vegetation. It can also be found at the edges of lakes and rivers with emergent and tall vegetation but prefers marshes with scattered bushes or other woody growth. Wetland habitat within and around the I-481 North Study Area is limited to drainage ditches, creeks, and common-reed dominated and forested wetlands along I-481 and within the I-81 and I-481 interchange and is not considered ideal habitat for least bitterns. Therefore, least bitterns are not considered to have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for permanent/operational effects to the least bittern is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Harrier:** The NYNHP has a record of northern harriers breeding within 1.5 miles of the I-481 North Study Area. Northern harriers inhabit areas such as grasslands, old fields, pastures,

croplands, and salt marshes during both the breeding and non-breeding periods (Smith et al. 2011). As discussed above, the closest such habitat to the I-481 North Study Area that is potentially suitable for northern harriers includes the Cicero Swamp Wildlife Management Area and some agricultural fields that are 1.5 and 1.2 miles to the east, respectively, and the marshes of a large wetland complex that is 1.2 miles to the west, along State Route 481. Non-breeding northern harriers, which are much less sensitive to human disturbance than when breeding, might also be expected to occur in the open fields of the Syracuse Hancock International Airport. There is no suitable breeding or non-breeding habitat for northern harriers within the I-481 North Study Area, which is primarily limited to roadside grass, small and degraded phragmites-dominated wetlands bordering drainage ditches and within clover leaves of the I-481 and I-81 interchange, and small fragments of woodland. None of these habitat types would support breeding or non-breeding northern harriers, and therefore, northern harriers are not considered to have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for permanent/operational effects to the northern harrier is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Bog Elfin:** The NYNHP has a record of bog elfins within 1 mile of the I-481 North Study Area. It is primarily found in the black spruce-tamarack bog ecological community and peat bogs associated with its hostplant, black spruce (Shepherd 2005). However, this ecological community does not occur within the I-481 North Study Area. In addition, the last documented observation of bog elfin in New York State was made in 1988 (Miller 1995) and the species is now considered extirpated from the state (NYSDEC 2016). There is no habitat for bog elfin within the I-481 North Study Area, which is primarily limited to roadside grass, small and degraded common reed-dominated wetlands bordering drainage ditches and within the I-481/I-81 interchange, and small fragments of woodland. Given that the bog elfin is considered extirpated from NY and none of the habitats within the I-481 North Study Area would support the species, bog elfins do not have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for permanent/operational effects to the bog elfin is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Troublesome Sedge:** Troublesome sedge has been recorded by NYNHP in vicinity of the I-481 North Study Area. Given its habitat requirements, troublesome sedge has the potential to occur within the I-481 North Study Area. As described above, troublesome sedge was not found during targeted surveys for this species in the I-481 North Study Area. Therefore, troublesome sedge would not be adversely affected during the operation of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Southern Twayblade:** Southern twayblade has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is a low potential for southern twayblade to occur within the I-481 North Study Area. Disturbances to areas where southern twayblade has the potential to occur within the NYSDOT ROW is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of southern twayblade. If southern twayblade is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or

other land under NYSDOT's jurisdiction. Therefore, southern twayblade would not be adversely affected during the operation of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Large Twayblade:** Large twayblade has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is potential for southern twayblade to occur within the I-481 North Study Area. Disturbances to areas where large twayblade has the potential to occur within the NYSDOT ROW is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of large twayblade. If large twayblade is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. Therefore, large twayblade would not be adversely affected during the operation of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Red pigweed:** Red pigweed has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is a low potential for red pigweed to occur within the I-481 North Study Area. Disturbances to areas where red pigweed has the potential to occur within the NYSDOT ROW is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of red pigweed. If red pigweed is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the NYSDOT ROW or other land under NYSDOT's jurisdiction. Therefore, red pigweed would not be adversely affected during the operation of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Black Spruce-Tamarack Bog:** The black spruce-tamarack bog community has been documented by NYNHP as occurring near the I-481 North Study Area. However, as described above, this community is not present within the I-481 North Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Community Grid Alternative for the I-481 North Study Area.

6-4-8.4.2 CONSTRUCTION EFFECTS

Construction effects are temporary or short term in nature, such as temporary fill in freshwater wetlands for construction access, disturbance associated with demolition of the viaduct, temporary disturbance associated with roadway and bridge improvements, and lighting and noise disturbances to wildlife from construction equipment. This subsection provides a conservative assessment of construction effects to natural resources. These effects may be reduced as design advances.

Terrestrial Resources

As discussed in **Chapter 4, Construction Means and Methods**, the Contractor would be responsible for identifying construction staging sites. It is expected that the Contractor would seek out underutilized sites, such as vacant parcels or land currently used for surface parking, for staging.

In terms of vacant parcels, the study areas contain disturbed habitats including terrestrial cultural, successional old field, successional shrubland, successional southern hardwood, and floodplain forest ecological communities. These ecological communities are widespread and common in the region, and the use of these areas for construction staging would represent a negligible reduction in the coverage of these ecological communities within the region. Furthermore, it is expected that the Contractor would select sites close to the construction zone that require minimal pre-construction preparation (e.g., clearing of vegetation and trees) and post-construction restoration (e.g., planting of trees), when practicable.

During construction, measures (e.g., cleaning of construction equipment and proper transportation/disposal of soils containing invasive species) as per **Section 4-8-3**, **Invasive Species Control Methods for Maintenance and Construction** (September 10, 2004), of the TEM would be implemented to avoid the spread of invasive plant species that may occur in the disturbed ecological communities of these sites. Following construction, these sites would be restored to existing or improved conditions.

As described in **Section 6-4-7, Water Resources**, the restoration of temporarily affected freshwater wetlands/open surface waters would also be done following construction in consultation with the USACE and NYSDEC. Therefore, it is not anticipated that the temporary loss of these ecological communities due to construction staging would result in adverse effects. Furthermore, the construction measures described above would meet the intent of EO 13112 "Safeguarding the Nation from the Impacts of Invasive Species" and NYCRR Part 575 "Invasive Species Regulations" under the Community Grid Alternative.

Wildlife

Clearing of the previously mentioned communities as part of the construction staging would occur during construction of the Community Grid Alternative. As described above, these habitats are widespread and common in the region, and the use of these areas for construction staging would represent a negligible reduction in the amount of habitat available to wildlife in the area. Any reductions in the number of individuals inhabiting these communities would not affect the size or viability of their local populations and would not change the assemblage of wildlife species present. Overall, construction activities would not have adverse effects to wildlife at the population or community level. Because construction and operation of the Community Grid Alternative would not result in the direct take of birds, it would be in compliance with the Migratory Bird Treaty Act.

Noises generated during the construction (e.g., heavy machinery or generators) of the Community Grid Alternative would be unlikely to affect wildlife in the Project Area due to high existing levels of noise and other human disturbance from automobile traffic and other sources. As discussed in **Section 6-4-6, Noise**, construction would result in perceptible increases in noise levels in each study area, but these effects would be temporary, shortened by the proposed accelerated construction schedule, and abated by several measures. Wildlife communities in the study areas have been established under noisy existing conditions, and as such, are inherently disturbance-tolerant (cf. Bonier et al. 2007, Francis et al. 2009). Visual and auditory disturbances during construction would potentially displace some individuals of some species from the immediate vicinity of the site of activity, but overall, construction activities would not be expected to increase levels of disturbance to the extent that there would be alterations in species assemblages or otherwise negative changes to wildlife

communities in the surrounding area relative to the present state. Individuals that would potentially briefly relocate in response to the construction noise would be likely to easily acquire suitable alternative habitat given that comparable areas of terrestrial cultural communities, successional old field, successional southern hardwoods, and floodplain forest communities are abundant in the surrounding landscape. Any such relocation away from the area of disturbance would not affect these individuals in the long-term (Gill et al. 2001). Overall, noises generated during construction would not be likely to affect wildlife within the vicinity of the study areas.

Threatened or Endangered Species

Preliminary effect determinations for Federally-listed species and State-listed Species, having the potential to occur within the vicinity of the Community Grid Project Area, are presented in the BE (see **Appendix J-8**) and Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**), respectively, and are summarized in **Table 6-4-8-4**. A discussion about the temporary effects that construction of the Community Grid Alternative would have on Federally-listed and State-listed species is included below.

NYSDOT has made the following preliminary effect determinations for Federally-listed species with the potential to occur in the Project Area during the construction of the Community Grid Alternative: "May Affect, Not Likely to Adversely Affect" for Indiana bat and northern long-eared bat; "No Effect-No Habitat" for the eastern massasauga; "No Effect" American hart's-tongue fern; and "Take Unlikely" for the bald eagle.[16] For State-listed species NYSDOT has made a preliminary effect determination of "Take Not Likely" for all State-listed species with the potential to occur in the Project Area during the construction of the Community Grid Alternative. Coordination among FHWA, USFWS and NYSDEC regarding Federally- and State-listed species is ongoing.

Central Study Area

- **Indiana Bat:** USFWS IPaC System results do not identify the Indiana bat as having the potential to occur within the Central Study Area. Indiana bats have a low potential to occur within the Central Study Area and are not expected to be affected by construction of the Community Grid Alternative.

  A detailed assessment of the potential for construction effects to Indiana bats (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Long-Eared Bat:** USFWS IPaC System results do not identify the northern long-eared bat as having the potential to occur within the Central Study Area. Northern long-eared bats have a low potential to occur within the Central Study Area and would not be affected by construction of the Community Grid Alternative.

  A detailed assessment of the potential for construction effects to northern long-eared bat (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

[16] Each Federal Effect Determination is made in accordance with the Endangered Species Act (16 U.S.C. §1531), with the exception of the bald eagle, which is made in accordance with Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

- **Eastern Massasauga:** Eastern massasauga does not have the potential to occur within the Central Study Area and would not be affected by construction of the Community Grid Alternative. A detailed assessment of the potential for construction effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Peregrine Falcon:** Peregrine falcons have the potential to occur in the Central Study Area. Peregrine falcons will tolerate almost any level of human activity taking place below their nest, provided that the nest is inaccessible (Ratcliffe 1972). The known peregrine falcon nest box is located outside of the area that may be disturbed by construction. Should construction or construction staging take place near the nest box, then measures would be implemented by the Contractor to avoid disruptions to the peregrine falcon nest box, including the establishment of any required buffers or monitoring based on coordination with NYSDEC. A detailed assessment of the potential for construction effects to peregrine falcon is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).
- **Bald Eagle**: Non-breeding bald eagles have been observed perching and foraging along the southeastern shoreline of Onondaga Lake. This area is on the periphery of the Central Study Area and therefore non-breeding bald eagles have the potential to occur there.

  The sensitivity of bald eagles to human disturbance is greatest during courtship and nest building, which take place in New York between December and March, and then declines as the nesting period progresses and eventually ends (USFWS 2007b). Decades ago, bald eagles were considered to be sensitive to human disturbance even outside of the breeding season (e.g., Stalmaster and Newman 1978, Nye 1994, Stalmaster and Kaiser 1997), with concern that repeated displacement from important roosting and foraging areas could waste energy reserves at a time of year when energy demands are high (Stalmaster and Gessaman 1984). Since then, however, bald eagles have shown a rapid and substantial generational habituation to human disturbance during both the breeding and non-breeding periods, and an increasing tolerance of development, including urbanization (Johnson 2010, Guinn 2013). In many parts of their range, bald eagles are increasingly nesting and occurring during the non-breeding periods in areas with heavy levels of human activity where they would almost never be found only a few decades ago (Millsap et al. 2004, Guinn 2013). This includes nesting by bald eagles in recent years within major metropolitan areas, including New York City, Washington D.C., Philadelphia, and Pittsburgh (Sullivan 2016). The use of Onondaga Lake in the City of Syracuse by bald eagles is another such example of bald eagles having acclimated to an urban area with extremely high levels of disturbance. Any non-breeding bald eagles utilizing the lake and its shorelines display a high tolerance of human activity as well as degraded habitat.

  Construction of the Community Grid Alternative in the Central Study Area would include the reconstruction of a system of ramps connecting I-81 to Park Street, State Route 370, and Old Liverpool Road. The closest construction activity to Onondaga Lake would consist of road repaving about 200 feet from its shoreline. At slightly greater distances, the road reconstruction would likely include louder activities such as jack-hammering and pile-driving. The USFWS Bald Eagle Management Guidelines (USFWS 2007b) do not provide guidance on buffer distances for construction disturbance near habitats used by non-breeding eagles but recommend a minimum buffer of 330 feet from nests. Given the much lower sensitivity of bald eagles to disturbance

during the non-breeding period (USFWS 2007b) and the high existing levels of disturbance and urban setting of the area of Onondaga Lake where non-breeding bald eagles have been observed, a minimum distance of 200 feet from the non-breeding eagles would be more than sufficient for reducing the likelihood of any potential disturbance from construction noise. In the event that any bald eagles would be displaced by construction noise from the small area of the lake and shoreline near the site of construction, the effect would be temporary, and the eagles would be able to easily distance themselves from the activity and utilize nearby areas of the lake and its shoreline without negative consequence. Given that paved roads with heavy traffic are already present near the shoreline in this area, construction of the Community Grid Alternative would not eliminate high quality habitat, introduce human disturbance to a previously disturbance-free area, or otherwise permanently alter the current conditions on Onondaga Lake for non-breeding bald eagles. The Community Grid Alternative would not "create disruptive activities or development in the direct flight paths of eagles between roost sites and important foraging areas," and would be in accordance with the USFWS Bald Eagle Management Guidelines' "recommendations for avoiding disturbance at foraging areas and communal roost sites" (USFWS 2007b). A detailed assessment of the potential for construction effects to the bald eagle is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Lake Sturgeon:** Lake sturgeon occur in Onondaga Lake and have the potential to occur in the surface waters of Onondaga Creek and Ley Creek. The implementation of erosion and sediment controls (e.g., silt fences, and inlet protection) in accordance with the 2016 New York State Standards and Specifications for Erosion and Sediment Control ("Blue Book"), the SWPPP prepared to meet the requirements of SPDES General Permit GP-0-15-002, and NYSDOT Highway Design Manual, Chapter 8 Highway Drainage would minimize the potential for construction activities to result in adverse effects to surface water quality within the Project Area. A detailed assessment of the potential for construction effects to lake sturgeon is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Seaside Bulrush:** Seaside bulrush has been recorded by NYNHP within the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for seaside bulrush to occur in the Central Study Area. As described above, seaside bulrush was not found during the targeted surveys in the Central Study Area. Therefore, no adverse effects to this species would occur during construction of the Community Grid Alternative in the Central Study Area (see **Appendix J-7**).

- **Midland Sedge:** Midland sedge has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is the potential for midland sedge to occur in the Central Study Area. As described above, Midland sedge was not found during the targeted surveys in the Central Study Area. Therefore, no adverse effects to midland sedge would occur during construction of the Community Grid Alternative in the Central Study Area.

- **Saltmarsh Aster:** Saltmarsh aster has been recorded by NYNHP within the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for saltmarsh aster to occur within the Central Study Area. As described above, saltmarsh aster was not found during the targeted surveys in the Central Study Area. Therefore, no adverse effects to this species would occur during construction of the Community Grid Alternative in the Central Study Area (see **Appendix J-7**).

- **Reflexed Sedge:** Reflexed sedge has been recorded by NYNHP in the Central Study Area. Given its habitat requirements, there is potential habitat for reflexed sedge in the Central Study Area. As described above, reflexed sedge was not found during the targeted surveys in the Central Study Area. Therefore, no adverse effects to reflexed sedge would occur during construction of the Community Grid Alternative in the Central Study Area (see **Appendix J-7**).
- **Straight-Leaved Pondweed:** Straight-leaved pondweed has been recorded by NYNHP in the Central Study Area. Given its habitat requirements, there is low potential for Straight-leaved pondweed has a low potential to occur within the vicinity of the Central Study Area. As described above, straight-leaved pondweed was not found during the targeted surveys in the Central Study Area. Therefore, no adverse effects to straight-leaved pondweed would occur during construction of the Community Grid Alternative in the Central Study Area (see **Appendix J-7**).
- **Glomerate Sedge**: Glomerate sedge has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is potential for glomerate sedge to occur within the Central Study Area. During final design, efforts would be made to confirm the presence or absence of glomerate sedge within the Central Study Area. If glomerate sedge is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the ROW or other land under NYSDOT's jurisdiction. Therefore, glomerate sedge would not be adversely affected during the construction of the Community Grid Alternative in the Central Study Area (see **Appendix J-7**).
- **Inland Salt Pond:** The inland salt pond ecological community is not present within the Central Study Area. Therefore, this community would not be adversely affected during the construction of the Community Grid Alternative in the Central Study Area.

I-481 South Study Area

- **Indiana Bat:** Indiana bats have the potential to occur within the I-481 South Study Area but are not expected to be affected by construction of the Community Grid Alternative. As a precaution, tree clearing would be limited to the winter hibernation period (November 1 to March 31) when Indiana bats would not be present.

  Any bridges in the I-481 South Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. If any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for construction effects to Indiana bats (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Northern Long-Eared Bat:** Northern long-eared bats have the potential to occur within the I-481 South Study Area but are not expected to be affected by construction of the Community Grid Alternative. As a precaution, tree clearing would be limited to the winter hibernation period (November 1 to March 31) when northern long-eared bats would not be present.

  Any bridges in the I-481 South Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted if any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for construction effects to northern long-eared bat (e.g., removal or alteration of suitable habitat) is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7)**.

- **Eastern Massasauga:** Eastern massasauga does not have the potential to occur within the I-481 South Study Area and would not be affected by construction of the Community Grid Alternative. A detailed assessment of the potential for construction effects to eastern massasauga is provided in the BE (see **Appendix J-8**) and the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Eastern Small-footed Bat:** Eastern small-footed bats have a low potential to occur within the I-481 South Study Area and would not be affected by construction of the Community Grid Alternative. As a precaution, avoidance and minimization measures (e.g., potentially limiting the disturbance of roadcut cliff/slope to the winter hibernation period [November 1 to March 31] when eastern small-footed bats would not be present), would be implemented to protect the small-eared bat during construction in coordination with NYSDEC.

  Given that there are Federally-listed bat species (i.e., Indiana and northern long-eared bats) records for the I-481 South, I-481 East, and I-481 North Study Areas, all existing bridges involving work as part of this Project in the I-481 South, I-481 East, and I-481 North Study Areas would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, avoidance and minimization measures established for the Federally listed species (i.e., Indiana bat and long eared bat), described above, would also be adopted for protection of the small-footed bat to the greatest extent possible, as applicable, and in consultation with NYSDEC. A detailed assessment of the potential for construction effects to eastern small-footed bat is provided in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **American Hart's-Tongue Fern:** Targeted surveys for American hart's-tongue fern were conducted within portions of the I-481 South Study Area that contain habitat with the potential to support this species. No American hart's-tongue fern individuals were found. A detailed

assessment of the potential for construction effects to American hart's-tongue fern is provided in the BE (see **Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (see **Appendix J-7**).

- **Midland Sedge:** Midland sedge has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is the potential for midland sedge to occur in the I-481 South Study Area. As described above, Midland sedge was not found during targeted surveys within the I-481 South Study Area. Therefore, Midland sedge would not be adversely affected during the construction of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Reflexed Sedge:** Reflexed sedge has been recorded by NYNHP in the I-481 South Study Area. Given its habitat requirements, reflexed sedge has the potential to occur in the I-481 South Study Area. As described above, reflexed sedge was not found during targeted surveys within the I-481 South Study Area. Therefore, reflexed sedge would not be adversely affected during the construction of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**). A detailed assessment of the potential for construction effects to reflexed sedge is provided in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).
- **Marsh Arrowgrass:** Marsh arrowgrass has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is potential for marsh arrowgrass to occur in the I-481 South Study Area. As described above, marsh arrowgrass was not found during targeted surveys within the I-481 South Study Area. Therefore, marsh arrowgrass would not be adversely affected during the construction of the Community Grid Alternative in the I-481 South Study Area.
- **Maple-basswood Rich Mesic Forest:** The maple-basswood rich mesic forest ecological community is not present within the I-481 South Study Area. Therefore, this community would not be adversely affected by construction of the Community Grid Alternative.
- **Calcareous Cliff Community:** Low quality roadcut cliff/slope ecological communities are present within the I-481 South Study Area. As described above, these communities are disturbed and vegetation associated with southern successional forest predominates. Therefore, high quality calcareous cliff community would not be adversely affected by construction of the Community Grid Alternative in the I-481 South Study Area.
- **Calcareous Talus Slope Woodland:** Low quality roadcut cliff/slope ecological communities are present within the I-481 South Study Area. As described above, these communities are disturbed and vegetation associated with southern successional forest predominates. Therefore, high quality calcareous talus slope woodland ecological communities would not be adversely affected by construction of the Community Grid Alternative in the I-481 South Study Area.
- **Limestone Woodland:** The limestone woodland ecological community is not present within the I-481 South Study Area. Therefore, this community would not be adversely affected by construction of the Community Grid Alternative in the I-481 South Study Area.

I-481 East Study Area

- **Indiana Bat:** Indiana bats have the potential to occur within the I-481 East Study Area but are not expected to be affected by construction of the Community Grid Alternative. As a precaution, tree clearing would be limited to the winter hibernation period (November 1 to March 31) when Indiana bats would not be present.

  Any bridges in the I-481 East Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted if any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for construction effects to Indiana bats (e.g., removal or alteration of suitable habitat) is provided in the BE (**Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Northern Long-Eared Bat:** Northern long-eared bats have the potential to occur within the I-481 East Study Area but are not expected to be affected by construction of the Community Grid Alternative. As a precaution, tree clearing would be limited to the winter hibernation period (November 1 to March 31) when northern long-eared bats would not be present.

  Any bridges in the I-481 East Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for construction effects to northern long-eared bat (e.g., removal or alteration of suitable habitat) is provided in the BE (**Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Eastern Massasauga:** Eastern massasauga does not have the potential to occur within the I-481 East Study Area and would not be affected by construction of the Community Grid Alternative. A detailed assessment of the potential for construction effects to eastern massasauga is provided in the BE (**Appendix J-8**) Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Marsh Arrowgrass:** Marsh arrowgrass has been recorded by NYNHP near the I-481 East Study Area. Given its habitat requirements, there is potential for marsh arrowgrass to occur in the I-481 East Study Area. As described above, during final design, efforts would be made to confirm the presence or absence of marsh arrowgrass within the I-481 East Study Area. If marsh arrowgrass

is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the ROW or other land under NYSDOT's jurisdiction. Therefore, marsh arrowgrass would not be adversely affected during the construction of the Community Grid Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Thread-leaved Pondweed:** Thread-leaved pondweed has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, it has a low potential to occur within the wetlands and surface waters of the I-481 East Study Area. As described above, during final design, efforts would be made to confirm the presence or absence of thread-leaved pondweed within the I-481 East Study Area. If thread-leaved pondweed is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the ROW or other land under NYSDOT's jurisdiction. Therefore, thread-leaved pondweed would not be adversely affected during the construction of the Community Grid Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Blunt-lobed Grape Fern:** Blunt-lobed grape fern has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, there is low potential for the blunt-lobed grape fern to occur within the I-481 East Study Area. As described above, during final design, efforts would be made to confirm the presence or absence of blunt-lobed grape fern within the I-481 East Study Area. If blunt-lobed grape fern is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the ROW or other land under NYSDOT's jurisdiction. Therefore, blunt-lobed grape fern would not be adversely affected during the construction of the Community Grid Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Ohio goldenrod:** Ohio goldenrod has been recorded by NYNHP near the I-481 East Study Area. Given its habitat requirements, there is low potential for Ohio goldenrod to occur within the I-481 East Study Area. As described above, Ohio goldenrod was not found during targeted surveys for this species in the I-481 East Study Area. Therefore, no adverse effects to Ohio goldenrod would result from construction of the Community Grid Alternative (see **Appendix J-7**).

I-481 North Study Area

- **Indiana Bat:** Indiana bats have a low potential to occur within the I-481 North Study Area and are not expected to be affected by construction of the Community Grid Alternative. However, as a precaution, tree clearing during construction would be limited to the winter hibernation period (November 1 to March 31) when Indiana bats would not be present.

  Any bridges in the I-481 North Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the

event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

A detailed assessment of the potential for construction effects to Indiana bat (e.g., removal or alteration of suitable habitat) is provided in the BE (**Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Northern Long-Eared Bat:** Northern long-eared bats have low potential to occur within the I-481 North Study Area and would not likely be affected by construction of the Community Grid Alternative. However, as a precaution, tree clearing during construction would be limited to the winter hibernation period (November 1 to March 31) when Indiana bats would not be present.

  Any bridges in the I-481 North Study Area would be inspected in accordance with the FHWA New York Division Bridge Bat Survey Form during the roosting season (April 1 to September 30) and prior to construction to determine if there is any evidence of bats actively using them. In the event that any bridges are determined to have features that represent potential roosting sites and/or bats are observed, applicable bridge Avoidance and Minimization Measures in the USFWS/FHWA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat would be adopted to the greatest extent possible. FHWA would be consulted in the event that any of the measures cannot be implemented to determine the proper course of action.

  A detailed assessment of the potential for construction effects to northern long-eared bat (e.g., removal or alteration of suitable habitat) is provided in the BE (**Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Eastern Massasauga:** Eastern massasauga does not occur in the I-481 North Study Area because preferred habitat does not exist in the I-481 North Study Area. Nevertheless, as a protective measure to avoid any potential for direct effects to any eastern massasaugas, rattlesnake fencing would be erected around the limits of disturbance prior to construction to prevent eastern massasaugas from being able to enter the construction area. A detailed assessment of the potential for construction effects to eastern massasaugas is provided in the BE (**Appendix J-8**) and in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Least Bittern:** Least bittern has been documented by NYNHP as nesting within 600 feet of the I-481 North Study Area. Least bittern inhabits freshwater and brackish marshes with tall, dense vegetation including cattails, sedges, reeds, bulrushes, sawgrass, smartweed, arrowhead, buttonbush, and other emergent wetland vegetation. It can also be found at the edges of lakes and rivers with emergent and tall vegetation but prefers marshes with scattered bushes or other woody growth. Wetland habitat within and around the I-481 North Study Area is limited to drainage ditches, creeks, and common-reed dominated and forested wetlands along I-481 and within the I-81 and I-481 interchange and is not considered ideal for least bitterns. Therefore, least bitterns are not considered to have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for permanent/operational effects to the least bittern is provided in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Northern Harrier:** The NYNHP has a record of northern harriers breeding within 1.5 miles of the I-481 North Study Area. Northern harriers inhabit areas such as grasslands, old fields, pastures, croplands, and salt marshes during both the breeding and non-breeding periods (Smith et al. 2011). As discussed above, the closest such habitat to the I-481 North Study Area that is potentially suitable for northern harriers includes the Cicero Swamp Wildlife Management Area and some agricultural fields that are 1.5 and 1.2 miles to the east, respectively, and the marshes of a large wetland complex that is 1.2 miles to the west, along State Route 481. Non-breeding northern harriers, which are much less sensitive to human disturbance than when breeding, might also be expected to occur in the open fields of the Syracuse Hancock International Airport. There is no suitable breeding or non-breeding habitat for northern harriers within the I-481 North Study Area, which is primarily limited to roadside grass, small and degraded common reed-dominated wetlands bordering drainage ditches and within clover leaves of the I-481 and I-81 interchange, and small fragments of woodland. None of these habitat types would support breeding or non-breeding northern harriers, and therefore, northern harriers are not considered to have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for construction effects to northern harriers is provided in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Bog Elfin:** The NYNHP has a record of bog elfins within one mile of the I-481 North Study Area. As described above, the species is considered extirpated from the state (NYSDEC 2016), and Therefore, bog elfins do not have the potential to occur within the I-481 North Study Area. A detailed assessment of the potential for construction effects to bog elfins is provided in the Assessment of State-Listed Threatened or Endangered Species (**Appendix J-7**).

- **Troublesome Sedge:** The troublesome sedge has been recorded by NYNHP near the I-481 North Study Area. Given its habitat requirement, there is potential for troublesome sedge to occur in the I-481 North Study Areas. As described above, troublesome sedge was not found during targeted surveys. Therefore, no adverse effects to troublesome sedge would result from construction of the Community Grid Alternative (see **Appendix J-7**).

- **Southern Twayblade:** Southern twayblade has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is a low potential for southern twayblade to occur within the I-481 North Study Area. As described above, during final design, efforts would be made to confirm the presence or absence of southern twayblade within the I-481 North Study Area. If southern twayblade is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the ROW or other land under NYSDOT's jurisdiction. Therefore, no adverse effects to southern twayblade would result from construction of the Community Grid Alternative (see **Appendix J-7**).

- **Large Twayblade:** Large twayblade has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is potential for southern twayblade to occur within the I-481 North Study Area. As described above, during final design, efforts would be made to confirm the presence or absence of large twayblade within the I-481 North Study Area. If large twayblade is confirmed to exist within the limits of disturbance, efforts to avoid the species

would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the ROW or other land under NYSDOT's jurisdiction. Therefore, no adverse effects to large twayblade would result from construction of the Community Grid Alternative (see **Appendix J-7**).

- **Red pigweed:** Red pigweed has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is a low potential for red pigweed to occur within the I-481 North Study Area. As described above, during final design, efforts would be made to confirm the presence or absence of red pigweed within the I-481 North Study Area. If red pigweed is confirmed to exist within the limits of disturbance, efforts to avoid the species would be made and disturbances would be minimized where feasible and practical. In areas where the species cannot be avoided, a plan would be developed giving consideration to the relocation of the species to other locations within the ROW or other land under NYSDOT's jurisdiction. Therefore, no adverse effects to red pigweed would result from construction of the Community Grid Alternative (see **Appendix J-7**).
- **Black Spruce-Tamarack Bog:** The black spruce-tamarack ecological community is not present within the I-481 North Study Area. Therefore, this community would not be adversely affected by construction of the Community Grid Alternative.

6-4-8.4.3 INDIRECT EFFECTS

The Community Grid Alternative would result in the replacement of an existing use in-kind, and therefore would not result in any substantial induced development in natural areas. The Community Grid Alternative would not result in any adverse indirect effects to general ecology and wildlife resources. Therefore, no indirect effects would result from the Community Grid Alternative.

6-4-8.4.4 CUMULATIVE EFFECTS

The Community Grid Alternative may be constructed simultaneously with other development projects on vacant or underused land within the study areas. However, the projects would not be constructed in areas of significant ecological communities, nor would they result in adverse effects on wildlife including Federally- and State-listed species. Therefore, the Community Grid Alternative would not result in any adverse cumulative effects to general ecology and wildlife resources.

6-4-8.4.5 MITIGATION

Areas disturbed during construction that are not part of the permanent project footprint would be revegetated to the greatest extent practicable with plant species indigenous to this region of New York. These efforts would be carried out in accordance with a Landscape Restoration Plan.

Mitigation may be required for tree cutting in Indiana and northern long-eared bat habitat. As design advances and scheduling for tree cutting is planned, any mitigation required would be developed in coordination with FHWA, USFWS, and NYSDEC.