

A. INTRODUCTION

This chapter discusses the existing ecological resources of the project site and potential significant adverse impacts that could occur to these resources with construction of the proposed project. This chapter focuses on living resources (plants and animals) and the habitats they occupy, as distinguished from non-living components of the natural environment (soil, groundwater, etc.) examined in separate sections of this DEIS. Together, the living and non-living components of an ecosystem are interconnected and determine the health, diversity, uniqueness and abundance of a site's natural resources.

B. EXISTING CONDITIONS**VEGETATION**

Field investigations and site assessments to characterize the primary vegetative cover types onsite were conducted on October 28, November 2, and November 5, 2004. Plant species observed in the field were recorded and the spatial extent of vegetative communities verified with the use of aerial photography. Information gathered as part of a June 2004 wetland delineation of the project site and past studies of the adjacent industrial-zoned parcels north of Eager Road (Pyramid Industrial Subdivision DGEIS 9/01) were also used to supplement the vegetation information contained in this chapter. Appendix H of this DEIS contains supplemental information pertaining to this analysis, including correspondence from regulatory agencies, wetland data sheets and results of species database searches.

The approximately 370 acre project site contains a variety of open field and forested habitat types. As shown in Figure 3.3-1, the project site consists of active and inactive (former) agricultural fields and hedgerows interspersed with areas of early successional and mature forest. The former farm fields comprise a majority of the project site. Wetlands and streams occur in topographically low areas of the project site, both within forested and unforested portions, due in part to the prevalence of soils of low permeability. Developed areas, including roadways and farm/residential buildings, account for a small minority of the overall land cover. Although each region of the project site exhibits notable differences in hydrology, soil type, slope/aspect, and management that have affected plant species composition, the site can be generally characterized by five primary habitat types as described below.

1. ACTIVE AGRICULTURE - GRAZING/HAYFIELDS

Many of the open field areas within the project site are used for horse pasture or have been maintained on a more regular basis as hayfields. Where used for horses or livestock, the vegetation is primarily grasses that have been browsed close to the ground. Plant species diversity is lower than within meadow community habitat, although some of the same

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herbaceous species are found in both. Typically bordered by hedgerows, these areas provide foraging habitat for birds and small mammals.

Typical species in this community include orchard grass (*Dactylis glomerata*), little bluestem (*Andropogon scoparoides*), Timothy (*Phleum pratense*), red clover (*Trifolium pratense*), Queen Anne's lace (*Daucus carota*), and small white aster (*Aster vimineus*). None of the more maintained fields are currently used for row crops. Where maintained as hayfields, a relatively diverse assemblage of plants occurs along borders depending on the frequency of mowing. Shrubs and tree saplings found in the meadow community, described below, are also found in this community at a lower frequency.

2. MEADOW COMMUNITY - OLD FIELD

Upland:

This community is found throughout much of the project site where open fields predominate. It consists of an assemblage of grasses and forbs within open areas not regularly maintained and not currently used for agriculture or pasture. As farming fields are left fallow, plant species establish themselves thereby increasing plant diversity over time. Depending on the time since last clearing, such fields may be dominated by grasses and herbaceous plants or by woody shrubs and tree seedlings where plant succession has continued for several years. Meadow communities found in the project site exhibit a range of management regimes but generally contain few woody species except along drainageways and closer to hedgerows. Therefore, most have not been fallow for a long period. Some may have been used as hayfields in the recent past, subject to clearing/mowing, but have generally seen less active management as compared to the fields used for active agriculture.

Typical herbaceous species found in meadow communities onsite include American knapweed (*Centaurea americana*), Canada goldenrod (*Solidago canadensis*), orchard grass (*Dactylis glomerata*), fall panicum (*Panicum dichotomiflorum*), red top (*Agrostis alba*), Queen Anne's Lace (*Daucus carota*), peppermint (*Mentha piperita*), common milkweed (*Asclepias syriaca*), bedstraw (*Galium tinctorium*), and common burdock (*Arctium minus*). Meadow habitats also contain occasional woody species scattered throughout and concentrated adjacent to hedgerows, including multiflora rose (*Rosa multiflora*), blackberry/raspberry (*Rubus sp.*), common buckthorn (*Rhamnus cathartica*), and seedlings of trees found in adjacent forest communities, most typically pin oak (*Quercus palustris*).

Wetland:

Portions of the meadow communities found at lower elevations contain plant species favoring periodic wet conditions where groundwater seepage or less permeable soils predominate. Such wet meadow areas are dominated by purple loosestrife (*Lythrum salicaria*) and also contain such herbaceous plant species as bulrush (*Scirpus atrovirens*), tussock sedge (*Carex stricta*), umbrella sedge (*Cyperus strigosus*), wild mint (*Mentha arvensis*), switch grass (*Panicum virgatum*), and reed canary grass (*Phalaris arundinacea*). Examples of such wet meadow areas include; land adjacent to the north-south trending drainageway south of Eager Road and east of Route 416; a linear emergent wet meadow dominated by purple loosestrife and tussock sedge located east and south of the central farm pond; and portions of the hayfield at the southernmost boundary of the project site.

3. HEDGEROW COMMUNITY

Hedgerows are common throughout the project site. Occurring along field borders and fencelines, they typically consist of shrubs and young trees. In many cases they also follow drainageways at topographically lower elevations on the project site. Hedgerows provide nesting/denning habitat for animals that use open fields for foraging. Under agricultural conditions they function as wind-breaks and prevent soil erosion by moderating the effects of surface water runoff.

Typical species occurring in the project site's hedgerow communities include red osier dogwood (*Cornus amomum*), common buckthorn (*Rhamnus cathartica*), tartarian honeysuckle (*Lonicera tatarica*), American elm (*Ulmus americana*), broad leaved cattail (*Typha latifolia*), swamp milkweed (*Asclepias incarnata*), pin oak, white oak (*Quercus alba*), green ash (*Fraxinus pennsylvanica*), rubus sp., elderberry (*Sambucus canadensis*) and multiflora rose.

4. LATE-SUCCESSIONAL FIELD, EARLY-SUCCESSIONAL FOREST/SHRUB COMMUNITY

Although less prevalent than other vegetative cover types within the project site, some formerly cleared areas have remained out of active use for a longer period allowing the establishment of a higher density of shrubs and young trees than occurs in the meadow-old field communities. In such areas, the "stand initiation" stage of forest succession is well underway, with groups of trees 15-20+ feet in height and a higher predominance of woody vegetation throughout. Such areas are often found where surface wetness and ponding causes their utility as pasture or agricultural land to be lower. For this reason, this community typically includes areas of palustrine wetlands.

Onsite examples of this vegetative cover type are found along the southern boundary of the project site south of the unpaved drive (Lazy Lane) where it intersects with Route 416 as well as an area of red maple swamp located within the northernmost portion of the project site, east of Route 416.

Within areas of transition between old field and early successional forest, a high stem density is encountered. Red maple and green ash saplings predominate in such areas, along with facultative wetland species of dogwood (*C. stolonifera*, *C. amomum*) and viburnum (*V. lentago*, *V. recognitum*). Where frequent flooding occurs, tussock sedge (*Carex stricta*) and woolgrass (*Scirpus cyperinus*) occur in the understory. In more upland transitional areas, black locust (*Robinia pseudo-acacia*), blackberry (*Rubus allegheniensis*), red cedar (*Juniperus virginiana*), pin oak and other plants typical of the meadow community are found.

5. MATURE FOREST

Although grouped under one vegetative cover type, the project site's mature forest habitats display a heterogenous assemblage of overstory tree and understory species that varies across the site depending upon such factors as proximity to adjacent habitat types, hydrologic regime and past forest management. Nevertheless, many of the same species occur throughout the project site's forested habitats with the primary factors differentiating them being topography and size (age) of the dominant overstory species. Those portions of the site that exist in a mature forested condition generally contain unfavorable conditions for agriculture due to soil saturation and flooding. Most of the site's forests are located in topographically lower regions and contain an abundance of facultative wetland species.

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Within the central portion of the overall project site, bounded by Eager Road to the north, Route 416 to the west and the railroad tracks to the east, the forested habitats occupy two north-south trending valleys/hillsides divided by the fields along Lazy Lane which occupy the site's high ground. The western forested parcels generally have a slightly younger stand age, dominated by trees with diameter at breast height (dbh) 12-24." Trees in the eastern forested parcels are comprised of the same species assemblage but have a slightly higher abundance of larger specimens - dbh 24-36+ inches.

Upland:

The primary overstory species of the upland forest community include red oak (*Quercus rubra*), white oak (*Quercus alba*), shagbark hickory (*Carya ovata*), sugar maple (*Acer saccharum*), and chestnut oak (*Quercus prinus*) with bitternut hickory (*Carya cordiformis*) and white pine (*Pinus strobus*) in select locations. In the forest understory, woodland agrimony (*Agrimonia striata*), winterberry (*Ilex verticillata*), smooth blackhaw (*Viburnum prunifolium*), hophornbeam (*Ostrya virginiana*), black cherry (*Prunus serotina*), flowering dogwood (*Cornus florida*), and cinquefoil (*Potentilla simplex*) are prevalent.

Wetland:

Forested areas onsite transition to wetlands where the frequency of occurrence of hydrophytic plant species is greater. In the overstory of forested wetlands onsite, such species include red maple (*Acer rubrum*), swamp white oak (*Quercus bicolor*), American elm, pin oak, sugar maple (*Acer saccharum*), and green ash (*Fraxinus pennsylvanica*). Understory species include sensitive fern (*Onoclea sensibilis*), dewberry (*Rubus hispidus*), arrowwood (*Viburnum recognitum*), smooth blackhaw (*Viburnum prunifolium*), nannyberry (*Viburnum lentago*), spicebush (*Lindera benzoin*), highbush blueberry (*Vaccinium Corymbosum*), wood fern (*Dryopteris sp.*), raspberry (*Rubus idaeus*), and skunk cabbage (*Symplocarpus foetidus*). Ponded water and vernal pool habitat (seasonally flooded) occur in forested wetlands onsite.

The species composition with the forest habitat along the Wallkill riverbank is somewhat different than elsewhere on the project site. This area contains a young, floodplain forest closest to the waters edge and a more mature forest (wetland and upland) in depressional areas and on slopes further from the river. Close to the waters edge, where flooding creates dynamic conditions of sediment deposition and periodic disturbance, such species as American bladdernut (*Staphylea trifolia*), silver maple (*Acer saccharinum*), bitternut hickory, and American basswood (*Tilia americana*) occur. These trees are generally young (dbh 2-8"). Further from the river, both large and small American beech (*Fagus grandifolia*) are abundant on the slopes leading to the river floodplain, with common buckthorn, white oak, hawthorne (*Crataegus sp.*) and sugar maple.

Figure 3.3-2 presents an aerial photo of the project site showing the distribution of the vegetative cover types on the project site.

WILDLIFE

The project site exhibits a relatively diverse assemblage of upland, wetland, forested and open field habitats for resident and migratory wildlife. Species that benefit from agricultural uses and edge habitat as well as those that require contiguous mature forested areas can be expected to occupy the site year round. In addition, bird species are expected to utilize the project site for breeding and during annual migration. Information on animal species likely to inhabit the project

site was gathered from published sources, previous studies of the adjacent parcels (Pyramid Industrial Subdivision DGEIS 9/01) and regional databases maintained by the NYSDEC. These databases include the Atlas 2000 Breeding Bird Survey database, the Herp Atlas Project database and the NY Natural Heritage Program's threatened/endangered species database. In addition, animals observed incidentally by sight or sign (nest/scat) during the November, 2004 vegetative community assessment are noted. A quantitative field inventory for wildlife was not undertaken for the project site. Therefore, this section relies on an assessment of species habitat requirements and regional databases documenting past wildlife species occurrence. Although some of the potentially present species discussed in this analysis may not utilize the project site, they are included herein to reflect a conservative approach to this environmental impact assessment. Therefore, for environmental impact analysis purposes, it can be presumed that these species occur onsite and effects to these species from construction of the proposed project can be weighed by the lead agency and involved agencies in their review.

The project site contains a mix of habitat types including active and fallow agricultural fields, early successional forest, mature forested uplands and wetlands as well as riparian floodplain forest and intermittent stream corridors. This habitat heterogeneity lends itself to a relatively diverse assemblage of wildlife species. Wildlife may utilize more than one of the onsite habitats for forage, cover and nesting. Grasses and forbs dominate former agricultural fields and hayfields onsite, providing habitat for insects and other invertebrates which serve as prey for bird and small mammal populations. Hedgerows and forested lands bordering onsite fields provide refuge and nesting habitat for animals that forage in adjacent hayfields. Where pasture land is heavily grazed, as is the case along Lazy Lane and in horse pasture north of Eager Road (See Figure 3.3-1), such fields support comparatively lower numbers of vertebrate species as compared to less grazed, old field habitat. Wetlands on the project site serve as a source of food and cover for a range of wildlife species, including reptiles and amphibians that rely on wetlands to breed. It is for this reason, among others, that wetlands would be fully protected onsite with the proposed project as described below under "Potential Impacts of the Proposed Project." As with all lands in general proximity to the east coast and Hudson valley, the project site is located along the Atlantic Flyway, one of four major flyways in North America. As such, migratory birds may rely on the project site as a stopover location to rest and feed.

BIRDS

Bird use of the meadow communities and along hedgerows of the project site was noted during site inspections in the fall of 2004. Species commonly observed include red-tailed hawk (*Buteo jamaicensis*), mockingbird (*Mimos polyglottos*), blue jay (*Cyanocitta cristata*), American robin (*Turdus migratorius*), and crow (*Corvus brachyrhynchos*). An abundance of insects, including grasshoppers (*Melanoplus sp.*), and fruiting shrubs in the field/hedgerow habitats provide food for the project site's resident and migratory bird populations. Additional species noted along forest edges adjacent to meadows and hayfields include white throated sparrow (*Zonotrichia albicollis*), eastern bluebird (*Sialia sialis*), cardinal (*Richmondia cardinalis*), black-capped chickadee (*Parus atricapillus*), purple finch (*Carpodacus purpureus*), cedar waxwing (*Bombycilla cedrorum*), mourning dove (*Zenaidura macroura*), and tufted titmouse (*Parus bicolor*). Such forest edge species are often found along the narrow stream and drainageways onsite. Interior forest birds observed in the project site's upland and wetland forested areas include red-bellied woodpecker (*Centurus carolinus*), hairy woodpecker (*Dendrocopos villosus*) and turkey (*Meleagris gallopavo*).

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Additional bird species observed on the adjacent parcels examined in 2001 for the Pyramid Industrial Subdivision DGEIS can also be expected to frequent the project site. These include song sparrow (*Melospiza melodia*), redwinged blackbird (*Agelaius phoeniceus*), brown-headed cowbird (*Molothrus ater*), goldfinch (*Carduelis tristis*), eastern kingbird (*Tyrannus tyrannus*), American redstart (*Setophaga ruticilla*), and American woodcock (*Scolopax minor*). All of these species frequent hedgerows and forest edge habitat.

Two of the bird species mentioned above, the American woodcock (found immediately offsite) and eastern bluebird (found onsite), have documented conservation concerns, although neither is a "listed" species in New York (i.e. threatened, endangered or special concern).¹ Woodcocks rely on young forests with open areas to forage and on bottomland hardwood forests for wintering habitat. Woodcock populations in eastern New York have been declining due to logging and development. Woodcocks have not been observed on the project site. The eastern bluebird, seen onsite on several occasions during November 2004 site inspections, is the State Bird of New York. This bird has experienced a decline in numbers in many places due lack of suitable nesting cavities coupled with competition from the aggressive European starling and European House Sparrow. Bluebirds nest in open fields or orchards feeding on insects, snails, earthworms and various kinds of berries.

New York Breeding Bird Atlas Project:

Additional bird species can be expected to use the project site beyond those seen during site inspection. The New York State (NYS) Breeding Bird Atlas Project maintains lists of bird species identified within designated "census blocks" throughout New York State. The Breeding Bird Atlas is a comprehensive, statewide survey undertaken to reveal the current distribution of breeding birds in New York. The table, located in Appendix H, lists those species sighted during the latest survey effort, known as Atlas 2000, within census block 5559D - an area within which the Four Seasons at Hamptonburgh project is located. This table is not meant to be a comprehensive list of birds breeding on the project site. Some birds listed may not occur onsite, while additional species not listed by Atlas 2000 may occur. However, because the project site occupies a large portion of census block 5559D, and contains the primary habitat types found in this census block (forest, field, floodplain, wetland, etc.), it can be expected that some of the species listed in the table are active breeders on the project site.

REPTILES AND AMPHIBIANS

Wetlands of various types (forested, wet meadow, open water) onsite provide appropriate habitat for a variety of reptiles and amphibians, many of which require permanent or temporarily flooded conditions for breeding or other life activities. The ecological investigation completed for the Pyramid Industrial Subdivision DGEIS on the parcel immediately north of the project site noted spring peeper (*Hyla crucifer*) and gray tree frog (*Hyla versicolor*) vocalizations within wetland communities immediately offsite. In addition, the red spotted newt (*Notophthalmus*

¹ "Endangered species" are native species in imminent danger of extirpation or extinction. "Threatened species" are native species likely to become an endangered species within the foreseeable future. New York State "special concern" species are those at risk of becoming either endangered or threatened in New York. Unlike endangered and threatened species, which are afforded specific legal protection at the State and Federal level, special concern species are not afforded specific protection under State or Federal law at this time. Special concern species are tracked for future listing.

viridescens) was observed directly. Viable habitat exists on the Four Seasons project site for each of these species.

New York State Amphibian and Reptile Atlas Project

Similar to the NYS Breeding Bird Atlas project, the NYS Amphibian and Reptile Atlas project has compiled information on the current distribution of species based upon field data collected through 1998. As compared to the Breeding Bird surveys, the Amphibian and Reptile Atlas survey blocks are significantly larger, each encompassing an entire USGS quadrangle. Therefore, the documented presence of a species within either the Goshen or Maybrook quadrangles (the two quadrangles containing the project site) is not definitive evidence that the species is likely to occur onsite. Nevertheless, the specific habitat needs of most of the species listed below are met within the boundaries of the project site. Species found by the NYS Amphibian and Reptile Atlas Project in each of these two census blocks are listed in Table 3.3-1 below:

Table 3.3-1
NYS Herp Atlas Project - Reptiles and Amphibians Potentially Present Onsite

Common Name	Scientific Name	Herp Atlas USGS Quad
Salamanders		
Spotted Salamander	Ambystoma maculatum	Goshen and Maybrook
Red Spotted Newt	Notophthalmus v. viridescens	Goshen and Maybrook
Northern Redback Salamander	Plethodon c. cinereus	Goshen and Maybrook
Northern Slimy Salamander	Plethodon glutinosus	Maybrook
Four-toed Salamander	Hemidactylium scutatum	Goshen
Northern Two-lined Salamander	Eurycea bislineata	Maybrook
Toads/Frogs		
Eastern American Toad	Bufo a. americanus	Goshen and Maybrook
Gray Treefrog	Hyla versicolor	Goshen and Maybrook
Northern Spring Peeper	Pseudacris c. crucifer	Goshen
Bullfrog	Rana catesbeiana	Maybrook
Green Frog	Rana clamitans melanota	Goshen and Maybrook
Wood Frog	Rana sylvatica	Maybrook
Northern Leopard Frog	Rana pipiens	Goshen
Pickerel Frog	Rana palustris	Maybrook
Snakes and Lizards		
Northern Water Snake	Nerodia s. sipedon	Maybrook
Common Garter Snake	Thamnophis sirtalis	Goshen and Maybrook

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Eastern Hognose Snake	Heterodon platirhinos	Maybrook
Northern Black Racer	Coluber c. constrictor	Maybrook
Eastern Milk Snake	Lampropeltis t. triangulum	Maybrook and Goshen
Turtles		
Common Snapping Turtle	Chelydra s. serpentina	Goshen
Spotted Turtle	Clemmys guttata	Maybrook
Wood Turtle	Clemmys insculpta	Maybrook
Painted Turtle	Chrysemys picta	Goshen and Maybrook
Source: NYS Herp Atlas Project		

MAMMALS:

Mammal species observed directly onsite during the November, 2004 vegetation assessment include chipmunk (*Tamias striatus*) within wooded portions of the site, white-tailed deer (*Odocoileus virginianus*) with open field habitats, woodchuck (*Marmota monax*) along roadside burrows and within old field habitat, and raccoon (*Procyon lotor*) by the rail line. Several woodchuck burrows may have been enlarged by red fox (*Vulpes vulpes*). Additional species were noted in the 2001 Pyramid Industrial Subdivision DGEIS, including field mouse (*Microtus sp.*) and eastern cottontail (*Sylvilagus floridanus*) and can be expected to use the project site.

Based on the site's habitat characteristics, Table 3.3-2 lists additional mammal species potentially present onsite based on their habitat requirements.

**Table 3.3-2
Mammals Potentially Present Onsite**

Common Name	Scientific Name
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Eastern Chipmunk	<i>Tamias striatus</i>
Woodchuck	<i>Marmota monax</i>
Muskrat	<i>Ondatra zibethicus</i>
Gray Squirrel	<i>Sciurus carolinensis</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>
Masked Shrew	<i>Sorex cinereus</i>
Water Shrew	<i>Sorex palustris</i>
Northern Short-tailed Shrew	<i>Blarina brevicauda</i>

Least Shrew	Cryptotis parva
Hairy-tailed Mole	Parascalops breweri
Eastern Mole	Scalopus aquaticus
Star-nosed Mole	Condylura cristata
White-footed mouse	Peromyscus leucopus
Meadow Vole	Microtus pennsylvanicus
Woodland Vole	Microtus pinetorum
House Mouse	Mus musculus
Meadow Jumping Mouse	Zapus hudsonicus
Woodland Jumping Mouse	Napaeozapus insignis
White-footed mouse	Peromyscus leucopus
Silver haired Bat	Lasionycteris noctivagans
Little Brown Bat	Myotis lucifugus
Eastern Pipistrelle	Pipistrellus subflavus
Big Brown Bat	Eptesicus fuscus
Hoary Bat	Lasiurus cinereus
Virginia Opossum	Didlephis virginiana
Eastern Coyote	Canis latrans
Red Fox	Vulpes vulpes
Gray Fox	Urocyon cinereoargenteus
American Black Bear	Ursus americanus
Raccoon	Procyon lotor
Long-tail weasel	Mustela frenata
Mink	Mustela vison
Striped Skunk	Mephitis mephitis
White-Tailed Deer	Odocoileus virginianus
Source: Checklist of Amphibians, Reptiles, Birds and Mammals of New York State (NYSDEC, 2003)	

THREATENED AND ENDANGERED SPECIES

The New York State Natural Heritage Program (NYSNHP) and the U.S. Fish and Wildlife Service (USFWS) maintain records of the occurrence of threatened and endangered species throughout New York. Listed species are protected from direct and indirect (habitat) disturbance in accordance with 16 U.S.C. 1531 (ESA) and ECL Section 11-0535. These agencies were

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contacted to determine if any listed species are known to occur on the project site or in the vicinity. The NYSNHP indicated in correspondence (10/12/04) that they have no records of threatened or endangered plants or animals within the project site or vicinity. Correspondence from the U.S. Fish and Wildlife Service (11/2/04) indicates that two federally protected animal species have the potential to occur onsite based on documented occurrences in the vicinity. These are the Indiana Bat (*Myotis sodalis*) and bog turtle (*Clemmys muhlenbergii*).

No threatened or endangered plants or animals have been identified on the project site during site inspections.

INDIANA BAT

The Indiana bat (*Myotis sodalis*) is a New York State and Federally "endangered" species, and one of nine bat species found in New York. This species requires cave habitats for hibernacula (winter refuge) and trees with exfoliating bark for summer roosting. Streams, waterbodies and floodplains provide preferred foraging habitat, although the species also frequents upland forests, clearings and hedgerows. Loss of hibernating and roosting/foraging habitat is believed to be contributing to the decline of this species, as is disturbance during hibernation. According to the USFWS, Indiana bat spring roosts are known to occur within 2-5 miles of the project site. The closest known Indiana bat hibernacula are located 28 miles from the project site in Ulster County. No records of Indiana bat occurrence exist for the project site. However, several of this species' habitat requirements are met in limited areas onsite, including trees with exfoliating bark (*Carya ovata*) as well as pond/floodplain habitat in proximity to potential roosting habitat. No cave habitat for this species is known to exist on the project site.

BOG TURTLE

The bog turtle (*Clemmys muhlenbergii*) is a Federally "threatened" and NYS "endangered" species that prefers open canopy wetlands with soft, saturated soils fed by seeps and springs of cold groundwater. This species requires a mosaic of micro-habitats that include dry pockets, saturated areas, sedge and woody shrub hummocks and areas that are periodically flooded to a shallow depth. Loss and fragmentation of its highly specialized wetland habitat are cited as reasons for this species' decline.

According to the United States Fish and Wildlife Service (USFWS), the closest known bog turtle occurrence is 10 miles from the project site. No records of bog turtle occurrence exist for the project site itself. Regarding appropriate habitat, most of the wetlands found on the project site are within closed canopy forested areas avoided by agriculture historically due to wetness. As such, they are not appropriate bog turtle habitat. However, in several open and early successional areas, the project site does contain some potential bog turtle habitat of marginal quality. Sedge meadow habitat saturated up to and above the surface is present in a north-south trending depression located immediately south of the onsite pond and adjacent to the drainage stream/hedgerow east of Route 416. However, much of these two areas have been colonized significantly by purple loosestrife (*Lythrum salicaria*), which may have reduced or eliminated the bog turtle's preferred hydrologic and basking area requirements. Small streams feeding these areas contain flowing water that is deeper than preferred bog turtle habitat, and serve primarily as linear wetland habitat linkages. Two early successional wetland areas onsite have muck soil, shallow surface flooding and tussock sedge (*Carex stricta*) which may be appropriate habitat. These are located at the northernmost border of the project site boundary, east of Route 416 and at the southwesternmost border of the project site. However, both contain a sapling canopy of

red maple (*Acer rubrum*) which reduces light penetration and will make these habitats less appropriate for the bog turtle over time.

C. FUTURE WITHOUT THE PROPOSED PROJECT

No significant changes in the vegetation composition, floral diversity or wildlife usage of the project site are expected in the future without the proposed project. Provided the open areas continue to be used for horse pasture and hayfields at a moderate intensity whereby portions are left fallow through rotation, plant species composition within the project site overall would not change appreciably in the future. Early successional forest areas and old field habitat may proceed towards a more mature, forested condition through the natural process of succession. Mature forest areas could see an increased density of understory tree species (understory regeneration) provided deer browse is kept to a minimum. Conversely, the forests onsite may mature with a relatively open understory dominated by shrubs (*Viburnum* sp., *Rubus* sp.). Without forest management, these areas would see an increase in the prevalence of standing dead wood as the forest matures, which could improve habitat value for cavity nesting birds and mammals.

D. POTENTIAL IMPACTS OF THE PROPOSED PROJECT

VEGETATION

As shown in Figure 3.3-3, the footprint of the proposed project has been located primarily on the topographically higher points of the project site now occupied by actively managed hayfields. This vegetative cover type is the least diverse and most disturbed of those found on the project site. Locating the development in this way minimizes impacts to more ecologically diverse forest, successional and wetland habitats. Disturbance to meadow-old field habitat is limited to the westernmost portions of the proposed project, including the gatehouse and detention basin closest to Route 416. Disturbance to forested habitat is limited to the "Grove" development area on the eastern portion of the site and to the western edge of the primary development area along Lazy Lane. No disturbance would occur within any early successional forest/shrub communities onsite. Table 3.3-3 lists disturbance by cover type for the proposed project.

**Table 3.3-3
Disturbance to Vegetative Communities**

Community Type	Acreage of Disturbance (acres)	% of total by Community Type
Active Agriculture - Grazing/Hayfields	72	44% (72/140*)
Mature Forest	24	21% (24/112*)
Early Successional Forest-Shrub	0	0% (0/20*)
Meadow-Old Field	16	23% (16/70*)
Hedgerow	2	10% (2/18*)
Other (driveway/road/water)	1	10% (1/10*)
Total	115 acres (project footprint)	29% (115/370*)
Note: *Approximate acreage of existing community types based on aerial photo interpretation.		

Impacts to vegetative community types have been minimized to the maximum extent practicable. No species of vegetation would be eliminated or significantly reduced on the project site because each of the five community types is well represented onsite in the future. Indeed, the majority of all community types would remain undisturbed. This is especially true for forested and shrub habitats that have been largely avoided. Figure 2-6 in Chapter 2, "Project Description," illustrates the proposed Tree Preservation Plan.

The layout and overall design of the proposed project was specifically formulated to avoid wetland impacts and to screen views of the project site from local roadways. The primary area of development is an area of previously cleared land that has been used for agriculture. The development area has been chosen both for aesthetic and site circulation benefits, and because it would result in fewer impacts to areas of land not actively used for agriculture (horse farming), and that currently function primarily as wildlife habitat. Access to the site and on-site circulation necessitates minor wetland crossing impacts, but these have been kept to a minimum. Forested areas are preserved both to screen the project site and to avoid wetland impacts due to the fact that wetlands are largely located in forested areas of the site. For a more detailed discussion of the project's wetland impacts and avoidance measures, please see Chapter 3.4, "Wetland Resources."

WILDLIFE

By confining the bulk of the proposed development to the central ridge now occupied by hayfield and cleared pastureland, significant impacts to wildlife are avoided. Although the population (overall number of animals) of a limited number of species may be reduced with development, such as meadow-dependent mammals, none would be eliminated from the project site because all habitat types would be preserved in abundance. Because the bulk of the development footprint would be in open agricultural land, species that rely on this habitat type would be moderately affected by the proposed project. However, more than half of the existing

acreage of agricultural land/hayfields would remain onsite in the future. While it is true that the proposed development would reduce the available habitat for meadow-dependent species such as the meadow vole, eastern mole and jumping mouse, the project site and the Town generally have an abundance of agricultural lands and identical habitat types. Other species that prey on fauna found in old fields and pastureland, such as flycatchers and swallows, or that forage/nest in fields or field edges such as eastern bluebird, could also realize a reduction in population numbers onsite. However, all of the old field and pastureland habitat adjacent to Route 416 would be preserved, as well as open land west of 416. Therefore, although some species could realize a reduction in population numbers onsite, the project is not expected to eliminate any species from the project site. Reduction in the onsite populations of field-dependent animal species would not constitute a significant adverse impact to their continued survival in the Town nor would they produce a measurable reduction in the population of animals that prey on these species. No threatened or endangered species were identified or are expected to occur in the agricultural and old field habitats onsite.

Domestic pet (dog/cat) predation can cause measurable reductions in the population of birds, including ground nesting birds such as sparrows and thrashers, and small mammals. However, due to the nature of the proposed development, containing a large percentage of townhouses for seniors, it is not expected that outdoor pets will comprise a significant proportion of the onsite pet population. Nor is it expected that a feral cat/dog population, a condition that would be more detrimental, would result from the proposed project. A comparatively small portion of the proposed project would be located in the eastern forested portion of the project site in the development area known as the "Grove." (as shown on the Site Plan in Figure 2-5 in Chapter 2, "Project Description"). This could cause some limited reduction in habitat for cavity nesting birds, such as woodpeckers, etc. In addition, development within this forested area would cause some limited habitat fragmentation potentially reducing its use by warblers (*Dendroica sp.*) and other forest-interior nesting birds, such as the eastern wood peewee (*Contopus virens*). However, although reductions in forest interior bird nesting opportunities may result, none of the species expected to occur onsite are listed by New York State or the U.S. Fish and Wildlife Service as threatened or endangered based on the results of the Atlas 2000 Breeding Bird Survey results. Therefore, no significant adverse impacts are expected to occur.

Amphibians and reptiles are generally more sensitive to human development than other classes of animals due to specific habitat needs and limited mobility across the landscape. For this reason, the project footprint has avoided direct disturbance to onsite wetlands and State-regulated wetland adjacent area with only minor encroachments for road crossings. Proper stormwater management amenities and stream crossings are proposed that will preserve amphibian/reptile movement to onsite and offsite wetlands and prevent adverse changes to wetland water quality. By preserving the majority of forested, scrub/shrub and early successional habitats adjacent to the site's wetlands, impacts associated with restricting animal dispersion to and from wetland breeding sites will be avoided to the maximum extent practicable. Although there will be some limited loss of forested lands adjacent to wetlands appropriate for amphibian breeding in the eastern forested portion of the project site, similar habitat will be protected elsewhere onsite within large forested areas both east and west of the central development area. Therefore, no significant adverse impacts to amphibians are expected to occur.

The bulk of the proposed development area has been kept away from wetlands, streams and forested portions of the site. This would have the effect of avoiding potential amphibian/reptile mortality from vehicles and/or pet predation. Herpetile species with simple habitat requirements or small home ranges, such as bullfrogs, spring peepers, brown snakes, garter snakes, and

painted turtles, should all be unaffected by the proposed project. Sufficient forested wetland buffer habitat will remain undisturbed onsite to prevent elimination from the site of any potentially present, wetland-dependant reptile or amphibian. Furthermore, from a regional perspective, the proposed project is not expected to diminish the ecological diversity or abundance of wildlife within the Town of Hamptonburgh. This is due to the project layout, which avoids wetlands to the maximum extent practicable and the majority of forest and old field habitat onsite, and to the relative abundance of similar wildlife habitat throughout the Town of Hamptonburgh.

THREATENED AND ENDANGERED SPECIES

INDIANA BAT

No Indiana bats have been observed on the project site. Preliminary discussions with the USFWS indicate that the large amount of preserved land onsite in the post-construction condition will maintain the majority of forested habitat for potential bat roosting and will preserve a large percentage of the field, open water, and forested habitat it requires for foraging. Therefore, it is not expected that this species would be adversely affected by the proposed project if it is indeed present on the project site.

As described in this DEIS, the proposed development consists of approximately 300 units of age-restricted housing located primarily in the central portion of the project site along a ridge of cleared land now used for horse pasture and hayfields. As such, most of the onsite forested acreage would be avoided, with the exception of one small development pod now termed the "Grove," as shown on the site plan. Development in this area would be limited in size, resulting in the loss of approximately 13 acres of forest. The site's primary surface water feature (pond) is just south of this development area. Although this centrally located pond may contain potential bat foraging habitat, it would not be disturbed directly by the proposed project (as shown on the Site Plan in Figure 2-5 in Chapter 2, "Project Description"). Also, other potential habitat, including the floodplain forest west of the development area along the Wallkill River, would not be disturbed.

BOG TURTLE

No bog turtles have been observed on the project site. Proposed development avoids direct impacts to the vast majority of emergent wetlands and other potential bog turtle habitat. As discussed above, a preliminary evaluation of the site's potential bog turtle habitats indicates that they are of marginal quality and may not be capable of supporting this species. The project's footprint of disturbance and stormwater management plan avoid any impacts to potential bog turtle habitat. The project is not expected to have any significant adverse impacts on this species.

The applicant has been in communication with the U.S. Fish and Wildlife Service (USFWS) and the New York State Department of Environmental Conservation (NYSDEC) regarding the potential for the site to be utilized by the Indiana bat (*Myotis sodalis*) and bog turtle (*Clemmys muhlenbergii*). It is anticipated that these agencies will review the appropriateness of onsite habitat for these species, and will assess the potential for adverse impacts to these species resulting from the proposed project. The applicant will work with these agencies to minimize and mitigate potential impacts to these species, should they be determined to occur on the site.