SECTION 6.4.8
GENERAL ECOLOGY AND WILDLIFE RESOURCES

This section describes the potential effects of the project alternatives on the general ecology and wildlife resources (i.e., wetlands, ecological communities, wildlife, threatened or endangered species, and species of special concern) within the Project Area. **Appendix J** (subsections **J-1** to **J-6**) provides additional information to support this section.

As described in **Section 6.1, Introduction**, a Project Area is defined and consists of the following four study areas: I-81 Viaduct Study Area; I-481 South Study Area; I-481 East Study Area; and I-481 North Study Area (see **Figure 6.1-1)**. The assessment for wetlands, ecological communities, and wildlife was conducted using a study area of a 100-foot radius around these four study areas. As per NYSDOT's *The Environmental Manual* (TEM), the study areas used for the assessment of effects to threatened and endangered species encompass larger areas around each of the four project study areas. These study areas vary by species as per the TEM and are presented in the threatened and endangered species section below.

A number of Federal regulations pertain to the general ecology and wildlife resources described in this section. These regulations include the Clean Water Act, Executive Order 11990, "Protection of Wetlands," Executive Order 13112, "Invasive Species," Migratory Bird Treaty Act, and the Endangered Species Act (ESA). These regulations are detailed in **Appendix J-1**.

With respect to state regulations, the general ecology and wildlife resources of the study areas are covered under the Freshwater Wetlands Act (Article 24), Removal of Trees and Protect Plants, and Endangered and Threatened Species of Fish and Wildlife and Species of Special Concern. These regulations are outlined in **Appendix J-1**.

Prior to conducting the general ecology and wildlife resources assessment, methodologies were reviewed and developed in consultation with the applicable regulatory agencies (i.e., United States Army Corps of Engineers [USACE] and NYSDEC) including a "Wetland Assessment Methodology" (December 9, 2015) (see **Appendix J-1-1**). As part of these methodologies a number of literature, mapping, and database resources were reviewed (as discussed in **Appendix J-1**), and information from these resources has been incorporated into this assessment as applicable. To document existing conditions, site reconnaissance investigations by a plant ecologist were conducted on June 29 and 30, 2016; July 8, 2016; August 1, 2016; and September 16, 2016. Wildlife was documented during a site reconnaissance investigation conducted by a team of two wildlife ecologists on July 29, 2016. Wetland inspections were conducted by a team of two wetland ecologists on July 6, 7, 19, 20, 21, and 28, 2016 and additional photographic documentation was collected on September 16 and 20, 2016.

With respect to the assessment of effects, permanent effects to wetlands and 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

WETLANDS

As part of a wetland and surface water assessment conducted for the Project, 13 freshwater wetlands (approximately 20 acres) (see **Appendix J-2**) were documented within the Project Area. Several of these wetlands are also mapped by NYSDEC and the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (see **Appendix J-2**). The majority of the freshwater wetlands within the Project Area are characterized by disturbance in that they are located in close proximity to highway and railroad infrastructure. Several of these freshwater wetlands have associated creeks that have been diverted underneath roads, ramps, and railroads via culvert inlets/outlets (described in **Section 6.4.7**, **Water Resources**). **Appendix J-2** provides the freshwater wetland mapping and field inspection results documented in the Wetland and Surface Water Assessment Report (December 2016). Approximate wetland acreage calculations were made on the basis of the wetland mapping as outlined in **Appendix J-2**. Of the approximate freshwater wetland acreage presented in **Table 6.4.8-1**, all are considered potentially jurisdictional by the USACE, some of which is also NYSDEC-regulated (see **Appendix J-2** for details).

Table 6.4.8-1
Summary of Freshwater Wetland and Adjacent Area Coverage within the Project Area

Project Study Area	Approximate Freshwater Wetlands Coverage (acres)	Approximate NYSDEC-Regulated Freshwater Wetlands Adjacent Area
I-81 Viaduct Study Area	2.2	2.9
I-481 South Study Area	0	0
I-481 East Study Area	8.3	6.1
I-481 North Study Area	9.5	2.8
Total	**20.0**	**11.8**

Notes: The acreages presented herein are calculated on the basis of the approximate boundaries of wetlands that were mapped as part of this Project (see **Appendix J-2** "Wetlands and Surface Water Assessment Report" [September 2016]). The NYSDEC-regulated freshwater wetlands adjacent area is a 100-foot area extending from the NYSDEC freshwater wetland boundary.
Sources: I-81 "Wetland and Surface Water Assessment Report" (September 2016) (**Appendix J-2).**

These approximate freshwater wetland acreages (including approximate NYSDEC-regulated freshwater wetland adjacent area[1] acreages) documented within the Project Area are summarized below.

- **I-81 Viaduct Study Area.** Approximately 2.2 acres of freshwater wetlands (see **Table 6.4.8-1**) associated with NYSDEC- and NWI-mapped emergent wetlands dominated by

[1] A NYSDEC-regulated area extending 100 ft landward from a NYSDEC-regulated freshwater wetland.

common reed (*Phragmites australis*) were identified in the I-81 Viaduct Study Area (see Wetland V-1 in **Figure 6.4.8-1**). In addition, 2.9 acres of NYSDEC-regulated freshwater wetland adjacent area exists within the I-81 Viaduct Study Area.

- **I-481 South Study Area.** There are no NYSDEC- or NWI-mapped freshwater wetlands within the I-481 South Study Area, and no wetlands were observed during the field inspection. Therefore, no further discussion of wetlands for the I-481 South Study Area is included in this section of the DDR/Draft EIS.

- **I-481 East Study Area.** As shown in **Table 6.4.8-1**, approximately 8.3 acres of freshwater wetlands were identified during field inspections of the I-481 East Study Area. In addition, approximately 6.1 acres of NYSDEC-regulated freshwater wetland adjacent area is present. The majority of the freshwater wetlands in the I-481 East Study Area are associated with a NYSDEC- and NWI- mapped emergent (with some forest) wetland located just north of the CSX railroad tracks (see Wetland E-5 in **Figure 6.4.8-2**). This wetland extends both to the east and west outside of the I-481 East Study Area boundaries.

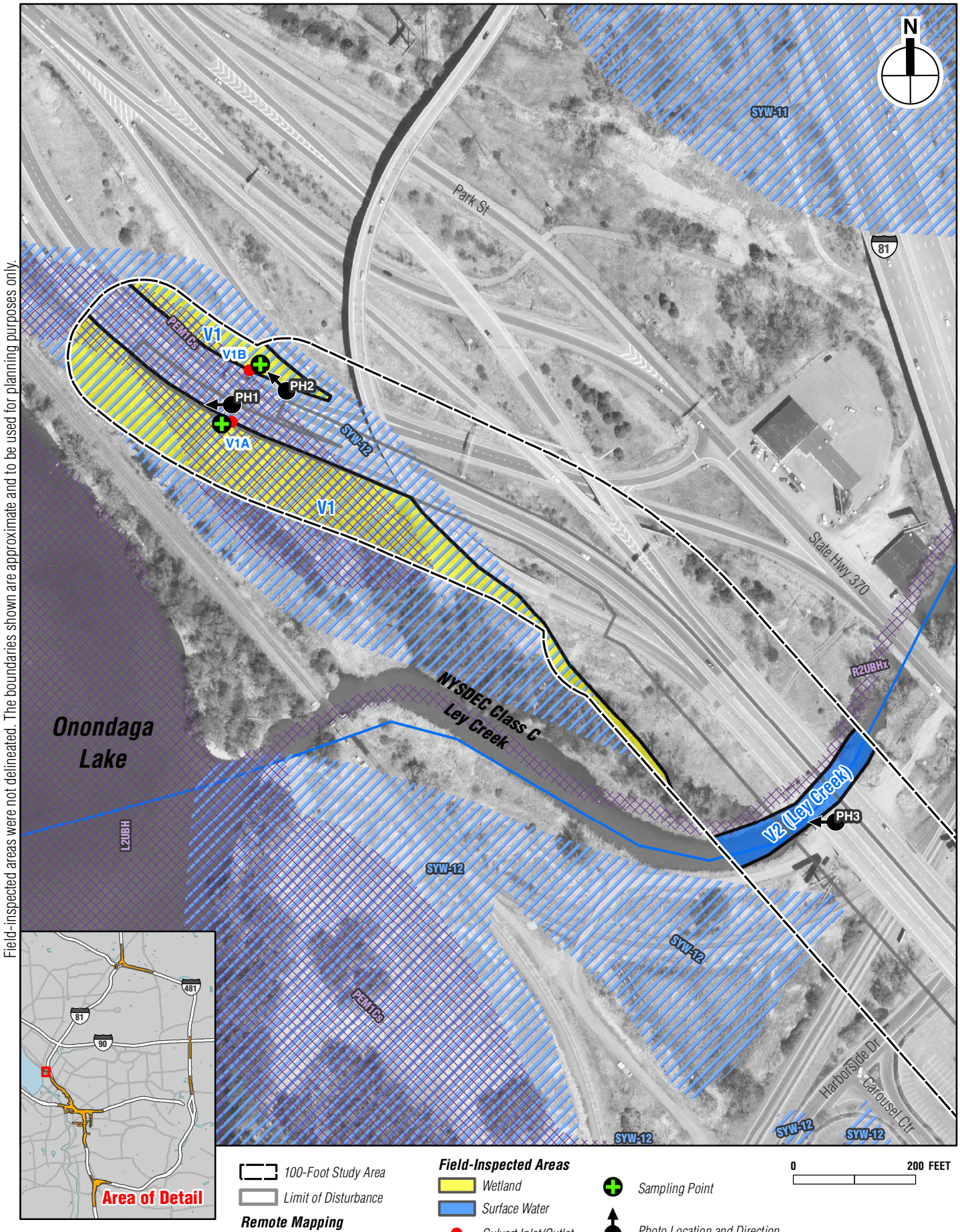
  The emergent portion of this wetland contains a variety of micro-habitats including areas dominated by narrowleaf cattail (*Typha angustifolia*), purple loosestrife (*Lythrum salicaria*), reed canary grass (*Phalaris arundinacea*), and common reed, and also includes an open water section (see Appendix **J-2** for details). Due to its size and diversity of habitats, this wetland has the potential to support a variety of wildlife species. The forested portion of this wetland occurs along the eastern edges of the right-of-way and includes species assemblages that are typical of a floodplain forest (see **Appendix J-3** and "Terrestrial Resources" below).

  In addition to the NYSDEC- and NWI-mapped wetlands, the freshwater wetland acreage presented in **Table 6.4.8-1** is also associated with unmapped freshwater wetlands. These unmapped wetlands are emergent and are largely dominated by common reed.

- **I-481 North Study Area**. NYSDEC- and NWI-mapped freshwater wetlands, as well as wetland habitats not previously mapped, are present within the I-481 North Study Area. As shown in **Table 6.4.8-1**, approximately 9.5 acres of freshwater wetlands were identified during field inspections. These wetlands include common reed and floodplain forest wetlands (see **Appendix J-2**). In addition, approximately 2.8 acres of NYSDEC-regulated freshwater wetland adjacent area is present within the I-481 North Study Area.

TERRESTRIAL RESOURCES

Five ecological communities comprising an estimated 765 acres have been identified within the study areas and are shown by study area in **Table 6.4.8-2**. The largest ecological community, estimated at 668 acres, is classified as a "terrestrial cultural" ecological community. Terrestrial cultural ecological communities are those that are "either created and



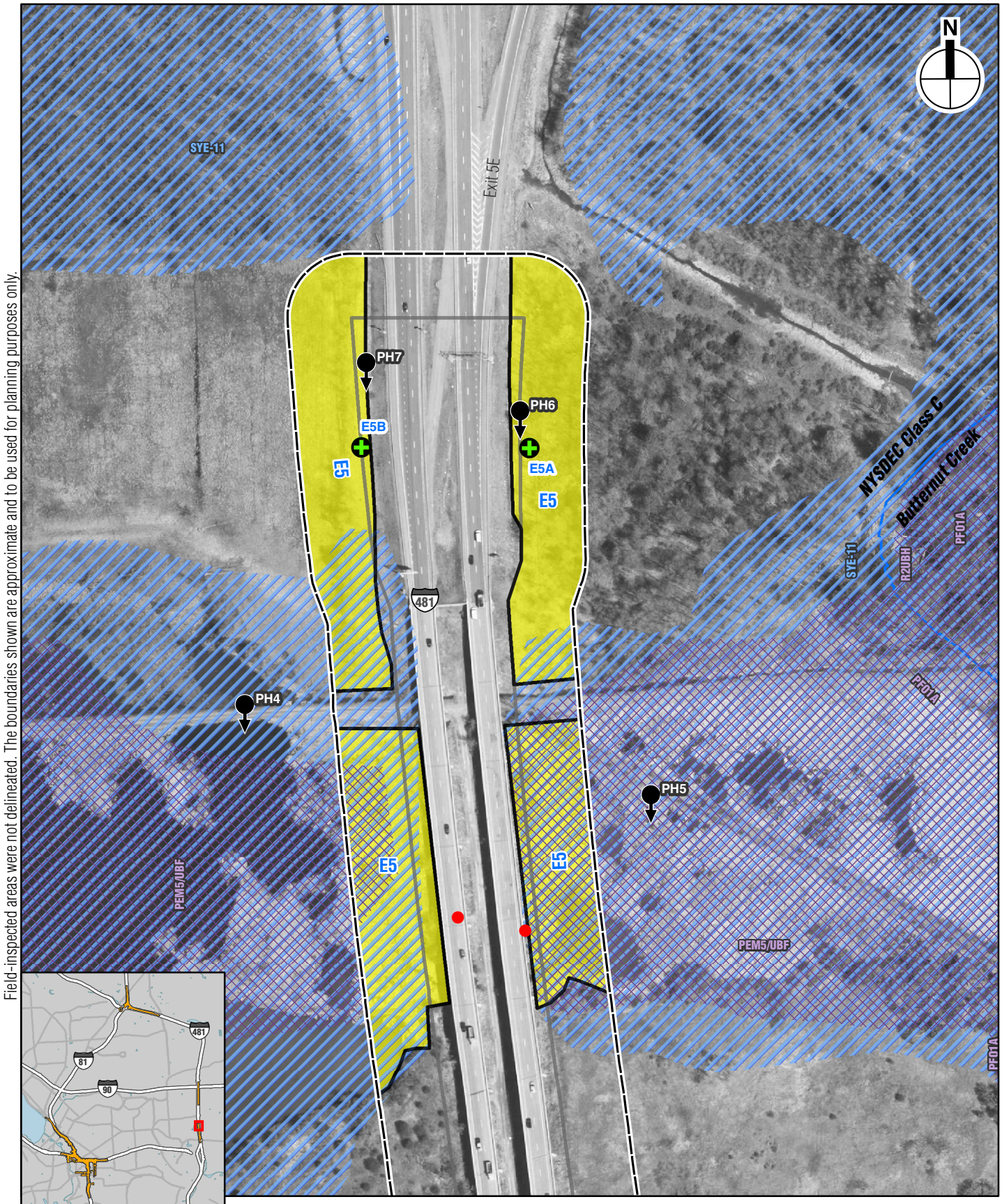
Field-inspected areas were not delineated. The boundaries shown are approximate and to be used for planning purposes only.

I-81 Viaduct Project

I-81 Viaduct Study Area

Wetlands and Surface Waters

Figure 6.4.8-1



Field-inspected areas were not delineated. The boundaries shown are approximate and to be used for planning purposes only.

I-81 Viaduct Project

I-481 East Study Area

Wetlands and Surface Waters

Figure 6.4.8-2

Table 6.4.8-2
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	668.0
Successional Southern Hardwoods	A hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed.	I-81 Viaduct I-481 South I-481 North	53.0
Successional Old Field	A meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed, and then abandoned.	I-481 South I-481 North	8.6
Successional Shrubland	A shrubland that occurs on sites that have been cleared (for farming, logging, development, etc.) or that are otherwise disturbed.	I-481 South I-481 North	20.5
Floodplain Forest	A hardwood forest that occurs on the mineral soils of low terraces of river floodplains and of river deltas.	I-481 East I-481 North	14.9
Total Estimated Acreage			**765.0**

Notes: Ecological community observations were made during field investigations in 2016 (see **Appendix J-3**).
Sources: Ecological community names and descriptions are derived from "Ecological Communities of New York State" (Edinger et al. 2014).

maintained by human activities, or 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, railroad, junkyard, urban vacant lot, mowed lawn, mowed lawn with trees, and garden (see **Appendix J-3**). Other communities present within the Project Area are smaller. 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 53 acres), floodplain forests (including forested wetlands) (estimated 14.9 acres),[2] successional old field (estimated 8.6 acres), and successional shrubland (estimated 20.5 acres). Definitions of these ecological communities (as per Edinger et al. 2014) and detailed descriptions of these communities are provided in **Appendix J-3**.

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 is maintained (e.g., by mowing) or altered to such a degree that the physical conformation and biological composition are of little ecological value. While

[2] The floodplain forest ecological community is a category of freshwater wetlands. For this reason, floodplain forest acreages overlap with the freshwater wetlands mapping acreages.

floodplain and southern successional hardwoods forests and successional old field and shrubland communities 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 present are characterized by disturbance and are considered to be of low ecological value.

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-5 as shown in **Figure 6.4.8-2**) near the southern end of 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. The Bird Atlas has documented 97 species within the I-81 Viaduct Study Area, 80 species in the I-481 South Study Area, 89 species in the I-481 East Study Area, and 106 species in 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 has documented 21 species within the census block in which the I-81 Viaduct Study Area and I-481 South Study Area are located, 19 species in the census block in which the I-481 East Study Area is located, and 22 species within the census block in which the I-481 North Study Area is located. However, the 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. **Appendix J-4** provides the species found in the Bird Atlas and Herp Atlas and results from the wildlife survey conducted in July 2016.

Additionally, 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. As discussed below, the Cicero Swamp WMA is under consideration for potential wetland mitigation under the Community Grid Alternative. 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 2016) including the Federally listed threatened and State-listed endangered eastern massasagua (*Sistrurus catenatus*) rattlesnake as described below.

THREATENED, ENDANGERED, SPECIAL CONCERN SPECIES, AND SIGNIFICANT ECOLOGICAL COMMUNITIES

Federally endangered, threatened, candidate, and proposed species listed by the USFWS Information for Planning and Conservation (IPaC) System as having the potential to occur within the study areas, and threatened, endangered, and special concern species and significant ecological communities recorded by the NYNHP database (dated July 1, 2016) in

the vicinity of the study areas are summarized in **Table 6.4.8-3** (see also **Appendix J-5**). The study areas for State- and Federally listed threatened, endangered, special concern species and significant ecological communities follow the guidance outlined in the TEM. Unless otherwise specified in the list below, the study areas for State- and Federally listed species and significant ecological communities are within a 1.5-mile radius around the I-81 Viaduct, I-481 South, I-481 East, and I-481 North study areas. The TEM guidance also provides species-specific screening distances for the following species/habitats:

- Indiana bat (*Myotis sodalis*) (2.5 mile radius);
- Bog turtle (*Glyptemys muhlenbergii*) (1 mile radius);
- Blanding's turtle (*Emydoidea blandingii*) (0.6 mile radius);
- Timber rattlesnake (*Crotalus horridus*) (1.5 mile radius);
- Aquatic species (up to 2 miles downstream); and
- Indiana bat hibernacula (40 mile radius).

There are no documented IPaC or NYNHP records of bog turtle, Blanding's turtle, or the timber rattlesnake within the study areas. Profiles for the species listed by IPaC and NYNHP are provided below.

Federal

As described above and shown in **Table 6.4.8-3**, the USFWS IPaC System lists the Federally listed endangered Indiana bat, Federally listed threatened northern long-eared bat (*Myotis septentrionalis*), Federally listed threatened eastern massasauga, and the Federally listed threatened American Hart's tongue fern (*Asplenium scolopendrium* var. *americanum*) as having the potential to occur within the vicinity of the study areas. The IPaC Trust Resource Reports (November 16, 2016) for the study areas are provided in **Appendix J-5**. In a response (dated July 1, 2016) to a request for information on Federally and State-listed species in the vicinity of the study areas, the NYNHP noted that Indiana bat maternity colonies have been documented near the I-481 South Study Area and the I-481 East Study Area, and a northern long-eared bat and Indiana bat hibernaculum have been documented near the I-481 South Study Area. However, the NYNHP has no records of eastern massasauga or American Hart's-tongue fern occurring near the study areas (NYNHP 2016). Discussions of habitat for each Federally listed species identified in **Table 6.4.8-3** are included below.

Table 6.4.8-3
Threatened, Endangered, and Special Concern Species and Significant Ecological Communities

Common Name	Scientific Name	State Status	Federal Status	NYNHP Record Near Study Area	IPaC Potential Near Study Area	Likely to Occur within Study Area(s)
Indiana bat	*Myotis sodalis*	Endangered	Endangered	I-481 South I-481 East	I-81 Viaduct I-481 South I-481 East I-481 North	Yes I-481 South I-481 East
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Threatened	I-481 South	I-81 Viaduct I-481 South I-481 East I-481 North	Yes I-481 South I-481 East
Eastern massasauga	*Sistrurus catenatus*	Endangered	Threatened	No	I-81 Viaduct I-481 South I-481 East I-481 North	Yes I-481 North I-481 East
American Hart's-tongue fern	*Asplenium scolopendrium* var. *americanum*	Threatened	Threatened	No	I-81 Viaduct I-481 South	No
Peregrine falcon	*Falco peregrinus*	Endangered	N/A	I-81 Viaduct†	No	Yes I-81 Viaduct†
Least bittern	*Ixobrychus exilis*	Threatened	N/A	I-481 North°	No	No
Lake sturgeon	*Acipenser fulvescens*	Threatened	N/A	I-81 Viaduct #	No	Yes I-81 Viaduct
Seaside bulrush	*Bolboschoemus maritimus* ssp. *paludosus*	Threatened	N/A	I-81 Viaduct	No	Yes I-81 Viaduct
Midland sedge	*Carex mesochorea*	Threatened	N/A	I-81 Viaduct	No	Yes I-81 Viaduct
Saltmarsh aster	*Symphyotrichum subulatum* var. *subulatum*	Threatened	N/A	I-81 Viaduct	No	Yes I-81 Viaduct
Reflexed sedge	*Carex retroflexa*	Threatened	N/A	I-81 Viaduct	No	Yes I-81 Viaduct
Straight-leaf pondweed	*Potamogeton strictifolius*	Endangered	N/A	I-81 Viaduct	No	Yes I-81 Viaduct
Inland salt pond*	N/A	Significant natural community	N/A	I-81 Viaduct	No	No

Notes:
(†) Documented within the vicinity of the I-81 Viaduct Study Area.
(°) Documented within 700 feet of the I-481 North Study Area.
(#) Documented within the I-81 Viaduct Study Area.
(*) Inland salt pond is a significant natural community and therefore does not have a scientific name.
Sources:
NYNHP response letter dated July 1, 2016 and USFWS IPaC results dated November 16, 2016 (see **Appendix J-5**).

- **Indiana Bat:** The Indiana bat is a temperate, insectivorous bat that is Federally and State-listed as endangered. In the spring, Indiana bats emerge from the caves or mines in which they hibernate and travel to breeding habitat where they roost under loose bark or in the crevices of trees. Roosting trees are usually in riparian, bottomland/floodplain, and upland forests (Humphrey et al. 1977, Britzke et al. 2006, Watrous et al. 2006) often within agricultural landscapes (Murray and Kurta 2004, Watrous et al. 2006, USFWS 2007). Indiana bats forage in the forest canopy, over open fields, over impounded waterbodies, along riparian corridors, and along forest edges (USFWS 2007). 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 2007).

  The Indiana bat is listed by the USFWS IPaC System as having the potential to occur within the I-81 Viaduct Study Area, the I-481 South Study Area, the I-481 East Study Area, and the I-481 North Study Area. The NYNHP has a record of Indiana bat roosting colonies within range of the I-481 South Study Area and the I-481 East Study Area. The woodland fragments bordering the east and west sides of the I-481 South Study Area may 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 to the east of the southern end of the I-481 East Study Area may also support Indiana bats. Indiana bats are not likely to use the areas near the I-81 Viaduct and I-481 North Study Areas due to the high density of urban development, and the NYNHP has no records of any Indiana bats occurring near these two study areas. However, Indiana bats may still have the potential to occur in these areas on rare occasions.

- **Northern Long-eared Bat**: The northern long-eared bat 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).

The northern long-eared bat is listed by the USFWS IPaC System as having the potential to occur within the I-81 Viaduct Study Area, the I-481 South Study Area, the I-481 East Study Area, and the I-481 North Study Area. The NYNHP has no records of this species within any of the four study areas; however, it does have a record of a northern long-eared bat hibernaculum within 4 miles of the I-481 South Study Area. 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 may 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 east of the southern end of the I-481 East Study Area may also support northern long-eared bat. Northern long-eared bat are not likely to use the areas near the I-81 Viaduct and I-481 North Study Areas due to the high density of urban development, and the NYNHP has no records of any northern long-eared bat occurring near these two study areas. However, northern long-eared bats may still have the potential to occur in these areas on rare occasions.

- **Eastern Massasauga:** The eastern massasauga is a rare rattlesnake that is Federally listed threatened and State-listed endangered. The USFWS IPaC System has the eastern massasauga having the potential to occur in the I-81 Viaduct, I-481 South, I-481 East, and I-481 North Study Areas. However, only two populations of eastern massasauga remain in New York State (Gibbs et al. 2007, NYNHP 2016), one of which is in Cicero Swamp WMA, located less than one mile east of the I-481 North Study Area. Mud Creek on the eastern edge of the I-81 North Study Area has a hydrological connection to this WMA. The other population is in Genesee County (Gibbs et al. 2007). No other populations are known to occur within the State. 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 and disturbed common reed and forested wetlands along I-481 and within the quadrants at the I-81 interchange. No habitat that is suitable for eastern massasauga is present in the I-481 North Study Area and eastern massasauga are therefore not expected to occur in the area. In addition, eastern massasauga are not expected to occur within the I-81 Viaduct Study Area, I-481 South Study Area, or the I-481 East Study Area as no suitable habitat is present in these study areas.
- **American Hart's tongue fern:** American Hart's tongue fern is a Federally listed threatened and State-listed threatened perennial and evergreen fern. It requires deep

shade and grows in cool, moist, rocky, calcareous substrates, usually within small cracks in large rocks (NYNHP 2015). 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 (NYNHP 2015).

The upland ecological communities of the study areas are associated with maintained right-of-ways, successional old fields and shrublands, and successional and floodplain forests located along the edges of the right-of-way. All of these ecological communities area associated with disturbance. Although roadside cliff/slope communities are present within the I-481 South Study Area, they are located directly along the highway and are associated with disturbance and are not characterized by cool, moist conditions. Therefore, the American Hart's tongue fern has the low potential to occur within the I-481 South Study Area. The American Hart's tongue fern is not expected to occur within the I-81 Viaduct Study Area, the I-481 East Study Area, or the I-481 North Study Area.

New York State

In addition to the Federally listed species discussed above, which are also State-listed, NYNHP records (dated July 1, 2016) show that State-listed peregrine falcons (*Falco peregrinus*) have been recorded breeding adjacent to the I-81 Viaduct Study Area, least bitterns (*Ixobrychus exilis*) have been documented breeding near the I-481 North Study Area, and lake sturgeon (*Acipenser fulvescens*) have been documented in the vicinity of the I-81 Viaduct Study Area. Midland sedge (*Carex mesochorea*), reflexed sedge (*Carex retroflexa*), straight-leaf pondweed (*Potamogeton strictifolius*), seaside bulrush (*Bolboschoemus maritimus* ssp. *paludosus*), saltmarsh aster (*Symphyotrichum subulatum* var. *subulatum*), and an inland salt pond community have been recorded in the vicinity of the I-81 Viaduct Study Area. Discussions regarding habitat for each State-listed species identified in **Table 6.4.8-3** are included below.

- **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. 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). 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).

In Syracuse, peregrine falcons nest in an artificial nest box adjacent to the I-81 Viaduct Study Area (Figura 2015). However, the peregrine falcon is not expected to occur within the I-481 South Study Area, I-481 East Study Area, and I-481 North Study Area.

- **Least Bittern**: The least bittern (*Ixobrychus exilis*) is a State-listed threatened waterbird that inhabits freshwater and brackish marshes with tall, dense vegetation including cattails (*Typha* sp.), sedges (*Carex* sp.), reeds, bulrushes (*Scirpus* sp.), sawgrass (*Cladium* sp.), smartweed (*Polygonum* sp.), arrowhead (*Saggitaria* sp.), buttonbush (*Cephalanthus occidentalis*), 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 sometimes be found in urban settings (Poole et al. 2009). The NYNHP has a record of least bitterns nesting within 700 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 quadrants of 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. 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, least bittern is not expected to occur within the I-81 Viaduct Study Area, the I-481 South Study Area, or the I-481 East Study Area.

- **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 I-81 Viaduct Study Area. Thus, lake sturgeon have the potential to occur in the I-81 Viaduct Study Area. Lake sturgeon do not have the potential to occur within the I-481 South Study Area, I-481 East Study Area, and I-481 North Study Area.

- **Seaside Bulrush:** Seaside bulrush is a State-listed threatened perennial plant. In New York, it is found in Long Island salt marshes and inland salt ponds and marshes (NYNHP 2015). Its habitat includes a variety of open, saltwater, or brackish wetlands. Seaside bulrush may also be found in disturbed areas like roadsides and ditches. For this reason, seaside bulrush has a low potential to occur in the I-81 Viaduct Study Area. Seaside bulrush is not expected to occur within the I-481 South Study Area, I-481 East Study Area, and I-481 North Study Area.

- **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. Its range in New York is from Long Island to the Hudson Highlands and central New York. A known population exists in the I-81 Viaduct Study Area (NYNHP 2015). Midland sedge is not expected to occur within the I-481 South Study Area, the I-481 East Study Area, or the I-481 North Study Area.

- **Saltmarsh Aster:** Saltmarsh aster is a State-listed threatened species that is found in coastal areas in salt or brackish marshes, along tidal channels and creeks, in the swales of coastal dunes, and occasionally in disturbed habitats that are salt influenced. In New York, saltmarsh aster primarily occurs along the shores of Long Island, Brooklyn, and Staten Island and along the shore of the Hudson River north to Putnam and Rockland Counties. However, there is one documented population of saltmarsh aster near Syracuse (NYNHP 2015). Due to habitat requirements, saltmarsh aster has a low potential to occur within the I-81 Viaduct Study Area. Saltmarsh aster is not expected to occur in the I-481 South Study Area, I-481 East Study Area, or I-481 North Study Area.
- **Reflexed Sedge**: Reflexed sedge is a State-listed threatened plant that prefers successional areas with open tree canopies. Its habitat includes dry-mesic to mesic deciduous forests, forest openings and edges, and rocky summits and ledges. Reflexed sedge is known to grow along and in paths, forest roads, and abandoned railroad lines. It can grow in poor land or waste places as well. In New York, it has been documented throughout the Hudson Valley and in scattered locations within central New York. A known population exists in the I-81 Viaduct Study Area (NYNHP 2016). Midland sedge is not expected to occur within the I-481 South Study Area, I-481 East Study Area, or I-481 North Study Area.
- **Straight-leaf Pondweed**: Straight-leaf pondweed (*Potamogeton strictifolius*) 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. New York is the eastern edge of this species' range; it is found in central and eastern New York (NYNHP 2015). Given its habitat requirements, straight-leaf pondweed has the low potential to occur within wetlands and surface waters of the I-81 Viaduct Study Area. Straight-leaf pondweed is not expected to occur in the I-481 South Study Area, I-481 East Study Area, or I-481 North Study Area.
- **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. (Edinger et al. defines 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") (2014). Most of these springs were used for salt production, and thus can be severely degraded. Inland salt ponds are permanently flooded, but water levels in the pond seasonally fluctuate. No inland salt ponds were observed in the I-81 Viaduct Study Area, the I-481 South Study Area, the I-481 East Study Area, or the I-481 North Study Area during the inspections. Therefore, this habitat does not occur within the study areas.

6.4.8.2 NO BUILD ALTERNATIVE

The No Build Alternative would maintain the highway in its existing configuration with only routine maintenance and minor repairs to ensure 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 only involve effects within the I-81 Viaduct Study Area; thus, the other study areas are not discussed in this subsection.

PERMANENT/OPERATIONAL EFFECTS

The Viaduct Alternative would alter approximately 235 acres of land throughout the I-81 Viaduct Study Area to build a new transportation right-of-way 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.

Freshwater Wetlands

Approximately 2.2 acres of freshwater wetlands are present within the I-81 Viaduct Study Area. Of the 2.2 acres, approximately 0.05 acres are located within the limits of disturbance (see Wetland V-1 in **Figure 6.8.4-1**). Due to the small size of the freshwater wetland (0.05 acres), all possible measures would be implemented during final design to avoid fill placement or other disturbances to the wetland.

Should the 0.05 acres of fill placement be unavoidable, Section 401 and 404 permits and an Article 24 "Freshwater Wetlands" permit would be obtained from the USACE and NYSDEC, respectively. As discussed in **Appendix J-1**, NYSDEC and NYSDOT have a Memorandum of Understanding (MOU) pursuant to Article 24 of the Environmental Conservation Law (ECL), and accordingly, the small amount of NYSDEC freshwater wetland effects may qualify for a NYSDEC General Permit GP-0-11-002 under Activity #2 "Permanent and temporary placement of earth fills." Under the conditions of this General Permit, NYSDOT would submit a request for authorization to NYSDEC as design advances.

Should the 0.05 acres of freshwater wetlands effects be unavoidable, it is expected that the construction of this alternative could proceed under a Nationwide Permit 14 "Linear Transportation Projects" from the USACE as the anticipated freshwater wetland impact in combination with the surface water effects discussed in **Section 6.4.7, Water Resources,** would not exceed the 0.5 acres threshold of total Waters of the United States (see **Appendix I-2** for permit conditions). According to the current (2012) Nationwide Permit conditions and based on the anticipated wetland effects of less than 0.10 acre, no compensatory mitigation is expected for this alternative. Furthermore, Best Management Practices (BMPs) (e.g., temporary erosion and sediment control practices) would be implemented to protect the freshwater wetlands of the I-81 Viaduct Study Area.

An estimated 2.9 acres[3] of NYSDEC-regulated freshwater wetland adjacent area is present within the I-81 Viaduct Study Area, 0.9 acres of which is located within the limits of disturbance. However, all construction activities (e.g., paving, striping, and staging) within the NYSDEC-regulated adjacent area would take place on existing roadways and pavement. Therefore, no additional permanent disturbance to NYSDEC-regulated freshwater wetland adjacent area would occur.

Thus, the Viaduct Alternative would not result in permanent/operational effects to freshwater wetlands. As described above, all practicable measures (i.e., avoidance, implementation of erosion and sediment control measures) would be implemented to minimize harm to freshwater wetlands. Because no freshwater wetlands impacts are anticipated and because the I-81 Viaduct Study Area wetlands would retain their functions and values, the intent of EO 11990 "Protection of Wetlands" (as described in **Appendix J-1**) would be met.

Terrestrial Resources

Ecological Communities

Within the I-81 Viaduct Study Area, the terrestrial cultural ecological communities encompass approximately 415 acres and the successional southern hardwoods community occupies 11 acres. Under the Viaduct Alternative, approximately 223 acres of the terrestrial cultural ecological communities and 10 acres of the successional southern hardwoods community would be removed (see **Table 6.4.8-4**). Within the I-81 Viaduct Study Area, 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/or non-native invasive species. Furthermore, these ecological communities 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, invasive vegetation. Therefore, the permanent loss of the 233 acres of terrestrial cultural and successional southern hardwoods ecological communities would not result in significant adverse permanent/operational effects to these ecological communities throughout the region.

The disturbed areas not occupied by transportation infrastructure would be revegetated with native species indigenous to this region of New York to the greatest extent practicable in accordance with a landscape plan that would be developed for the Project. In addition to the use of native species as part of the planting palate (where reasonable), no invasive species would be included in the landscape plan. Therefore, the operation of the Viaduct Alternative would be in compliance with EO 13112, "Invasive Species."

[3] This adjacent area acreage is also included in the Terrestrial Cultural ecological community calculations.

Table 6.4.8-4
Viaduct Alternative: Approximate Ecological Communities Operational Effects within the I-81 Viaduct Study Area

Ecological Community	Approximate Existing Coverage (acres)	Approximate Effects (acres)	Approximate Remaining Area (acres)
Terrestrial Cultural*	414.5	222.9	191.6
Successional Southern Hardwoods	10.5	9.8	0.7
Estimated Total	425.0	232.7	192.3

Notes:
(*) 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.

Sources:
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.

Wildlife

Since the I-81 Viaduct Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces, little habitat to support wildlife other than extremely generalist, urban-adapted species is present. 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. Operation of the Viaduct Alternative would not result in higher levels of human disturbance as compared to the No Build Alternative to the extent that there would be any change in the abundance of wildlife in the area, or in the composition of the wildlife community. The small and degraded fragments of habitat within the I-81 Viaduct Study Area would continue to 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 I-81 Viaduct Study Area, would not be directly or indirectly impacted by the Viaduct Alternative. Overall, no significant adverse permanent/operational effects to birds, mammals, reptiles, or amphibians would be expected to result from the Viaduct Alternative.

Threatened and Endangered Species

Based on the habitat available and preliminary design, NYSDOT has made determinations of "no effect" or "may affect, not likely to adversely affect" for species with no direct habitat effects and will provide preliminary effect determinations for coordination with regulatory agencies (USFWS and NYSDEC). Preliminary determinations are phrased as 'may be reasonably concluded' in the discussion below. No take is likely under 6 CRR-NY Section 182.11 based on NYSDEC guidelines for any species. Coordination among FHWA, USFWS and NYSDEC regarding Federally listed and State-listed species will be ongoing.

- **Indiana Bat:** As described above, Indiana bat is a State- and Federally listed endangered species. According to the NYNHP, the I-81 Viaduct Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum and more than 150 feet from a known Indiana bat roost tree (USFWS required buffers). Additionally, the tree cutting area is

located within 100 feet of the road surface. As shown in **Table 6.4.8-4**, there are approximately 9.8 acres of forested area (i.e., successional southern hardwoods), some of which contains trees over 5 inches diameter at breast height (dbh), subject to removal to accommodate the I-81 Viaduct Alternative.

Per the FHWA/USFWS Guidance, tree cutting within Indiana bat habitat during the winter hibernation time frame (October 1–March 31) "may affect, not likely to adversely affect" the Indiana bat. NYSDOT would schedule tree cutting within the winter hibernation timeframe. Since the project involves the cutting of trees over 5 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination may be reasonably concluded for the I-81 Viaduct Alternative regarding the Indiana bat.

- **Northern Long-eared Bat:** As described above, northern long-eared bat is a State- and Federally listed threatened species. According to NYNHP, the I-81 Viaduct 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 buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. As shown in **Table 6.4.8-4**, there are approximately 9.8 acres of forest (i.e., successional southern hardwoods); some of this acreage contains trees over 3 inches dbh, subject to removal to accommodate the I-81 Viaduct Alternative.

  Per the FHWA/USFWS Guidance tree cutting within northern long-eared bat range outside of the pup season (May 1–July 31) "may affect, not likely to adversely affect" the northern long-eared bat. NYSDOT would schedule tree cutting within the winter hibernation timeframe (October 1–March 31). Since the project involves the cutting of trees over 3 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination may be reasonably concluded for the I-81 Viaduct Alternative regarding the northern long-eared bat.

- **Eastern Massasauga:** As described above, the eastern massasauga is State-listed endangered and Federally listed threatened species. The USFWS IPaC System results indicate that the eastern massasauga has the potential to occur within the I-81 Viaduct Study Area. However, the I-81 Viaduct Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces and it does not contain the eastern massasauga's preferred habitat of open wetlands with adjacent upland forest openings, old fields, and prairies. Based on the lack of the eastern massasauga preferred habitat within the I-81 Viaduct Study Area, a "no effect" determination may be reasonably concluded for the operation of the Viaduct Alternative with respect to this species.

- **American Hart's Tongue Fern**: As described above, the American Hart's tongue fern is a Federally listed threatened and State-listed threatened perennial and evergreen fern. The IPaC System results indicate that the American Hart's tongue fern has the potential to occur within the I-81 Viaduct Study Area. However, the upland ecological communities of the I-81 Viaduct Study Area are associated with terrestrial cultural communities including maintained right-of-ways, buildings, transportation infrastructure,

and other impervious surfaces 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. Based on the lack of the American Hart's tongue fern habitat within the I-81 Viaduct Study Area, a "no effect" determination may be reasonably concluded for the operation of the Viaduct Alternative with respect to this species.

- **Peregrine Falcon:** The State-listed endangered peregrine falcon currently nests in an artificial nest box on a building adjacent to the I-81 Viaduct Study Area, and thus, it has the potential to occur throughout the I-81 Viaduct Study Area. The peregrine falcons in this area are already accustomed to an urban environment and would not be further impacted 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). As such, the peregrine falcon would not be significantly adversely affected by the operation of the Viaduct Alternative, and operation of the Viaduct Alternative would not result in a "take" of this species covered under 6 CRR-NY Section 182.11.

- **Lake Sturgeon:** As described above, the State-listed threatened lake sturgeon is present in Onondaga Lake located in the vicinity of the I-81 Viaduct Study Area. Under the Viaduct Alternative, a 96-inch-diameter storm sewer trunk line would be installed in Onondaga Creek, a tributary to Onondaga Lake. In addition, the greater amount of road surface as a result of the Viaduct Alternative in the I-81 Viaduct Study Area would result in a larger volume of storm runoff, leading to higher pollutant loading (approximately 11 percent). Similarly, chloride loadings to Lower Onondaga Creek would be higher by approximately 4 percent on an annual basis for the Viaduct Alternative, when compared with the No Build Alternative. However, the concentration of chloride in Onondaga Creek, and thus the lake, would increase under this Alternative. According to United States Geological Survey (USGS) monitoring data, the concentration of chloride in Onondaga Creek, in 2012, was above the USEPA chronic toxicity level for streams (230 mg/L), but below the acute toxicity value (860 mg/L). Therefore, the 4 percent increase in chloride loading is not expected to raise the chloride level significantly.

  BMPs that incorporate green infrastructure components (e.g., source control stormwater management, such as permeable pavements and biofiltration 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 I-81 Viaduct Study Area and that all roadway runoff from the Viaduct Alternative would be treated for water quality prior to discharge to surface waters. With these measures in place, the state-listed lake sturgeon would not be directly or indirectly affected by the operation of the Viaduct Alternative. Therefore, the operation of the Viaduct Alternative would not result in effects to lake sturgeon. Furthermore, operation of the Viaduct Alternative would not result in a "take" of this species covered under 6 CRR-NY Section 182.11.

- **Seaside Bulrush:** The State-listed threatened seaside bulrush has been recorded by NYNHP in the vicinity of the I-81 Viaduct Study Area. The I-81 Viaduct Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces and it does not contain the seaside bulrush preferred habitat of open, saltwater or brackish wetlands. However, seaside bulrush may also be found in disturbed areas like roadsides and ditches, and for this reason, it has a low potential to occur within the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Viaduct Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Viaduct Alternative.
- **Midland Sedge:** The State-listed threatened Midland sedge has been recorded by NYNHP in terrestrial cultural ecological communities of the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Viaduct Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Viaduct Alternative.
- **Saltmarsh Aster:** Saltmarsh aster is a State-listed threatened species that has been recorded by NYNHP in the vicinity of the I-81 Viaduct Study Area. The I-81 Viaduct Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces and it does not contain the saltmarsh aster preferred habitat of salt or brackish marshes, the edges of tidal channels and creeks, and swales of coastal dunes. However, it is also occasionally found in disturbed habitats that are salt influenced and for this reason, it has a low potential to occur within the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Viaduct Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Viaduct Alternative
- **Reflexed Sedge:** The State-listed threatened reflexed sedge has been recorded by NYNHP in terrestrial cultural ecological communities of the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Viaduct Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Viaduct Alternative.

- **Straight-leaved Pondweed:** As described above, the State-listed threatened straight-leaved pondweed has been recorded by NYNHP in the vicinity of the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Viaduct Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Viaduct Alternative.
- **Inland Salt Pond:** As described above, the inland salt pond ecological community has been documented by NYNHP as occurring in the vicinity of the I-81 Viaduct Study Area. However, as described above, this community is not present within I-81 Viaduct Study Area. Therefore, no adverse effects to this ecological community would occur as a result of the operation of the Viaduct Alternative.

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 temporary construction effects to natural resources within the I-81 Viaduct Study Area; the effects presented herein could be reduced as the design advances.

Freshwater Wetlands

Currently, 0.05 acres of a common reed-dominated freshwater wetland and 0.9 acres of NYSDEC-regulated freshwater wetland adjacent area are located within the limits of disturbance for the I-81 Viaduct Alternative. Due to the small size of the freshwater wetland (0.05 acres), all possible measures as design advances would be implemented to avoid fill placement or other disturbances to the wetland.

Furthermore, all temporary construction activities (including staging) within the 0.9 acres of associated NYSDEC-regulated freshwater wetland adjacent area would occur on existing paved surfaces. Therefore, no loss of habitat would occur in unpaved areas of the NYSDEC-regulated freshwater wetland adjacent area as a result of the construction of the Viaduct Alternative.

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 I-81 Viaduct Study Area contains disturbed habitats including terrestrial cultural and successional southern hardwoods ecological communities. It is expected that temporary staging sites would be located in similar habitats

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

Wildlife

With respect to wildlife, clearing of terrestrial cultural ecological communities would occur as part of the construction staging. 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 impact 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 significant adverse effects to wildlife at the individual, population, or community level.

Noises generated during the construction (e.g., heavy machinery or generators) of the Viaduct Alternative would not be likely to have long-lasting or significant effects to wildlife in the I-81 Viaduct Study Area due to high existing levels of noise and other human disturbance from automobile traffic and other sources. As discussed in **Chapter 6.4.6, Noise,** construction may result in noticeable increases in noise levels in most of the I-81 Viaduct 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 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 I-81 Viaduct Study Area.

Threatened and Endangered Species

- **Indiana Bat:** As described above, Indiana bats have a low potential to occur within the I-81 Viaduct 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 (October 31 to March 31) when Indiana bats would not be present. Temporary construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the Indiana bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a Biological Evaluation (BE). On the basis of the BE, a Biological Assessment (BA) that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.

- **Northern Long-Eared Bat:** As described above, northern long-eared bats have a low potential to occur within the I-81 Viaduct 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 (October 31 to March 31) when northern long-eared bats would not be present. Temporary construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the northern long-eared bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.

- **Eastern Massasauga:** As described above, the eastern massasauga does not have the potential to occur within the I-81 Viaduct Study Area and is not expected to be affected by construction of the Viaduct Alternative.

- **American Hart's Tongue Fern:** As described above, the American Hart's tongue fern does not have the potential to occur within the I-81 Viaduct Study Area and is not expected to be affected by construction of the Viaduct Alternative.

- **Lake Sturgeon:** Lake sturgeon has the potential to occur in the surface waters of Onondaga Creek, Ley Creek, and Onondaga Lake. As described in **Section 6.4.7, Water Resources**, the implementation of erosion and sediment controls (e.g., silt fences, hay bales, 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 study areas. Therefore, no effects to the state-listed lake sturgeon would occur during construction of the Viaduct Alternative and construction would not result in a "take" of this species covered under 6 CRR-NY Section 182.11.

- **Peregrine Falcon:** As described above, the peregrine falcons will tolerate almost any level of human activity taking place below their nest provided that its nest is inaccessible (Ratcliffe 1972). The known peregrine falcon nest box is located outside of the area that

may be disturbed by construction. Therefore, the construction of the Viaduct Alternative would not be expected to result in a "take" of this species covered under 6 CRR-NY Section 182.11. 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.

- **Seaside Bulrush:** As described above, the State-listed threatened seaside bulrush has been recorded by NYNHP within the vicinity of the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a seed propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Viaduct Alternative.

- **Midland Sedge:** As described above, the State-listed threatened Midland sedge has been recorded by NYNHP in the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a seed propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Viaduct Alternative.

- **Saltmarsh Aster:** As described above, the State-listed threatened saltmarsh aster has been recorded by NYNHP within the vicinity of the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a seed propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Viaduct Alternative.

- **Reflexed Sedge:** The State-listed threatened reflexed sedge has been recorded by NYNHP in the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a seed propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Viaduct Alternative.

- **Straight-Leaf Pondweed:** The State-listed endangered straight-leaf pondweed has been recorded by NYNHP in the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Viaduct Alternative.
- **Inland Salt Pond:** The inland salt pond ecological community is not present within the I-81 Viaduct Study Area. Therefore, this ecological community would not be adversely affected during the construction of the Viaduct Alternative.

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 I-81 Viaduct Study Area. As such, the Viaduct Alternative would not indirectly result in indirect effects to the general ecology and wildlife of the I-81 Viaduct Study Area. Therefore, no indirect effects would occur as a result of the Viaduct Alternative.

CUMULATIVE EFFECTS

The Viaduct Alternative has the potential to be constructed simultaneously with private and public development projects on vacant or underused land in the vicinity of the I-81 Viaduct Study Area. However, the projects would not be constructed in areas of significant ecological communities nor would they be expected to result in significant adverse impacts on wildlife including Federally and State-listed species. Therefore, the Viaduct Alternative would not result in any adverse cumulative impacts to general ecology and wildlife resources.

MITIGATION

No freshwater wetlands would be affected (e.g., due to fill placement as a result of roadway realignment/widening) by the Viaduct Alternative. During construction, measures (i.e., design refinements, silt fencing, exclusion fencing) would be implemented to reduce or avoid effects to freshwater wetlands. However, prior to construction, should it be determined that freshwater wetlands would be temporarily (affected during construction and then restored) or permanently affected due to the Project, then a freshwater wetlands permit would be required. In addition, if wetland effects are determined to be more than 0.1 acre, then a mitigation plan would be developed in collaboration with the USACE and/or NYSDEC as part of the permitting process. The goal of this mitigation would be to offset any impacts to freshwater wetlands as part of the Project so there would be no net loss to functions and values of impacted wetlands. Moreover, as design advances, all practicable measures would be employed to avoid and minimize harm to wetlands.

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 native 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 mitigation required would be coordinated with the FHWA, USFWS, and NYSDEC.

6.4.8.4 ENVIRONMENTAL CONSEQUENCES OF THE COMMUNITY GRID ALTERNATIVE

PERMANENT/OPERATIONAL EFFECTS

The Community Grid Alternative would alter approximately 325 acres of land in the Project Area.

Freshwater Wetlands

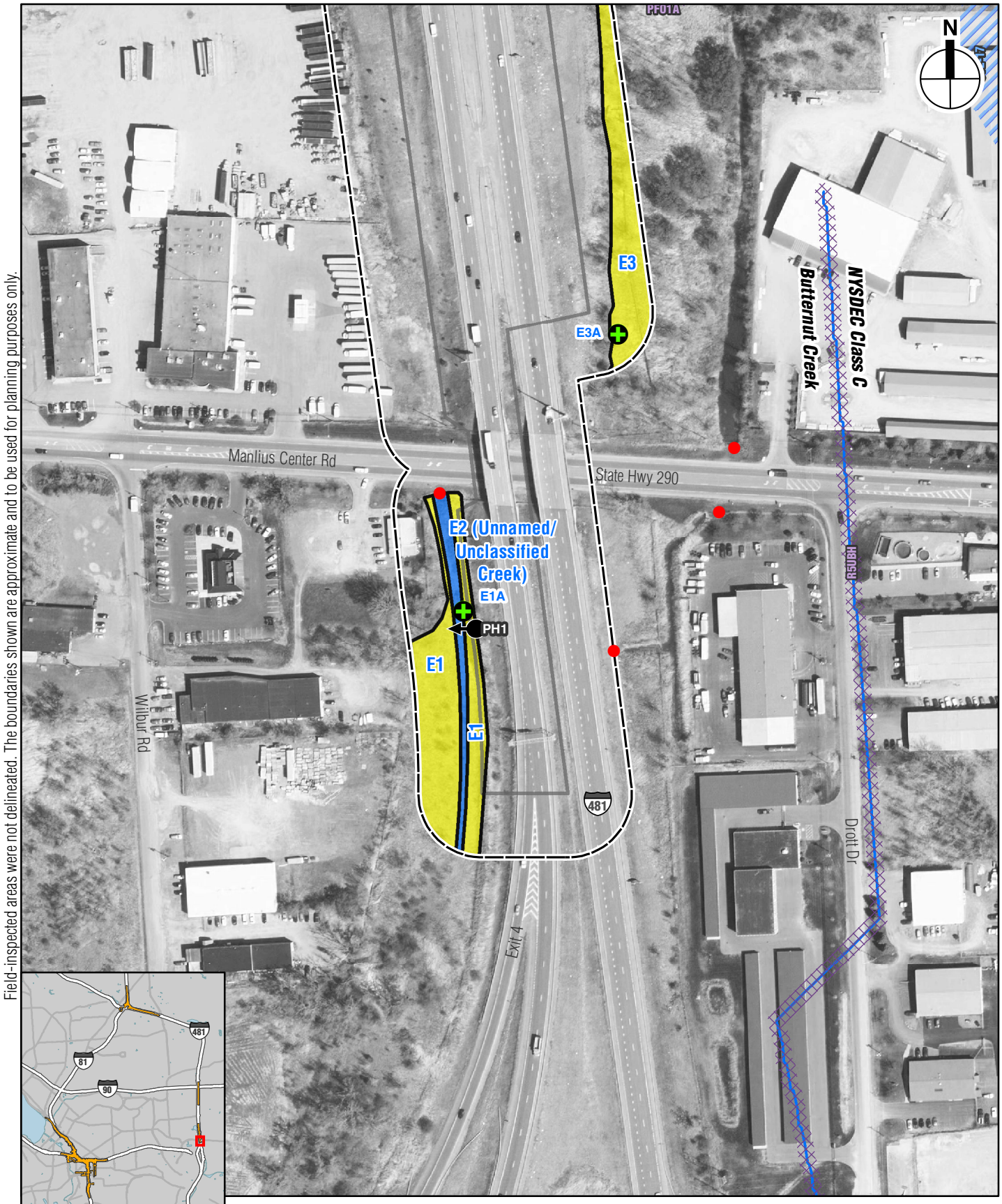
Approximately 20 acres of freshwater wetlands are present within the I-81 Viaduct, I-481 East, and I-481 North Study Areas. As described above, the I-481 South Study Area does not contain freshwater wetlands. As shown in **Table 6.4.8-5**, approximately 2.37 acres of freshwater wetlands would be incorporated into the proposed footprint of the Community Grid Alternative, and 0.54 acres of freshwater wetlands would be affected by shading from new structures. These effects would occur in the I-481 East and North Study Areas. There would be no effects to the wetlands in the I-81 Viaduct Study Area.

Table 6.4.8-5
Permanent Effects to Freshwater Wetlands from the Community Grid Alternative

Study Area	Approximate Freshwater Wetlands Coverage (acres)	Approximate Freshwater Wetlands Effects (acres) (Footprint/Shading)	Remaining Freshwater Wetlands Area (acres)
I-81 Viaduct Study Area	2.2	0.00/0.00	2.2
I-481 South Study Area	0	0/0	0
I-481 East Study Area	8.3	0.37/0.54	7.51
I-481 North Study Area	9.5	2.0/0.0	7.5
Total	**20.0**	**2.37/0.54**	**17.16**

Notes: Footprint effects refer to physical structures located in a wetland or NYSDEC-regulated freshwater wetland adjacent area. Shading effects refer to physical structures located over (e.g., a bridge) a wetland or NYSDEC-regulated freshwater wetland adjacent area.

Within the I-481 East Study Area, permanent footprint and shading affects to freshwater wetlands would results from the Community Grid Alternative. These effects would include alterations to the road alignment and the addition of an auxiliary lane along southbound I-481 (which would be re-designated as I-81 under this alternative). This lane would involve the placement of fill in 0.32 acres of a common reed dominated wetland (see Wetland E-1 in **Figure 6.4.8-3** and **Appendix J-2**) of low ecological value located in the vicinity of the I-481 and I-690 interchange. In addition, this lane would extend northbound across the CSX railroad bridge and a NYSDEC- and NWI-mapped freshwater emergent wetland of high



Field-inspected areas were not delineated. The boundaries shown are approximate and to be used for planning purposes only.

100-Foot Study Area

Limit of Disturbance

Remote Mapping

NWI Wetlands

NYSDEC Freshwater Wetlands

Field-Inspected Areas

Wetland

Surface Water

Culvert Inlet/Outlet

Sampling Point

PH# Photo Location and Direction

0 200 FEET

I-81 Viaduct Project

I-481 East Study Area

Wetlands and Surface Waters

Figure 6.4.8-3

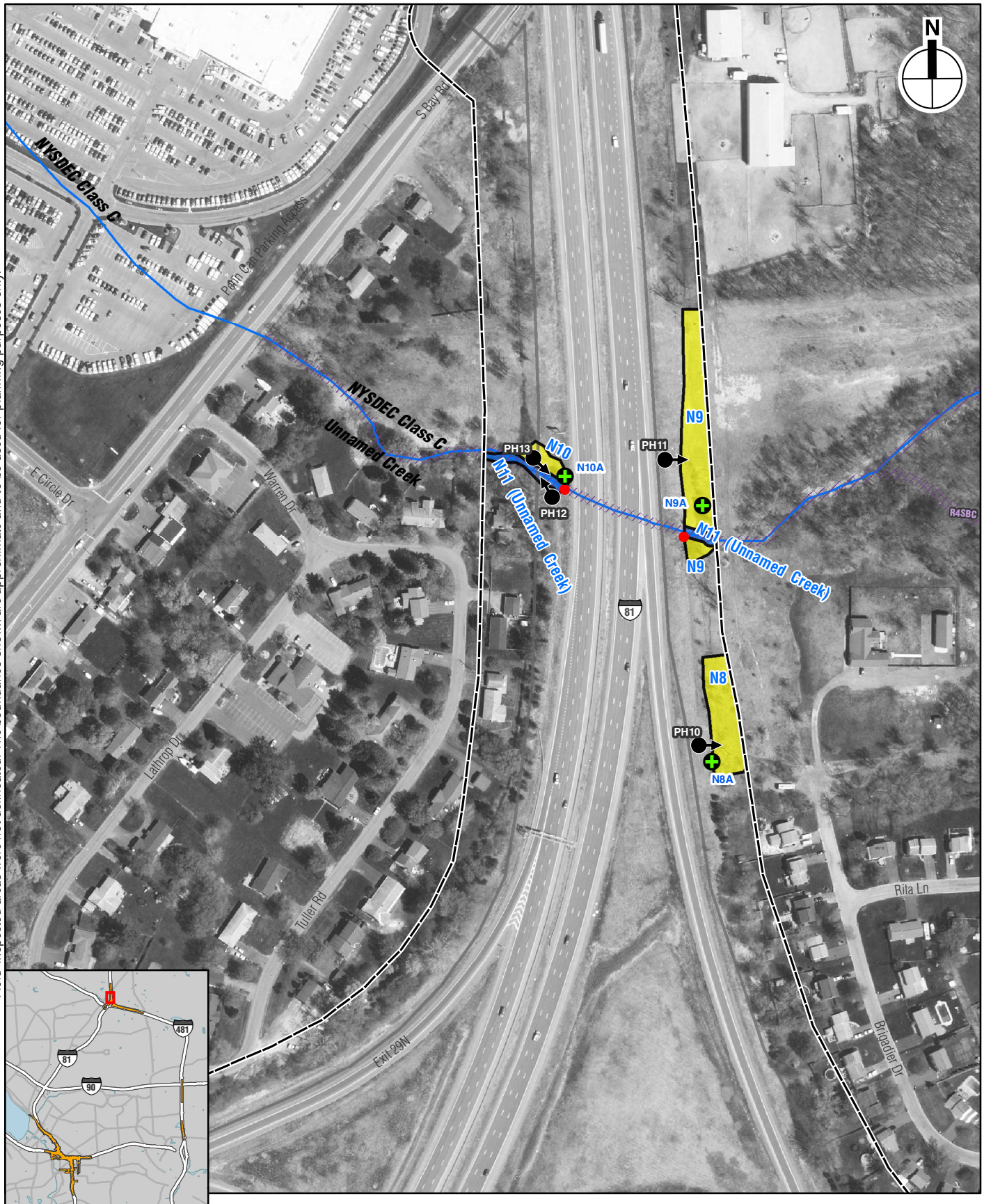
ecological value (see Wetland E-5 in **Figure 6.4.8-2** and **Appendix J-2**). Approximately 0.54 acres of decking associated with the lane would be constructed over this wetland resulting in permanent shading on the west side of the southbound lanes. Fill placement in this freshwater wetland would be limited to pier structures required to support the widened structure. It is estimated that five, 400 square foot (sq ft) permanent pier structures would be constructed to support the new travel lane. These five pier structures would occupy a footprint of an estimated 0.05 acres within the NYSDEC- and NWI-mapped emergent freshwater wetland. In summary, permanent footprint effects are estimated at 0.37 acres and permanent shading effects are estimated at 0.54 acres within NYSDEC- and NWI-mapped freshwater wetlands of the I-481 East Study Area.

Within the I-481 North Study Area, 2.0 acres of freshwater wetlands would be permanently impacted by the Community Grid Alternative. Effects would occur in three wetland areas. Approximately 0.05 acres would be affected as a result of roadway alignment/widening at the edge of a reed canary grass and purple loosestrife dominated-wetland (i.e., Wetland N-10 shown in **Figure 6.4.8-4** and in **Appendix J-2**) of low ecological value. However, the largest effects in this study area to freshwater wetlands would be associated with the conversion of the northeastern quadrant interchange to the new travel lanes of I-81. This widening would affect a freshwater wetland (1.73 acres) on the east side of the I-81/I-481 north interchange referred to as Wetland N-5 (see **Figure 6.4.8-5** and **Appendix J-2**), as well as a freshwater wetland (0.20 acres) on the west side of the I-81/I-481 north interchange referred to as Wetland N-6 (see **Figure 6.4.8-5** and **Appendix J-2**) for a total of approximately 1.93 acres of freshwater wetlands effects at this location.

As shown in **Table 6.4.8-6**, approximately 12 acres of NYSDEC-regulated freshwater wetland adjacent area is present within the Project Area, and about 7.4 acres of it may be permanently affected by the Community Grid Alternative. In most instances, the NYSDEC-regulated freshwater wetland adjacent areas are associated with low value habitat in terrestrial cultural ecological communities (described below), particularly maintained right-of-way and pavement associated with transportation infrastructure. These areas provide limited buffer attributes (e.g., quality vegetation and soils for water absorption) to the NYSDEC-mapped wetlands themselves. No effects to the NYSDEC-regulated freshwater adjacent areas within the I-81 Viaduct Study would occur as all work would be conducted on existing pavement.

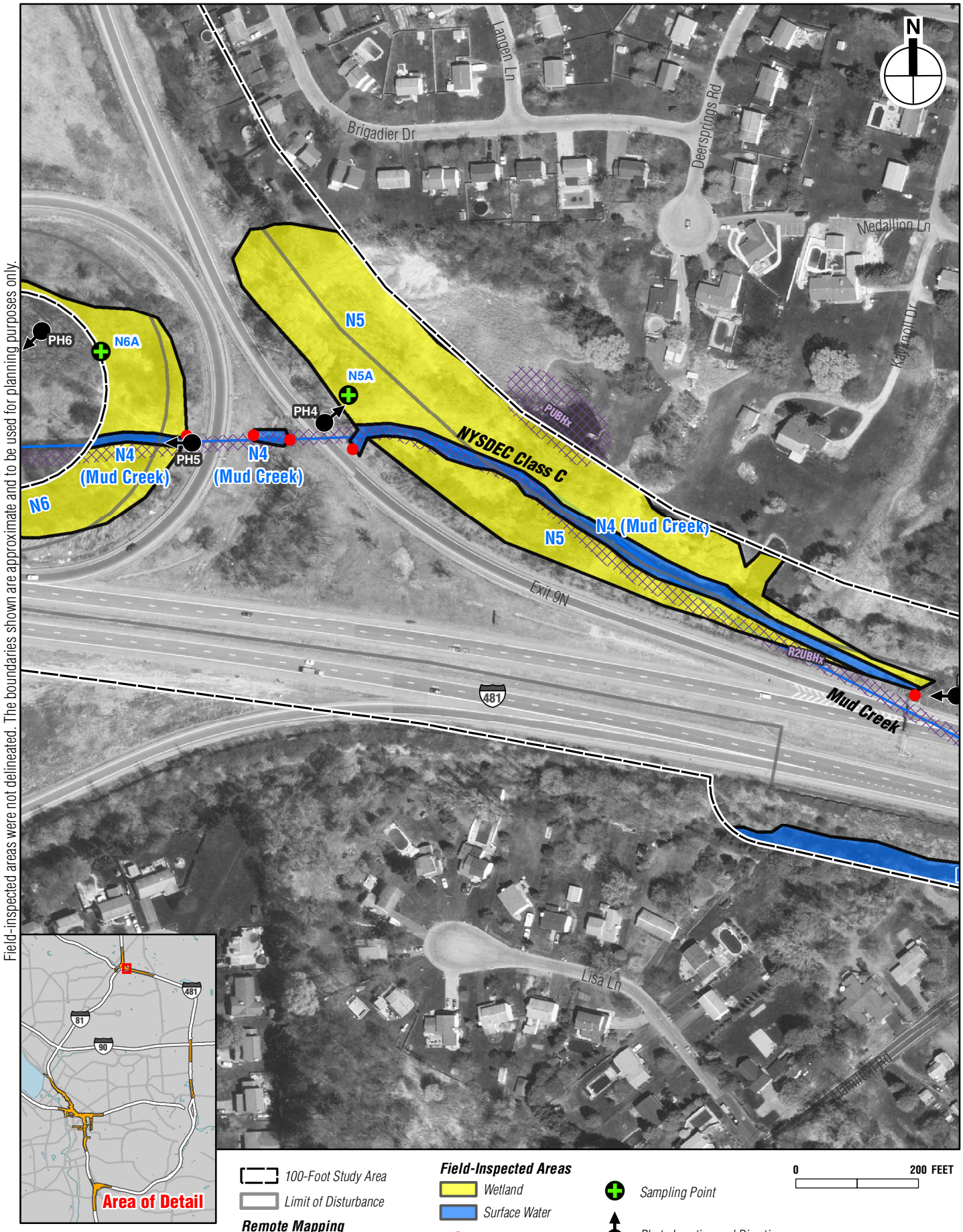
As the design advances, formal wetland delineations would be conducted to determine the precise locations of each freshwater wetland boundary within the limits of disturbance. Using the formal wetland survey and the limits of the disturbance lines, permanent wetlands effects would be recalculated. It is expected that the wetland effects acreages would be reduced as a result of the formal wetland delineation and as design advances.

In addition, as design advances, refinements would be explored and implemented, as practicable, to avoid and reduce permanent effects on freshwater wetlands where reasonable. During construction, as discussed below, BMPs would be employed to reduce permanent effects to freshwater wetlands located in close proximity to the construction areas.



I-81 Viaduct Project
I-481 North Study Area

Wetlands and Surface Waters
Figure 6.4.8-4



Field-inspected areas were not delineated. The boundaries shown are approximate and to be used for planning purposes only.

I-81 Viaduct Project
I-481 North Study Area

Wetlands and Surface Waters
Figure 6.4.8-5

Table 6.4.8-6
Community Grid Alternative
Approximate Effects to NYSDEC-Regulated Freshwater Wetland Adjacent Areas

Study Area	Approximate Adjacent Area Coverage (acres)	Approximate Adjacent Area Effects (acres)	Remaining Adjacent Area (acres)
I-81 Viaduct Study Area	2.9	0.9	2.0
I-481 South Study Area	0	0	0
I-481 East Study Area	6.1	5.9	0.2
I-481 North Study Area	2.8	0.64	2.16
Total	**11.8**	**7.44**	**4.36**

Notes:
The NYSDEC-regulated freshwater wetlands adjacent area is a 100-foot area extending from the freshwater wetland boundary. The acreages presented herein are calculated on the basis of the approximate boundary of a wetland that was mapped as part of this Project (see Wetlands and Surface Water Assessment Report [September 2016]) that are also NYSDEC-mapped wetlands. Note that the freshwater wetland adjacent area described above also includes the terrestrial ecological communities acreage calculations.

Any temporary or permanent construction in freshwater wetlands regulated by the USACE would require an individual Section 401 and 404 permits. With respect to NYSDEC freshwater wetlands (i.e., Wetland E-5 [0.54 acres]) and regulated adjacent areas, temporary or permanent construction in these areas would require an Article 24 "Freshwater Wetlands" permit from NYSDEC.

As part of the permitting process, a mitigation plan would be developed in collaboration with the USACE and NYSDEC to offset the effects to freshwater wetlands/NYSDEC freshwater wetlands adjacent area. As per the 2008 USACE Mitigation Requirements, mitigation for freshwater wetlands would be required in the form of restoration of a previously existing wetland or other aquatic site, the enhancement of an existing aquatic site's functions, the establishment (i.e., creation) of a new aquatic site, or the preservation of an existing aquatic site. It is anticipated that the mitigation plan would include the restoration, enhancement, establishment, or preservation by wetland type (i.e., forested wetlands, emergent wetlands) and would incorporate the use of native species, where applicable, common to the wetlands of the study area to ensure that the wetland values (e.g., habitat) and functions (e.g., stormwater retention) are not lost. In terms of mitigation locations, NYSDOT will investigate sites as close to the study areas as possible including potential on-site mitigation and off-site mitigation in nearby state parks or refuges (e.g., NYSDEC's 4,949-acre Cicero Swamp WMA located less than one mile east of the I-481 North Study Area) in close consultation with the USACE, NYSDEC, and site managers. The goal of this mitigation would be no net loss of wetlands due to the Community Grid Alternative.

As design advances, all practicable measures would be employed to avoid and minimize permanent harm to wetlands. With these mitigation measures in place, the intent of EO 11990 "Protection of Wetlands" would be met.

Terrestrial Resources

Ecological Communities

The Community Grid Alternative would affect approximately 418 acres of terrestrial cultural (approximately 371 acres), successional old field (approximately 7 acres), successional shrubland (approximately 10 acres), successional southern hardwood (approximately 29 acres), and floodplain forest (approximately 2 acres) ecological communities in the Project Area (see **Table 6.4.8-7)**. 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 invasive species. One exception is the floodplain forest, which is a community that consists of a number of native plant species. However, the portion of this community to be affected is characterized as edge habitat and is predominantly dominated by invasive species, particularly common buckthorn in the understory. Furthermore, all of the ecological communities, including floodplain forest, 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, invasive vegetation.

Table 6.4.8-7
Community Grid Alternative
Approximate Ecological Communities Effects within the Study Areas

Ecological Community	Approximate Existing Coverage (acres)	Approximate Effects (acres)	Approximate Remaining Area (acres)
Terrestrial Cultural*	668.0	371.0	297.0
Successional Southern Hardwoods	53.0	28.8	24.2
Successional Old Field	8.6	6.6	2.0
Successional Shrubland	20.5	10.4	10.1
Floodplain Forest	14.9	1.5	13.4
Total Estimated Acreage	**765.0**	**418.3**	**346.7**

Notes: (*) Includes paved road/path, railroad, junkyard, urban vacant lot, mowed lawn, mowed lawn with trees, and garden. Ecological community observations were made during field investigations in 2016.

Sources: Ecological community names and descriptions are derived from "Ecological Communities of New York State" (Edinger et al. 2014).

The permanent removal of ecological communities as part of the Community Grid Alternative would not result in significant adverse impacts to such communities throughout the region. Furthermore, any areas disturbed during construction that are not part of the permanent project footprint would be revegetated to the greatest extent practicable with native plant species indigenous to this region of New York in accordance with a Landscape Restoration Plan that would be developed for the Project. No invasive species would be included in the landscape plan. Therefore, the Community Grid Alternative would be in compliance with EO 13112, "Invasive Species."

Wildlife

The majority of the study areas are heavily developed with terrestrial ecological communities associated with transportation infrastructure and urban land uses. Overall, wildlife inhabiting 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 significant adverse impacts 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 significant adverse effects to birds, mammals, reptiles, or amphibians would be expected to result from the operation of the Community Grid Alternative.

I-81 Study Area

Within the I-81 Viaduct Study Area, the effects to wildlife would be nearly the same as described above for the Viaduct Alternative. Because it would not disturb high quality habitat or substantially change noise or activities as compared to the No Action Alternative, the operation of the Community Grid Alternative would not adversely affect wildlife or its habitat in the I-81 Viaduct Study Area.

I-481 South Study Area

Within the I-481 South Study Area, other than terrestrial ecological communities, most of the habitat available to wildlife 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 the interstates and adjacent roads. Wildlife occurring in the area consists primarily of disturbance-tolerant species that are common to degraded habitats. Thus, reductions of acreages of these habitats in the I-481 South Study Area would not adversely affect populations of these abundant generalist species, and these same species would be expected to occur in terrestrial ecological communities and successional habitats of 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 associated with the southern end of 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.

Acreages of disturbance for the entire Community Grid Alternative in the I-481 East Study Area would be limited to 0.49 acres of floodplain forest and 0.79 acres of freshwater wetland. This acreage would represent a negligible reduction in the availability of these habitat types in the Project Area, as they are located at the outer edges of the limits of disturbance. Furthermore, the areas that would be affected are all roadsides, and therefore, subjected to high levels of disturbance and a 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 approximately 60 acres within this study area, 57 acres of which is terrestrial cultural ecological community habitat that is of little ecological value to native wildlife. The approximately 0.4 total acres of successional southern hardwoods, approximately 0.3 total acres of successional old field, approximately 1.6 total acres of successional shrubland, and approximately 1.0 total acres of floodplain forest that would also 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 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, Endangered, and Special Concern Species

Based on the habitat available and preliminary design, NYSDOT has made determinations of "no effect" or "may affect, not likely to adversely affect" for species with no direct habitat effects and has provided preliminary effect determinations for coordination with regulatory agencies (USFWS and NYSDEC). Preliminary determinations are phrased as 'may be reasonably concluded' in the discussion below. No "take" is likely under 6 CRR-NY Section 182.11 based on NYSDEC guidelines for any species. Coordination with FHWA, USFWS and NYSDEC will be ongoing.

I-81 Viaduct Study Area

- **Indiana Bat:** As described above, Indiana bat is a State- and Federally listed endangered species. According to the NYNHP, the I-81 Viaduct Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum and more than 150 feet from a known Indiana bat roost tree (USFWS required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. As shown in **Table 6.4.8-4**, there are

approximately 9.8 acres of forest (i.e., successional southern hardwoods), including trees measuring 5" dbh, subject to removal to accommodate the Community Grid Alternative.

Per the FHWA/USFWS Guidance, tree cutting within Indiana bat range during the winter hibernation time frame (October 1– March 31) "may affect, not likely to adversely affect" the Indiana bat. NYSDOT would schedule tree cutting within the winter hibernation time frame. Since the project involves the cutting of trees over 5 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination can be reasonably concluded for the Community Grid Alternative regarding the Indiana bat.

- **Northern Long-eared Bat:** As described above, northern long-eared bat is a State- and Federally listed threatened species. According to NYNHP, the I-81 Viaduct 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). Additionally, the tree cutting area is located within 100 feet of the road surface. As shown in **Table 6.4.8-4**, there are approximately 9.8 acres (i.e., southern successional hardwoods) of trees, including trees measuring 3 inches dbh and greater, that are subject to removal to accommodate the Community Grid Alternative.

- Per the FHWA/USFWS Guidance, tree cutting within northern long-eared bat range outside of the pup season (May 1–July 31) "may affect, not likely to adversely affect" the northern long-eared bat. NYSDOT would schedule tree cutting within the winter hibernation timeframe (October 1–March 31). Since the project involves the cutting of trees over 3 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination can be reasonably concluded for the Community Grid Alternative regarding the northern long-eared bat.

- **Eastern Massasauga:** As described above, the eastern massasauga is State-listed endangered and Federally listed threatened species. The IPaC system results indicated that the eastern massasauga has the potential to occur within the I-81 Viaduct Study Area. However, the I-81 Viaduct Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces and it does not contain the eastern massasauga preferred habitat of open wetlands with adjacent upland forest openings, old fields, and prairies. Based on the lack of the eastern massasauga preferred habitat within the I-81 Viaduct Study Area, NYSDOT has made a "no effect" determination for this species under the Community Grid Alternative.

- **American Hart's Tongue Fern**: As described above, the American Hart's tongue fern is a Federally listed threatened and State-listed threatened perennial and evergreen fern. The IPaC System results indicated that the American Hart's tongue fern has the potential to occur within the I-81 Viaduct Study Area. However, the upland ecological communities of the study areas are associated with maintained right-of-ways, successional old fields and shrublands, and successional and floodplain forests located along the edges of the right-of-way. All of these ecological communities area associated with disturbance and do not contain the deep shade and cool, moist, rocky, calcareous

substrates of its preferred habitat. Based on the lack of the American Hart's tongue fern habitat within the I-81 Viaduct Study Area, NYSDOT has made a "no effect" determination for this species under the Community Grid Alternative.

- **Peregrine Falcon:** The State-listed endangered peregrine falcon currently nests in an artificial nest box on a building adjacent to the I-81 Viaduct Study Area, and thus, it has the potential to occur throughout the I-81 Viaduct Study Area. Because the nest is outside of the I-81 Viaduct Study Area, the Viaduct Alternative would not impact it. Furthermore, the peregrine falcons in this area are already accustomed to an urban environment and would not be further impacted 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). As such, the peregrine falcon would not be significantly adversely affected by the operation of the Viaduct Alternative, and operation of the Community Grid would not result in a "take" of this species covered under 6 CRR-NY Section 182.11.

- **Lake Sturgeon:** As described above, the State-listed threatened lake sturgeon is present in Onondaga Lake located in the vicinity of the I-81 Viaduct Study Area. Within the I-81 Viaduct Study Area, there are four active and two additional outfalls along Onondaga Creek, and one active outfall along Ley Creek. These outfalls are expected to 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 4.6.7 Water Resources,** the reduction in impervious road surface within the I-81 Viaduct 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 approximately 27 percent less because 12.78 fewer highway miles requiring deicing.

  BMPs that incorporate green infrastructure components (e.g., source control stormwater management, such as permeable pavements and biofiltration 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 I-81 Viaduct Study Area and that all roadway runoff from the Community Grid would be treated for water quality prior to discharge to surface waters. With these measures in place, the State-listed lake sturgeon would not be directly or indirectly affected by the operation of the Community Grid Alternative. Therefore, the operation of the Community Grid Alternative would not result in effects to lake sturgeon. Furthermore, operation of the Community Grid

Alternative would not result in a "take" of this species covered under 6 CRR-NY Section 182.11

- **Seaside Bulrush:** As described above, the State-listed threatened seaside bulrush has been recorded by NYNHP in the vicinity of the I-81 Viaduct Study Area. The I-81 Viaduct Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces and it does not contain the seaside bulrush preferred habitat of open, saltwater or brackish wetlands. However, seaside bulrush may also be found in disturbed areas like roadsides and ditches and for this reason, it has a low potential to occur within the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Community Grid Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Community Grid Alternative.

- **Midland Sedge:** As described above, the State-listed threatened Midland sedge has been recorded by NYNHP in terrestrial cultural ecological communities of the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Community Grid Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Community Grid Alternative.

- **Saltmarsh Aster:** As described above, the saltmarsh aster is a State-listed threatened species that has been recorded by NYNHP in the vicinity of the I-81 Viaduct Study Area. The I-81 Viaduct Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces and it does not contain the saltmarsh aster preferred habitat of salt or brackish marshes, the edges of tidal channels and creeks, and swales of coastal dunes. However, it is also occasionally found in disturbed habitats that are salt influenced and for this reason, it has a low potential to occur within the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Community Grid Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Community Grid Alternative

- **Reflexed Sedge:** As described above, the State-listed threatened reflexed sedge has been recorded by NYNHP in terrestrial cultural ecological communities of the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with

NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Community Grid Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Community Grid Alternative.

- **Straight-leaved Pondweed:** As described above, the State-listed threatened straight-leaved pondweed has been recorded by NYNHP in the vicinity of the I-81 Viaduct Study Area. Prior to construction, surveys for this species would be conducted in areas of known habitat for this species. Should any individuals be found, a protection plan (transplanting or propagation program) would be developed in consultation with NYSDEC as part of the Landscape Restoration Plan that would be implemented under the Community Grid Alternative. Therefore, no significant adverse effects to this species would occur as a result of the operation of the Community Grid Alternative.

- **Inland Salt Pond:** As described above, the inland salt pond ecological community has been documented by NYNHP as occurring in the vicinity of the I-81 Viaduct Study Area. However, as described above, this community is not present within I-81 Viaduct Study Area. Therefore, no adverse effects to this ecological community would occur as a result of the operation of the Community Grid Alternative.

I-81 South Study Area

- **Indiana Bat:** As described above, Indiana bat is a State- and Federally listed endangered species. According to the NYNHP, the I-481 South Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum and more than 150 feet from a known Indiana bat roost tree (USFWS required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. There are approximately 19 acres (i.e., southern successional hardwoods) of trees, including trees measuring 5 inches dbh and greater, that are subject to removal to accommodate the Community Grid Alternative.

  Per the FHWA/USFWS Guidance, tree cutting within Indiana bat range during the winter hibernation time frame (October 1–March 31) "may affect, not likely to adversely affect" the Indiana bat. NYSDOT would schedule tree cutting within the winter hibernation time frame. Since the project involves the cutting of trees over 5 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination may be reasonably concluded for the operation of the Community Grid Alternative regarding the Indiana bat.

- **Northern Long-eared Bat:** As described above, northern long-eared bat is a State- and Federally listed threatened species. According to NYNHP, 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). Additionally, the tree cutting area is located within 100 feet of the road surface. There are approximately 19 acres (i.e., southern successional hardwoods) of trees, including trees measuring 3 inches dbh and greater, that are subject to removal to accommodate the Community Grid Alternative.

  Per the FHWA/USFWS Guidance, tree cutting within northern long-eared bat range outside of the pup season (May 1–July 31) "may affect, not likely to adversely affect" the

northern long-eared bat. NYSDOT would schedule tree cutting within the winter hibernation timeframe (October 1–March 31). Since the project involves the cutting of trees over 3 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination may be reasonably concluded for the operation of the Community Grid Alternative regarding the northern long-eared bat.

- **Eastern Massasauga:** As described above, the eastern massasauga is State-listed endangered and Federally listed threatened species. The IPaC system results indicated that the eastern massasauga has the potential to occur within the I-81 South Study Area. However, the I-81 Viaduct Study Area is heavily urbanized and dominated by buildings, transportation infrastructure, and other impervious surfaces and it does not contain the eastern massasauga preferred habitat of open wetlands with adjacent upland forest openings, old fields, and prairies. Based on the lack of the eastern massasauga preferred habitat within the I-481 South Study Area, a "no effect" determination may be reasonably concluded for this species.

- **American Hart's Tongue Fern:** As described above, the American Hart's tongue fern is a Federally listed threatened and State-listed threatened perennial and evergreen 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 study area are associated with maintained right-of-ways, 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. However, given the proximity of the known population of this species to the I-481 South Study Area, surveys for this plant within the I-481 South Study Area will be conducted as part of the Section 7 consultation with USFWS.

- I-481 East Study Area **Indiana Bat:** As described above, Indiana bat is a State- and Federally listed endangered species. According to the NYNHP, the I-481 East Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum and more than 150 feet from a known Indiana bat roost tree (USFWS required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. There are approximately 0.5 acres (i.e., floodplain forest) of trees, including trees measuring 5 inches dbh and greater, that are subject to removal to accommodate the Community Grid Alternative.

  Per the FHWA/USFWS Guidance, tree cutting within Indiana bat range during the winter hibernation time frame (October 1–March 31) "may affect, not likely to adversely affect" the Indiana bat. NYSDOT would schedule tree cutting within the winter hibernation time frame. Since the project involves the cutting of trees over 5 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination may be reasonably concluded for the operation of the Community Grid Alternative regarding the Indiana bat.

- **Northern Long-eared Bat:** As described above, northern long-eared bat is a State- and Federally listed threatened species. 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). Additionally, the tree cutting area is located within 100 feet of the road surface. There are approximately 0.5 acres (i.e., floodplain forest) of trees, including trees measuring 3 inches dbh and greater, that are subject to removal to accommodate the Community Grid Alternative.

  Per the FHWA / USFWS Guidance, tree cutting within northern long-eared bat range outside of the pup season (May 1–July 31) is considered to "may affect, not likely to adversely affect" the northern long-eared bat. NYSDOT would schedule tree cutting within the winter hibernation timeframe (October 1–March 31). Since the project involves the cutting of trees over 3 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination may be reasonably concluded for the operation of the Community Grid Alternative regarding the northern long-eared bat.

- **Eastern Massasauga:** The eastern massasauga is a State-listed endangered and Federally listed threatened species. The IPaC system results indicated that the eastern massasauga has the potential to occur within the I-81 East Study Area. This refers to the population of eastern massasauga that occurs in the Cicero Swamp WMA, one of only two populations remaining in New York State. Aside from the other population, in Genesee County, eastern massasauga are not known to occur anywhere outside of the Cicero Swamp WMA (Gibbs et al. 2007), which is approximately 2.5 miles north of the I-81 East Study Area. In addition, the I-81 East Study Area lacks fens, marshes, and wet prairies that are needed to support eastern massasauga (Gibbs et al. 2007). Therefore, there a "no effect" determination may be reasonably concluded for the operation of the Community Grid Alternative regarding this species in the I-81 East Study Area.

I-481 North Study Area

- **Indiana Bat:** As described above, Indiana bat is a State- and Federally listed endangered species. According to the NYNHP, the I-481 East Study Area is located more than 0.5 miles from a known Indiana bat hibernaculum and more than 150 feet from a known Indiana bat roost tree (USFWS required buffers). Additionally, the tree cutting area is located within 100 feet of the road surface. There are approximately 1.5 acres (i.e., southern successional hardwoods and floodplain forest) of trees, including trees measuring 5 inches dbh and greater, that are subject to removal to accommodate the Community Grid Alternative

  Per the FHWA/USFWS Guidance, tree cutting within Indiana bat range during the winter hibernation time frame (October 1–March 31) "may affect, not likely to adversely affect" the Indiana bat. NYSDOT would schedule tree cutting within the winter hibernation time frame. Since the project involves the cutting of trees over 5 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination may be reasonably concluded for the operation of the Community Grid Alternative regarding this species in the I-481 North Study Area.

- **Northern Long-eared Bat:** As described above, northern long-eared bat is a State- and Federally listed threatened species. 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). Additionally, the tree cutting area is located within 100 feet of the road surface. There are approximately 1.5 acres (i.e., southern successional hardwoods and floodplain forest) of trees, including trees measuring 3 inches dbh and greater, that are subject to removal to accommodate the operation of the Community Grid Alternative.

  Per the FHWA/USFWS Guidance, tree cutting within northern long-eared bat range outside of the pup season (May 1–July 31) "may affect, not likely to adversely affect" the northern long-eared bat. NYSDOT will schedule tree cutting within the winter hibernation timeframe (October 1–March 31). Since the project involves the cutting of trees over 3 inches dbh during the winter cutting season, a "may affect, not likely to adversely affect" determination may be reasonably concluded for the operation of the Community Grid Alternative regarding the northern long-eared bat in the I-481 North Study Area.

- **Least Bittern:** As described above, the State-listed threatened least bittern has been documented by NYNHP as nesting within 700 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. However, given the proximity of the known least bittern nesting location to the I-481 North Study Area, coordination with the NYSDEC regarding measures to protect this species would be conducted to avoid adverse effects to this species. Therefore, no "***take***" of this species is likely under 6 CRR-NY Section 182.11 during the operation of the Community Grid Alternative

- Eastern Massasauga: As described above, the eastern massasauga is State-listed endangered and Federally listed threatened species. The IPaC system results indicated that the eastern massasauga has the potential to occur within the I-81 North Study Area. This refers to the population of eastern massasauga that occur in the Cicero Swamp WMA, one of only two populations remaining in New York State. Aside from the other population, in Genesee County, eastern massasauga are not known to occur anywhere outside of the Cicero Swamp WMA (Gibbs et al. 2007), which is less than one mile east of the I-81 North Study Area. Although Mud Creek, on the eastern edge of the I-81 North Study Area, has a hydrological connection to Cicero Swamp WMA, no eastern massasauga have been documented anywhere outside of the WMA and there is no habitat within the I-81 North Study Area that is suitable for supporting eastern massasauga. Therefore, a "no effect" determination may be reasonably concluded for the

operation of the Community Grid Alternative with respect to this species in the I-81 North Study Area.

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 potential temporary construction effects to natural resources within the Community Grid Alternative; the effects presented herein could be reduced as design advances.

Freshwater Wetlands

As design advances, measures would be implemented to avoid temporary fill placement in freshwater wetlands. Should temporary fill placement be unavoidable, these impacts would be included within the Section 401 and 404 permits and an Article 24 "Freshwater Wetlands" permit would be obtained from the USACE and NYSDEC, respectively, for the project as a whole (see Permanent/Operational Effects discussion above). During construction, BMPs, such as erosion and sediment control practices, would be implemented to protect the remaining freshwater wetlands of the study areas and temporarily impacted wetlands would be restored as needed after construction is completed.

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. Thus, it is expected that temporary staging sites would be located in similar habitats close to the construction zone, when practicable. During construction, measures (e.g., cleaning of construction equipment and proper transportation/disposal of soils containing invasive species) as per Section 4.8.3 "Invasive Species Control Methods for Maintenance and Construction" (September 10, 2004) of the TEM would be implemented to avoid the spread of invasive plant species that may occur in the disturbed ecological communities of these sites. Following construction, these sites would be restored to existing or improved conditions. 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 "Invasive Species" under the Community Grid Alternative.

Wildlife

With respect to wildlife, clearing of the above 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.

Noises generated during the construction (e.g., heavy machinery or generators) of the Community Grid Alternative would unlikely 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 **Chapter 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 significantly affect these individuals in the long-term (Gill et al. 2001). Overall, noises generated during construction would not be likely to have adverse effects to wildlife within the vicinity of the study areas.

Threatened, Endangered, and Special Concern Species

I-81 Viaduct Study Area

- **Indiana Bat:** As described above, Indiana bats have a low potential to occur within the I-81 Viaduct 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 (October 31 to March 31) when Indiana bats would not be present. Temporary construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the northern long-eared bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.
- **Northern Long-Eared Bat:** As described above, northern long-eared bats have a low potential to occur within the I-81 Viaduct 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

(October 31 to March 31) when northern long-eared bats would not be present. Temporary construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the northern long-eared bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.

- **Eastern Massasauga:** As described above, the eastern massasauga does not have the potential to occur within the I-81 Viaduct Study Area and is not expected to be affected by construction of the Community Grid Alternative.
- **American Hart's Tongue Fern:** As described above, the American Hart's tongue fern does not have the potential to occur within the I-81 Viaduct Study Area and is not expected to be affected by construction of the Community Grid Alternative.
- **Lake Sturgeon:** Lake sturgeon has the potential to occur in the surface waters of Onondaga Creek, Ley Creek, and Onondaga Lake. As described in **Section 6.4.7, Water Resources**, the implementation of erosion and sediment controls (e.g., silt fences, hay bales, 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 impacts to surface water quality within the Project Area. Therefore, no effects to the State-listed lake sturgeon would occur during construction of the Community Grid Alternative.
- **Peregrine Falcon:** Peregrine falcon has the potential to occur in the I-81 Viaduct Study Area. As described above, the peregrine falcons will tolerate almost any level of human activity taking place below their nest provided that its 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.
- **Seaside Bulrush:** As described above, the State-listed threatened seaside bulrush has been recorded by NYNHP within the vicinity of the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a seed propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Community Grid Alternative.

- **Midland Sedge:** As described above, the State-listed threatened Midland sedge has been recorded by NYNHP in the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a seed propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Community Grid Alternative.

- **Saltmarsh Aster:** As described above, the State-listed threatened saltmarsh aster has been recorded by NYNHP within the vicinity of the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a seed propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Community Grid Alternative.

- **Reflexed Sedge:** The State-listed threatened reflexed sedge has been recorded by NYNHP in the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a seed propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Community Grid Alternative.

- **Straight-Leaf Pondweed:** As described above, the State-listed endangered straight-leaf pondweed has been recorded by NYNHP in the I-81 Viaduct Study Area. Prior to construction, species-specific surveys would be conducted in the proposed areas of disturbance. If this plant is found within the area of disturbance, a propagation/transplanting program could potentially be developed and implemented prior to construction. If practicable, this plant would be incorporated into a Landscape Restoration Plan that would be implemented following construction. With these measures in place, no adverse effects to this species would occur during construction of the Community Grid Alternative.

- **Inland Salt Pond:** The inland salt pond ecological community is not present within the I-81 Viaduct Study Area. Therefore, this community would not be adversely affected during the construction of the Community Grid Alternative.

I-81 South Study Area

- **Indiana Bat:** As described above, 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 Community Grid Alternative. However, as a precaution, tree clearing during

construction would be limited to the winter hibernation period (October 31 to March 31) when Indiana bats would not be present. Temporary construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the Indiana bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.

- **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 Community Grid Alternative. However, as a precaution, tree clearing during construction would be limited to the winter hibernation period (October 31 to March 31) when northern long-eared bats would not be present. Temporary construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the northern long-eared bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.
- **Eastern Massasauga:** As described above, the eastern massasauga does not have the potential to occur within the I-481 South Study Area and is not expected to be affected by construction of the Community Grid Alternative.
- **American Hart's Tongue Fern:** As described above, given the proximity of the known population of the American Hart's tongue fern to the I-481 South Study Area, surveys for this plant within the I-481 South Study Area will be conducted in coordination with FHWA, USFWS, and NYSDEC prior to construction. Should any American Hart's tongue fern be located within the limits of disturbance, then effects to this species would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.

I-81 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 Community Grid Alternative. However, as a precaution, tree clearing during construction would be limited to the winter hibernation period (October 31 to March 31) when Indiana bats would not be present. Construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the Indiana bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.
- **Northern Long-Eared Bat:** As described above, northern long-eared 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 Community Grid Alternative. However, as a precaution, tree clearing during construction would be limited to the winter hibernation period (October 31 to March 31) when northern long-eared bats would not be present. Temporary construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the northern long-eared bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.

- **Eastern Massasauga:** As described above, 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 Community Grid Alternative.

I-81 North Study Area

- **Indiana Bat:** As described above, 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 (October 31 to March 31) when Indiana bats would not be present. Temporary construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the Indiana bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.

- **Northern Long-Eared Bat:** As described above, northern long-eared 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 (October 31 to March 31) when northern long-eared bats would not be present. Temporary construction effects (e.g., construction lighting, noise, bridge work) that have the potential to affect the northern long-eared bat would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.

- **Eastern Massasauga:** Eastern massasauga is not expected to occur in the I-81 North Study Area on the basis of its preferred habitats and the only known location of this species in this region (i.e., Cicero Swamp WMA). Should it be determined that there is the potential for the eastern massasauga to occur in the I-481 North Study Area (e.g., through its hydrological connection to Mud Creek), then measures, such as fencing and other barriers deemed appropriate by USFWS and NYSDEC, would be erected during construction in this area to minimize the potential for activities to result in an adverse effect to the species. These measures would be assessed as part of the Section 7 consultation with the USFWS, which may include the preparation of a BE. On the basis

of the BE, a BA that outlines protection measures and any potential mitigation measures would be prepared, as needed, in consultation with the FHWA, USFWS, and NYSDEC.

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. With respect to wetlands, the Community Grid Alternative would not substantially alter the future development or quality of wetlands within the 100-foot wetlands study area. Therefore, no indirect effects would occur as a result of the Community Grid Alternative.

CUMULATIVE EFFECTS

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

MITIGATION

The Community Grid Alternative may affect 2.37 acres (footprint) and 0.54 acres (shading) of freshwater wetlands. Formal wetlands delineation would be undertaken to verify wetland areas, and as design advances, refinements would be explored and implemented, as practicable, to avoid and reduce permanent effects where reasonable. In addition, BMPs (e.g., silt fence, exclusion fencing) would be employed to reduce effects to freshwater wetlands located in close proximity to the construction zones.

As part of the wetland permitting process, a mitigation plan would be developed in collaboration with the USACE and NYSDEC to offset the impacts to freshwater wetlands/NYSDEC freshwater wetlands adjacent area. As per the 2008 USACE Mitigation Requirements, mitigation for freshwater wetlands would be required in the form of restoration of a previously existing wetland or other aquatic site, the enhancement of an existing aquatic site's functions, the establishment (i.e., creation) of a new aquatic site, or the preservation of an existing aquatic site. It is anticipated that the mitigation plan would include the restoration, enhancement, establishment, or preservation by wetland type (i.e., forested wetlands, emergent wetlands) and would incorporate the use of native species, where applicable, common to the wetlands of the study area to ensure that the wetland values (i.e., habitat) and functions (i.e., stormwater retention) are not lost. In terms of mitigation locations, NYSDOT is investigating sites as close to the study areas as possible including potential on-site mitigation, and off-site mitigation in nearby parks or refuges (e.g., NYSDEC's 4,949-acre Cicero Swamp WMA, located less than one mile east of the I-481 North Study Area), in close consultation with the USACE, NYSDEC, and site mangers.

With these measures in place, there would be no net loss of wetlands due to the Community Grid Alternative. Furthermore, as design advances, all practicable measures would be employed to avoid and minimize harm to wetlands.

Areas disturbed during construction that are not part of the permanent project footprint would be revegetated to the greatest extent practicable with native 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.