

3.3 Terrestrial and Aquatic Resources

3.3.1 Introduction

This Chapter presents descriptions of habitats and lists of flora and fauna that have been observed on the site by ecologists for Tim Miller Associates, Inc. (TMA) during on-site surveys conducted for this environmental impact study. Lists of wildlife species common to the area which could reasonably be expected to utilize the site or the surrounding properties are also provided in this Chapter.

3.3.2 Existing Conditions

Existing Site Ecological Communities and Typical Associated Wildlife

There are several different vegetative community types on the project site. These community types are described in the following paragraphs.

During field investigations, no endangered or threatened communities were observed within the project area. None of the existing habitat types described below are unique to the area or to the project site. Correspondence from the New York State Department of Environmental Conservation (NYSDEC) Natural Heritage Program (NHP) indicates that there are no known occurrences of rare or unusual habitat or vegetative community types on this parcel or in the vicinity of the parcel. A copy of the NYSDEC NHP letter is included in Appendix B.

The project site includes twelve principal habitat/ecosystems which correspond with the following broadly described "Ecological Communities of New York State"¹:

1. Successional northern hardwoods;
2. Successional southern hardwoods;
3. Successional old field;
4. Red maple-hardwood swamp;
5. Shrub swamp;
6. Marsh headwater stream;
7. Farm pond/artificial pond;
8. Field crops;
9. Mowed lawn;
10. Interior of barn/agricultural building;
11. Interior of non-agricultural building, and;
12. Unpaved road/path.

Table 3.3-1 presents the site acreage associated with each ecological community. The location of ecological community types and other habitat features of the site are shown on Figure 3.3-1, which is based on aerial photography produced in 2007. Figure 3.3-2 is an aerial photograph of the site in 2010 showing the currently tilled farm fields.

¹ Edinger, G.J. et al (Eds.) 2002. Ecological Communities of New York State. Second Edition. NYSNHP, NYSDEC. Albany, NY. 136 pp.

Table 3.3-1 Existing On-site Habitat Coverage	
Habitat Type	Approximate Extent
Successional northern hardwoods	78.3 acres
Successional southern hardwoods	86.7 acres
Successional old field	40.1 acres
Red maple-hardwood swamp	34.5 acres
Shrub swamp	4.3 acres
Marsh headwater stream*	1,975 lf
Farm pond/artificial pond	1.5 acres
Field crops	25.7 acres
Mowed lawn	5.7 acres
Impervious surface (including agricultural buildings)	4.5 acres
Unpaved road/path	5.9 acres
TOTAL	287.2 acres
* - lf = Linear feet Sources: Insite Engineering P.C. and Tim Miller Associates, Inc., 2009	

Successional Northern Hardwood Forest

A large portion of the project site currently supports second growth upland hardwood forest vegetation. The successional northern hardwood forest community type occupies approximately 78.3 acres (27.3 percent) of the project site. Tree canopy coverage is nearly complete and provides shade that moderates temperature fluctuations at the ground level and restricts the development of well-vegetated understory canopies or ground layer vegetation.

The NHP describes successional northern hardwood forest as forested uplands, which are loosely defined as “upland communities with more than 60% canopy cover of trees; these communities typically occur on substrates with less than 50% rock outcrop or shallow soil over bedrock”. The successional northern hardwood forest is an ecological community “...that occurs on sites that have been cleared or otherwise disturbed.”² According to the NYSNHP, “This is a broadly defined community and several seral (successional stages) and regional variants are known.”

The composition of the forest includes a variety of deciduous hardwood trees, dominated by maples, birches, oaks, black cherry, ashes and black locust. Table 3.3-3 presents the list of trees and shrubs observed on the property. The overstory layer within the northern successional hardwood forest is well developed with a nearly continuous tree canopy. The thick canopy prevents large amounts of light from penetrating to the forest floor, resulting in sparse sub-canopy and herbaceous layer species coverage. Unlike the tree canopy coverage, which is bimodal (i.e. roughly 0% in the winter and nearly 100% in the summer) on this site, the understory “coverage,” and especially the ground story “coverage” varies widely month by month and as such a percent coverage was not established.

This habitat type includes mature trees of species that provide mast (fruit and nut sources) for deer and other mammals and that supply cover in a well developed upper canopy and in

² Edinger, G.J. et al (Eds.) 2002. *Ecological Communities of New York State*. Second Edition. NYSNHP, NYSDEC. Albany, NY. 136 pp.

standing dead trees for arboreal species. Lack of significant understory and thickets limits its use as cover for some smaller ground-based fauna. A number of trees that are either standing dead or damaged provide habitat for cavity dwelling birds and mammals.

The understory vegetation consists primarily of saplings of the overstory trees as well as spicebush, arrowwood, Japanese barberry and multiflora rose. The understory vegetation is generally sparse due to the limited amount of solar penetration through the tree canopy and continuous browsing by deer. Seasonally prominent ground layer vegetation includes garlic mustard, stickseed, enchanter's nightshade, jumpseed and ferns.

Successional Southern Hardwood Forest

Approximately 86.7 acres (30.2 percent) in the higher elevations of the northeast section of the site consists of the successional southern hardwood forest community. Much like the successional northern hardwood forest community, the NHP describes successional southern hardwood forest as forested uplands that occur on cleared or otherwise disturbed sites.

Many of the trees comprising this community type are non-native invasive species, including Norway maple, tree-of-heaven and black locust. Native trees are limited but include red maple, white ash, black cherry and elms. A majority of the southern hardwood area on the project site contains a thick, dense understory composed of shrubs and vining species. Understory shrubs and vines are dominated by non-native species including multiflora rose, Japanese honeysuckle, black swallow wort, virginia creeper and oriental bittersweet. Other vine and shrub species located in the community include Indian hemp, grape species, poison ivy, silky dogwood, spicebush, and brambles (i.e. various *Rubus* species, including blackberries and wineberry). Climbing vines have over-topped many of the trees and shrubs affecting the tree's health. The vines rely upon the woody plants for support and when growing vigorously, such as at this site, they may kill trees by developing their own foliage in the tree canopy and reducing the light available to the trees.

As with the Successional Northern Hardwood Forest community, this community includes mature trees of species that provide mast (fruit and nut sources) for deer and other mammals and that supply cover in a well developed upper canopy including standing dead trees for arboreal species. A similar lack of significant understory and thickets limits its use as cover for some smaller ground-based fauna. A number of trees that are either standing dead or damaged provide habitat for cavity dwelling birds and mammals.

Successional Old Field

Areas of the proposed development support a cover type that is described by the NHP as "successional old field". These areas were previously cleared for agricultural or development purposes, then abandoned. Some of these former agricultural fields are currently being tilled as row crops for the 2010 growing season. A total of 25.7 acres are currently under cultivation. Additional areas will be tilled for the 2011 growing season. Shrub species in these areas are dominated by invasive, non-native species such as multiflora rose and autumn olive. Crab apples and Japanese barberry are also present in significant numbers in these abandoned areas.

The successional old fields support grasses and wildflowers with occasional shrubs, as well as provide habitat for some small mammals (primarily rabbits and rodents), bedding area for deer. Snakes and songbird species, which utilize the seeds and berries produced as a food source,

also utilize this habitat type. These fields also provide habitat for a multitude of insect species, in turn lending another food source for several species of birds and some mammals (skunks and rodents). Due to the poor soil substrate, a result of past agricultural activities, and unlike the remainder of the site, the vegetation here is very slow in transitioning to woods. The highest ecological value of this area is as an adjacent habitat type to the woods, where birds and small mammals can feed on the abundant seeds but retreat back under the woodline when a predator approaches. Conversely, the field provides a food source for higher predators, particularly owls and the red tailed hawk.

Red Maple-Hardwood Swamp

The Red Maple-Hardwood Swamp is an ecological community "...that occurs in poorly drained depressions, usually on inorganic soils." According to the NHP, "This is a broadly defined community with many variants resulting from peculiar features of the existing habitats as well as regional variants.."

Approximately 34.5 acres of the larger NYSDEC regulated Wetland ML-11 lies on the project site. The wetland extends from the northwest corner of the property in a southeasterly direction to just south of the old farm pond. The wetland's watershed consists of approximately 260 acres of land to the east and west of the wetland corridor. This NYSDEC regulated wetland consists of several ecological communities, including red maple-hardwood swamp. This community is the most abundant wetland type throughout the wetland corridor. Vegetation within this community consists of red maple, American elm, spicebush, tussock sedge, skunk cabbage and sensitive fern.

A series of seasonal or temporary pools are part of NYSDEC State Wetland ML-11. These pool areas were observed to have bare mud bottoms with minimal herbaceous cover. They receive some of their hydrology from groundwater but, as topographic low spots, they also receive sheet flow from the larger surrounding area. The water in these pools is impounded by a former farm road crossing that appears to have been placed within the past 10 to 20 years. However, based on several years of observations, these pools do not exhibit the seasonal hydrologic conditions that would define them as "vernal pools".

Shrub Swamp

Parts of the larger 39.41 acre NYSDEC Wetland ML-11 are best described in the "Ecological Communities of New York State" as a shrub swamp community. The NHP describes shrub swamp as "an inland wetland community dominated by tall shrubs that occurs along the shore of a lake or river, in a wet depression or valley not associated with lakes, or as a transition zone between a marsh, fen, or bog and a swamp or upland community.

Shrub swamp exists in two sections of the wetland with flags labeled "E" and "N" in the northern section of the wetland corridor. Vegetation in these communities consists of a dominant shrub layer exhibiting a canopy coverage of over 60 percent and sparse coverage of trees (less than 30 percent). The shrub swamp in the "N" section contains green ash, red-osier dogwood, arrow-wood, common reed, narrow-leaf cattail, woolgrass, sensitive fern and skunk cabbage. The wetland area flagged as area "E" consists of green ash, American sycamore, gray dogwood, red-osier dogwood, marsh fern, sensitive fern, woolgrass and foxtail sedge.

Marsh Headwater Stream

The site contains two unnamed marsh headwater streams, one that flows from the pond on-site under Baldwin Place Road and into Lake Baldwin off-site and a second located in the northeast corner that flows under Baldwin Place and Stillwater Roads off-site.

The first of the streams, the outlet from the on-site impounded pond, flows south off the property for roughly 1,550 feet before joining an unnamed tributary of Lake Baldwin. The stream flows through a culvert under Baldwin Place Road approximately 900 feet after the pond's outlet. The tributary travels approximately 4,500 feet to the Muscoot River. The tributary substrate composition is primarily sand and gravel.

The Muscoot River flows approximately 22.5 river miles through the Amawalk and New Croton Reservoirs and becomes the Croton River before emptying to the Hudson River.

The second stream is an unnamed tributary to an unnamed stream that flows through NYSDEC Wetland ML-10 west of the project site. This stream begins as an outlet of a wetland north of the project site and flows roughly 6,200 feet, crossing under Baldwin Place Road twice before reaching the project site. The stream flows on site for approximately 425 feet, enters the off-site NYSE&G parcel and flows about 575 feet, then flows back onto the site for another roughly 575 feet. From this point the stream crosses under Baldwin Place Road and ultimately ends in NYSDEC Wetland ML-10 some 2,000 feet to the west of the parcel. NYSDEC Wetland ML-10 drains into the Muscoot River south of Stillwater Road. The tributary travels approximately 4,500 feet to the Muscoot River, which eventually flows into the Hudson River as stated previously. The tributary substrate composition is primarily sand and gravel.

The stream corridors provide perennial flow when not frozen, and vary in width from a few feet to approximately ten feet, in meandering channels. The water flowing within the stream channel has created some steep cut earthen banks on outer portions of some meanders.

Small reptiles and amphibians living within the stream corridors (red-backed salamanders and American toads) offer an additional food source to some of the larger omnivorous mammals that may be present (e.g., raccoons, fox, skunk). Tree coverage provides shade for the watercourses and moderates summer temperature fluctuations which is important to survival of various fish species downstream of the site.

The NHP identifies both stream types as "natural stream" subsystems. This NHP subsystem type includes streams in which the stream flow, morphometry, and water chemistry have not been substantially modified by human activities, or where the native biota are dominant. The biota may include some introduced species (for example, stocked or accidentally introduced fishes), however the introduced species are not usually dominant in the stream community as a whole. The Marsh Headwater Stream is an ecological community "...of a small, marshy perennial brook with very low gradient, slow rate, and cool to warm water that flows through a marsh, fen, or swamp where a stream system originates." These streams usually have clearly distinguished meanders (i.e. high sinuosity), are in unconfined landscapes, are typically dominated by runs with interspersed pool sections and are shallow, narrow with relatively small low flow discharge.

Farm pond/artificial pond

A 1.5 acre artificial pond is located at the southern end of NYSDEC Wetland ML-11. This impoundment was likely created for use by the existing farm and has been abandoned for some time. Vegetation surrounding the pond is dense and overgrown. Vegetation on the banks includes spotted jewelweed, gray dogwood, red osier dogwood, multiflora rose, oriental bittersweet, and poison ivy.

Field crops

Currently, approximately 25.7 acres of the project site is actively farmed for field crops. Some former agricultural fields that now contain overgrown vegetation may be converted back to active agricultural use in the fall of 2010 or spring of 2011. Fields that are used to grow crops are maintained and tilled each year, with the only vegetation in the fields being the field crops chosen by the farmer. Wind rows of successional forest that separate the fields used for farming create vital edge habitat, or ecotones, which is described in more detail below.

Mowed Lawn

Areas of mowed lawn exist on the southern section of the property. Most areas of mowed lawn are associated with the homes and barn structures that exist near Baldwin Place Road and US Route 6. A 1.5 acre section of mowed lawn north of the existing homes and barns is maintained as a runway for remote control airplanes, in addition to another 4.4 acres of maintained lawn associated with the existing homes and farm areas.

The maintained nature of these areas creates limited habitat opportunities for wildlife. Few species will utilize the mowed areas for foraging opportunities; those that do include robins, sparrow species, chipmunks and gray squirrels.

Impervious Surfaces/Agricultural Building

The southern portion of the project site contains several structures associated with the current and past uses of the site. Approximately 4.5 acres of impervious surfaces exist on the project site.

Barn/Agricultural Building

Four agricultural buildings, including two barns, exist on the southern section of the site. These buildings range in size from approximately 375 to roughly 11,150 square feet and cover a total of about 17,000 square feet.

These buildings provide habitat for small rodents and bat species. Avian species that are characteristic of this community type include barn swallow and rock dove (pigeons); both species were observed near on-site buildings on multiple occasions. House sparrows would also be expected to utilize the barns.

Non-Agricultural Building

Three single family homes exist along Baldwin Place Road on the southern end of the site. Non-agricultural buildings provide nesting opportunities in the form of chimneys and attic walls for chimney swift. Certain rodents may also take up residence in these structures.

Unpaved Road/Path

An unpaved road/path is defined by the NHP as a sparsely vegetated pathway with gravel, bare soil, or bedrock outcrop. These roads or pathways are maintained by regular trampling or scraping of the land surface. The substrate consists of the soil or parent material at the site. Approximately 5.9 acres of unpaved paths occur throughout the project site. In forested areas, the existing unpaved paths provide breaks in upland forest.

Edge Habitat

Each of the vegetative community types noted above represents a different type of wildlife habitat. The "edge habitats", or ecotones, between the different vegetative communities provide a diversity of vegetative structure and niches for wildlife species. The overall value of the project site as wildlife habitat is generally moderate, due to the existing interface between open areas and woods, the variety of habitats and the presence of both open and flowing water.

As described above, the site conditions create a valuable connection between the wooded areas of the site and the open meadows. Predatory species, which include hawks and owls among the avian species and foxes among the mammals, can hide under the cover of the tree line and prey on smaller species that wander into the open to feed or bask in the sun. Conversely, the prey species, which include rabbits, mice and voles, snakes, ground feeding birds and some of the amphibians, can feed in the open, where seed and fruit are more plentiful, but duck back into the cover of the stone walls and thickets below the tree line and hedgerows when a predator is present.

Wind rows between both actively farmed fields and successional fields provide excellent edge habitat for species utilizing the project site.

Stone Walls

There are numerous stone walls, totaling approximately 42,800 feet in length, throughout the property representing divides between existing and former farm fields and past property boundaries. These stone walls offer nesting and cover area for a variety of species, including snakes, small mammals (chipmunks, mice, rabbits, voles, etc.) and various amphibian species. Newts and salamanders are particularly likely to find suitable habitat within the stone walls in or near wetlands and watercourses. Insect and worm populations that are likely to live within the walls provide a food base for many of these creatures. Approximately half of the total length of stone walls would remain within wetlands, wetland buffer, and undisturbed areas after development of the project site. Stonewalls outside of these areas may also remain in place as design features for the project depending on the final plans developed through the SEQRA and site plan review processes.

Important Stands of Trees, Unusual Species or Specimens Warranting Preservation

A list of observed non-woody plant species on the project site, including common and botanical names is included in Table 3.3-2. Similar information on the trees and shrubs identified on the project site are documented in Table 3.3-3. During field investigations, no endangered or threatened plant species were observed within the project area.

Specimen trees warranting preservation were generally identified as large or old growth trees (minimum 20 inches diameter at breast height (dbh)) that exhibit high quality of health (i.e. no

branch die-off, trunk rot, etc.) and are of a species that provide either wildlife or aesthetic value. A total of ten trees on site were identified as specimen warranting preservation. None of these trees will be removed or disturbed during construction of the project. Four of the ten trees warranting preservation exist along the former railroad tracks on the north end of the site. These four trees, a 20 inch dbh sugar maple, two 24 inch dbh white ashes, and a single 48 inch dbh sycamore, would not be disturbed since they are located in a narrow strip of upland forest associated with the railroad tracks between two larger areas of wetland (Wetlands E and D). All four of these trees are in healthy condition.

Three more significant trees are located on the north end of the site, within the 100 foot wetland buffer associated with Wetland E. All three trees are sugar maples, ranging in dbh from 30 to 35 inches, and are in healthy condition. This area of wetland buffer will not be disturbed.

The remaining three trees warranting preservation all occur within wetland boundaries. Wetland T contains a healthy 35 inch dbh white oak, while Wetland M contains two 35 inch dbh swamp white oaks that are both in good condition. These trees will not be disturbed by the project.

Table 3.3-2 Non-woody Plants - Observed Species			
Scientific name	Common name	Scientific name	Common name
<i>Abutilon theophrasti</i>	Velvetleaf	<i>Medicago lupulina</i>	Black medick
<i>Achillea millefolium</i>	Yarrow	<i>Medicago sativa</i>	Alfalfa
<i>Actaea pachypoda</i> *	White baneberry *	<i>Melilotus officinalis</i>	Yellow sweet clover
<i>Ageratina altissima</i>	White snakeroot	<i>Menispermum canadense</i>	Canada moonseed
<i>Agrimonia gryposepala</i>	Tall hairy agrimony	<i>Microstegium vimineum</i>	Japanese stilt grass
<i>Agrimonia parviflora</i>	Harvestlice	<i>Mimulus ringens</i>	Allegheny monkey flower
<i>Alliaria petiolata</i>	Garlic mustard	<i>Mitchella repans</i>	Partridgeberry
<i>Allium tricoccum</i>	Ramp	<i>Monotropa uniflora</i>	Indian pipe
<i>Ambrosia artemisiifolia</i>	Common ragweed	<i>Myosoton aquaticum</i>	Giant chickweed
<i>Amphicarpaea bracteata</i>	Hog peanut	<i>Oenothera biennis</i>	Common evening primrose
<i>Anaphalis margaritacea</i>	Pearly everlasting	<i>Onoclea sensibilis</i>	Sensitive fern
<i>Apocynum cannabinum</i>	Indian hemp	<i>Osmorhiza longistylis</i>	Aniseroot
<i>Arctium minus</i>	Common burdock	<i>Oxalis stricta</i>	Common yellow oxalis
<i>Arisaema triphyllum</i>	Jack in the pulpit	<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Artemisia vulgaris</i>	Mugwort	<i>Penthorum sedoides</i>	Ditch-stonecrop
<i>Asclepias syriaca</i>	Common milkweed	<i>Phleum pratense</i>	Timothy grass
<i>Athyrium filix-femina</i> *	Lady fern *	<i>Phlox paniculata</i>	Garden phlox
<i>Bidens frondosa</i>	Devils beggarticks	<i>Phragmites australis</i>	Common reed
<i>Carex crinita</i>	Fringed sedge	<i>Phytolacca americana</i>	Pokeweed
<i>Carex lurida</i>	Shallow sedge	<i>Pilea pumila</i>	Clearweed
<i>Carex pensylvanica</i>	Pennsylvania sedge	<i>Plantago lanceolata</i>	Narrowleaf plantain
<i>Carex platyphylla</i>	Broad-leaved Sedge	<i>Plantago major</i>	Common plantain
<i>Carex</i> spp.	Sedge	<i>Plantago rugelii</i>	Blackseed plantain
<i>Carex stricta</i>	Tussock sedge	<i>Polygonatum pubescens</i>	Hairy solomon's seal
<i>Carex vulpinoides</i>	Fox sedge	<i>Polygonum arifolium</i>	Halberdleaf tearthumb
<i>Centaurea maculosa</i>	Spotted knapweed	<i>Polygonum aviculare</i>	Prostrate knotweed
<i>Chelidonium majus</i>	Celandine	<i>Polygonum cespitosum</i>	Oriental lady's thumb
<i>Chelone glabra</i>	White turtlehead	<i>Polygonum hydropiper</i>	Common smartweed
<i>Chenopodium album</i>	Lambsquarter	<i>Polygonum persicaria</i>	Spotted lady's thumb
<i>Cichorium intybus</i>	Chicory	<i>Polygonum virginianum</i>	Virginia jumpseed
<i>Circaea lutetiana</i>	Enchanter's nightshade	<i>Polystichum acrostichoides</i> *	Christmas fern *
<i>Cirsium arvense</i>	Canada thistle	<i>Potentilla recta</i>	Sulfur cinquefoil
<i>Clematis virginiana</i>	Virgin's bower	<i>Potentilla simplex</i>	Common cinquefoil
<i>Commelina communis</i>	Asiatic dayflower	<i>Prunella vulgaris</i>	Selfheal
<i>Convolvulus arvensis</i>	Field bindweed	<i>Pycnanthemum virginianum</i>	Virginia mountainmint
<i>Cuscuta</i> spp.	Dodder	<i>Rumex obtusifolius</i>	Bitter dock
<i>Cynanchum louiseae</i>	Louise's swallow-wort	<i>Sanguinaria canadensis</i> *	Bloodroot *
<i>Cyperus diandrus</i>	Umbrella flatsedge	<i>Sanicula marilandica</i>	Sanicle
<i>Daucus carota</i>	Queen Anne's lace	<i>Scirpus atrovirens</i>	Dark green bulrush
<i>Dianthus armeria</i>	Deptford pink	<i>Setaria italica</i>	Foxtail bristlegrass
<i>Dichanthelium clandestinum</i>	Deer-tongue witchgrass	<i>Setaria viridis</i>	Green foxtail
<i>Dryopteris marginalis</i> *	Marginal woodfern *	<i>Silene latifolia</i>	White campion
<i>Echinochloa crus-galli</i>	Barnyard grass	<i>Sinapis arvensis</i>	Wild mustard
<i>Epifagus virginiana</i>	Beech-drops	<i>Solanum carolinense</i>	Horsenettle
<i>Equisetum arvense</i>	Field horsetail	<i>Solanum dulcamara</i>	Climbing nightshade
<i>Erigeron annuus</i>	White-top fleabane	<i>Solidago bicolor</i>	Silverrod
<i>Eupatoriadelphus maculatus</i>	Spotted Joe-pye weed	<i>Solidago canadensis</i>	Canada goldenrod

Table 3.3-2 is continued on the following page.

Table 3.3-2 (continued) Non-woody Plants - Observed Species			
Scientific name	Common name	Scientific name	Common name
<i>Eupatorium perfoliatum</i>	Boneset	<i>Solidago rugosa</i>	Wrinkled-leaved goldenrod
<i>Eurybia divaricata</i>	White wood aster	<i>Sphagnum</i> spp.	Spagnum moss
<i>Euthamia graminifolia</i>	Flat-top goldenrod	<i>Symphyotrichum cordifolium</i>	Common heart-leaved aster
<i>Fragaria virginian</i>	Virginia strawberry	<i>Symphyotrichum lanceolatum</i>	Panicled aster
<i>Galium aparine</i>	Catchweed bedstraw	<i>Symphyotrichum lateriflorum</i>	Calico aster
<i>Galium mollugo</i>	Great hedge bedstraw	<i>Symphyotrichum novae-angliae</i>	New England aster
<i>Geranium maculatum</i>	Wild geranium	<i>Symphyotrichum pilosum</i>	Hairy white oldfield aster
<i>Geum canadense</i>	White avens	<i>Symphyotrichum puniceum</i>	Purplestem aster
<i>Glechoma hederacea</i>	Gill-over-the-ground	<i>Symphyotrichum racemosum</i>	Small white aster
<i>Hackelia virginiana</i>	Virginia stickseed	<i>Symplocarpus foetidus</i>	Skunk cabbage
<i>Hypericum perforatum</i>	Common St-John's wort	<i>Taraxacum officinale</i>	Common dandelion
<i>Hypericum punctatum</i>	Spotted St. John's-wort	<i>Thalictrum pubescens</i>	Tall meadowrue
<i>Impatiens capensis</i>	Spotted jewelweed	<i>Thelypteris noveboracensis</i> *	New York fern *
<i>Juncus tenuis</i>	Path rush	<i>Trifolium hybridum</i>	Alsike clover
<i>Lactuca</i> spp.	Wild lettuce	<i>Trifolium pratense</i>	Red clover
<i>Lapsana communis</i>	Nipplewort	<i>Verbascum thapsus</i>	Common mullein
<i>Lepidium campestre</i>	Field peppergrass	<i>Verbena hastata</i>	Blue vervain
<i>Lepidium virginicum</i>	Wild peppergrass	<i>Verbena urticifolia</i>	White vervain
<i>Linaria vulgaris</i>	Butter-and-eggs	<i>Vernonia noveboracensis</i>	New York ironweed
<i>Lobelia inflata</i>	Indian tobacco	<i>Veronica officinalis</i>	Common speedwell
<i>Lonicera japonica</i>	Japanese honeysuckle	<i>Vicia cracca</i>	Cow vetch
<i>Lotus corniculatus</i>	Birdsfoot trefoil	<i>Viola sororia</i>	Common blue violet
<i>Lycopus americanus</i>	American bugleweed	<i>Vitis aestivalis</i>	Summer grape
<i>Lythrum salicaria</i>	Purple loosestrife	<i>Vitis</i> spp.	Grape
<i>Maianthemum racemosum</i>	False Solomon's seal		

Notes:
 This list represents the species observed during project surveys of this site during Aug. 1 and Nov. 7, 2008. The list is not, however, represented to be an exhaustive list of all plant species on the site.
 * Indicates NYSDEC Exploitably Vulnerable Species
 Prepared by: Tim Miller Associates, Inc., 2009

Table 3.3-3 Trees and Shrubs - Observed Species	
Common name (<i>Scientific name</i>)	
Trees	
American beech (<i>Fagus grandifolia</i>)	Norway maple (<i>Acer platanoides</i>)
American elm (<i>Ulmus americana</i>)	Pignut hickory (<i>Carya glabra</i>)
American hackberry (<i>Celtis occidentalis</i>)	Pin oak (<i>Quercus palustris</i>)
Ashleaf maple (<i>Acer negundo</i>)	Poplar (<i>Populus</i> spp.)
Big tooth aspen (<i>Populus grandidentata</i>)	Quaking aspen (<i>Populus tremuloides</i>)
Black cherry (<i>Prunus serotina</i>)	Red maple (<i>Acer rubrum</i>)
Black locust (<i>Robinia pseudoacacia</i>)	Sassafras (<i>Sassafras albidum</i>)
Black walnut (<i>Juglans nigra</i>)	Shadblow serviceberry (<i>Amelanchier canadensis</i>)
Black willow (<i>Salix nigra</i>)	Shagbark hickory (<i>Carya ovata</i>)
Chokecherry (<i>Prunus virginiana</i>)	Slippery elm (<i>Ulmus rubra</i>)
Crabapple (<i>Malus</i> spp.)	Staghorn sumac (<i>Rhus typhina</i>)
Eastern red cedar (<i>Juniperus virginiana</i>)	Sugar maple (<i>Acer saccharum</i>)
Green ash (<i>Fraxinus pennsylvanica</i>)	Swamp white oak (<i>Quercus bicolor</i>)
Grey birch (<i>Betula populifolia</i>)	Tree of Heaven (<i>Ailanthus altissima</i>)
Ironwood (<i>Carpinus caroliniana</i>)	White ash (<i>Fraxinus americana</i>)
Mulberry (<i>Morus</i> spp.)	White oak (<i>Quercus alba</i>)
Shrubs	
Allegheny blackberry (<i>Rubus allegheniensis</i>)	Multiflora rose (<i>Rosa multiflora</i>)
Black raspberry (<i>Rubus occidentalis</i>)	Prickly dewberry (<i>Rubus flagellaris</i>)
Blackhaw viburnum (<i>Viburnum prunifolium</i>)	Pussy willow (<i>Salix discolor</i>)
Common buckthorn (<i>Rhamnus cathartica</i>)	Red-osier dogwood (<i>Cornus sericea</i>)
Common elderberry (<i>Sambucus nigra</i>)	Silky dogwood (<i>Cornus amomum</i>)
Gray dogwood (<i>Cornus racemosa</i>)	Southern arrowwood (<i>Viburnum recognitum</i>)
Highbush blueberry (<i>Vaccinium corymbosum</i>)	Wineberry (<i>Rubus phoenicolasius</i>)
Japanese barberry (<i>Berberis thunbergii</i>)	Winterberry (<i>Ilex verticillata</i>) *
Japanese honeysuckle (<i>Lonicera japonica</i>)	Witchhazel (<i>Hamamelis virginiana</i>)
Morrow's honeysuckle (<i>Lonicera morrowii</i>)	
Notes: This list represents the species observed during project surveys of this site in 2008. The list is not, however, represented to be an exhaustive list of all plant species on the site.	
* NYS exploitably vulnerable species	
Prepared by: Tim Miller Associates, Inc., 2009.	

Rare and Endangered Vegetation Species

Correspondence from the NYSDEC (NHP) received August 27, 2008, indicated that it had no records of endangered or threatened plant species or significant habitats occurring on or near the project site. A copy of the letter is included in Appendix B.

On-site vegetation was identified over the course of multiple survey dates ranging from mid-May through July of 2008. During these surveys, no federal or state-listed threatened or endangered plant species, habitats or significant natural communities were identified or observed by project biologists.

One shrub species (winterberry), two herbaceous species (white baneberry, bloodroot), and four species of ferns (lady fern, marginal wood fern, New York fern, christmas fern) found on the

project site are categorized by New York State as exploitably vulnerable. As a note, the State includes all fern species with the exception of the sensitive, hayscented and bracken ferns in their State list of protected plants. Plants that are “exploitably vulnerable” are listed as protected species under 6NYCRR New Part 193, Protected Native Plants, and are defined in the state listing as, “...native plants likely to become threatened in the near future throughout all or a significant portion of their ranges within the state if casual factors continue unchecked [e.g, all orchids, most ferns].” New York State law protects state-listed plants existing on public lands. Right of protection of exploitably vulnerable species are conveyed by the State to the private land owner on which the species are present. With the consent of the land owner, it is not a violation “for any person, anywhere in the state, to pick, pluck, sever, remove, damage by the application of herbicides or defoliant, or carry away...any protected plant.”

All of the identified exploitably vulnerable species occur in their appropriate habitats throughout the project site.

Winterberry (Ilex verticillata)

Winterberry is a deciduous shrub that grows along streams and in low wet woods and swamps. Healthy populations of the shrub were observed throughout the wetland communities on the project site.

Bloodroot (Sanguinaria canadensis)

Bloodroot is an herbaceous plant that is typically found growing in moist to dry woods and thickets, often on flood plains and near shores or streams. Scattered, healthy populations of bloodroot were commonly observed throughout the eastern forested slopes of the project site.

Christmas Fern (Polystichum acrostichoides)

Christmas fern occurs on both dry and moist wooded slopes, moist banks and ravines. The fern prefers partial shade, but will tolerate a fair amount of direct sunlight, as long as the soil is moist to prevent the plant from drying out. Christmas ferns were identified in multiple locations throughout the site, all being within upland forested communities.

Lady fern (Athyrium filix-femina)

Lady ferns can be found growing in meadows, open thickets, moist woods, and along stream beds, preferring shaded areas. Lady ferns will grow in a group in the shape of a circle. As they grow farther and farther outwards, the centers die away, leaving a ring of ferns. Healthy population of the species were observed within the red maple-hardwood swamp and shrub wetland communities.

New York fern (Thelypteris noveboracensis)

New York Fern grows in moist woods, especially near swamps, streams, and in vernal seeps of ravines, often in slightly disturbed secondary forests. It frequently forms large colonies preferring deep shade. Healthy populations were identified throughout the northern and southern successional hardwood communities.

Marginal wood fern (Dryopteris marginalis)

Marginal wood fern is commonly found growing in wet woods, stream banks or swampy areas. A small, healthy population was observed growing within the red-maple hardwood swamp community (NYSDEC ML-11) and its associated 100 foot buffer.

Existing Wildlife

Tim Miller Associates, Inc. staff conducted multiple day biological surveys of the project site during the months of June, July and August of 2008. Investigations focused on determining the presence/absence of birds, herpetiles and mammals utilizing the on site habitats. Survey methods included direct or indirect (i.e. tracks, droppings, hair, feathers, etc.) observations, audible observations, nest searches and overturning of logs, large stones and other debris.

The small woodlands and open fields on the site provide wildlife habitat for a number of common species, including deer, raccoon, opossum, chipmunk, and gray squirrel. Bird species that selectively reside within tree canopies (e.g. owls, warblers and vireos) may be transients or nest on the site. The mowed pastures on site have the potential to provide habitat for other species of birds including meadowlarks and bluebirds. The isolated nature of this habitat type along with the proximity of major roadways are likely to be limiting factors affecting the presence/absence of these species. The streams within the wetland were observed to typically have a sediment-fouled gravel/stone or mud substrate and could house populations of 2-lined salamanders and green frogs.

Table 3.3-4 includes a list of common mammalian species that were directly observed or are likely to utilize the habitats available at the project site. Reptile and amphibian species were included either if they were directly observed on the property or if there are known populations in eastern Putnam County generally, as indicated in the NYSDEC atlas of reptiles and amphibians³. Fish species were included where the existing habitat presented by the marsh headwater stream and/or farm pond/artificial pond communities is representative of the species' habitat preferences.

The list is not limited to direct site observations, but is a more thorough compilation of observations that have been documented throughout Putnam County in similar habitat conditions. It indicates, by asterisks, those species that were identified during project related field activities. Identification was either by direct sighting, audible observation, identification of scat or tracks, or other signs noted during site visits.

³ NYS DEC. 2006. New York State Amphibian and Reptile Atlas Project 1990-1998.
www.dec.state.ny.us/website/dfwmr/wildlife/herp/

Table 3.3-4 Wildlife List - Observed and Regional Species	
Common name (<i>Scientific name</i>)	
Mammals	
Deer mouse (<i>Peromyscus maniculatus</i>)	Raccoon (<i>Procyon lotor</i>)
Eastern chipmunk (<i>Tamias striatus</i>)	Red bat (<i>Lasiurus borealis</i>)
Eastern cottontail (<i>Sylvilagus floridanus</i>)	Red fox (<i>Vulpes vulpes</i>)
Eastern coyote (<i>Canis latrans</i>)	Short-tail shrew (<i>Blarina brevicauda</i>)
Eastern mole (<i>Scalopus aquaticus</i>)	Southern flying squirrel (<i>Glaucomys volans</i>)
Gray fox (<i>Urocyon cinereoargenteus</i>)	Star-nosed mole (<i>Codylura cristata</i>)
Gray squirrel (<i>Sciurus carolinensis</i>)	Striped skunk (<i>Mephitis mephitis</i>)
House mouse (<i>Mus musculus</i>)	White-footed mouse (<i>Peromyscus leucopus</i>)
Little brown bat (<i>Myotis lucifugus</i>)	White-tail deer (<i>Odocoileus virginianus</i>)
Meadow vole (<i>Microtus pennsylvanicus</i>)	Woodchuck (<i>Marmota monax</i>)
Opossum (<i>Didelphis virginiana</i>)	
Reptiles	
Black racer (<i>Coluber constrictor</i>)	Milk snake (<i>Lampropeltis triangulum</i>)
Black rat snake (<i>Elaphe obsoleta</i>)	Northern water snake (<i>Natrix sipedon</i>)
Box turtle (<i>Terrapene carolina</i>) *	Painted turtle (<i>Chrysemys picta</i>)
Brown snake (<i>Storeria dekayi</i>)	Ringneck snake (<i>Diadophis punctatus</i>)
Garter snake (<i>Thamnophis sirtalis</i>) *	Snapping turtle (<i>Chelydra serpentina</i>) *
Hognose snake (<i>Heterodon pletyrhinus</i>)	Spotted turtle (<i>Clemmys guttata</i>)
Amphibians	
American toad (<i>Bufo americanus</i>)	Red-backed salamander (<i>Plethodon cinereus</i>)*
Bullfrog (<i>Rana catesbeiana</i>)	Red-spotted newt (<i>Notophthalmus viridescens</i>)
Four-toed salamander (<i>Hemidactylium scutatum</i>)	Slimy salamander (<i>Plethodon glutinosus</i>)
Gray treefrog (<i>Hyla versicolor</i>)	Southern leopard frog (<i>Rana sphenoccephala</i>)
Green frog (<i>Rana clamitans</i>)	Spotted salamander (<i>Ambystoma maculatum</i>)
Marbled salamander (<i>Ambystoma opacum</i>)	Spring peeper (<i>Pseudocris crucifer</i>)
Northern two-lined salamander (<i>Eurycea bislineata</i>)	Wood frog (<i>Rana sylvatica</i>) *
Pickerel frog (<i>Rana palustris</i>) *	
Fish	
Blacknose dace (<i>Rhinichthys atratulus</i>)	Fathead minnow (<i>Pimephales promelas</i>)
Bluegill (<i>Lepomis macrochirus</i>)	Yellow perch (<i>Perca flavescens</i>)
Notes: This list represents many species that could potentially inhabit this site. It is not, however, an exhaustive list. * Indicates species observed directly or by signs (e.g. tracks or scat) during field surveys.	
Prepared by: Tim Miller Associates, Inc., 2008 and 2009	

Breeding Bird Atlas

The NYS Breeding Bird Atlas (BBA) is a comprehensive, statewide bird survey that documents the breeding birds identified by trained volunteers in three-mile square blocks. The most recent surveys (2000 through 2005) have been completed and data has been compiled and included in the final report titled "The Second Atlas of Breeding Birds in New York State" released in December of 2008. The listings include data on the breeding behavior observed, the year the bird(s) was observed and the state protection status of the species.

The Union Place project site falls entirely within the BBA Block number 5957B.⁴ The breeding bird list for this block is available from the recent 2000 to 2005 surveys as well as from the 1980 to 1985 survey. Both are included as Appendix D of this DEIS. It is important to note that birds would choose to breed in the habitat most suitable to their species. Therefore, the listing of a particular bird in a block does not mean that species would breed everywhere in that block. The list for each block would include a greater number of breeding birds than would utilize any given site within that block. The BBA lists were used to assist in determining the species expected to use the site. These species are included in Table 3.3-5. Bird species observed on the site during a May 2008 field survey specifically targeted at identifying avian species that utilize the site are designated by an asterisk (*) in Table 3.3-5. In addition, birds observed during other wildlife surveys are included in the table. Bird species in the table that are not followed by an asterisk are species that were not directly observed on the site but are expected to occur due to the presence of signature habitat features presented on the site.

Of the birds identified as potential users of the project site, the Cooper's hawk, is listed by the NYSDEC as Species of Special Concern. A Species of Special Concern is defined by NYSDEC as "any native species for which a welfare concern or risk of endangerment has been documented in New York State."⁵ Special Concern species are not afforded specific protection under State Law and are listed for informational purposes only.

None of the species identified on the site or expected to use the property are protected at the federal level under the Endangered Species Act.

⁴ New York State Department of Environmental Conservation. 2006. NYS Breeding Bird Atlas. Website: <http://www.dec.state.ny.us/apps/bba/>.

⁵ New York State Department of Environmental Conservation. 2006. List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State.

**Table 3.3-5
Bird Species Observed and Expected to Occur On-site**

Common Name	Scientific Name	MH	RHS	FP	SOF	ML	B
Alder Flycatcher *	<i>Empidonax virescens</i>	X	X				
American Black Duck *	<i>Anas rubripes</i>		X	X			
American Crow *	<i>Corvus brachyrhynchos</i>	X	X		X	X	
American Goldfinch *	<i>Carduelis tristis</i>	X			X		
American Kestrel	<i>Falco sparverius</i>				X	X	
American Redstart *	<i>Setophaga ruticella</i>	X	X				
American Robin *	<i>Turdus migratorius</i>	X	X		X	X	
American Woodcock	<i>Philohela minor</i>	X	X		X		
Baltimore Oriole *	<i>Icterus galbula</i>	X			X	X	
Bank Swallow	<i>Riparia riparia</i>						
Barn Swallow *	<i>Hirundo rustica</i>	X	X	X	X	X	X
Barred Owl	<i>Strix varia</i>	X	X				
Belted Kingfisher	<i>Ceryle alcyon</i>		X	X			
Black-and-white Warbler *	<i>Mniotilta varia</i>	X	X				
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	X					
Black-capped Chickadee *	<i>Poecile atricapillus</i>	X	X		X	X	
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	X	X				
Black-throated Green Warbler	<i>Dendroica virens</i>	X					
Black Vulture *	<i>Coragyps atratus</i>	X			X		
Blue Jay *	<i>Cyanocitta cristata</i>	X	X		X	X	
Blue-winged Warbler *	<i>Vermivora pinus</i>	X			X		
Broad-winged Hawk *	<i>Buteo platypterus</i>	X	X		X		
Brown-headed Cowbird *	<i>Molothrus ater</i>	X			X	X	
Brown Thrasher	<i>Toxostoma rufum</i>	X	X		X	X	
Canada Goose	<i>Branta canadensis</i>			X		X	
Carolina Wren	<i>Thryothorus ludovicianus</i>	X	X		X	X	
Cedar Waxwing *	<i>Bombycilla cedrorum</i>	X	X	X	X	X	
Chestnut-sided Warbler *	<i>Dendroica pensylvanica</i>	X	X		X		
Chimney Swift	<i>Chaetura pelagica</i>				X		X
Chipping Sparrow	<i>Spizella passerine</i>	X		X	X	X	
Common Grackle *	<i>Quiscalus quiscula</i>	X	X	X	X	X	
Common Yellowthroat *	<i>Geothlypis trichas</i>	X	X		X		
Cooper's Hawk * ¹	<i>Accipiter cooperii</i>	X	X		X		
Double-crested Cormorant	<i>Phalacrocorax auritus</i>						
Downy Woodpecker *	<i>Picoides pubescens</i>	X	X				X
Eastern Phoebe	<i>Sayornis phoebe</i>				X	X	X
Eastern Screech Owl	<i>Otus asio</i>	X	X			X	X
Eastern Towhee *	<i>Pipilo erythrophthalmus</i>	X	X		X		
Eastern Wood Peewee	<i>Contopus virens</i>	X	X				
European Starling *	<i>Sturnus vulgaris</i>				X	X	
Field Sparrow	<i>Spizella pusilla</i>				X		
Golden-crowned Kinglet	<i>Regulus satrapa</i>	X	X		X		
Gray Catbird *	<i>Dumetella carolinensis</i>	X			X		
Great Blue Heron	<i>Ardea herodias</i>		X	X			
Great-crested Flycatcher	<i>Myiarchus crinitus</i>	X	X	X		X	
Great-horned Owl	<i>Bubo virginianus</i>	X	X				
Green Heron	<i>Butorides virescens</i>		X	X			
Hairy Woodpecker *	<i>Picoides villosus</i>	X	X				X
House Finch *	<i>Carpodacus mexicanus</i>	X			X	X	
House Sparrow	<i>Passer domesticus</i>	X			X	X	
House Wren	<i>Troglodytes aedon</i>	X			X	X	
Indigo Bunting *	<i>Passerina cyanea</i>	X			X	X	

Table 3.3-5 is continued on the following page.

**Table 3.3-5
Bird Species Observed and Expected to Occur On-site- Continued**

Common Name	Scientific Name	MH	RHS	FP	SOF	ML	B
Killdeer	<i>Charadrius vociferus</i>				X		
Louisiana Waterthrush	<i>Seiurus motacilla</i>		X				
Mallard *	<i>Anas platyrhynchos</i>		X	X			
Mourning Dove *	<i>Zenaida macroura</i>	X	X		X	X	
Mute Swan	<i>Cygnus olor</i>			X		X	
Northern Cardinal *	<i>Cardinalis cardinalis</i>	X	X		X	X	
Northern Flicker *	<i>Colaptes auratus</i>	X	X				
Northern Mockingbird	<i>Mimus polyglottos</i>	X			X	X	
Northern Rough-winged Swallow *	<i>Stelgidopteryx serripennis</i>	X		X	X		
Ovenbird *	<i>Seiurus aurocapillus</i>	X	X				
Pileated Woodpecker	<i>Dryocopus pileatus</i>	X	X				
Pine Siskin *	<i>Carduelis pinus</i>	X			X		
Red-bellied Woodpecker *	<i>Melanerpes carolinus</i>	X	X				
Red-eyed Vireo	<i>Vireo olivaceus</i>	X	X				
Red-tailed Hawk *	<i>Buteo jamaicensis</i>	X	X		X	X	
Red-winged Blackbird *	<i>Agelaius phoeniceus</i>	X	X	X	X	X	
Rock Pigeon	<i>Columba livia</i>				X	X	X
Rose-breasted Grosbeak *	<i>Pheucticus ludovicianus</i>	X	X		X		
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	X	X		X	X	
Ruffed Grouse	<i>Bonasa umbellus</i>	X	X				
Savannah Sparrow *	<i>Passerculus sandwichensis</i>				X	X	
Scarlet Tanager *	<i>Piranga olivacea</i>	X	X				
Song Sparrow *	<i>Melospiza melodia</i>	X	X		X	X	
Spotted Sandpiper	<i>Actitis macularia</i>			X			
Swamp Sparrow	<i>Melospiza melodia</i>			X		X	
Tree Swallow*	<i>Tachycineta bicolor</i>		X	X	X	X	
Tufted Titmouse	<i>Baeolophus bicolor</i>	X	X		X	X	
Turkey Vulture *	<i>Cathartes aura</i>	X			X	X	
Veery *	<i>Catharus fuscescens</i>	X	X				
Warbling Vireo	<i>Vireo gilvus</i>	X	X				
White-crowned Sparrow *	<i>Zonotrichia leucophrys</i>	X			X		
White-breasted Nuthatch *	<i>Sitta carolinensis</i>	X	X			X	
White-throated Sparrow *	<i>Zonotrichia albicollis</i>	X			X	X	
Wild Turkey *	<i>Meleagris gallopavo</i>	X	X		X		
Willow Flycatcher *	<i>Empidonax traillii</i>			X	X		
Wood Duck	<i>Aix sponsa</i>		X	X			
Wood Thrush *	<i>Hylocichla mustelina</i>	X	X				
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	X					
Yellow-rumped Warbler *	<i>Dendroica coronata</i>	X	X	X			
Yellow Warbler *	<i>Dendroica petechia</i>	X	X		X		

MH - Mixed Hardwoods (Successional northern hardwoods, Successional southern hardwoods)

RHS - Red maple-hardwood swamp

FP - Farm Pond

SOF - Successional Old Field

ML - Mowed Lawn

B - Buildings (Agricultural and non-agricultural)

*Species that were observed during bird and wildlife surveys on the site.

¹ Species listed by NYSDEC as "Special Concern."

Sources: Tim Miller Associates, Inc., 2009., NYS BBA data, 1980-1985 and 2000-2005.

Rare, Endangered or Protected Species

The project site's potential for use by rare, endangered or protected species is severely limited due to the site's location among a highly developed region, annual disturbance associated with current and past agricultural use, and lack of connectivity to unfragmented habitat. Many rare, endangered or protected species are habitat specialists and require vast tracts of pristine habitat with little to no development or disturbances within the area. The current and past land uses of the project site have impacted the on-site ecological habitats to create those less favorable to rare, endangered or protected species.

The NYSDEC Natural Heritage Program has indicated by an August 27, 2008 letter (Appendix B Correspondence) that no records of rare or state-listed animals or plants, significant natural communities, or other significant habitats, exist on or in the immediate vicinity of the project site.

The United State Fish and Wildlife Service (USFWS) no longer responds to written requests to provide information regarding occurrences of Federally-listed threatened or endangered species within the vicinity of a project, however their website provides the current best available information regarding Federally-listed species "known or likely" to occur in Putnam County. The county list includes three species: Bog turtle (*Clemmys [=Glyptemys] muhlengerrgii* - Threatened), Indiana bat (*Myotis sodalis* - Endangered) and the shortnose sturgeon (*Acipenser brevirostrum* - Endangered). One of these species, the sturgeon, is only present in the Hudson River, and thus does not occur on the project site.

The potential for the remaining two Federally-listed species to occur in habitats that exist on the project site was analyzed. Both of these species are also listed by the NYSDEC as endangered species.

Bog turtle (Clemmys mühlenbergii)

This well-studied and surveyed species was not identified by the NYSDEC Natural Heritage Program as being known to occur in the area of this project. The bog turtle is a semi-aquatic species, preferring habitat with cool, shallow, slow-moving water, deep soft muck soils, and tussock-forming herbaceous vegetation. Nesting typically occurs on top of relatively tall and sparsely vegetated tussocks while shrub and tree root systems are frequently associated with hibernation sites. Bog turtle habitat are typically areas where groundwater discharge produces a shallow flow of surface water and saturated soils throughout all four seasons. Subsurface groundwater flow and shallow rivulets are common indicators of appropriate hydrology within a bog turtle wetland. Open wetland habitat, which provides the necessary basking and nesting opportunities for bog turtles, is not present on site.

Indiana bat (Myotis sodalis)

Observations were made regarding the number of potential Indiana bat maternal colony roosting trees on the property and their location relative to solar exposure and other habitat requirements of the species. The ecological habits of the Indiana bat, as presented in the USFWS species recovery plan⁶, generally characterizes Indiana bats as utilizing caves for winter hibernation and trees with snags or strongly exfoliating bark for roosting during all other seasons. Females with pups seek shelter underneath the overhanging or peeling bark of live trees or within cracks and splits in standing dead trees in late Spring through early Summer. The preferred trees used by

⁶ US Fish and Wildlife Service. 1983. Recovery Plan for the Indiana Bat. USFWS, Twin Cities, Minnesota. 82 pp.

maternal colonies include live black locust (*Robinia pseudoacacia*), live shagbark hickory (*Carya ovata*) and standing dead trees (snags) of many species. Trees with trunks that have exposure to sun are considered to be preferred by maternal colonies over trees that are shaded and not warmed by the sun. This species generally roosts in several trees in relatively close proximity over the summer months. Although not preferred habitat, Indiana bats do forage in areas of forest, field and shrub wetlands such as present on the site.

Black locusts and standing dead trees were observed on the project site, though a majority of these trees were found in the forest interior where they would not receive long periods of sun exposure. Few scattered shagbark hickories were observed on the site, with almost all specimens existing within the eastern buffer of NYSDEC Wetland ML-11. As a result of their location, these trees would not be removed or disturbed. The conclusion of the site evaluation is that, while some potential roosting trees and foraging habitat does exist, the site may nevertheless have a low probability of supporting Indiana bat maternity colonies due to its location further eastward than known roosting areas and lack of quality habitat.

Habitat potential for the other species that are listed by the NYSDEC as endangered, threatened or of special concern and that could potentially utilize the site was analyzed. The site was examined for potential use by the following species based strictly on the presence of the existing habitats available on site:

- Eastern hognose snake - Special Concern;
- Spotted turtle - Special Concern;
- Wood turtle - Special Concern;
- Eastern box turtle - Special Concern;
- Ambystomid salamanders (blue-spotted, Jefferson, marbled) - Special Concern;
- Longtail salamander - Special Concern;
- Southern leopard frog - Special Concern;
- Cooper's hawk - Special Concern.

One of these species, the wood turtle, is eliminated from consideration due to the lack of appropriate habitat on the site:

Wood turtle (Clemmys insculpta)

Wood turtles exploit moderate to fast flowing rivers and large streams with deep bank undercuts for winter burrows and large, landscape-scale, habitats for summer foraging. The lack of suitable stream corridors with sandy banks and overhangs for nesting and hibernating or extensive marshy meadows and stream-side forests for foraging precludes this species from using the project site;

Evaluations of site specific requirements were then conducted for the remaining State-listed species. It is noted if the species was observed during field surveys.

Eastern hognose snake (Heterodon platyrhinos)

There is the possibility that habitat on-site could support the Eastern hognose snake. This species is listed by New York State as being a species of special concern although it is identified as being locally common in Putnam County. It is a highly secretive species that may utilize any of the stone walls, wooded areas and pastures of the site for cover and feeding. This species also is adaptable to new fields and suburban areas. Since the proposed development

would leave areas of each of these habitats undeveloped, the property could continue to maintain a population of hognose snakes if in fact it is present on this site.

Spotted Turtle (Clemmys guttata)

This species may exist in wooded and meadow habitats, but typically returns to woodland vernal pools for feeding, especially when breaking dormancy in the spring months. Wetlands on the property exhibit characteristics that could support spotted turtles. However, these wetlands are part of the red maple-hardwood swamp community which contains a dense tree canopy that would not provide adequate basking opportunities for this turtle species.

Eastern Box Turtle (Terrapene carolina)

Of the amphibians and reptiles identified on the site, the Eastern box turtle is listed as a Species of Special Concern by the NYSDEC. A single, adult female was observed on July 6, 2008 near wetland area "N" in the northwest portion of the site.

The major threats to box turtles include pesticide poisoning, collection as pets, habitat loss, road-kill/maiming and direct loss (burying or maiming) of adult turtles, nest sites and hatchlings. Special Concern species are not afforded specific protection under State Law and are listed for informational purposes only.

Eastern box turtles are versatile animals and inhabit a wide variety of habitats from wooded swamps to dry, grassy fields. Although these turtles can live in a variety of habitats, they are most abundant and healthy in moist forested areas with plenty of underbrush. While not aquatic, box turtles will often venture into shallow water at the edge of ponds or streams or in puddles. Box turtles typically have small home ranges and may be sustained within areas of appropriate habitat as small as one acre.

Ambystomid Salamanders

The presence of on-site breeding pools increases the potential for finding Jefferson salamanders (*Ambystoma jeffersonianum*) and blue spotted salamanders (*Ambystoma laterale*) on this site. The pool habitat described within Wetland ML-11 ("M" flagged area) may support conditions that could be favorable for breeding by these species.

Adult *Ambystomid* salamanders, also known as mole salamanders, likely maintain small home ranges during the summer (a few square meters), avoiding others of the same species except during the breeding season. They may remain below ground in burrows or tunnels all year except during breeding season, thus the name "mole" salamanders. Adults do not dig their own burrows but make use of small mammal burrows. They eat mainly invertebrates (e.g. earthworms, spiders, insects, snails and slugs). Larvae are generalized predators and have even been reported to eat minnows.

These species will tend to forage in deciduous or mixed hardwood forest with moderate to dense canopy cover. The adults are secretive, remaining in burrows during the day.

There is typically very little movement among adults except during breeding season. Breeding individuals may follow creek beds and drainageways to the breeding pool. Adults do require a wooded habitat to move through between the summer habitat and breeding ponds.

During the May field surveys, no *Ambystomid* salamanders were observed on the site. Surveys included searches for egg masses, spermatophores and potential burrow sites in close proximity to the pool areas. Wood frogs were observed throughout the wetlands and adjacent areas, which indicates there is suitable breeding pool habitat for this species within the wetland. Wood frogs are far more opportunistic than salamanders, and will lay eggs within water filled deep-test holes and tire ruts.

The seasonal pool habitat within Wetland ML-11 exhibits the characteristics typically associated with vernal pool-breeding amphibians. As stated previously, the water in these pools is impounded by a former farm road crossing that appears to have been placed within the past 10 to 20 years. Since no salamanders were observed utilizing the habitat, the possibility exists that these pool areas are not well enough established, due to their relatively young age, to be inhabited by vernal pool-dependent species. Another possibility pointing to the absence of vernal pool-breeding salamanders is the short hydroperiod of the seasonal pools, i.e. they dry out too quickly to sustain vernal pool-dependent species.

The lack of groundwater seepage areas supporting sphagnum moss within the wetlands, preferred breeding habitat for this species, decreases the likelihood that marbled salamanders (*Ambystoma opacum*) are present on the project site.

Longtail Salamander (Eurycea longicauda)

There is the possibility that the habitat on-site could support populations of longtail salamanders. It is a secretive, terrestrial animal as an adult, and might utilize any of the stone walls, wooded areas and pastures of the site for daytime cover as well as during its nocturnal feeding forays. Egg deposition occurs in stony crevices or underneath cobble associated with streambeds or seeps. Since the proposed development would leave undeveloped areas of each of these habitats, the property could continue to maintain populations of longtail salamanders if they are present on this site.

Southern leopard frog (Rana sphenocephala utricularius)

The Southern leopard frog is another species that may occupy this site. This species ranges from Texas, north to Illinois and eastward to southeastern New York and has the most widespread distribution of all frogs in the Eastern United States. This is a primarily a nocturnal species that may inhabit a diversity of open water habitats adjacent to open, wet, grassy areas, including streams, ponds, ditches and marshes. The proposed development would preserve the wetland areas that meet the physical criteria for supporting this species.

In New York the species has a status as a game animal, subject to harvesting under NYSDEC fish and game regulations, from Westchester County and northward but is protected from take on Long Island and in New York City boroughs where it has been historically more common. Common threats to this species across its range include disease, pesticides and other contaminants, drought, habitat alterations, and natural habitat succession.

Cooper's hawk (Accipiter cooperii)

This species was observed within BBA Block 5957B during the BBA survey of 1980-1985, although not during the later survey in 2000-2005. The observations did not indicate that the bird(s) were breeding in the area when observed.

A Cooper's hawk was observed passing over the site on October 23, 2008. Given the time of year and behavior of the bird, it is believed the bird was in migration and not utilizing any on site resources. As with all migratory birds, adults or juveniles of this species might be present seasonally on the site, as well as adjacent properties within the area.

3.3.3 Potential Impacts

Impacts to Existing Ecological Communities

To construct the proposed development, 160.4 acres (55.8 percent of the site) would be disturbed either permanently or temporarily. Loss of vegetation within areas of proposed buildings, roads, driveways or parking areas is an unavoidable impact. The loss of this vegetation would be mitigated as described below. Loss of vegetation throughout most of the 160.4 acres for proposed lawn, landscaped areas, and stormwater management basins would be temporary impacts as these areas would be re-vegetated. Approximately 126.8 acres (44.2 percent of the site) would be retained as undisturbed open space. In addition to this open space, 82.2 acres of the 160.4 proposed for disturbance would be revegetated. After completion of the project, approximately 205.0 acres or nearly 72 percent of the site would consist of vegetated open space.

The reduction in vegetative cover from the existing site would reduce the available wildlife habitat on the site by approximately the same acreage and require the need for erosion controls until full stabilization is achieved. As described in Chapter 3.4, the project requires the implementation of a comprehensive state approved Storm Water Pollution Prevention Plan, including an Erosion and Sediment Control Plan, throughout construction. These plans would meet NYSDEC technical requirements designed to prevent adverse erosion-related impacts from construction activities to downstream wetlands and streams.

Table 3.3-6 Existing and Proposed Approximate Land Coverage			
Habitat Type	Existing Extent	Proposed Extent	Change
Successional northern hardwoods	78.3 acres	40.1 acres	- 38.2 acres
Successional southern hardwoods	86.7 acres	30.9 acres	- 55.8 acres
Successional old field	50.5 acres	16.3 acres	- 34.2 acres
Field crops	25.7 acres	0.0 acres	- 25.7 acres
Mowed Lawn/Landscaping *	5.9 acres	78.6 acres	+ 72.7 acres
Red maple-hardwood swamp	34.5 acres	34.2 acres	- 0.3 acres
Shrub swamp	3.8 acres	3.8 acres	0.0 acres
Farm pond/artificial pond	1.5 acres	1.5 acres	0.0 acres
Impervious surfaces	4.5 acres**	80.3 acres	+ 75.8 acres
Unpaved Road/Path	5.9 acres	1.5 acres	- 4.4 acres
TOTAL =	287.2 acres	287.2 acres	
* Includes stormwater management practices.			
** Includes agricultural buildings.			
Sources: Insite Engineering P.C. and Tim Miller Associates, Inc., 2009			

Potential Impacts to Rare and Endangered Species

No federal or state-listed threatened or endangered species of wildlife or vegetation were observed on the project site during ecological surveys in 2008.

All of the identified exploitably vulnerable vegetation species occur regularly in their appropriate habitats throughout the project site. Impacts to populations of these species may occur as a result of grading activities and loss of vegetation associated with construction of the Proposed Action. One shrub species (winterberry), two herbaceous species (white baneberry, bloodroot), and four species of ferns (lady fern, marginal wood fern, New York fern, christmas fern) found on the project site are categorized by New York State as exploitably vulnerable. However, significant impacts to any of the exploitably vulnerable species are not expected due to the site-wide extent in which they are found. Populations of each species exist in areas outside of the proposed limit of disturbance and would continue to thrive after construction of the Proposed Action.

The eastern box turtle is listed as a Species of Special Concern by the NYSDEC. A single adult female box turtle was observed during ecological surveys of the site. Clearing of vegetation will result in loss of potential box turtle habitat. Since the proposed development would maintain blocks of habitat within the wetlands and wetland buffer around all of the wetlands areas, it is expected that this species' habitat requirements can continue to be met.

While no *Ambystomid* salamanders, including those listed as Species of Special Concern by NYSDEC, were observed on the project site, potential habitat exists within the on-site wetlands. Approximately 0.3 acres of wetland would be disturbed in order to construct two road crossings necessary to access portions of the site. This wetland disturbance would not disturb any portions of the wetland exhibiting characteristics required by these salamanders nor would the disturbance adversely affect hydrology within the wetlands.

A Cooper's hawk was observed passing over the site during a ecological survey in the fall of 2008. Given the time of year and behavior of the bird, it is believed the bird was in migration and not utilizing any on site resources. As with all migratory birds, adults or juveniles of this species might be present seasonally on the site, as well as adjacent properties within the area. However, it should be noted that 126.8 acres of the project site, including 71.0 acres of forested uplands, would remain as potential habitat for Cooper's hawk. Cooper's hawk was not seen actively utilizing the project site (i.e. hunting or nesting).

Potential Impacts to Wildlife and Wildlife Habitat

As mentioned above, approximately 164 acres of the project site (approx. 57 percent) would be disturbed as a result of the proposed development and much of this would be lost as future wildlife habitat. These proposed acres of disturbance generally coincide with the previously disturbed farm field areas (successional old fields).

Approximately 126.8 acres of existing vegetation would be retained on the property, as well as the addition of 78.6 acres of newly vegetated areas for lawns, landscaping, and plantings in stormwater management basins. As planned, the development would result in the permanent elimination of vegetation from approximately 75.8 acres, which would be covered by new impervious surfaces. Combined with existing impervious surfaces, the total post-development impervious surface area would be 80.3 acres. Disturbed areas that would not be covered by impervious surfaces would be re-vegetated. Please refer to Section 3.1: Soils and Topography for an in depth analysis of impacts to soils, including soil erosion.

In general, as a site is developed, many wildlife species move out of the areas of disturbance. Upon project completion, the developed areas no longer function as habitat for many species of

wildlife currently using the project site. Most species, including resident birds, would be forced to search for acceptable habitats off site, with bird species being able to fly in search of new habitat and terrestrial species having to make overland movements. Wildlife movement from this site would be expected to be towards the north and/or west where large tracts of State-regulated wetlands and adjacent forests remain as potential habitat.

During development of the site, construction activities may result in a temporary increase in mortality rates for some of the species vacating the site. After the proposed development and the alteration of the habitat on the project site, wildlife movements into and out of the project site are likely to be reduced, as the site would offer fewer opportunities for food and cover.

A vast majority of the resident bird species are migratory, and therefore have always left the subject property annually. Upon return, most migratory species would adaptively seek other nearby or regionally available environments in response to alterations to this property. Parcels of land with similar habitats located to the south in Westchester County could provide alternative habitat for most of these species. However, these lands are expected to already have established resident wildlife populations and, in some cases, may not be able to support the arrival of new individuals. For this reason, the loss of habitat associated with the proposed action may result in reduced regional wildlife populations. This loss, however, is expected to be minimal due to the mitigation measures outlined further in Section 3.3.3 of this chapter. The possibility also exists that these adjacent parcels may have excess carrying capacity and be able to accommodate additional individuals.

Wildlife species associated with wetland habitats, including fish species, are not expected to be impacted by the development and would not migrate to upland areas as these areas offer significantly drier habitat than the wetland areas.

After the project development is completed, the composition of the wildlife population on the project site would adjust to the final site conditions. Species better able to adapt to generally open and landscaped environments (such as raccoons, opossum, woodchucks, mice and certain songbirds) would have a greater ability to populate the site in comparison to species that are less tolerant of human activity.

While not as valuable as the existing forested habitat, the proposed landscaping would be planted with species of trees and shrubs that provide wildlife benefits such as forage and nesting sites for birds and small mammals. Denning sites for small mammals will also persist after completion of the project. The preserved habitat areas of the wetlands, watercourses and open field along with the re-vegetated open space areas would continue to be used by deer and other human subsidized species.

The project site does not currently function as a significant wildlife corridor to off-site habitat areas due to the surrounding roadways and developments. U.S. Route 6 borders the eastern and southern edges of the site. U.S. Route 6 is a highly trafficked road with a high density of both commercial and residential development. East of the Union Place project site, U.S. Route 6 contains a large corridor of retail development. Bordering the project site to the west is Baldwin Place Road and residential uses ranging from single family homes to town-homes. While Baldwin Place Road is not as heavily trafficked as U.S. Route 6, it still sees heavy traffic volumes during the day and has numerous intersecting roads and driveways. The area north of the site contains the lowest density of development, with single family residences and multiple roads. Due to the lack of significant, contiguous habitat surrounding and including the project site, the project would not fragment an existing wildlife corridor between off-site habitat areas.

The Applicant considers it to be unlikely that Indiana bats are utilizing this site, however the process of tree removal can be scheduled to avoid any direct impact on the species by considering Indiana bats' seasonal usage of forest habitat should that be required by the USFWS. The recommendation made by the USFWS to avoid any potential for directly killing Indiana bats for sites greater than five miles from an hibernaculum is, "...to clear all potential roost trees between October 1 and March 30."

Proposed Method for Tree Removal and Disposal

Since areas of disturbance are generally located in pre-disturbed farm fields, tree removal on developed portions of the site would be limited. Trees requiring removal would be removed in an area equal to the limits of disturbance as shown on the site plans.

Trees to be removed would be marked prior to commencement of clearing, and removed either by hand, with chainsaws or with a logging machine (such as a "feller-buncher" or other tree cutting machine). Larger trees (generally greater than 18 dbh) would be removed for logging while smaller trees would be chipped on site. The final site erosion control plan would identify locations for log stockpiling and chip stockpiling as appropriate. Wood chips would be used on site to provide areas of temporary stabilization for disturbed soils during construction.

Other potential impacts

No other impacts are anticipated to result from the development of the Proposed Action.

3.3.4 Proposed Mitigation Measures

The proposed project has been designed to minimize impacts to natural features as discussed below and to respect the environment to the maximum extent practicable through the implementation of a stormwater pollution prevention plan (SWPPP), the limitation of the Area of Disturbance and by minimizing grading. Additional Low Impact Development measures including buffer strips, grassed swales and the incorporation of human scale lighting and extensive landscaping are proposed to minimize the environmental and visual impacts of the project. Site boundaries, including the area along US Route 6, would be landscaped to provide a visually appealing view from these highways and other adjacent properties.

Preservation of Existing Vegetation, Individual Trees or Stands of Trees

Approximately 126.8 acres of the property would remain as undisturbed, primarily within the wetlands and wooded area in the central and northwestern portion of the property. In addition, the Applicant proposes to plant 82.2 acres of vegetation in lawn and landscaped areas, as well as new pond habitat in stormwater management basins. These areas would replace portions of existing vegetative communities on the project site. In the Applicant's opinion this and the following aspects of the other actions proposed to offset potential effects of the development, significant adverse impacts to natural resources are not anticipated to result from the completed project.

Proposed Revegetation and Landscaping

Native species and a naturalistic style, where possible, would be used for landscaping purposes at the entry, around the residences, at the property boundaries, and for revegetating portions of the proposed water quality and stormwater detention basins. Native plants would be preferred

because of their adaptability to local climatic conditions, including temperature, precipitation and length of the growing season and the landscape design would use naturalistic arrangements of plantings to achieve the integration of the proposed development into the existing setting. In addition, many native species selected for landscape use may also be beneficial to indigenous wildlife -- especially birds -- by providing wildlife benefits such as nesting, cover and food.

The Landscape Plan for the project schematically presents the major evergreen and deciduous tree plantings to be installed throughout the project site. This naturalistic Landscape Plan prepared by Insite Engineering, Surveying & Landscape Architecture, P.C. proposes to add screening and soften the visibility of buildings from offsite locations.

Typical landscape plantings that have been chosen for their hardiness to the local climate and to the proposed settings on the site include the native regional landscaping species listed in Table 3.3-7. This list will be supplemented with other minor shrubs and plants that would provide a variety of foraging, nesting and shelter benefits for the wildlife that repopulates the site.

Table 3.3-7 Regional Upland Condition Landscaping Plantings	
Trees	Shrubs
Deciduous Trees - Major	Deciduous Shrubs
Shagbark Hickory (<i>Carya ovata</i>)	Shrubby cinquefoil (<i>Potentilla fruticosa</i>)
Red maple (<i>Acer rubrum</i>)	Summersweet (<i>Clethra alnifolia</i>)
American beech (<i>Fagus grandifolia</i>)	Common witchhazel (<i>Hamamelis virginiana</i>)
White oak (<i>Quercus alba</i>)	Silky dogwood (<i>Cornus amomum</i>)
Red oak (<i>Quercus rubra</i>)	Red-osier dogwood (<i>Cornus stolonifera</i>)
American linden (<i>Tilia americana</i>)	New Jersey tea (<i>Ceanothus americanus</i>)
American elm (<i>Ulmus americana</i>)	Winterberry (<i>Ilex verticillata</i>)
Sycamore (<i>Platanus occidentalis</i>)	
Deciduous Trees - Minor	Beautybush (<i>Kolkwitzia amabilis</i>)
Shadblow (<i>Amelanchier canadensis</i>)	Northern bayberry (<i>Myrica pennsylvanica</i>)
Paperbark birch (<i>Betula papyrifera</i>)	Arrowwood viburnum (<i>Viburnum dentatum</i>)
Flowering dogwood (<i>Cornus florida</i>)	Elderberry (<i>Sambucus canadensis</i>)
Centurian Crabapple (<i>Malus 'Centurion'</i>)	Black Haw viburnum (<i>Viburnum prunifolium</i>)
Beach Plum (<i>Prunus maritima</i>)	Common ninebark (<i>Physocarpus opulifolius</i>)
Coniferous Trees	Evergreen shrubs
White spruce (<i>Picea glauca</i>)	Rosebay rhododendron (<i>Rhododendron maximum</i>)
Colorado spruce (<i>Picea pungens</i>)	White rhododendron (<i>Rhododendron album</i>)
Northern white cedar (<i>Thuja occidentalis</i>)	Canada Yew (<i>Taxus canadensis</i>)
Norway spruce (<i>Picea abies</i>)	American cranberry-bush (<i>Viburnum trilobum</i>)
Douglas fir (<i>Pseudotsuga mensiesii</i>)	Inkberry (<i>Ilex glabra</i>)
White pine (<i>Pinus strobus</i>)	Eastern red cedar (<i>Juniperus virginiana</i>)
Red pine (<i>Pinus resinosa</i>)	Mountain laurel (<i>Kalmia latifolia</i>)
Source: Tim Miller Associates, Inc., 2009.	

While the existing woodland and successional field vegetation would be replaced by native ornamental plants, lawns, and landscaped plots within the developed areas, the introduced plantings could still be used as forage by deer and other wildlife and shrub species chosen for landscaping would provide immediate habitat for songbirds and other avian species. Some tree species, such as shagbark hickory, red maple, sycamore, and red oak, would mature in the long-term and would provide roosting and nesting opportunities for birds that are adaptable to suburban conditions. Coniferous trees and shrubs such as white pines, Norway spruces, douglas firs, white cedars, and red pines provide spring and summer nest sites as well as

year-around shelter. Unmown grasses, meadows and stormwater berm plantings provide cover for ground-nesting birds.

In addition to their value as hardy plantings, some of the native plant species in Table 3.3-7 are cited by the Cornell Lab of Ornithology as berry and seed-bearing trees and shrubs that would offer songbirds seasonal food sources incidental to their use as landscape plantings.

Summer-fruiting plants provide food during the nesting season. Native fruit-bearing plants, which are adaptable to landscaping, including juneberry, shadblow serviceberry, and elderberry, will be used.

Fall-fruiting plants are important for birds in building up or maintaining fat reserves during migration. Examples of this type of vegetation proposed for the project include silky dogwood, red osier dogwood, Canada yew and winterberry.

Winter-persistent plants provide season-long fruit sources for winter resident species. Adaptable members of this group, including Centurian crabapple, northern bayberry, black haw viburnum, arrowwood virburnum, American highbush cranberry, and winterberry or other hollies, are proposed. Red and white oaks, shagbark hickory, and witchhazel, which are proposed for the site, provide nutrient rich nuts and acorns as food for birds and mammals as well as providing good nesting habitat for many birds and arboreal mammals.

The following landscaping groups and proposed plants develop seasonal fruiting characteristics that are useful as food for wildlife:

- | | |
|-------------------|---|
| Deciduous Trees: | Red maple (spring fruiting)
Sugar maple (summer fruiting)
Juneberries (summer fruiting)
Flowering dogwood (fall fruiting)
Crabapples (fall fruiting with winter-persistent fruit)
White oak (fall fruiting with winter-persistent fruit) |
| Coniferous Trees: | Cedars (fall fruiting with winter-persistent fruit; nest sites)
Spruces (fall fruiting with winter-persistent fruit; nest sites) |
| Shrubs: | Dogwoods (fall fruiting)
Viburnums (fall fruiting; some being winter-persistent)
Winterberry (fall fruiting with winter-persistent fruit)
Northern bayberry (fall fruiting with winter-persistent fruit) |

The proper bedding and positioning of landscape plants is important, as each of the species used would not thrive in all of the soils or exposures presented by the developed site. Particular plant requirements regarding planting, soil, water and sun/shade preferences would be used in determining final plant positioning. For example, winterberry (*Ilex verticillata*) is a holly species that prefers to inhabit moist to wet soils and would not be planted along the main roadways or in parking lot islands. Winterberry shrubs will be planted along or within stormwater basins to ensure their location meets the moisture requirements necessary for the plants to grow. Parking lot islands will be planted with species more tolerant of heat, drought and salinity (from road salt), such as shademaster honeylocust (*Gleditsia triacanthos inermis*) and creeping juniper (*Juniperus horizontalis*).

The replacement of invasive plants with native plants would be beneficial to most wildlife species that would repopulate the site. Certain invasive species such as buckthorn, multiflora rose, barberry, tree-of-heaven and common reed would be eliminated on those portions on the project site within the landscaping plan.

Plan Modifications or Limitations to Protect Significant Trees and Wildlife Habitats

The proposed site plan minimizes the amount of vegetation to be removed to the extent possible while allowing for the scheduled program of temporary and permanent uses and the needs for associated parking and infrastructure.

As planned, the development would result in the clearing of vegetation from approximately 164 acres. Existing vegetation would be retained on the remaining 126.8 acres. All areas that are not proposed to be impervious surfaces will be re-vegetated. Upon completion of the proposed development, the site would be approximately 72 percent vegetated (205 acres -- existing vegetative communities and landscaped areas).

As stated previously, a total of ten trees on site were identified as specimen warranting preservation. None of these trees will be removed or disturbed during construction of the project due to their locations within NYSDEC regulated wetland and/or wetland buffer. The areas of wetland and wetland buffer disturbance associated with two road crossings were chosen to ensure none of the six specimen trees located within the wetland and/or wetland buffer area would be destroyed or disturbed in any way.

Other Mitigation Measures

Proposed Measures to Protect Trees to Remain

The limits of disturbance would be established in the field. No trees beyond these limits would be disturbed. These limits would be delineated by fencing or similar methods prior to commencing clearing or grading activities. Trees near working areas may be wrapped at the base by snow fencing to avoid accidental damage to trunks and roots.

For trees to be protected during construction activities there should be no disturbance of any kind within the projected root zone of each tree, or within the drip line of the tree foliage. Snow fencing or other highly visible means of marking should be placed around the maximum area of the root system to prevent the destruction of roots by exposure or through the compaction of soils. Construction crews would be notified to exclude all equipment from these protected areas. If necessary, trees would be protected by tree wells in fill areas, and retaining walls in cut areas.

Protected Plant and Wildlife Species

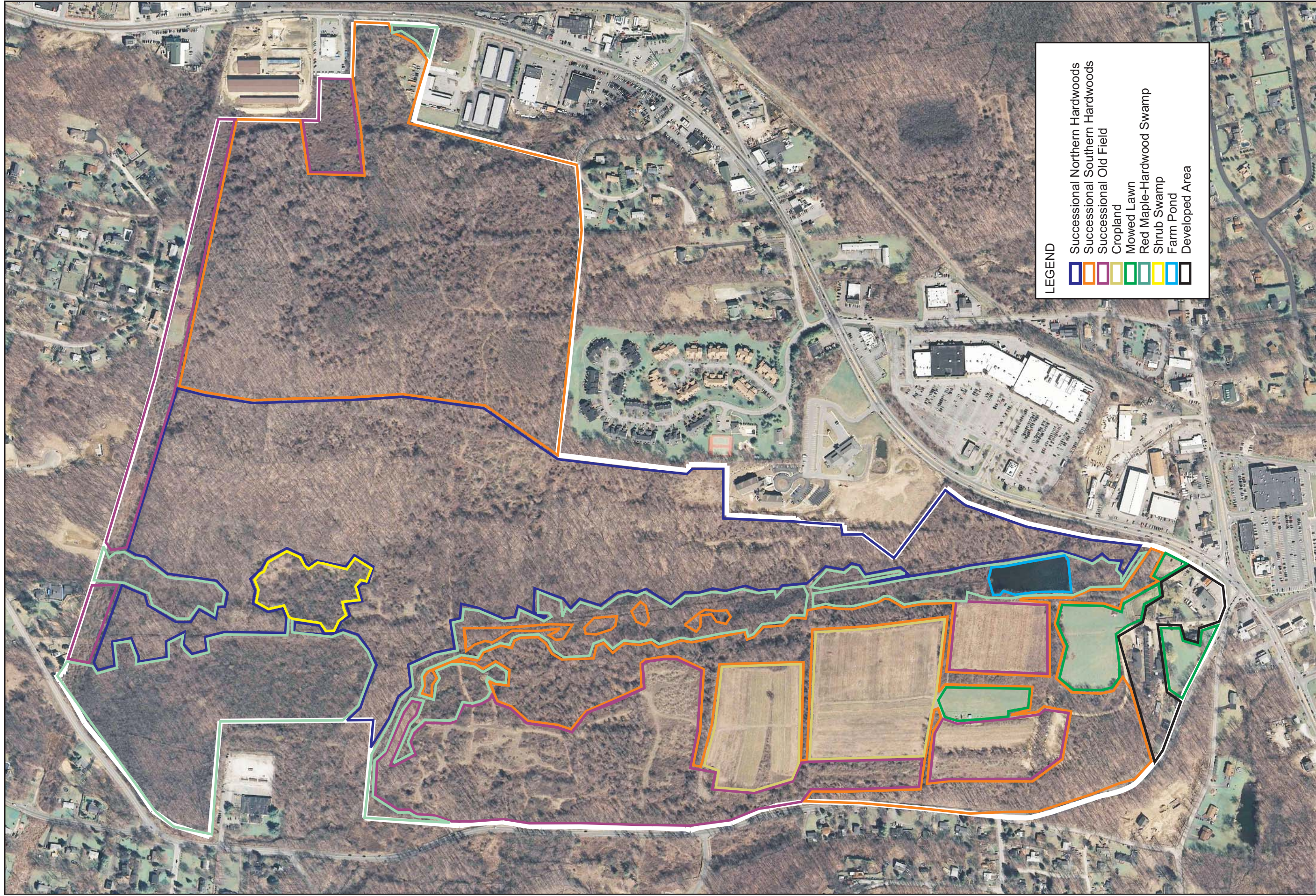
No species of plants or wildlife identified on the project site is listed as endangered or threatened by Federal, State or County government. The NYSDEC NHP also indicated that it had no records of endangered or threatened plant or wildlife species occurring on or in the vicinity of the project site. However, seven plant species identified on the project site are listed as exploitably vulnerable. All plant species listed as exploitably vulnerable by the NYSDEC are protected under 6 NYCRR, New Part 193.3, Protected Native Plants. It should be noted that exploitably vulnerable plants can be picked, plucked, severed, removed, damaged by the application of herbicides or defoliant, or carried away, without any violation, with the consent of the land owner.

A single Eastern box turtle, listed as a NYS Species of Special Concern, was observed on the project site. Clearing of vegetation will result in loss of potential box turtle habitat. Since the proposed development would maintain habitat within the wetlands and wetland buffer around all of the wetlands areas, it is expected that this species' habitat requirements can continue to be met. During construction, filter fabric fencing along the limits of disturbance will be used to keep turtles out of the work area to the extent possible. The construction manager and construction staff will be instructed by the environmental site manager to be observant for turtles. The fence line will be checked each morning by the work crew prior to commencement of earth work; this has worked well on past projects, and also allows for an ongoing tally of turtles observed. Crews will report any findings to the site environmental monitor on a regular basis. Any turtles that make it through or around the fence over night will be placed back outside of the fence by construction workers.

While suitable breeding habitat for *Ambystomid* salamanders may exist on site, it will not be disturbed as a result of the Proposed Action. No *Ambystomid* salamanders were observed on the project site during formal wildlife investigations, therefore, no mitigation measures are proposed to offset impacts to these areas or their potential inhabitants.

Since Cooper's hawk was not seen actively utilizing the project site (i.e. hunting or nesting), no additional mitigation to offset impacts to this species is proposed. However, it should be noted that 126.8 acres of the project site, including 71 acres of forested uplands, would remain as potential habitat for Cooper's hawk upon completion of the Proposed Action.

While portions of the site provide habitat for species of ground nesting birds, mitigation to offset the potential impact to these species is not proposed. Much of the habitat provided for ground nesting birds lay within the wetlands and wetland buffers where disturbances have been designed to be as minimally invasive as possible. As the Proposed Action would not result in significant adverse impacts to the local populations of these or any other birds species on or in the vicinity of the project site, mitigation for the loss of their habitat is not proposed.



LEGEND

- Successional Northern Hardwoods
- Successional Southern Hardwoods
- Successional Old Field
- Cropland
- Mowed Lawn
- Red Maple-Hardwood Swamp
- Shrub Swamp
- Farm Pond
- Developed Area

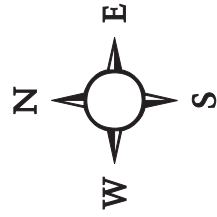


Figure 3.3-1 Existing Ecological Communities
 Union Place
 Town of Carmel, Putnam County, New York
 Source: NYS GIS Clearinghouse, 2007 Aerial Photo
 Scale: 1 inch = 450 feet

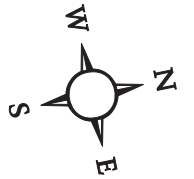
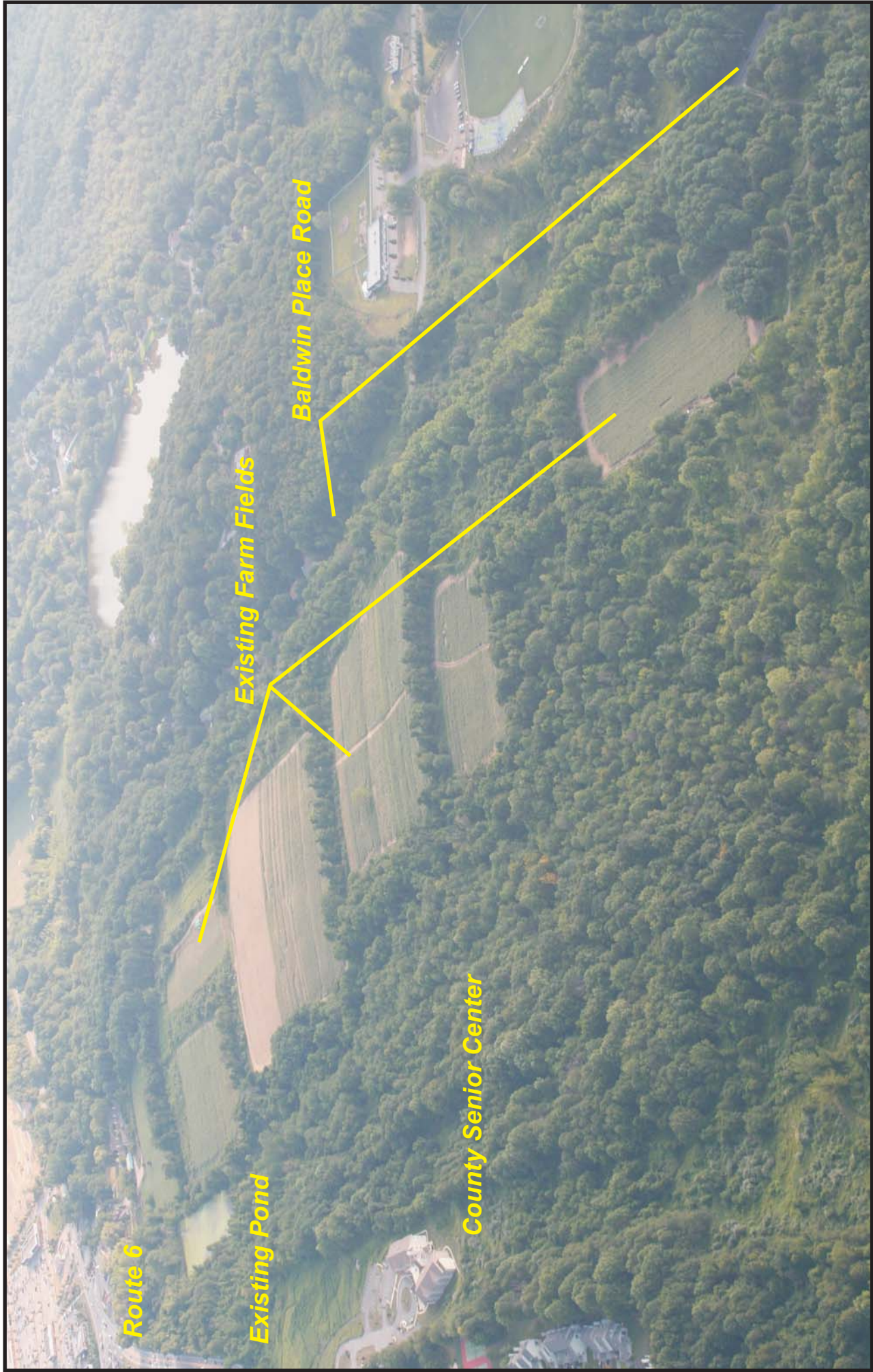


Figure 3.3-2: Aerial Photograph, 2010
Union Place
Town of Carmel, Putnam County, NY