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" of NYSDOT's *The Environmental Manual* (TEM)[2] (August 2011 and June 2020, respectively), 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-

[2] 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),[3] successional old fields (estimated 121.5 acres), successional shrublands (estimated 54.1 acres), floodplain forests (estimated 133.4 acres), freshwater wetlands (132.8 acres), and open surface waters (19.3. acres).[4] 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 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 disturbance and are

[3] 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.

[4] 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.

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	121.5
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	132.8
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.[5]

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 February 2, 2022 and the New York Natural Heritage Program (NYNHP) databases for Federally- and State-listed species for the study areas on February 3, 2022.

The species identified as having the potential to occur near the study areas are summarized in **Table 6-4-8-2**.

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

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	Central I-481 South I-481 East[7]	I-481 South I-481 East
Eastern massasauga	*Sistrurus catenatus*	Endangered	Threatened	I-481 North	I-481 South I-481 East I-481 North
Monarch butterfly	*Danaus plexippus*	N/A	Candidate[1]	No	I-481 Central 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[2]	*Falco peregrinus*	Endangered	N/A	Central[3]	No
Bald eagle[2]	*Halieaeetus leucocephalus*	Threatened	Protected	Central I-481 North	No
Least bittern	*Ixobrychus exilis*	Threatened	N/A	I-481 North	No
Northern harrier[2]	*Circus cyaneus*	Threatened	N/A	I-481 North	No
Lake sturgeon	*Acipenser fulvescens*	Threatened	N/A	Central[4] I-481 North[7]	No
Upland Sandpiper	*Bartramia longicuada)*	Threatened	N/A	I-481 North	No
Black Tern	*Chlidonias niger*	Endangered	N/A	I-481 North	No
American Saltmarsh bulrush	*Bolboschoemus maritimus* ssp. *paludosus*	Threatened	N/A	Central I-481 North[7]	No
Midland sedge	*Carex mesochorea*	Threatened	N/A	Central I-481 South	No
Annual Saltmarsh aster	*Symphyotrichum subulatum* var. *subulatum*	Threatened	N/A	Central I-481 North[7]	No
Straight-leaved pondweed	*Potamogeton strictifolius*	Endangered	N/A	Central I-481 North[7]	No
Glomerate sedge	*Carex aggregata*	Threatened	N/A	Central[3] I-481 South	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
Red Pigweed	*Oxybasis rubra var. rubra*	Threatened	N/A	Central II-481 North[7]	No
Yellow Giant Hyssop	*Agastache nepetoides*	Threatened	N/A	Central I-481 South I-481 East	No
Rock Elm	*Ulmus thomasii*	Threatened	N/A	I-481 South	No
Ram's Head Lady's Slipper	*Cypripedium arietinum*	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
Common Moonwort	*Botrychium neolunaria*	Endangered	N/A	I-481 South I-481 East	No
Few-flowered Spike Rush	*Eleocharis quinqueflora*	Endangered	N/A	Central I-481 North	No
Hooker's Orchid	*Platanthera hookeri*	Endangered	N/A	I-481 South	No
Forest Blue Grass	*Poa sylvestris*	Endangered	N/A	I-481 South	No
Puttyroot	*Aplectrum hyemale*	Endangered	N/A	I-481 South	No
Purple Wild Bergamot	*Monarda media*	Endangered	N/A	I-481 South	No
Prairie Dunewort	*Botrychium campestre*	Endangered	N/A	I-481 East	No
Inland Salt Pond	N/A	Significant natural community	N/A	Central I-481 North[7]	No
Maple-Basswood Rich Mesic Forest	N/A	Significant natural community	N/A	I-481 South	No
Calcareous Talus Slope Woodland	N/A	Significant natural community	N/A	I-481 South	No
Calcareous Cliff Community	N/A	Significant natural community	N/A	I-481 South	No
Limestone woodland[6]	N/A	Significant natural community	N/A	I-481 South	No
Black spruce-tamarack bog[6]	N/A	Significant natural community	N/A	I-481 North	No
Meromictic Lake	N/A	Significant natural community	N/A	I-481 South	No
Northern White Cedar Swamp	N/A	Significant natural community	N/A	I-481 East	No
Marl Fen	N/A	Significant natural community	N/A	I-481 East	No

Notes:

(1) Candidate species currently do not have any protection under Section 7 of the Endangered Species Act (ESA).
(2) 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*.
(3) Documented within the vicinity of the Central Study Area.
(4) Documented within the Central Study Area.
(5) 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.
(6) This is a significant natural community and therefore does not have a scientific name.
(7) Documented only within Noise Barrier 16 portion of the I-481 North Study Area. (As described in Section 6-4-6 "Noise," Barrier 16 A&B is a two-barrier system located along northbound I-81 in Syracuse between I-90 and the northbound I-81 exit ramp to Highway 11.)

Sources: NYNHP database review February 3, 2022; USFWS IPaC Official Species List dated February 2, 2022 (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.[8] 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.

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 February 2, 2022) for the study areas are provided in **Appendix J-4**. NYSDOT reviewed the most up to date information on the NYNHP database on February 3, 2022 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

[8] 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).

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) 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 rights-of-way 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 Central, I-481 South, and I-481 East 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 I-481 North 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.

- **Monarch Butterfly:** The monarch butterfly is listed as a candidate species, and it currently does not have any protection under Section 7 of the ESA. Consultation or conference (formal or informal) with USFWS is not required at this time. The Project takes place in previously disturbed and currently maintained right-of-way and does not anticipate the removal of any pollinator habitat. Therefore, no further review of the monarch butterfly is required.

- **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 right-of-way, successional old fields and shrublands, and successional and floodplain forests located along the edges of the right-of-way. 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.[11] 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 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.

[11] 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.

- **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 I-481 North 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 and I-481 East Study Areas.
- **Last 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. Onondaga Lake is also in the vicinity of the I-481 North Study Area.[12] Thus, lake sturgeon has the potential to occur in the Central Study Area and the I-481 North Study Area. Lake sturgeon do not have the potential to occur within the I-481 South and I-481 East Study Areas.

- **Upland Sandpiper:** Upland sandpiper is a State-listed Threatened obligate grassland species. Preferred habitat includes large areas of short grass for feeding and courtship with interspersed or adjacent taller grasses for nesting and brood cover. Confirmed ecological communities associated with upland sandpiper include, cropland/field crops, Hempstead Plains grassland, pastureland, and successional old field (NYNHP). The NYNHP has a record of upland sandpiper within 1.5 miles of the I-481 North Study Area. Given its habitat requirements, upland sandpiper has low potential to occur within the I-481 North Study Area. Upland sandpiper is not documented (within 1.5 miles) or expected to occur in the Central, I-481 South, or I-481 East Study Areas.

- **Black Tern:** Black tern is a State-listed Endangered bird species that has been declining since the mid-1960's (NYNHP). Black terns breed in productive freshwater marshes, typically in sites with mixtures of emergent vegetation and open water. In western New York Hickey and Malecki (1997) found that black terns nest primarily in sparse to moderately dense bur-reed about 3 to 7 inches tall in areas with a 50:50 open water/vegetation ratio, and water depths of about 20 in. These findings were consistent with other general habitat descriptions throughout the range including in northern New York. Exposed perches such as floating logs, fallen trees, and standing dead trees and shrubs are used as stations for resting, copulation and feeding recently fledged young (Novak 1992).

  Black terns are an area dependent species and in addition to marsh size, proximity to other wetlands is a critical factor in habitat selection. Black terns favor marshes greater than 49 acres, but they will nest in marshes between 12 to 27 acres only if they are part of a larger wetland complex (Brown and Dinsmore 1984; Novak 1992). Characteristics of entire landscapes must be considered in habitat assessments because wetlands that do not correspond to landscape-scale habitat requirements may not be suitable despite favorable local conditions. Suitable nest sites occur within regenerating or degenerating wetlands where vegetation structure, rather than species of vegetation, dictates suitability (Naugle et al. 2000). Confirmed ecological communities associated with black tern include deep emergent marsh, impounded marsh, and shallow emergent

[12] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

marsh (NYNHP). The NYNHP indicates that there is a historic record of a black tern colony within 1.5 miles of the I-481 North Study Area (1956); however, the black tern colony was not observed during thorough surveys or by NYNHP local birders between 1989 and 2007. Based on this information and its habitat requirements, black tern has low potential to occur within the I-481 North Study Area. However, survey work[14] for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 North Study Area during final design of the Project. Black tern is not documented (within 1.5 miles) or expected to occur in the Central, I-481 South, or I-481 East Study Areas.

- **American Saltmarsh Bulrush:** American saltmarsh 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. American saltmarsh bulrush may also be found in disturbed areas like roadsides and ditches. A known population of American saltmarsh bulrush exists in the vicinity of the Central Study Area (NYNHP). Confirmed ecological communities associated with American saltmarsh 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, American saltmarsh bulrush was not found during targeted searches (conducted on August 30, 2017) for this species in the Central 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 of the Project. For these reasons, American saltmarsh bulrush has a low potential to occur in the Central Study Area. American saltmarsh bulrush is not documented or expected to occur within the I-481 South, I-481 East, and I-481 North Study[15] 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.
- **Annual Saltmarsh Aster:** Annual 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

[14] A site visit to record incidental observations would be conducted at a time of year (May through mid-September [NYNHP]) when black tern would be expected to be present. Any incidental observations would be coordinated with NYSDEC.

[15] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

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, annual 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 and I-481 North[16] Study Areas (NYNHP). Confirmed ecological communities associated with annual 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, annual saltmarsh aster was not found during targeted searches (conducted on August 30, 2017) in the Central Study Area. Due to habitat requirements, annual saltmarsh aster has a low potential to occur within the Central 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 of the Project. Annual saltmarsh aster is not documented or expected to occur in the I-481 South or I-481 East 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 and I-481 North[17] Study Areas (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 or I-481 East Study Areas.

- **Glomerate Sedge:** Glomerate sedge is a State-listed Threatened 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 and I-481 South Areas (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. Thickets and ditches also occur within the I-481 South Study Area,

[16] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[17] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

and survey work for this species would also be conducted during final design. Glomerate sedge is not documented or expected to occur in the 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 Areas (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.

- **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 Central and I-481 North[18] Study Areas. Given its habitat requirements, red pigweed has a low potential to occur in the Central and I-481 North Study Areas. However, survey work for this species would be conducted in the Central and I-481 North Study Areas during final design to confirm its presence or absence. Red pigweed is not expected to occur in the, I-481 South and I-481 East Study Areas.

- **Yellow Giant Hyssop:** Yellow giant hyssop is a State-listed Threatened perennial plant species found in a diversity of habitats, including weedy or early-successional areas such as roadsides, railroads, and thickets. Many of the known sites for yellow giant hyssop are on limestone-derived soils, and support plant species associated with rich sites (NYNHP). Confirmed ecological communities associated with yellow giant hyssop include beech-maple mesic forest, calcareous red cedar barrens, calcareous talus slope woodland, limestone woodland, and maple-basswood rich mesic forest (NYNHP). The NYNHP indicates that there is a historic record of yellow giant hyssop occurring within the I-481 South Study Area and within 1.5 miles of the Central and I-481 East Study Areas. Given its habitat requirements, yellow giant hyssop has low potential to occur

[18] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

within the Central, I-481 South, and I-481 East Study Areas. However, survey work for this species would be conducted in suitable habitats within the limits of disturbance in the Central, I-481 South, and I-481 East Study Areas during final design of the Project. Yellow giant hyssop is not documented (within 1.5 miles) or expected to occur in the I-481 North Study Area.

- **Rock Elm:** Rock elm is a State-listed Threatened tree species most often found at dry sites with shallow soils over limestone bedrock, often on ridges or exposed ledges. It may grow with northern hardwood species in oak woodlands and forest edges, or in pastures and savannahs. Confirmed ecological communities associated with rock elm include alvar pavement grassland, alvar woodland, Appalachian oak-hickory forest, calcareous red cedar barrens, calcareous talus slope woodland, limestone woodland, maple-basswood rich mesic forest, northern white cedar rocky summit, pastureland, red cedar rocky summit, and successional red cedar woodland (NYNHP). The NYNHP has a record of rock elm within 1.5 miles of the I-481 South Study Area. However, none of the confirmed ecological communities listed above are present within the I-481 South Study Area. Given its habitat requirements, rock elm has low potential to occur within the I-481 South Study Area. However, survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 South Study Area during final design of the Project. Rock elm is not documented (within 1.5 miles) or expected to occur in the Central, I-481 East, or I-481 North Study Areas.
- **Ram's Head Lady's Slipper:** Ram's head lady's slipper is a State-listed Threatened plant species that has occupied a wide range of habitats with conditions ranging from inundated to dry-mesic and acidic to calcareous. Cold soils and moderately open conditions are characteristic. In the Great Lakes Region many of the largest populations have occupied successional dune forests and dune-coniferous woods edges, often associated with northern white cedar (*Thuja occidentalis*), jack pine (*Pinus banksiana*), and/or balsam fir (*Abies balsamea*), though it is certainly not limited to such habitats (NYNHP). In the northeastern states, including New York, it occupies second-growth mixed hardwood-conifer forests, limestone barrens and rocky outcrops, and forested peatlands (NYNHP). In New York most current sites are in white cedar swamps, though colonies are larger in upland habitats (Mitchell and Sheviak 1981, NYNHP). Confirmed ecological communities associated with ram's head lady's slipper include alvar shrubland, alvar woodland, calcareous cliff community, calcareous red cedar barrens, calcareous shoreline outcrop, calcareous talus slope woodland, Great Lakes dunes, hemlock-hardwood swamp, hemlock-northern hardwood forest, limestone woodland, northern white cedar rocky summit, northern white cedar swamp, spruce-northern hardwood forest, and successional northern hardwoods (NYNHP). The NYNHP indicates that there is a historic record of ram's head lady's slipper occurring within 1.5 miles of the I-481 North Study Area. Given the date of its most recent documented observation in this area (1902) and its habitat requirements, ram's head lady's slipper has low potential to occur within the I-481 North Study Area. However, 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 of the Project. Ram's head lady's slipper is not documented (within 1.5 miles) or expected to occur in the Central, I-481 South, or I-481 East Study Areas.
- **Common Moonwort:** Common moonwort is a State-listed Endangered fern species whose habitat includes northern white cedar forests and open pastures that are casually grazed where the underlying bedrock is calcareous. Common moonwort habitat also includes open fields and

meadows, sandy or gravelly streambanks, and hillsides and rocky ledges. Confirmed ecological communities associated with common moonwort include alvar pavement grassland, calcareous talus slope woodland, limestone woodland, pastureland (NYNHP). The NYNHP indicates that there is a historical record of common moonwort occurring within the I-481 East Study Area and within 1.5 miles of the I-481 South Study Area. Given the date of its most recent documented observation in this area (1872) and its habitat requirements, common moonwort has low potential to occur within the I-481 South and I-481 East Study Areas. However, survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 South and I-481 East Study Areas during final design of the Project. Common moonwort is not documented (within 1.5 miles) or expected to occur in the Central or I-481 North Study Areas.

- **Few-flowered Spike Rush:** Few-flowered spike rush is a State-listed Endangered plant species found on cold coniferous poor fen mats, but also in a variety of moist meadows in calcareous areas (NYNHP, Wisconsin Department of Natural Resources). The NYNHP indicates that there is a historic record of few-flowered spike rush occurring within the Central and I-481 North Study Areas (observation date not provided). Given its habitat requirements, few-flowered spike rush has low potential to occur within the Central and I-481 North Study Areas. However, survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 North and Central Study Area during final design of the Project. Few-flowered spike rush is not documented (within 1.5 miles) or expected to occur in the I-481 South or I-481 East, Study Areas.

- **Hooker's Orchid:** Hooker's orchid is a State-listed Endangered plant species found in dry to moist woodlands and forest. According to the NYNHP, Hooker's orchid prefers more forested areas with open understories or successional forest, particularly those dominated by poplar and pine. Confirmed ecological communities associated with Hooker's orchid include Appalachian oak-hickory forest, Appalachian oak-pine forest, beech-maple mesic forest, calcareous talus slope woodland, chestnut oak forest, hemlock-northern hardwood forest, limestone woodland, pine-northern hardwood forest, red maple-hardwood swamp, and successional northern hardwoods (NYNHP). The NYNHP indicates that there is a historic record of Hooker's orchid occurring within 1.5 miles of the I-481 South Study Area (1918); however, all current known populations of this species occur near Ithaca and the eastern Adirondack foothills. Based on this information and its habitat requirements, Hooker's orchid has low potential to occur within the I-481 South Study Area. However, survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 South Study Area during final design of the Project. Hooker's orchid is not documented (within 1.5 miles) or expected to occur in the Central, I-481 East, or I-481 North Study Areas.

- **Forest Blue Grass:** Forest blue grass is a State-listed Endangered plant species found in deciduous forests, usually associated with calcareous or other rich soil types. Confirmed ecological communities associated with forest blue grass include beech-maple mesic forest, limestone woodland, maple-basswood rich mesic forest, and rich mesophytic forest (NYNHP). The NYNHP indicates that there is a historic record of forest blue grass occurring within 1.5 miles of the I-481 South Study Area. Given the date of its most recent documented observation in this area (1916) and its habitat requirements, forest blue grass has low potential to occur within the I-481 South Study Area. However, survey work for this species would be conducted in suitable

habitats within the limits of disturbance in the I-481 South Study Area during final design of the Project. Forest blue grass is not documented (within 1.5 miles) or expected to occur in the Central, I-481 East, or I-481 North Study Areas.

- **Puttyroot:** Puttyroot is a State-listed Endangered plant species found in rich deciduous or mixed-deciduous woods, often found near limestone outcrops or in calcareous talus. The moisture of the soil varies from mesic upland sites to damp low ground areas. Confirmed ecological communities associated with puttyroot include Appalachian oak-hickory forest, beech-maple mesic forest, calcareous talus slope woodland, limestone woodland, maple-basswood rich mesic forest, and rich mesophytic forest (NYNHP). The NYNHP indicates that there is a historic record of puttyroot occurring within the I-481 South Study Area. Given the date of its most recent documented observation in this area (1890) and its habitat requirements, puttyroot has low potential to occur within the I-481 South Study Area. However, survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 South Study Area during final design of the Project. Puttyroot is not documented (within 1.5 miles) or expected to occur in the Central, I-481 East, or I-481 North Study Areas.
- **Purple Wild Bergamot:** Purple wild bergamot is a State-listed Endangered plant species found in swampy thickets, stream beds, and ditches with damp, acidic soil (U.S. Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS]). The NYNHP indicates that there is a historic record of purple wild bergamot occurring within 1.5 miles of the I-481 South Study Area (date not provided). Given its habitat requirements, purple wild bergamot has the low potential to occur within the I-481 South Study Area. However, survey work for this species would be conducted in the I-481 South Area during final design to confirm its presence or absence. Purple wild bergamot is not documented (within 1.5 miles) or expected to occur in the Central, I-481 East, or I-481 North Study Areas.
- **Prairie Dunewort:** Prairie dunewort is a State-listed Endangered plant species found in prairies, dunes, grassy railroad sidings, and fields over limestone. Confirmed ecological communities associated with prairie dunewort include cropland/field crops, mowed roadside/pathway, pastureland, and successional old field (NYNHP). The NYNHP indicates that there is a historic record of prairie dunewort occurring within 1.5 miles of the I-481 East Study Area. Given its habitat requirements, prairie dunewort has the low potential to occur within the I-481 East Study Area. However, survey work for this species would be conducted in the I-481 East Area during final design to confirm its presence or absence. Prairie dunewort is not documented (within 1.5 miles) or expected to occur in the Central, I-481 South, or I-481 North 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 and I-481 North Study[19] Areas. 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

[19] This ecological community is only associated with the NB-16 portion of the I-481 North Study Area.

inland salt ponds were observed in the Central, I-481 South, I-481 East, or I-481 North[20] 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 right-of-way. 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).

[20] This ecological community is only associated with the NB-16 portion of the I-481 North Study Area.

Within the I-481 South Study Area, there are a number of small talus slopes. 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.

- **Meromictic Lake:** Meromictic lake is an ecological community documented by NYNHP within 1.5 miles of the I-481 South Study Area. Meromictic lakes are relatively deep with small surface area that is so protected from wind-stirring that it has no annual periods of complete mixing, and remain chemically stratified throughout the year. These lakes may be protected from mixing by a sheltered surrounding landscape (e.g., a deep basin) or by adjacent tree cover. Meromictic lakes in New York freeze over and become inversely stratified in the winter (coldest water at the surface); they pass through spring and fall periods of isothermy without circulating. Meromictic lakes frequently have dichothermic stratification, meaning that the minimum temperature occurs in the middle stratum. The stagnant waters in the lower part of a meromictic lake become heavily loaded with dissolved salts and lack oxygen. Chemical stratification is most often measured by salinity gradients, or total cation and anion concentrations. Gradients may be present for chemicals, such as hydrogen sulfide, ammonia, phosphorus, or iron. Flushing rates are typically low (NYNHP). This community type is currently documented in Onondaga, Franklin, and Seneca counties of New York State. This broadly-defined community may be present worldwide, with meromictic lakes most similar to those in New York suspected to span north to southern Canada, east to New

Hampshire and Maine, west to Minnesota, southwest to Indiana and Kentucky, and southeast to Pennsylvania (NYNHP).

The meromictic lake located within 1.5 miles of the I-481 South Study Area is an average to large meromictic lake. It is a small, deep, water body located in Clark Reservation State Park within a 165-foot deep gorge, likely formed by water melting off the top of a glacier that scoured a hole in the limestone. The lake appears to be in very good condition and is located within a relatively small, well-protected landscape that is also in good condition.

Meromictic lakes do not exist within the I-481 South Study Area. Furthermore, this community was not observed in the Central, I-481 East, or I-481 North Study Areas. Therefore, this habitat does not occur within the Project Area. No further review is required.

- **Northern White Cedar Swamp:** Northern white cedar swamp is an ecological community documented by NYNHP within 1.5 miles of the I-481 East Study Area. Northern white cedar swamps are characterized by rich conifer or mixed swamp occurring on organic soils in cool, poorly drained depressions and along lakes and streams. These swamps are often spring fed or enriched by seepage of cold, minerotrophic groundwater, resulting in a stable water table and continually saturated soils. The characteristic tree is northern white cedar, which makes up more than 30% of the canopy cover; characteristic short shrubs include dwarf raspberry and red osier dogwood. The surface of the peatland typically has small mounds and depressions called hummocks and hollows that are formed by decaying downed trees and tip-up mounds. Mosses and liverworts are diverse and abundant. This community type is scattered and essentially limited to the northern half of the state. It is concentrated in the Great Lakes Ecoregion, but also common in the Adirondack Subsection of the Northern Appalachian Ecoregion where it is represented by large patch occurrences. There are scattered very small patch examples at the northern fringe of the Lower New England Ecoregion, Tug Hill Subsection of the Northern Appalachian Ecoregion, and the High Allegheny Plateau Ecoregion.

  The northern white cedar swamp located within 1.5 miles of the I-481 East Study Area consists of a rich conifer swamp near a marl bottom stream and lake, surrounded by second growth mixed forest. The swamp is small and disturbed, especially at its western end. Northern white cedar swamps do not exist within the I-481 East Study Area. Furthermore, this community was not observed in the Central, I-481 South, or I-481 North Study Areas. Therefore, this habitat does not occur within the Project Area. No further review is required.

- **Marl Fen:** Marl fen is an ecological community documented by NYNHP within 1.5 miles of the I-481 East Study Area. A strongly minerotrophic wetland in which the substrate is a marl bed derived from either lacustrine marl deposits or actively accumulating marl that is exposed at the ground surface. Marl is a white-colored precipitate that consists of calcium carbonate mixed with clay. Marl fens have at least some exposed marl precipitate at the surface. The marl substrate is always saturated and may be either seasonally flooded or permanently flooded (e.g., adjacent to seepage pools or streams) and has a very high pH, generally greater than 7.5. Vegetation is often sparse and stunted. Mosses colonize the marl, and may initiate hummock formation (Seischab 1984), but marl fens have lower bryophyte diversity than other rich fen types (Slack 1994). Marl fens may occur as small patches within a rich graminoid fen. This community type is restricted to a narrow zone roughly parallel to and north of the Onondaga escarpment in Genesee, Monroe,

Seneca, Onondaga, and Warren counties. It is known from only 2-3 localities in New Jersey and 5 in New York, with very few potential additions. It is restricted to a precise habitat, seepage areas of thick marl deposits on the shores of calcareous lakes, ponds, and shallow basins.

The marl fen located within 1.5 miles of the I-481 East Study Area consists of small patches of fen along the shore and on small islands in a narrow limy stream that flows from White Lake to Snooks Pond within White Lake Swamp Preserve. The fen grades into a *Phragmites* marsh. The fen is contained within a 70-acre area unbisected by roads. To the north and south of the fen is a regenerating northern white cedar swamp that was damaged by a windstorm in 1996. The slopes adjacent to the swamp have early successional forest, including areas that were salvage logged and cleared after the storm. Residences occur 0.5 miles north of the fen. A limestone quarry occurs 0.5 miles south of the fen. The landscape is moderately intact. Approximately 70% of the structural landscape consists of natural communities. Connectivity of the community boundary to the natural landscape is 100%. Marl fens do not exist within the I-481 East Study Area. Furthermore, this community was not observed in the Central, I-481 South, or I-481 North Study Areas. Therefore, this habitat does not occur within the Project Area. No further review is required.

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 new transportation right-of-way, 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

The Viaduct Alternative would affect 305.0 acres of land 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 right-of-way 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	121.5	3.3	0.7	4.0	117.5
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***	132.8	0.0	0.06	0.06	132.7
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 right-of-way), 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 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 made preliminary effect determinations for Federally-listed species with the potential to occur in the Project Area under 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.[21] For State-listed species, NYSDOT made a 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.

[21] 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**
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
Upland Sandpiper	*Bartramia longicuada)*	Take Not Likely	N/A
Black Tern	*Chlidonias niger*	Take Not Likely	N/A
American Saltmarsh bulrush	*Bolboschoemus maritimus* ssp. *paludosus*	Take Not Likely	N/A
Midland sedge	*Carex mesochorea*	Take Not Likely	N/A
Annual Saltmarsh aster	*Symphyotrichum subulatum* var. *subulatum*	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
Red Pigweed	*Oxybasis rubra var. rubra*	Take Not Likely	N/A
Yellow Giant Hyssop	*Agastache nepetoides*	Take Not Likely	N/A
Rock Elm	*Ulmus thomasii*	Take Not Likely	N/A
Ram's Head Lady's Slipper	*Cypripedium arietinum*	Take Not Likely	N/A
Common Moonwort	*Botrychium neolunaria*	Take Not Likely	N/A
Few-flowered Spike Rush	*Eleocharis quinqueflora*	Take Not Likely	N/A
Hooker's Orchid	*Platanthera hookeri*	Take Not Likely	N/A
Forest Blue Grass	*Poa sylvestris*	Take Not Likely	N/A
Puttyroot	*Aplectrum hyemale*	Take Not Likely	N/A
Purple Wild Bergamot	*Monarda media*	Take Not Likely	N/A
Prairie Dunewort	*Botrychium campestre*	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

- **Northern Long-eared Bat:** USFWS IPaC System results do not identify the Northern long-eared 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 and within 1.5 miles from a known northern long-eared bat roost tree (NYSDEC required buffers). Any bridges in the Central 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 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 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**).

- **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 right-of-way. 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**).

- **American saltmarsh Bulrush:** American saltmarsh 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, American saltmarsh bulrush was not found during targeted surveys for this species in the Central Study Area. Therefore, no adverse effects to American saltmarsh 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**).
- **Annual Saltmarsh Aster: Annual** saltmarsh aster 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, annual saltmarsh aster was not found during targeted surveys for this species in the Central Study Area. Therefore, no adverse effects to annual saltmarsh aster 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:** Glomerate 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. 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 right-of-way 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 right-of-way 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 in the Central Study Area (see **Appendix J-7**).

- **Red Pigweed:** Red pigweed has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is a low potential for red pigweed to occur within the Central 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 right-of-way 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 right-of-way 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 in the Central Study Area (see **Appendix J-7**).

- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP within the vicinity of the Central Study Area. Given the date of its most recent documented observation in this area (1903) and its habitat requirements, yellow giant hyssop has low potential to occur within the Central 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 yellow giant hyssop has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to yellow giant hyssop as a result of the operation of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).

- **Few-flowered Spike Rush:** Few-flowered spike rush has been recorded by NYNHP within the vicinity of the Central Study Area (observation date not provided). Given its habitat requirements, few-flowered spike rush has low potential to occur within the Central 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 few-flowered spike rush has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of few-flowered spike rush. If few-flowered spike rush 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. Therefore, no adverse effects to few-flowered spike rush are anticipated to result from the operation of the Viaduct Alternative in the Central Study Area.

- **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 in the Central Study Area.

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 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**).
- **American Hart's-Tongue Fern:** The IPaC System 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 right-of-way, successional old fields and shrublands, and successional forests located along the edges of the right-of-way. 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**).
- **Glomerate Sedge:** Glomerate sedge has been recorded by NYNHP near the I-481 South Study Area. Given its habitat requirements, there is potential for glomerate sedge to occur within the I-481 South 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 right-of-way 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 right-of-way 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 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**).

- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP within the I-481 South Study Area. Given the date of its most recent documented observation in this area (1903) and its habitat requirements, yellow giant hyssop has low potential to occur within theI-481 South 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 yellow giant hyssop has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to yellow giant hyssop as a result of the operation of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Rock Elm:** Rock elm has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, rock elm has low potential to occur within the I-481 South 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 rock elm has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of rock elm. If rock elm 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to rock elm as a result of the operation of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Common Moonwort:** Common moonwort has been recorded by NYNHP within the I-481 South Study Area. Survey work for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 South Study Area during final design of the Project. Given the date of its most recent documented observation in this area (1872) and its habitat requirements, common moonwort has low potential to occur within the I-481 South Study Area. Therefore, no adverse effects to common moonwort are anticipated to result from the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Hooker's Orchid:** Hooker's orchid has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given that all current known populations of this species occur near Ithaca and the eastern Adirondack foothills and its habitat requirements, Hooker's orchid has low potential to occur within the I-481 South 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 Hooker's orchid has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of Hooker's orchid. If Hooker's orchid 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to Hooker's orchid as a result of the operation of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Forest Blue Grass:** Forest blue grass has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given the date of its most recent documented observation in this area (1916) and its habitat requirements, forest blue grass has low potential to occur within the I-481 South 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 forest blue grass has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of forest blue grass. If forest blue grass 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to forest blue grass as a result of the operation of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Puttyroot:** Puttyroot has been recorded by NYNHP within the I-481 South Study Area. Given the date of its most recent documented observation in this area (1890) and its habitat requirements, puttyroot has low potential to occur within the I-481 South 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 puttyroot has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of puttyroot. If puttroot 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to puttyroot as a result of the operation of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Purple Wild Bergamot:** Purple wild bergamot has been recorded by NYNHP in the vicinity of the I-481 South Study Area (date not provided). Given its habitat requirements, purple wild bergamot has potential to occur within the I-481 South 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 puttyroot has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of puttyroot. If purple wild bergamot 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to purple wild bergamot as a result of 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.
- **Meromictic Lake:** Meromictic lakes 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 right-of-way, 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 right of way 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 right-of-way 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 right-of-way 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 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. 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 right-of-way 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 right-of-way 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 in the I-481 East Study Area (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**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP within the I-481 East Study Area. Given the date of its most recent documented observation in this area (1903) and its

habitat requirements, yellow giant hyssop has low potential to occur within the Central, I-481 South, and I-481 East Study Areas. It is a violation of ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where yellow giant hyssop has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to yellow giant hyssop as a result of the operation of the Viaduct Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Common Moonwort:** Common moonwort has been recorded by NYNHP within the I-481 East Study Area. Disturbances to areas where common moonwort has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of common moonwort. If common moonwort 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to common moonwort as a result of the operation of the Viaduct Alternative in the I-481 East Study Area (see **Appendix J-7**).

  Given the date of its most recent documented observation in this area (1872) and its habitat requirements, common moonwort has low potential to occur within the I-481 East Study Area. Therefore, no adverse effects would occur to common moonwort as a result of the operation of the Viaduct Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Prairie Dunewort:** Prairie dunewort has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, prairie dunewort has 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 prairie dunewort has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of prairie dunewort. If prairie dunewort 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to prairie dunewort as a result of the operation of the Viaduct Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Northern White Cedar Swamp:** Northern White Cedar Swamp ecological community has been documented by NYNHP as occurring near the I-481 East Study Area. However, this community is not present within the I-481 East Study Area. Therefore, no adverse effects to this ecological

community would result from the operation of the Viaduct Alternative in the I-481 East Study Area.

- **Marl Fen:** Marl Fen ecological community has been documented by NYNHP as occurring near the I-481 East Study Area. However, this community is not present within the I-481 East Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Viaduct Alternative in the I-481 East Study Area.

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**).

- **Bald Eagle:** According to the NYNHP database, bald eagles have been documented in the vicinity of Onondaga Lake outside of the I-481 North Study Area. There are no other lakes or rivers that would provide suitable habitat for breeding or non-breeding bald eagles in the I-481 North Study Area. Therefore, there is no suitable habitat for breeding or non-breeding bald eagles in the I-481 North Study Area.

  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 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**).

- **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**).

- **Lake Sturgeon:** Lake sturgeon has been recorded by NYNHP in the vicinity of the North Study Area.[22] Lake sturgeon are not expected to occur in the surface waters of the I-481 North Study Area. Therefore, no adverse effects to lake sturgeon would result from the operation of the Viaduct Alternative in the I-481 North Study Area. 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**).

- **Upland Sandpiper:** Upland sandpiper has been recorded by NYNHP in the vicinity of the I-481 North Study Area. The upland sandpiper is not expected to directly utilize habitats within the Project Area since it is an obligate grassland species. Habitat loss is not expected as a result of construction of the Project. Therefore, no adverse effects to upland sandpiper would result from the operation of the Viaduct Alternative in the I-481 North Study Area.

- **Black Tern:** Black tern has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Also, as described above, black tern was not found during thorough surveys or by NYNHP local birders between 1989 and 2007. However, additional survey work[23] for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 North Study Area during final design of the Project. Based on this information and its habitat requirements, black tern has low potential to occur within the I-481 North Study Area. Habitat loss is not expected as a result of construction of the Project. Therefore, no adverse effects to black tern would result from the operation of the Viaduct Alternative in the I-481 North Study Area.

- **American Saltmarsh Bulrush:** American saltmarsh bulrush has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[24] Given its habitat requirements, there is low potential for this species to occur within the I-481 North Study Area. Given its habitat requirements, American saltmarsh bulrush has low potential 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 American saltmarsh bulrush has the potential to occur

[22] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[23] A site visit to record incidental observations would be conducted at a time of year (May through mid-September [NYNHP]) when black tern would be expected to be present. Any observations of black tern would be coordinated with NYSDEC.

[24] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of American saltmarsh bulrush. If American saltmarsh bulrush 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to American saltmarsh aster as a result of the operation of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Annual Saltmarsh Aster:** Annual saltmarsh aster has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[25] Given its habitat requirements, there is low potential for this species to occur within the I-481 North Study Area. Given its habitat requirements, annual saltmarsh aster has low potential 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 annual saltmarsh aster has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of annual saltmarsh aster. If annual saltmarsh aster 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to salt marsh aster as a result of the operation of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Straight-leaved Pondweed:** Straight-leaved pondweed has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[26] Given its habitat requirements, there is low potential for straight-leaved pondweed to occur within the vicinity of the I-481 North Study Area. As described above, straight-leaved pondweed was not found during targeted surveys for this species in the I-481 North Study Area. Therefore, no adverse effects to straight-leaved pondweed would result from the operation of the Viaduct 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 vicinity of the I-481 North Study Area.[27] 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 right-of-way 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

[25] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[26] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[27] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

the species to other locations within the NYSDOT right-of-way 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 in the I-481 North Study Area (see **Appendix J-7**).

- **Few-flowered Spike Rush:** Few-flowered spike rush has been recorded by NYNHP within the vicinity of the I-481 North Study Area (observation date not provided). Few-flowered spike rush has low potential 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. During final design, efforts would be made to confirm the presence or absence of few-flowered spike rush. If few-flowered spike rush 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to few-flowered spike rush as a result of the operation of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given the date of its most recent documented observation in this area (1903) and its habitat requirements, yellow giant hyssop has low potential 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 yellow giant hyssop has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to yellow giant hyssop as a result of the operation of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Ram's Head Lady's Slipper:** Ram's head lady's slipper has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given the date of its most recent documented observation in this area (1902) and its habitat requirements, ram's head lady's slipper has low potential 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. During final design, efforts would be made to confirm the presence or absence of ram's head lady's slipper. If ram's head lady's slipper 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to ram's head lady slipper as a result of the operation of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).

Therefore, no adverse effects would occur to ram's head lady's slipper as a result of the operation of Viaduct Alternative in the I-481 North Study Area.

- **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.
- **Inland Salt Pond:** The inland salt pond ecological community has been documented by NYNHP as occurring in the vicinity of the I-481 North Study Area.[28] 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 in 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

[28] This ecological community is only associated with the NB-16 portion of the I-481 North Study Area.

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.[29] 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

- **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. 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 and within 1.5 miles from a known northern long-eared bat roost tree (NYSDEC required buffers). Any bridges in the Central 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 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**).

- **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**).

[29] 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).

- **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**).

- **American saltmarsh Bulrush:** American saltmarsh 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 American saltmarsh bulrush to occur in the Central Study Area. As described above, American saltmarsh bulrush was not found during targeted surveys for this species within the Central Study Area. Therefore, American saltmarsh 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**).

- **Annual Saltmarsh Aster:** Annual saltmarsh aster has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for annual saltmarsh aster to occur within the Central Study Area. As described above, annual saltmarsh aster was not found during targeted surveys for this species within the Central Study Area. Therefore, annual saltmarsh aster 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 (see **Appendix J-7**).

- **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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, glomerate sedge would not be adversely affected during the construction of the Viaduct Alternative (see **Appendix J-7**).

- **Red Pigweed:** Red pigweed has been recorded by NYNHP near the Central Study Area. Given its habitat requirements, there is a low potential for red pigweed to occur within the Central 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 right-of-way 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 right-of-way 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 construction of the Viaduct Alternative (see **Appendix J-7**).

- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP near the Central Study Area. Given its habitat requirements, there is low potential for Yellow Giant Hyssop to occur within the vicinity of the Central Study Area. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop within the Central Study Area. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, yellow giant hyssop would not be adversely affected during the construction of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).

- **Few-flowered Spike Rush:** Few-flowered spike rush has been recorded by NYNHP near the Central Study Area. Given the date of its most recent documented observation in this area (observation date not provided) and its habitat requirements, few-flowered spike rush has low potential to occur within the Central Study Area. Few-flowered spike rush has low potential to occur within the Central Study Area. During final design, efforts would be made to confirm the presence or absence of few-flowered spike rush within the Central Study Area. If few-flowered spike rush 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 right-of-way or other land under NYSDOT's jurisdiction if practical. Therefore few-flowered spike rush would not be adversely affected during the construction of the Viaduct 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 ecological community would not be adversely affected during the construction of the Viaduct Alternative in the Central Study Area.

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**).
- **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**).
- **Glomerate Sedge:** Glomerate sedge has been recorded by NYNHP near the I-481 South Study Area. Given its habitat requirements, there is potential for glomerate sedge to occur within the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of glomerate sedge within the I-481 South 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, glomerate 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:** 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**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP near the I-481 South Study Area. Given its habitat requirements, there is low potential for yellow giant hyssop to occur within the vicinity of the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop within the I-481 South Study Area. If

yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, yellow giant hyssop would not be adversely affected during the construction of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Rock Elm:** Rock elm has been recorded by NYNHP near the I-481 South Study Area. Given its habitat requirements, tock elm habitat has low potential to occur within the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of rock elm within the I-481 South Study Area. If rock elm 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 right-of-way or other land under NYSDOT's jurisdiction if practical. Therefore, rock elm would not be adversely affected during the construction of the Viaduct Alternative in the I-481 South Study (see **Appendix J-7**).

- **Common Moonwort:** Common moonwort has been recorded by NYNHP near the I-481 South Study Area. Given the date of its most recent documented observation in this area (1872) and its habitat requirements, common moonwort has low potential to occur within the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of common moonwort within the I-481 South Study Area. If common moonwort 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, common moonwort would not be adversely affected during the construction of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**). Therefore, no adverse effects to common moonwort are anticipated to result of the Viaduct Alternative in the I-481 South Study Area (**see Appendix J-7**).

- **Hooker's Orchid:** Hooker's orchid has been recorded by NYNHP near the I-481 Study Area. Given its habitat requirements, there is low potential for Hooker's orchid to occur within the vicinity of the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of Hooker's orchid within the I-481 South Study Area. If Hooker's orchid 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, Hooker's orchid would not be adversely affected during the construction of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Forest Blue Grass:** Forest blue grass has been recorded by NYNHP near the I-481 South Study Area. Given the date of its most recent documented observation in this area (1916) and its habitat requirements, Forest blue grass has low potential to occur within the I-481 South Study Area.

During final design, efforts would be made to confirm the presence or absence of forest blue grass within the I-481 South Study Area. If forest blue grass 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 right-of-way or other land under NYSDOT's jurisdiction.). Therefore, no adverse effects to forest blue grass are anticipated to result from the . construction of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Puttyroot:** Puttyroot has been recorded by NYNHP near the I-481 South Study Area. Given the date of its most recent documented observation in this area (1890) and its habitat requirements, Putttyroot has low potential to occur within the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of puttyroot within the I-481 South Study Area. If puttyroot 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, no adverse effects to puttyroot are anticipated to result from the construction of the Viaduct Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Purple Wild Bergamot:** Purple wild bergamot has been recorded by NYNHP near the I-481 South Study Area. Purple wild bergamot has potential to occur within the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of purple wild bergamot within the I-481 South Study Area. If purple wild bergamot 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 right-of-way or other land under NYSDOT's jurisdiction if practical. Therefore, purple wild bergamot 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.
- **Meromictic Lake:** The meromicitic lake 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 right-of-way 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 right-of-way 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 right-of-way 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 in the I-481 East Study Area (see **Appendix J-7**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP near the I-481 East Study Area. Given its habitat requirements, there is low potential for yellow giant hyssop to occur

within the vicinity of the I-481 East Study Area. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop within the I-481 East Study Area. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, yellow giant hyssop would not be adversely affected during the construction of the Viaduct Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Common Moonwort:** Common moonwort has been recorded by NYNHP near the I-481 East Study Area. Given the date of its most recent documented observation in this area (1872) and its habitat requirements, common moonwort has 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 common moonwort within the I-481 East Study Area. If common moonwort 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, common moonwort would not be adversely affected during the construction of the Viaduct Alternative in the I-481 East Study Area (see **Appendix J-7**).
- **Prairie Dunewort:** Prairie dunewort has been recorded by NYNHP near the I-481 East Study Area. Given its habitat requirements, prairie dunewort has potential to occur within the I-481 East Study Area. During final design, efforts would be made to confirm the presence or absence of prairie dunewort within the I-481 East Study Area. If prairie dunewort 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, prairie dunewort would not be adversely affected during the construction of the Viaduct Alternative in the I-481 East Study Area (see **Appendix J-7**).
- **Northern White Cedar Swamp:** Northern white cedar swamp has been documented by NYNHP as occurring near the I-481 East Study Area. However, this community is not present within the I-481 East Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Viaduct Alternative in the I-481 East Study Area.
- **Marl Fen:** Marl fen 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 East Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Viaduct Alternative in the I-481 East Study Area.

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**).

- **Bald Eagle**: According to the NYNHP database, bald eagles have been documented in the vicinity of Onondaga Lake outside of the I-481 North Study Area. There are no lakes or rivers that would provide suitable habitat for breeding or non-breeding bald eagles in the I-481 North Study Area. Therefore, there is no suitable habitat for breeding or non-breeding bald eagles in the I-481 North Study Area.

  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 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**).

- **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**).**Lake Sturgeon:** Lake sturgeon has been recorded by NYNHP in the vicinity of the North Study Area.[30] Lake sturgeon are not expected to occur in the surface waters of the I-481 North Study Area. Therefore, no adverse effects to lake sturgeon would result from the construction of the Viaduct Alternative in the I-481 North Study Area.

[30] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

- **Upland Sandpiper:** Upland sandpiper has been recorded by NYNHP near the I-481 North Study Area. The upland sandpiper is not expected to directly utilize habitats within the Project Area since it is an obligate grassland species. Habitat loss is not expected as a result of construction of the Project. Therefore, no adverse effects to upland sandpiper are anticipated to result from the construction of Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Black Tern:** Black tern has been recorded by NYNHP near the I-481 North Study Area. As described above, black tern was not found during thorough surveys or by NYNHP local birders between 1989 and 2007. Based on this information and its habitat requirements, black tern has low potential to occur within the I-481 North Study Area. However, during final design, efforts would be made to confirm the presence or absence of black tern within the I-481 North Study Area.[31] Habitat loss is not expected as a result of construction of the Project. Therefore, no adverse effects to black tern are anticipated to result from construction of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **American Saltmarsh Bulrush:** American saltmarsh bulrush has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[32] However, given its habitat requirements, there is the low potential for American saltmarsh bulrush to occur in the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of American saltmarsh bulrush within the I-481 North Study Area. If American saltmarsh bulrush 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, American saltmarsh bulrush would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**)

- **Annual Saltmarsh Aster:** Annual saltmarsh aster has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[33] Given its habitat requirements, there is low potential for annual saltmarsh aster to occur within the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of annual saltmarsh Aster within the I-481 North Study Area. If annual saltmarsh aster 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, saltmarsh aster would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).

[31] A site visit to record incidental observations would be conducted at a time of year (May through mid-September [NYNHP]) when black tern would be expected to be present. Any incidental observations would be coordinated with NYSDEC.

[32] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[33] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

- **Straight-Leaved Pondweed:** Straight-leaved pondweed has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[34] Given its habitat requirements, there is low potential for straight-leaved pondweed to occur within the vicinity of the I-481 North Study Area. As described above, straight-leaved pondweed was not found during targeted surveys for this species in the I-481 North Study Area. Therefore, straight-leaf pondweed would not be adversely affected during the construction of the Viaduct 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.[35] 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 right-of-way 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 (see **Appendix J-7**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP near the I-481 North Study Area. Given its habitat requirements, there is low potential for yellow giant hyssop to occur within the vicinity of the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop within the I-481 North Study Area. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, yellow giant hyssop would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Few-flowered Spike Rush:** Few-flowered spike rush has been recorded by NYNHP near the I-481 North Study Area. However, few-flowered spike rush has low potential to occur within the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of few-flowered spike rush within the I-481 North Study Area. If few-flowered spike rush 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 right-of-way or other land under NYSDOT's jurisdiction if practical. Therefore few-flowered spike rush would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Ram's Head Lady's Slipper:** Ram's head lady's slipper has been recorded by NYNHP near the I-481 North Study Area. Given the date of its most recent documented observation in this area

[34] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[35] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

(1902) and its habitat requirements, ram's head lady's slipper has low potential to occur within the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of ram's head lady's slipper within the I-481 North Study Area. If ram's head lady's slipper 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, ram's head lady's slipper would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area (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 during the construction of the Viaduct Alternative in the I-481 North Study Area.
- **Inland Salt Pond:** The inland salt pond ecological community is not present within the I-481 North Study Area.[36] Therefore, this ecological community would not be adversely affected during the construction of the Viaduct Alternative in the I-481 North Study Area.

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.

[36] This ecological community is only associated with the NB-16 portion of the I-481 North Study Area.

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[37]), 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 right-of-way, and edges of the right-of-way 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.

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 right-of-way) 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.

[37] 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	121.5	90.4	1.3	91.7	29.8
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***	132.8	0.79	0.11	0.89	131.9
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.

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 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

The BE presents preliminary effect determinations for Federally-listed and State-listed species that may occur within the Project Area under the Community Grid Alternative (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

Table 6-4-8-6 (cont'd)
Community Grid Alternative:
Threatened and Endangered Species Effect Determinations

Common Name	Scientific Name	State Effect Determination*	Federal Effect Determination**
Lake sturgeon	*Acipenser fulvescens*	Take Not Likely	N/A
Upland Sandpiper	Bartramia longicuada)	Take Not Likely	N/A
Black Tern	Chlidonias niger	Take Not Likely	N/A
American saltmarsh bulrush	*Bolboschoemus maritimus* ssp. *paludosus*	Take Not Likely	N/A
Midland sedge	*Carex mesochorea*	Take Not Likely	N/A
Annual saltmarsh aster	*Symphyotrichum subulatum* var. *subulatum*	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
Red pigweed	*Oxybasis rubra var. rubra*	Take Not Likely	N/A
Yellow Giant Hyssop	Agastache nepetoides	Take Not Likely	N/A
Rock Elm	Ulmus thomasii	Take Not Likely	N/A
Ram's Head Lady's Slipper	Cypripedium arietinum	Take Not Likely	N/A
Common Moonwort	Botrychium neolunaria	Take Not Likely	N/A
Few-flowered Spike Rush	Eleocharis quinqueflora	Take Not Likely	N/A
Hooker's Orchid	Platanthera hookeri	Take Not Likely	N/A
Forest Blue Grass	Poa sylvestris	Take Not Likely	N/A
Puttyroot	Aplectrum hyemale	Take Not Likely	N/A
Purple Wild Bergamot	Monarda media	Take Not Likely	N/A
Prairie Dunewort	Botrychium campestre	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.[38] 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 Community Grid Alternative. Coordination among FHWA, USFWS and NYSDEC regarding Federally- and State-listed species is ongoing.

[38] 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

- **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 and within 1.5 miles from a known northern long-eared bat roost tree (NYSDEC required buffers). Any bridges in the Central 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**).

  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 the I-481 North 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 and I-481 East 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, Old Liverpool Road, and I-81 northbound between Exits 25a and 26. 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 right-of-way 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 right-of-way 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 right-of-way. 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**).

- **American Saltmarsh Bulrush:** American saltmarsh 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, American saltmarsh bulrush was not found during targeted surveys for this species in the Central Study Area. Therefore, American saltmarsh 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**).
- **Annual Saltmarsh Aster:** Annual saltmarsh aster has been recorded by NYNHP near the Central Study Area. Given its habitat requirements, there is low potential for annual salt marsh aster to occur within the Central Study Area. As previously described, annual saltmarsh aster was not found during targeted surveys for this species in the Central Study Area. Therefore, annual saltmarsh aster would not be adversely affected by the operation 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 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 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. Disturbances to areas where glomerate sedge has the potential to occur within the NYSDOT right-of-way 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 right-of-way 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 in the Central Study Area (see **Appendix J-7**).
- **Red Pigweed:** Red pigweed has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is a low potential for red pigweed to occur within the Central 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 right-of-way 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 right-of-way 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 Community Grid Alternative in the Central Study Area (see **Appendix J-7**).

- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP in the vicinity of the Central Study Area. Given the date of its most recent documented observation in this area (1903) and its habitat requirements, yellow giant hyssop has low potential to occur within the Central 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 yellow giant hyssop has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop within the Central Study Area. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, yellow giant hyssop would not be adversely affected during the operation of the Viaduct Alternative in the Central Study Area (see **Appendix J-7**).
- **Few-flowered Spike Rush:** Few-flowered spike rush has been recorded by NYNHP in the vicinity of the Central Study Area (observation date not provided).. Given its habitat requirements, few-flowered spike rush has low potential to occur within the Central Study Area. It is a violation of 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 few-flowered spike rush. If few-flowered spike rush 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, no adverse effects would occur to few-flowered spike rush as a result of the operation of the Community Grid Alternative in the Central Study Area (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 would occur to this ecological community as a result of the operation of the Community Grid Alternative in the Central Study Area.

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 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**).

- **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 rights-of-way, successional old fields and shrublands, and successional forests located along the edges of the right-of-way. 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**).
- **Glomerate Sedge:** Glomerate sedge has been recorded by NYNHP near the I-481 South Study Area. Given its habitat requirements, there is potential for glomerate sedge to occur within the I-481 South 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 right-of-way 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 right-of-way 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 Community Grid 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 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**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given the date of its most recent documented observation in this area

(1903) and its habitat requirements, yellow giant hyssop has low potential to occur within the I-481 South 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 yellow giant hyssop has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to yellow giant hyssop as a result of the operation of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Rock Elm:** Rock elm has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, rock elm has low potential to occur within the I-481 South 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 rock elm has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of rock elm. If rock elm 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to rock elm as a result of the operation of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Common Moonwort:** Common moonwort has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given the date of its most recent documented observation in this area (1872) and its habitat requirements, common moonwort has low potential to occur within the I-481 South Study Area. It is a violation of 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 common moonwort. If common moonwort 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, no permanent adverse effects to common moonwort are anticipated to result from the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Hooker's Orchid:** Hooker's orchid has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, Hooker's orchid has low potential to occur within the I-481 South 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 Hooker's orchid has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of Hooker's orchid. If Hooker's orchid 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to Hooker's orchid as a result of the operation of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Forest Blue Grass:** Forest blue grass has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given the date of its most recent documented observation in this area (1916) and its habitat requirements, forest blue grass has low potential to occur within the I-481 South 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 forest blue grass has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of forest blue grass. If forest blue grass 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to forest blue grass as a result of the operation of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Puttyroot:** Puttyroot has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given the date of its most recent documented observation in this area (1890) and its habitat requirements, puttyroot has low potential to occur within the I-481 South 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 puttyroot has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of puttyroot. If puttyroot 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to puttyroot as a result of the operation of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Purple Wild Bergamot:** Purple wild bergamot has been recorded by NYNHP in the vicinity of the I-481 South Study Area (date not provided). Given its habitat requirements, purple wild bergamot has potential to occur within the I-481 South 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 puttyroot has the potential to occur within the right-of-way is likely under the Viaduct Alternative. During final design, efforts would be made to confirm the presence or absence of puttyroot. If purple wild bergamot 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects

would occur to purple wild bergamot as a result of 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.
- **Meromictic Lake:** Meromictic lakes 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 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 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 right-of-way 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 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, 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 right-of-way 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 right-of-way 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 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. 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 right-of-way 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 right-of-way 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 in the I-481 East Study Area (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**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given the date of its most recent documented observation in this area (1903) and its habitat requirements, yellow giant hyssop has low potential to occur within the Central, I-481 South, and I-481 East Study Areas. It is a violation of ECL S9-1503 to collect or destroy listed plants without the permission of the landowner. Disturbances to areas where yellow giant hyssop has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to yellow giant hyssop as a result of the operation of the Community Grid Alternative in the I-81 East Study Area (see **Appendix J-7**).

- **Common Moonwort:** Common moonwort has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given the date of its most recent documented observation in this area (1872) and its habitat requirements, common moonwort 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. During final design, efforts would be made to confirm the presence or absence of common moonwort. If common moonwort 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, no adverse effects to common moonwort would occur as a result of the operation of the Community Grid Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Prairie Dunewort:** Prairie dunewort has been recorded by NYNHP in the vicinity of the I-481 East Study Area. Given its habitat requirements, prairie dunewort has 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 prairie dunewort has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of prairie dunewort. If prairie dunewort 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to prairie dunewort as a result of the operation of the Community Grid Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Northern White Cedar Swamp:** Northern white cedar swamp has been documented by NYNHP as occurring near the I-481 East Study Area. However, this community is not present within the I-481 East Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Community Grid Alternative in the I-481 East Study Area.

- **Marl Fen:** Marl fen has been documented by NYNHP as occurring near the I-481 East Study Area. However, this community is not present within the I-481 East Study Area. Therefore, no adverse effects to this ecological community would result from the operation of the Community Grid Alternative in the I-481 East Study Area.

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**).

- **Bald Eagle**: According to the NYNHP database, bald eagles have been documented in the vicinity of Onondaga Lake outside of the I-481 North Study Area. There are no lakes or rivers that would provide suitable habitat for breeding or non-breeding bald eagles in the I-481 North Study Area. Therefore, there is no suitable habitat for breeding or non-breeding bald eagles in the I-481 North Study Area.

  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 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 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**).

- **Eastern Massasauga:** The IPaC 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**).

- **Lake Sturgeon:** Lake sturgeon has been recorded by NYNHP in the vicinity of the North Study Area.[39] Lake sturgeon are not expected to occur in the surface waters of the I-481 North Study Area. Therefore, no adverse effects to lake sturgeon would result from the operation of the Viaduct Alternative in the I-481 North Study Area.

- **Upland Sandpiper:** Upland sandpiper has been recorded by NYNHP in the vicinity of the I-481 North Study Area. The upland sandpiper is not expected to directly utilize habitats within the Project Area since it is an obligate grassland species. Habitat loss is not expected as a result of construction of the Project. Therefore, no adverse effects to upland sandpiper are anticipated to result from the operation of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Black Tern:** Black tern has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Also, as described above, black tern was not found during thorough surveys or by NYNHP local birders between 1989 and 2007. Additional survey work[40] for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 North Study Area during final design of the Project. Based on this information and its habitat requirements, black tern has low potential to occur within the I-481 North Study Area. Habitat loss is not expected as a result of construction of the Project. Therefore, no permanent adverse effects to black tern are anticipated to result from the operation of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Annual Saltmarsh Aster:** Annual saltmarsh aster has been recorded by NYNHP in the vicinity of I-481 North Study Area.[41] Given its habitat requirements, there is the potential for annual salt marsh aster 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 annual saltmarsh aster has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of annual saltmarsh aster. If annual saltmarsh aster 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects would occur to saltmarsh aster as a result of the operation of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Straight-leaved Pondweed:** Straight-leaved pondweed has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[42] Given its habitat requirements, there is low potential for straight-leaved pondweed has a low potential to occur within the vicinity of the I-481 North Study Area. As described above, straight-leaved pondweed was not found during targeted surveys for

[39] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[40] A site visit to record incidental observations would be conducted at a time of year (May through mid-September [NYNHP]) when black tern would be expected to be present. Any incidental observations would be coordinated with NYSDEC.

[41] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area..

[42] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

this species in the I-481 North Study Area. Therefore, straight-leaved pondweed would not be adversely affected by 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.[43] 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 right-of-way 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 right-of-way 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 Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Few-flowered Spike Rush:** Few-flowered spike rush has been recorded by NYNHP in the vicinity of the I-481 North Study Area (observation date not provided). Given its habitat requirements, there is a low potential for few-flowered spike rush 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. During final design, efforts would be made to confirm the presence or absence of few-flowered spike rush. If few-flowered spike rush 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, no adverse effects would occur to few-flowered spike rush as a result of the operation of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP in the vicinity of I-481 North Study Area. Given its habitat requirements, there is a low potential for yellow giant hyssop 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 yellow giant hyssop has the potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. With these measures in place, no adverse effects

[43] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

would occur to yellow giant hyssop as a result of the operation of the Community Grid Alternative in the North Study Area (see **Appendix J-7**).

- **Ram's Head Lady's Slipper:** Ram's head lady's slipper has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given the date of its most recent documented observation in this area (1902) and its habitat requirements, ram's head lady's slipper has low potential to occur within 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 of the Project. Therefore, ram's head lady's slipper 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 (see **Appendix J-7**).
- **Inland Salt Pond:** The inland salt pond ecological community is not present within the I-481 North Study Area.[44] Therefore, this ecological community would not be adversely affected during the operation of the Community Grid Alternative (see **Appendix J-7**).

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**

[44] This ecological community is only associated with the NB-16 portion of the I-481 North Study Area.

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.[45] 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

- 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 and within 1.5 miles from a known northern long-eared bat roost tree (NYSDEC required buffers). Any bridges in the Central 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 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**).
- **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**).

[45] 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).

- **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**).

- **American Saltmarsh Bulrush:** American saltmarsh bulrush has been recorded by NYNHP within the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for American saltmarsh bulrush to occur in the Central Study Area. As described above, American saltmarsh 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 (see **Appendix J-7**).

- **Annual Saltmarsh Aster:** Annual saltmarsh aster has been recorded by NYNHP within the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for annual saltmarsh aster to occur within the Central Study Area. As described above, annual 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**).

- **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 right-of-way 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**).

- **Red Pigweed:** Red pigweed has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is a low potential for red pigweed to occur within the Central 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 right-of-way 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 right-of-way 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 construction of the Community Grid Alternative in the Central Study Area (see **Appendix J-7**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP in the vicinity of the Central Study Area. Given its habitat requirements, there is low potential for yellow giant hyssop to occur within the vicinity of the Central 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 yellow giant hyssop has potential to occur within the right-of-way is likely under the Community Grid Alternative. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, yellow giant hyssop would not be adversely affected during the construction of the Community Grid Alternative in the Central Study Area (see **Appendix J-7**).
- **Few-flowered Spike Rush:** Few-flowered spike rush has been recorded by NYNHP in the vicinity of the Central Study Area. Given the date of its most recent documented observation in this area (observation date not provided) and its habitat requirements, few-flowered spike rush has low potential to occur within the Central Study Area. During final design, efforts would be made to confirm the presence or absence of few-flowered spike rush within the Central Study Area. If few-flowered spike rush 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 right-of-way or other land under NYSDOT's jurisdiction if practical. Therefore few-flowered spike rush 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**).

- **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**).
- **Glomerate Sedge:** Glomerate sedge has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is potential for glomerate sedge to occur within the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of glomerate sedge within the I-481 South 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 right-of-way 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 I-481 South Study Area.
- **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.
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is low potential for yellow giant hyssop to occur within the vicinity of the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop within the I-481 South Study Area. If yellow giant hyssop 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, yellow giant hyssop would not be adversely affected during the construction of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Rock Elm:** Rock elm has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is low potential for rock elm to occur within the I-481

South Study Area. During final design, efforts would be made to confirm the presence or absence of rock elm within the I-481 South Study Area. If rock elm 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 right-of-way or other land under NYSDOT's jurisdiction if practical. Therefore, rock elm would not be adversely affected during the construction of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Common Moonwort:** Common moonwort has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given the date of its most recent documented observation in this area (1872) and its habitat requirements, common moonwort has low potential to occur within the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of common moonwort within the I-481 South Study Area. 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 right-of-way or other land under NYSDOT's jurisdiction if practical. Therefore, no adverse effects to common moonwort would occur to as a result of the operation of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Hooker's Orchid:** Hooker's orchid has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, there is low potential for Hooker's orchid to occur within the vicinity of the I-481 South Study. During final design, efforts would be made to confirm the presence or absence of Hooker's orchid within the I-481 South Study Area. If Hooker's orchid 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, Hooker's orchid would not be adversely affected during the construction of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).
- **Forest Blue Grass:** Forest blue grass has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given the date of its most recent documented observation in this area (1916) and its habitat requirements, forest blue grass has low potential to occur within the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of forest blue grass within the I-481 South Study Area. If forest blue grass 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, forest blue grass would not be adversely affected during the construction of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**.
- **Puttyroot:** Puttyroot has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given the date of its most recent documented observation in this area (1890) and its habitat requirements, puttyroot has low potential to occur within the I-481 South. If puttyroot 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, puttyroot would not be adversely affected during the construction of the Community Grid Alternative in the I-481 South Study Area (see **Appendix J-7**).

- **Purple Wild Bergamot:** Purple wild bergamot has been recorded by NYNHP in the vicinity of I-481 South Study Area. Purple wild bergamot has been recorded by NYNHP in the vicinity of the I-481 South Study Area. Given its habitat requirements, purple wild bergamot has potential to occur within the I-481 South Study Area. During final design, efforts would be made to confirm the presence or absence of purple wild bergamot within the I-481 South Study Area. If purple wild bergamot 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 right-of-way or other land under NYSDOT's jurisdiction if practical. Therefore, purple wild bergamot would not be adversely affected during the construction 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 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.
- **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.
- **Meromictic Lake:** The meromicitic lake 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 right-of-way 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 right-of-way 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 right-of-way 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 in the I-481 East Study Area (see **Appendix J-7**).

- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP near the I-481 East Study Area. Given its habitat requirements, there is low potential for yellow giant hyssop to occur within the vicinity of the I-481 East Study Area. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop within the I-481 East Study Area. If yellow giant hyssop 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 right-of-way or other land under

NYSDOT's jurisdiction. Therefore, yellow giant hyssop would not be adversely affected during the construction of the Community Grid Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Common Moonwort:** Common moonwort has been recorded by NYNHP near the I-481 East Study Area. Given the date of its most recent documented observation in this area (1872) and its habitat requirements, common moonwort has 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 common moonwort within the I-481 East Study Area. If common moonwort 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, common moonwort would not be adversely affected during the construction of the Community Grid Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Prairie Dunewort:** Prairie dunewort has been recorded by NYNHP near the I-481 East Study Area. Given its habitat requirements, prairie dunewort has potential to occur within the I-481 East Study Area. During final design, efforts would be made to confirm the presence or absence of prairie dunewort within the I-481 East Study Area. If prairie dunewort 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, prairie dunewort would not be adversely affected during the construction of the Community Grid Alternative in the I-481 East Study Area (see **Appendix J-7**).

- **Northern White Cedar Swamp:** Northern white cedar swamp ecological community has been documented by NYNHP as occurring near the I-481 East Study Area. However, this community is not present within the I-481 East Study Area. Therefore, no adverse effects to this ecological community would result from the construction of the Community Grid Alternative in the I-481 East Study Area.

- **Marl Fen:** Marl Fen ecological community has been documented by NYNHP as occurring near the I-481 East Study Area. However, this community is not present within the I-481 East Study Area. Therefore, no adverse effects to this ecological community would result from the construction of the Community Grid Alternative in the I-481 East Study Area.

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**).

- **Bald Eagle:** According to the NYNHP database, bald eagles have been documented in the vicinity of Onondaga Lake outside of the I-481 North Study Area. There are no lakes or rivers that would provide suitable habitat for breeding or non-breeding bald eagles in the I-481 North Study Area. Therefore, there is no suitable habitat for breeding or non-breeding bald eagles in the I-481 North Study Area.

  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.

  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**).

- **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**).
- **Lake Sturgeon:** Lake sturgeon has been recorded by NYNHP in the vicinity of the North Study Area.[46] Lake sturgeon are not expected to occur in the surface waters of the I-481 North Study Area. Therefore, no adverse effects to lake sturgeon would result from the construction of the Community Grid in the I-481 North Study Area.
- **Lake Sturgeon:** Lake sturgeon has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[47] Lake sturgeon are not expected to occur in the surface waters of the I-481 North Study Area. Therefore, no adverse effects to lake sturgeon would result from the construction of the Community Grid Alternative in the I-481 North Study Area.

[46] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[47] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

- **Upland Sandpiper:** Upland sandpiper has been recorded by NYNHP near the I-481 North Study Area. The upland sandpiper is not expected to directly utilize habitats within the I-481 North Study Area since it is an obligate grassland species. Habitat loss is not expected as a result of construction of the Community Grid Alternative. Therefore, no adverse effects to upland sandpiper are anticipated to result from the construction of the Community Grid Alternative in the I-481 North Study Area.
- **Black Tern:** Black tern has been recorded by NYNHP near the I-481 North Study Area. As described above, black tern was not found during thorough surveys or by NYNHP local birders between 1989 and 2007. However, survey work[48] for this species would be conducted in suitable habitats within the limits of disturbance in the I-481 North Study Area during final design of the Project. Based on this information and its habitat requirements, black tern has low potential to occur within the I-481 North Study Area. Habitat loss is not expected as a result of construction of the Community Grid Alternative. Therefore, no adverse effects to black tern are anticipated to result from the construction of the Community Grid Alternative in the I-481 North Study area.
- **American saltmarsh Bulrush:** American saltmarsh bulrush has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[49] However, given its habitat requirements, there is the low potential for American saltmarsh bulrush to occur in the I-481 North Study Area. Given its habitat requirements, there is a low potential for American saltmarsh bulrush 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 American saltmarsh bulrush within the I-481 North Study Area. If American saltmarsh bulrush 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, American saltmarsh bulrush would not be adversely affected during the construction of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Annual Saltmarsh Aster:** Annual saltmarsh aster has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[50] Given its habitat requirements, there is low potential for annual saltmarsh aster to occur within the I-481 North Study Area. Given its habitat requirements, there is a low potential for annual saltmarsh aster 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 annual saltmarsh aster within the I-481 North Study Area. If annual saltmarsh aster 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore,

[48] A site visit to record incidental observations would be conducted at a time of year (May through mid-September [NYNHP]) when black tern would be expected to be present. Any incidental observations would be coordinated with NYSDEC.

[49] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[50] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

saltmarsh aster would not be adversely affected during the construction of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**). Therefore, annual saltmarsh aster would not be adversely affected during the construction of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Straight-Leaved Pondweed:** Straight-leaved pondweed has been recorded by NYNHP in the vicinity of the I-481 North Study Area.[51] Given its habitat requirements, there is low potential for straight-leaved pondweed to occur within the vicinity of the I-481 North Study Area. As described above, straight-leaved pondweed was not found during targeted surveys for this species in the I-481 North Study Area. Therefore, straight-leaf pondweed would not be adversely affected during the construction 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.[52] 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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, red pigweed would not be adversely affected during the construction of the Community Grid Alternative in the I-481 North Study Area (**see Appendix J-7**).
- **Few-flowered Spike Rush:** Few-flowered spike rush has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given the date of its most recent documented observation in this area (observation date not provided) and its habitat requirements, few-flowered spike rush has low potential to occur within the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of few-flowered spike rush within the I-481 North Study Area. If few-flowered spike rush 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 right-of-way or other land under NYSDOT's jurisdiction if practical. Therefore few-flowered spike rush would not be adversely affected during the construction of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).
- **Yellow Giant Hyssop:** Yellow giant hyssop has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given its habitat requirements, there is low potential for yellow giant hyssop to occur within the vicinity of the I-481 North Study Area. During final design, efforts would be made to confirm the presence or absence of yellow giant hyssop within the I-481 North Study Area. If yellow giant hyssop 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

[51] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

[52] This species is only associated with the Noise Barrier 16 portion of the I-481 North Study Area.

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 right-of-way or other land under NYSDOT's jurisdiction. Therefore, yellow giant hyssop would not be adversely affected during the construction of the Community Grid Alternative in the I-481 North Study Area (see **Appendix J-7**).

- **Ram's Head Lady's Slipper:** Ram's head lady's slipper has been recorded by NYNHP in the vicinity of the I-481 North Study Area. Given the date of its most recent documented observation in this area (1902) and its habitat requirements, ram's head lady's slipper has low potential to occur within the I-481 North Study Area. Therefore, ram's head lady's slipper would not be adversely affected during the construction of the Community Grid Alternative in the I-481 North Study Area (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 in the I-481 North Study Area.
- **Inland Salt Pond:** The inland salt pond ecological community is not present within the I-481 North Study Area.[53] Therefore, this ecological community would not be adversely affected during the construction of the Community Grid Alternative in the I-481 North Study Area.

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.

[53] This ecological community is only associated with the NB-16 portion of the I-481 North Study Area.

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