

that are near the project.⁸² Based on information provided by S.B. Friedman & Company (2011), an evaluation of the indirect and cumulative impacts that potential development near the project could have on wetland resources was completed. It is estimated that over the next 30 years, roughly two percent of the mapped wetlands in the six watersheds near the project could be impacted. Ultimately, there would be a net increase in total wetlands as a result of the mitigation for these projects.⁸³ Thus, the net indirect and cumulative impacts of the proposed project on wetlands are anticipated to be minimal.

3.14 Natural Resources

3.14.1 Affected Environment

This subsection describes plants and wildlife, including invasive species and threatened and endangered species, located proximate to the project corridor. Information contained in this section is primarily based on existing information. Unless otherwise noted, field surveys were not conducted for the project corridor.

3.14.1.1 Upland Plant Communities

The project corridor lies within the Northeastern Morainal Natural Division in Illinois (Schwegman, 1973). Urban land is the predominant cover type. Similar to most of Illinois, the natural land cover has been extensively altered. Within this natural division, urban development continues to be a major environmental stressor.

Northeastern Illinois has not only a larger population than the rest of Illinois but also the most acreage of protected natural areas (IDNR, 2005). The Northeastern Morainal Natural Division includes several designated resource-rich areas (RRAs), or areas that are rich in biological resources (Suloway et al., 1996).⁸⁴ The project corridor does not lie in one of these designated RRAs, and no high-quality natural plant communities were observed during field visits (Handel, 2009; Handel, 2010).

Land Cover

Table 3-50 summarizes the land cover within the project corridor, which is the result of the Illinois Interagency Landscape Classification Project (IILCP).⁸⁵

⁸² The NWI and DCWI serve only as large-scale guides and field-delineated wetland locations often vary from those that are mapped. The mapped wetland total includes more than 600 acres of O'Hare Airport, which has been permitted for fill under Section 404 of the CWA. The six watersheds near the project include Addison Creek, Des Plaines River (main stem), East Branch DuPage River, Salt Creek (upper, middle, and lower), West Branch DuPage River, and Willow Creek.

⁸³ Due to FAA guidelines regarding wildlife hazard separation distances, there could be a slight loss in cumulative wetland acreage near the project corridor as a result of potential development. However, there would be an overall net gain in wetland acreage in the larger Des Plaines River drainage basin as a result of compensatory wetland mitigation.

⁸⁴ The RRA is an IDNR program that identifies large areas containing concentrated natural resources (forests, wetlands, natural areas/nature preserves, and biologically important streams) so that cooperative public-private partnerships can be formed to merge natural resource stewardship with compatible economic and recreational development.

⁸⁵ IILCP includes the following agencies: USDA National Agricultural Statistics Service, IDOA, and IDNR.

TABLE 3-50
Land Cover Mapped in the Project Corridor

Cover Type	Acres ^a	Percent of Total Land Cover within Project Corridor
Forested Land		
Upland forest	60.8	3.3
Partial canopy/savannah upland forest	30.9	1.7
Floodplain forest	6.7	0.4
Total	98.4 ^b	5.4
Urban and Built-up Land		
High density	665.9	35.8
Low/medium density	679.4	36.5
Urban open space	399.0	21.4
Total	1,744.3	93.7
Other ^c	19.5 ^d	1.1 ^d

Source: USDA National Agriculture Statistics Service, et al., 2002.

^a Land cover acreages for this table were calculated for the project corridor based on data from the *Land Cover of Illinois 1999–2000* (USDA, 2010).

^b Approximately 49 percent of this total (48.1 acres) is mapped within OMP limits (discussed in more detail below).

^c “Other” represents mapped agricultural land, wetland, and waters. The project corridor does not have any property in agricultural use (see subsection 3.6). See subsection 3.10 for surface waters and subsection 3.13 for wetlands.

^d The percentages/acreages provided in this table may vary from totals provided by different sources found in other tables in this document.

The project corridor is located in a densely developed portion of northeastern Illinois with a mixture of residential, commercial, industrial, and transportation land uses. Due to the urban environment, the land cover has been substantially modified. Over 90 percent of the total cover within the project corridor is mapped urban and built-up land, including low-, medium-, and high-density development, as well as urban open space (see Figure 3-16, Table 3-50, and

FIGURE 3-16
PERCENT OF TOTAL LAND COVER WITHIN PROJECT CORRIDOR

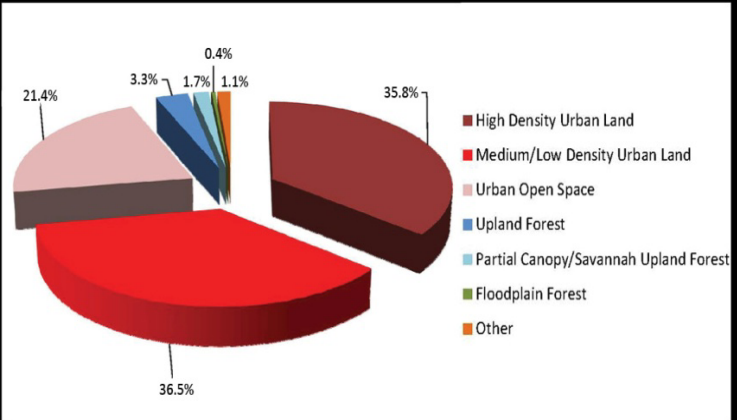


Exhibit 3-18). In high-density areas, nearly all the land surface is covered with structures and facilities. In areas of low and medium density, up to half of the land surface is covered with man-made structures. The remaining surface area is intermixed with urban landscaping, open space, or forested cover. Urban open space represents parks, golf courses, and other grass-covered surfaces within developed areas.

Close to 400 acres of mapped urban open space is scattered throughout the project corridor. Field reconnaissance of the project corridor found that most of the open space habitat consists of turf grass and old successional fields, and to a lesser extent degraded or low-quality woodlands, a prairie remnant, surface waters, and wetlands (see subsection 3.10 for surface waters and subsection 3.13 for wetlands). The old successional fields are entirely herbaceous or are scattered with trees and shrubs that are beginning to colonize idle, open space. Non-native or quickly colonizing plant species dominate these areas.

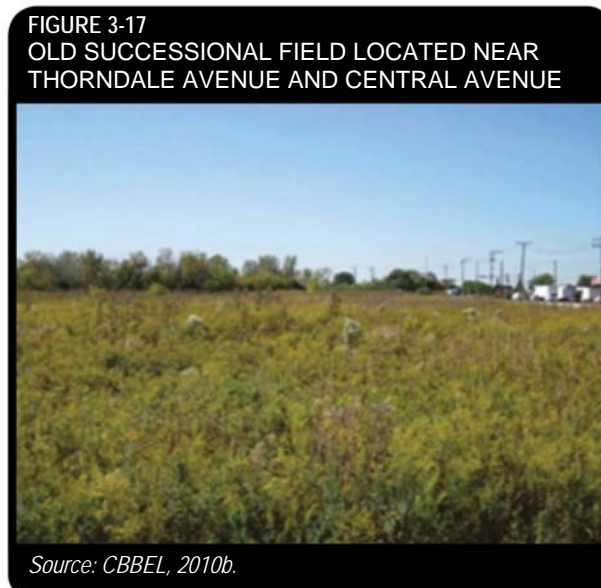
Dominant herbaceous species generally include Queen Anne's lace (*Daucus carota*), cut-leaved teasel (*Dipsacus laciniatus*), fescue (*Festuca* spp.), and tall goldenrod (*Solidago altissima*). Trees and shrubs, such as box elder, common buckthorn, and Siberian elm (*Ulmus pumila*) are beginning to colonize the old successional fields that have been undisturbed for an extended time (see Figure 3-17).

No high-quality natural communities or endangered and threatened plant species were found by the INHS during its field studies (Handel, 2009; Handel, 2010). Except for a few instances noted elsewhere in this document, higher-quality natural resources are not located within the project corridor. Most vegetative cover types in the project corridor have been altered by urbanization and are dominated by non-native or invasive species. The biological resources within the project corridor consist primarily of common or adaptable plant and wildlife species that are relatively tolerant of disturbance and human activities.

The project corridor is located adjacent to (but does not include) one Cook County forest preserve (i.e., Ned Brown Forest Preserve) and three DuPage County forest preserves (i.e., Medinah Wetlands, Salt Creek Marsh, and Silver Creek). The forest preserve holdings may contain higher-quality natural communities and more conservative plant and wildlife species when compared to the remainder of the project corridor.

Prairie Remnants

Prairie cover types are scarce in the project corridor. During botanical field surveys, INHS identified two disturbed prairie remnants along the I-290 embankment south of Thorndale



Avenue (see Exhibit 3-19) (Handel, 2009; Handel, 2010).⁸⁶ One of these remnant prairie areas is located within the project corridor, and the other is located just beyond the project corridor between the Metra Milwaukee District/West rail line and Irving Park Road. Due to the severity and ongoing disturbance of the prairie remnants, natural area recovery may not be possible. The prairie remnant characteristics are described in Table 3-51.

Forested and Wooded Land

Based on the tree study (using transect/sub-sample methodology) completed for this project, approximately 182.8 acres of wooded land are in the project corridor with the exception of OMP (see discussion below).⁸⁷ Much of this acreage consists of relatively small, scattered wooded land. There are no dense, unfragmented woodland sites that exceed 20 acres in the project corridor. In general, the creeks that pass through the project corridor are lined with a relatively narrow band of trees or shrubs, and the wooded riparian environment is fragmented by existing roads or other development. Identified woodland types include scrub-shrub woodland, closed woodland, wooded fencerow, and landscape trees (see Exhibit 3-19).

Scrub-shrub woodlands are the predominant woodland type in the project corridor (see Table 3-52). The scrub-shrub woodlands are scattered sporadically throughout the project corridor and range in size from approximately 0.01 acre to 13.8 acres. Scrub-shrub woodlands consist of a mixture of trees, shrubs, and old field herbaceous plants. In general, these areas appear to be disturbed and dominated by lower-quality mid-canopy and canopy species (see Table 3-52). They are typically old field successional areas that are slowly transitioning to closed wooded habitat. The scrub-shrub woodlands include primarily smaller stems of trees ranging from four to nine inches in diameter at breast height (DBH), although larger trees may be present. No specimen trees⁸⁸ were observed in scrub-shrub woodlands within the sample plots. The scrub-shrub woodlands also contain numerous smaller shrubs, including common buckthorn and gray dogwood (*Cornus racemosa*). The understory is dominated by tall goldenrod, cut-leaved teasel, and early colonizing species. Within the project corridor, the largest scrub-shrub concentrations are located at York Road and Sivert Court, (13.8 acres), and on the south side of Thorndale Avenue between Mittel Boulevard and Wood Dale Road (9.0 acres) (see Exhibit 3-19).

Closed woodland areas were the next most common woodland type in the project corridor. In general, closed woodlands consist of narrow wooded areas that border residential homes, commercial and industrial development, arterial roadways, and open fields. The closed woodlands are generally fragmented, degraded, and of low to moderate quality. These areas are dominated by small to moderately sized stems, generally ranging in size from 4 to 16 inches DBH. Two trees with 21 inches DBH were identified within closed woodland sample plots during the tree study. No specimen trees were observed in closed woodlands within the sample plots.

⁸⁶ The primary objective of the 2009 and 2010 surveys focused on the eastern prairie fringed orchid (*Platanthera leucophaea*), but a standard survey was also conducted for high-quality natural communities and endangered or threatened plant species.

⁸⁷ Due to the large size and urban nature of the project corridor, a transect/sub-sample methodology was used to approximate tree quantities (CBBEL, 2011).

⁸⁸ A specimen tree is a notable and valued tree, based on consideration of species, size, condition, age, longevity, visual quality, and genetic attributes. Also see IDOT's *D&E-18, Preservation and Replacement of Trees* (IDOT, 2002) and the Tollway's "Criteria for Removal and Replacement of Trees" section of the *Erosion and Sediment Control, Landscape Design Criteria* manual (Illinois Tollway, 2012).

TABLE 3-51
Project Corridor Prairie Remnant Characteristics

Site No.	Size (acre)	Community Type	Prairie Grasses ^a		Prairie Forbs ^a		Percent Adventive ^b	FQI
			Common Name	Scientific Name	Common Name	Scientific Name		
1	0.8	dry-mesic prairie, mesic prairie, wet meadow	fowl manna grass drop seed	<i>Glyceria striata</i> <i>Sporobolus asper</i>	common milkweed whorled milkweed heath aster smooth aster ^c New England aster pale purple coneflower ^c daisy fleabane rattlesnake master ^c sawtooth sunflower spotted St. John's wort button snakeroot winged loosestrife drooping coneflower black-eyed Susan compass plant prairie dock rigid goldenrod common spiderwort	<i>Asclepias syriaca</i> <i>Asclepias verticillata</i> <i>Aster ericoides</i> <i>Aster laevis</i> ^c <i>Aster novae-angliae</i> <i>Echinacea pallida</i> ^c <i>Erigeron strigosus</i> <i>Eryngium yuccifolium</i> ^c <i>Helianthus grosseserratus</i> <i>Hypericum punctatum</i> <i>Liatris pycnostachya</i> <i>Lythrum alatum</i> <i>Ratibida pinnata</i> <i>Rudbeckia hirta</i> <i>Silphium laciniatum</i> <i>Silphium terebinthinaceum</i> <i>Solidago rigida</i> <i>Tradescantia ohiensis</i>	12.9	17.5
2	3.5	dry-mesic prairie	drop seed	<i>Sporobolus asper</i>	whorled milkweed heath aster smooth aster ^c New England aster pale purple coneflower ^c daisy fleabane button snakeroot pasture rose black-eyed Susan compass plant prairie dock Canada goldenrod dyersweed goldenrod rigid goldenrod common spiderwort	<i>Asclepias verticillata</i> <i>Aster ericoides</i> <i>Aster laevis</i> ^c <i>Aster novae-angliae</i> <i>Echinacea pallida</i> ^c <i>Erigeron strigosus</i> <i>Liatris pycnostachya</i> <i>Rosa carolina</i> <i>Rudbeckia hirta</i> <i>Silphium laciniatum</i> <i>Silphium terebinthinaceum</i> <i>Solidago canadensis</i> <i>Solidago nemoralis</i> <i>Solidago rigida</i> <i>Tradescantia ohiensis</i>	13.0	14.5

Source: Handel, 2009.

^a Dominant species were not listed in the studies.

^b Adventive plant species are not native to Illinois. A high percentage of adventive plants indicates a high level of ecological disturbance, whereas a low percentage indicates a low level of disturbance.

^c Species with C-value equal to 7 or more (see subsection 3.13.1.1).

TABLE 3-52
Project Corridor Woodland Summary

Woodland Type	Total Acreage in Project Corridor	Density (trees/acre) ^a	Total Basal Area (ft ² /acre)	Number of Tree Species	Dominant Tree Species	
					Common Name	Scientific Name
Scrub-Shrub Woodland	66.7	89	24.2	12	box elder black willow eastern cottonwood	<i>Acer negundo</i> <i>Salix nigra</i> <i>Populus deltoides</i>
Closed Woodland	64.8	314	127.1	13	box elder eastern cottonwood Siberian elm	<i>Acer negundo</i> <i>Populus deltoides</i> <i>Ulmus pumila</i>
Wooded Fencerow	11.0	193	87.2	12	box elder honey locust Siberian elm	<i>Acer negundo</i> <i>Gleditsia triacanthos</i> <i>Ulmus pumila</i>
Landscape Trees (scattered)	35.7	122	89.5	15	Austrian pine green ash Iowa crabapple	<i>Pinus nigra</i> <i>Fraxinus pennsylvanica</i> <i>Malus ioensis</i>
Landscape Trees (linear rows)	4.6	122	151.4	7	Austrian pine downy hawthorne honey locust silver maple	<i>Pinus nigra</i> <i>Crataegus mollis</i> <i>Gleditsia triacanthos</i> <i>Acer saccharinum</i>

Source: CBBEL, 2011.

Note: Values are approximate based on the tree study. Some individual trees were not associated with a woodland type and are not included in the tree study; these individual trees were found to be in wetlands, old field successional areas, or isolated landscape trees.

^a Density (trees/acre) is based on stems that are 4 inches DBH and greater for all woodland types per *BDE Manual* (IDOT, 2011). Landscape trees also include stems less than 4 inches DBH.

Closed woodland areas are dispersed throughout the project corridor and range in size from approximately 0.02 acre to 11.8 acres within the project corridor (most of the closed woodland areas extend beyond the proposed project corridor). The largest concentrations in the proposed project corridor are located northwest of the intersection of York Road and Thorndale Avenue (approximately 11.8 acres) (see Figure 3-18), on the south side of Thorndale Avenue between Central Avenue and Sivert Drive (approximately 5.8 acres), and on the north side of the existing Elgin-O’Hare Expressway between Rohlwing Road and I-290 (approximately 3.5 acres) (see Exhibit 3-19).

FIGURE 3-18
CLOSED WOODLAND AT NORTHWEST CORNER OF YORK ROAD AND THORNDALE AVENUE



Source: CBBEL, 2010a.

In the project corridor, wooded fencerows are found primarily along the existing Elgin O'Hare corridor, interstate roadways, and railroads. In general, these areas consist of narrow treelines containing one row of trees mixed with shrubs and herbaceous vegetation. The distance between trees and the tree density vary considerably. Based on the tree study, the fencerows are generally degraded, highly fragmented, and lower-quality areas (see Table 3-52). Tree stems range in size from four to 23 inches DBH, with the majority of trees approximately four to nine inches DBH. No specimen trees were observed in the wooded fencerow sample plots.

Landscape trees consist of intentionally planted or maintained trees within or adjacent to rights-of-way, commercial, industrial, or residential areas, and parks or preserves. These trees are situated throughout the proposed project corridor and may have been planted in rows (e.g., parkway trees) or planted in clusters throughout a property (see Exhibit 3-19). In general, the understory consists of turf grass, mulch, and/or landscape plantings amongst the trees. The landscaped areas contain typical nursery tree species commonly planted by municipalities, public, and private agencies (see Table 3-52). The landscape trees consist of newly planted and established trees ranging from one inch to 30 inches DBH, with most trees ranging from five inches to 19 inches DBH. The majority of the landscape trees appeared in good to fair health. Four specimen trees were noted in the landscape tree sample plots – two 26-inch-DBH silver maples, one 27-inch-DBH honey locust, and one 30-inch-DBH silver maple. The landscape specimen trees were identified in sample plots at two general locations: (1) in the vicinity of the southeast quadrant of the intersection of IL 72 and Elmhurst Road; and (2) adjacent to residences on the north side of Thorndale Avenue, west of Prospect Avenue.

Wooded Riparian Areas

The project corridor also includes riparian areas associated with mapped floodplain along the creeks. These riparian areas contain a mixture of wetland, closed woodland, narrow woodland along the creek banks, and upland herbaceous plant communities extending away from the waterways. In the vicinity of the project corridor, a large portion of the Salt Creek and Meacham Creek riparian environment is wetland. Wetland areas are discussed in subsection 3.13. Wooded riparian corridors are summarized below.

Portions of Salt Creek are lined with a narrow band of trees. However, the riparian environment also includes closed woodland (approximately 3.2 acres) that extends west from the creek and adjacent wetland located south of Thorndale Avenue. The Salt Creek wooded riparian environment is generally dominated by an overstory of moderately sized trees, a mid-canopy of invasive shrubs, and an understory of herbaceous vegetation. Floristic quality is relatively low, and species composition is dominated by box elder, silver maple, green ash, and eastern cottonwood. The mid-canopy and herbaceous layers are dominated by non-native invasive common buckthorn and reed canary grass. The Meacham Creek riparian corridor is dominated by herbaceous wetland vegetation containing primarily cattail and common reed with low-density, scattered trees and shrubs.

Riparian corridors associated with Addison Creek, Higgins Creek, and Willow Creek primarily consist of narrow widths of adjacent upland trees and shrubs with herbaceous vegetation and/or mowed grass. These areas contain lower-quality riparian habitat with

woodland species dominated by box elder, common buckthorn, green ash, black cherry (*Prunus serotina*), honeysuckle (*Lonicera* spp.), eastern cottonwood, and gray dogwood.

Land Cover at O'Hare Airport

OMP construction commenced in fall 2005 and included site preparation for the portions of the West Bypass corridor west of the airport (see Figure 3-19). Trees, shrubs, and other vegetation within and adjacent to this corridor have been cleared for future development, including OMP projects.

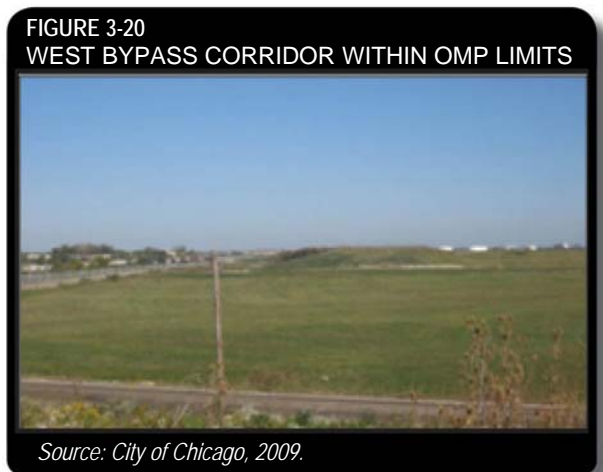
According to FAA policy, potential wildlife attractants (e.g., woodlands, shrubs, open water, and wetlands) should be minimized on or near airports to promote safety by reducing the number of aircraft/wildlife conflicts.

Consistent with the intent of the O'Hare Airport *Wildlife Hazard Management Plan* and FAA policy, potential wildlife habitat within OMP limits (including the West Bypass corridor) has been minimized by removing shrubs and woody vegetation, mowing vegetation, and planting grasses that are unattractive to hazardous wildlife (see Figure 3-20) (FAA, 2007; USDA, 2010). Building a roadway at the west end of O'Hare Airport is consistent with FAA policy and would not impact high-quality natural communities.

3.14.1.2 Invasive Species

Invasive species are those whose introduction may cause harm to the associated habitat, environment, economy, or human health. Under EO 13112 (*Invasive Species*), federal agencies are required to identify, control, and minimize or prevent actions that may cause or promote the introduction or spread of invasive species. Invasive species shall be considered during all phases of the environmental process to comply with NEPA requirements.

The USDA-NRCS *Noxious Weeds List for Illinois* includes invasive plant species that have been recorded within Cook and DuPage Counties, such as Canada thistle (*Cirsium arvense*), Johnson grass (*Sorghum halepense*), musk thistle (*Carduus nutans*), and perennial sow thistle (*Sonchus arvensis*). Additional invasive plant species dominate many of the upland and



wetland habitats in the project corridor, such as common buckthorn, garlic mustard (*Alliaria petiolata*), purple loosestrife (*Lythrum salicaria*), reed canary grass, Siberian elm, Tartarian honeysuckle (*Lonicera tatarica*), and teasel (*Dipsacus* spp.).

The project is situated within the USDA/IDOA quarantine area for the emerald ash borer (*Agrilus planipennis*), which is an invasive insect that kills ash trees.

Invasive species also include several aquatic nuisance species⁸⁹ and injurious wildlife species⁹⁰ that can potentially harm an ecosystem. Examples of aquatic nuisance species and injurious wildlife that have been recorded in the vicinity of the project corridor include the Asian clam (*Corbicula fluminea*), common carp (*Cyprinus carpio*), grass carp (*Ctenopharyngodon idella*), and rusty crayfish (*Orconectes rusticus*).

3.14.1.3 Wildlife Resources

The project corridor contains an existing transportation network in a predominantly built-out area and consequently has limited areas of prime wildlife habitat. The least productive cover types for providing wildlife habitat in the project corridor are high- and medium-density developments. Wildlife may use such areas for foraging, but there is little opportunity for nesting or cover for most species. No wildlife studies were conducted as part of this project.

Of the land cover types listed in Table 3-50, the most important for wildlife are forested lands and urban open space. Roughly five percent of the project corridor is mapped as having a wooded cover type, and another 21 percent is mapped as urban open space. Surface waters and wetlands are also important to wildlife. Approximately two percent of the project corridor consists of wetlands or surface waters. This combination of cover types may provide habitat for many species of plants and wildlife. Subsections 3.10 and 3.13 discuss the general distribution of aquatic and wetland habitats. Near the project corridor, development has limited the distribution of sensitive wildlife species to protected lands, such as forest preserves.

Old fields are the most common wildlife habitat type within the project corridor and are important to woodland edge and grassland bird and mammal species, when the old fields are large and un-fragmented. Near the proposed project improvements, most of the old field areas are highly fragmented and have less-stable wildlife populations. The smaller open areas and linear rights-of-way tend to be most valuable for common suburban bird species (see discussion below) and small mammals (e.g., voles and mice).

The developed parts of the proposed project corridor provide minimal wildlife habitat. Wildlife species in urban/suburban areas tend to be tolerant of disturbance and human activities. Some species would use urban and suburban habitats, but species diversity generally is lower than in forest preserves and rural habitats. Urban-tolerant wildlife species

⁸⁹ An aquatic nuisance species is defined in the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 USC 4701 *et seq.*) as a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, commercial, agricultural, aquacultural or recreational activities dependent on such waters.

⁹⁰ Injurious wildlife are mammals, birds, amphibians, reptiles, fish, crustaceans, mollusks and their offspring or gametes that are injurious to the interests of human beings, agriculture, horticulture, forestry, wildlife, or wildlife resources of the United States. Refer to 18 USC 42 and 50 CFR Part 16. The list of Illinois "injurious species" can be found at 17 Ill. Adm. Code §805.20.

are generally common, adaptable species and include limited numbers of mammals, birds, reptiles, and amphibians. Aquatic species, such as fish and macroinvertebrates, are discussed with aquatic habitat in subsection 3.10.1.2. A wildlife survey was not conducted as part of the study; instead, national, state, and county databases were reviewed for wildlife information (see Appendix L).⁹¹

Birds

Based on the North American Breeding Bird Survey and information from the Forest Preserve District of Cook County (FPDCC) and FPDDC, 141 bird species have been documented in the vicinity of the project corridor, including seasonal spring-fall migrants, breeding residents, and overwintering species. Of those, 95 species have been recorded as nesting within the forest preserves proximate to the project corridor, and 32 of the bird species are listed as "Species in Greatest Need of Conservation for Illinois."⁹² In general, most of the birds are passerine species (or perching birds), with a complement of birds of prey, waterfowl, woodpeckers, and shorebirds (see Appendix L). The most common birds expected to be found in the project corridor include typical suburban species, such as: the American crow (*Corvus brachyrhynchos*), American goldfinch (*Carduelis tristis*), American robin (*Turdus migratorius*), blue jay (*Cyanocitta cristata*), brown-headed cowbird (*Molothrus ater*), Canada goose (*Branta canadensis*), common grackle (*Quiscalus quiscula*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), mallard (*Anas platyrhynchos*), mourning dove (*Zenaidura macroura*), northern cardinal (*Cardinalis cardinalis*), and song sparrow (*Melospiza melodia*).

The project corridor is within the eastern half of the Mississippi flyway, which is used by migratory birds. Many birds that migrate through the project corridor also nest within or adjacent to the corridor, including neotropical migrants. Neotropical migrants, including all or part of their population, fly through or breed in the United States and Canada but spend winters in the tropical habitats of Latin America or the Caribbean. Seventy-three neotropical migrants⁹³ are known to breed within the forest preserves close to the proposed project corridor. Neotropical migrants may use the habitats found in (and adjacent to) the project corridor (e.g., wetlands, woodlands, and shrublands) for breeding. Some species rely on large stands of mature forests for breeding. Large wooded stands are found outside the project corridor (e.g., Ned Brown Forest Preserve); however, no large (more than 20 acres) unfragmented wooded stands are located within the proposed project corridor.

In general, based on habitat types, neotropical migrants that might be observed in the project corridor include the house wren (*Troglodytes aedon*) in urban areas, eastern kingbird (*Tyrannus tyrannus*) in undeveloped areas, common yellowthroat (*Geothlypis trichas*) in wetlands and shrublands, and red-eyed vireo (*Vireo olivaceus*) in woodlands. Additional neotropical migrants that commonly might be observed in the project corridor include the barn swallow (*Hirundo rustica*), chimney swift (*Chaetura pelagica*), and gray catbird (*Dumetella carolinensis*).

⁹¹ FPDDC provided a wildlife species list for all preserves located proximate to the project corridor, including Silver Creek, Salt Creek Marsh, and Medinah Wetlands (FPDDC, 2010a – d). FPDCC provided wildlife lists for the Ned Brown Forest Preserve (FPDCC, 2010). The wildlife lists included birds, mammals, reptiles, and amphibians.

⁹² Based on Appendix I of *The Illinois Comprehensive Wildlife Conservation Plan & Strategy* (Illinois Wildlife Action Plan) (IDNR, 2005).

⁹³ Based on a list of neotropical migrants provided by the American Bird Conservancy and USFWS – Division of Bird Habitat Conservation, last updated November 2009. The migratory bird lists include both nearctic and neotropical migrants; no distinction is made between the two types.

Mammals

Based on data compiled from the FPDCC and the FPDDC, 38 mammal species have been recorded at the forest preserves located proximate to the project corridor. Six of these mammal species are listed as “Species in Greatest Need of Conservation for Illinois” (see Appendix L).⁹⁴ However, inclusion on the list does not necessarily mean that a species is rare. For example, the muskrat (*Ondatra zibethicus*), which is abundant in northern Illinois, can be found in aquatic habitats (including stormwater management basins) in every county in the state (University of Illinois Extension, 2010).

Several of the mammal species recorded proximate to the project corridor are relatively tolerant of development but require greenways or nearby natural areas for habitat. Common species relatively tolerant of urban areas include the eastern cottontail (*Sylvilagus floridanus*), gray and fox squirrels (*Sciurus* spp.), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and white-tailed deer (*Odocoileus virginianus*).

Reptiles and Amphibians

Based on data compiled by the FPDCC and the FPDDC, 16 reptile species and 12 species of amphibians have been recorded at the forest preserves located close to the proposed project corridor. Two of the reptiles and two of the amphibians are listed as “Species in Greatest Need of Conservation for Illinois” (see Appendix L).⁹⁵ One of the reptiles, the Blanding’s turtle (*Emydoidea blandingii*), is state endangered and was included in the FPDCC wildlife list for Ned Brown Forest Preserve (see subsection 3.14.1.4). Other than the Blanding’s turtle, most of the reptiles and amphibians recorded at the forest preserves adjacent to the project corridor are considered locally common. Common species relatively tolerant of urban areas include the American toad (*Bufo americanus*) and the plains garter snake (*Thamnophis radix*).

Terrestrial Wildlife Movement Corridors

The large percentage of urban development, habitat fragmentation, and existing transportation infrastructure throughout (and adjacent to) the project corridor limits wildlife movement. Wildlife use linear corridors and greenways, such as those found within rights-of-way (e.g., transportation, utility), fencerows, and riparian environments for movement, dispersal, and access to habitat divided by roads, rail, or other types of development (see Exhibit 3-20).

The largest open-space habitat types within or close to the proposed project corridor can be found at the 3,700-acre Ned Brown Forest Preserve in Cook County, a handful of smaller DuPage County forest preserves, other special lands, and existing undeveloped stretches of right-of-way. Based on correspondence with the FPDDC, greenways that could be used for wildlife movement in the vicinity of the project corridor include the Salt Creek and West Branch DuPage River corridors, along with the forest preserves that are interconnected (including golf courses) and greenways under Commonwealth Edison lines (Meister, 2010). FPDCC did not disclose any specific wildlife movement corridors near the project (proximate to Ned Brown Forest Preserve) (Anchor, 2010). The preserved open space and undeveloped corridors and greenways provide connectivity and may allow animal movement between habitats.

⁹⁴ Based on Appendix I of Illinois Wildlife Action Plan (IDNR, 2005).

⁹⁵ Based on Appendix I of Illinois Wildlife Action Plan (IDNR, 2005).

To identify potential areas of animal movement across the project corridor, five years of vehicle/animal crash data for state-owned/maintained routes were reviewed (IDOT, 2010). There were approximately 28 vehicle/animal crashes recorded within the proposed project corridor during this same period, most of which involved deer. No human fatalities or injuries were reported. Generally speaking, the relatively small number of reported vehicle/animal crashes were scattered throughout the proposed project corridor. The greatest concentration of crashes (five accidents over a five-year period) occurred at I-90, just east of Elmhurst Road near Higgins Creek. From 2004 through 2008, a greater concentration of vehicle/animal crashes was reported outside the project corridor along roads close to the Ned Brown Forest Preserve and along I-290 near special lands (see Exhibit 3-20).

A substantial portion of the proposed EO-WB project improvements lies within DuPage County on County routes, such as Thorndale Avenue. Based on DuPage County data, there were approximately nine vehicle/animal crashes on these roads between 2004 and 2008 (DuPage County Transportation Data Management System, 2010). Seven of these crashes were scattered along Thorndale Avenue. Five of the Thorndale Avenue crashes were reported between Lively Boulevard and Prospect Avenue/Arlington Heights Road, near Salt Creek and reserved right-of-way or open space (see Exhibit 3-20).

3.14.1.4 Threatened and Endangered Species

Threatened and endangered species assessments were accomplished through coordination and consultation with state and federal resource agencies, review of published and file information, and field surveys. As part of project planning, the IDNR Natural Heritage Database (dated March 21, 2011) was also reviewed. No federally designated critical habitat or state-listed plant or animal species were mapped within the project corridor.

Surveys and reviews concerning federal- and state-listed species that could be affected by the proposed improvements were completed during 2009 and 2010. Survey results and database reviews are summarized in the following subsections. Based on the results of agency coordination, field surveys, and database reviews, impacts to threatened and endangered species are not anticipated as a result of this project (see Biological Resources Reviews in Appendix M).

Federal-Listed Species

In this Tier Two Final EIS, Appendix M contains project correspondence with the USFWS. Appendix M also includes a review of federal-listed species and critical habitat in Cook and DuPage Counties. The federal-listed species discussed below are also state-listed. Adverse effects to federal-listed species as a result of the project are unlikely.

- **Eastern Prairie Fringed Orchid (*Platanthera leucophaea*) (Status: Federal-Threatened and State-Endangered).** Based on coordination with the USFWS, there are no known eastern prairie fringed orchid locations within the project corridor. Possible habitat for this protected species includes mesic prairie, sedge meadows, marsh edges, and bogs. Any moderate- to high-quality wetland habitat within the project corridor could support the species (Rogner, 2008; Rogner, 2009).

During the summer of 2009 and spring/summer of 2010, field visits were conducted to look for potential eastern prairie fringed orchid habitat within the project corridor. As

recommended by USFWS, suitable habitat was searched on three nonconsecutive days during its bloom period, which is between June 28 and July 11 in 2009 and again in 2010 (i.e., during the orchid's bloom period). No populations of eastern prairie fringed orchid were found (Handel, 2009; Handel, 2010). The project will have no effect on the eastern prairie fringed orchid.

- **Eastern Massasauga Rattlesnake (*Sistrurus catenatus catenatus*) (Status: Federal Candidate Species and State-Endangered).** In northeast Illinois, the eastern massasauga rattlesnake most often occurs in shrubby or grassy habitats in floodplains and riparian corridors. There are no records that definitively place the eastern massasauga rattlesnake in or near the project corridor. There are no habitat corridors that would allow travel between the only known massasauga population in the region and the location of the proposed improvements. Also, suitable habitat in the project corridor is lacking near historical localities (Kuhns, 2009; Kuhns, 2010a). Based on a letter from the USFWS, impacts to the eastern massasauga rattlesnake are not anticipated as a result of the proposed project (Rogner, 2009). Therefore, the project would have "no effect" on the massasauga rattlesnake.

State-Listed Species

In this Tier Two Final EIS, Appendix M contains the results of the natural resource review provided by the IDNR Ecological Compliance and Assessment Tool (EcoCAT) and correspondence with IDNR regarding potential state-listed species within the project corridor. IDNR concluded that adverse effects to state-listed species as a result of the project are unlikely. Consultation under 17 Illinois Administrative Code Part 1075 regarding state-listed species was concluded on February 11 and 14, 2011 (IDNR, 2011; Hamer, 2011).

- **Black-Crowned Night-Heron (*Nycticorax nycticorax*) (Status: State-Endangered).** The black-crowned night-heron is found in many habitat types, including wooded wetland, emergent marshes, and riparian woods. A black-crowned night-heron was observed by INHS at a wet shrubland/marsh located northwest of York Road and Thorndale Avenue during the summer of 2009. No nests were observed (Matthews et al., 2009).

Based on a follow-up visit in spring 2010, INHS determined that the site where the heron had been observed did not appear to be good foraging habitat or a likely nesting spot (Enstrom, 2010). The nearest known black-crowned night-heron breeding area is approximately eight miles southwest of this site. In the opinion of INHS, the black-crowned night-heron seen near York Road was probably from the known breeding area. No substantial black-crowned night-heron foraging or breeding habitat was observed within the project corridor during the spring 2010 field visit (Enstrom, 2010). Impacts to the black-crowned night-heron within the boundaries of the project corridor are unlikely.

- **Blanding's Turtle (*Emydoidea blandingii*) (Status: State-Endangered).** In northeastern Illinois, Blanding's turtles prefer marsh habitat with abundant cattails and organic substrates, although retention ponds may be used during drought conditions (Kuhns et al., 2007). Within the vicinity of the project, Blanding's turtles have been reported at Ned Brown Forest Preserve (FPDCC, 2010; Kuhns, 2010b). Within the project corridor, the FPDCC did not express any specific concerns regarding wildlife movement to or from the Ned Brown Forest Preserve (Anchor, 2010). The Ned Brown Forest Preserve is 3,700 acres in size and includes various upland and wetland habitat types. The preserve

is surrounded by existing development, including interstate roadways and other roads. Due to the large size and various habitat types offered at the preserve, location of the proposed improvements, and the existing barriers to wildlife movement (e.g., roads) bordering the preserve, impacts to the Blanding's Turtle are not anticipated.

- **Kirtland's Snake (*Clonophis kirtlandii*) (Status: State-Threatened).** The habitat of Kirtland's snake includes open, low, grassy areas at the margins of streams, ponds, or ditches (Minton, 1972; Ernst and Barbour, 1989; Bavetz, 1994). Observations have been made in open areas adjacent to floodplain forests. Kirtland's snakes have been collected in vacant lots in urban areas, and this snake has been known to use crayfish burrows, boards, trash and other surface debris for shelter (Ernst and Ernst, 2003).

One Kirtland's snake was observed in the mid-1980s, approximately two miles southwest of the project corridor (Kuhns, 2010a; FPDDC, 2008). The site where the snake was identified is separated from the project corridor by highly developed land, including a busy five-lane street. It is highly unlikely that Kirtland's snakes (if still present in this location) would be able to successfully enter the proposed project corridor from the site where it has been observed. Impacts to the Kirtland's snake are unlikely within the boundaries of the proposed project corridor (Kuhns, 2010a; Kuhns, 2010b).

3.14.1.5 State Designated Lands

State Designated Lands include Illinois Natural Areas, Land and Water Reserves, and Nature Preserves. According to information provided by the state, no State-Designated Lands are within the project corridor (IDNR and the Illinois Natural Heritage Database, 2011).

3.14.2 Environmental Consequences

This subsection discusses potential impacts to natural resources, including loss of vegetative cover and impacts to wildlife and their habitats. As discussed previously, impacts to threatened and endangered species and state designated lands are not anticipated (see Biological Resources Reviews in Appendix M). Therefore, these topics are not discussed further.

3.14.2.1 Upland Plant Community Impacts

Land Cover

Most vegetative cover types in the project corridor have been altered by urbanization. Thus, few areas contain a dominance of native vegetation. The dominant cover type within the project corridor and immediate vicinity is urban and built-up land consisting of buildings, roads, parking lots, and driveways, intermixed with urban landscaping, open space (including old fields), or limited forested cover.

The Build Alternative is associated primarily with existing roadways and would displace vegetation by expanding the pavement area. Vegetative cover beyond the edge of pavement to the right-of-way line (or limit of disturbance) would be converted to grass with intermittent landscape plantings of trees and shrubs, or vegetated swales. To the extent practicable, the new vegetated areas would incorporate sustainable practices (e.g., plant species requiring little maintenance) and would abide by FAA guidelines regarding wildlife attractants near airports (see subsection 3.14.3). The number of existing invasive or noxious

plant species and the degree of infestation within the proposed project corridor are not expected to increase.

The dominant land cover type affected by the Build Alternative would be urban and built-up land. Impacts to this cover type would account for roughly 90 percent of the total acreage in the proposed project corridor. Potential impacts to prairie remnants and wooded areas are discussed below in this subsection. Impacts to surface waters and wetlands are discussed in subsections 3.10.2 and 3.13.2, respectively.

Prairie Remnants

Two disturbed prairie remnants were identified along the I-290 embankment south of Thorndale Avenue (see Exhibit 3-19) (Handel, 2009). One of these prairie remnants (Site 1) is located in the project corridor on the west side of I-290. No lane widening to southbound I-290 is proposed adjacent to Site 1. Prairie remnant Site 2 is located just beyond the project corridor. No direct impacts to either prairie remnant site are anticipated. In the existing condition, both prairie remnant sites are degraded and, due to their location close to I-290, are likely affected by winter deicing activities. Impacts to both prairie remnants from exposure to chloride splash and spray during winter deicing activities could be expected to continue in the proposed condition. See subsection 3.10.3 for additional discussion regarding winter deicing activities and best management practices to minimize their effect.

Wooded Areas

Woodland impacts associated with the proposed project include vegetation removal and potential impacts due to root zone encroachment, soil compaction, and hydrologic modifications. Impacts could be either direct or indirect. Direct woodland impacts would result from the construction and installation of roadways, rail line, ramps, and grading for drainage or stormwater management facilities. Indirect impacts could result from root zone encroachment due to adjacent construction activities, soil compaction, change in hydrology, further fragmentation of woodland resources, and increased edge effect for remaining fragmented woodland.

Winter maintenance activities, particularly deicing, also can have a detrimental effect on wooded areas. The potential for salt spray or other deicing chemicals to affect preserved wooded areas during the winter season is limited in its threat and area of influence. The tree species identified within the wooded areas in the project corridor are generally tolerant of urban environments and subsequent potential salt spray. Salt spray has been found to be particularly detrimental to conifer tree species; however, the number and extent of conifer tree species within the project corridor is limited, and the predominantly deciduous tree species are generally tolerant. See subsection 3.10.3 for additional discussion regarding winter deicing activities and best management practices to minimize their impact.

The forested/wooded resources within the proposed project corridor include closed woodland, scrub-shrub woodland, wooded fencerows, and landscape trees. Based on the results of a tree study (transect/sub-sample methodology) completed for this project (CBBEL, 2011), up to approximately 25,570 trees would be impacted by the Build Alternative.⁹⁶ This would include approximately 15,423 trees within the closed woodland

⁹⁶ Total includes trees that are 6 inches and greater DBH for all woodland types. Landscape trees also include trees that are less than 6 inches DBH.

type; 3,949 trees within the scrub-shrub woodland type; 1,341 trees within the wooded fencerow type; and 4,857 trees within the landscape tree woodland type.

The majority of the wooded land within the project corridor is dominated by lower-quality trees and shrubs. No higher-quality stands of native oaks (*Quercus* spp.) or hickories (*Carya* spp.) exist within the project corridor or would be impacted by the proposed project. Due to the adaptability and hardiness of these lower-quality tree species, remaining trees not directly impacted by the proposed project are likely to survive and continue to provide woodland functions and values in the post-construction condition.

The vast majority of closed woodland and scrub-shrub woodland losses would consist of small impacts to the edge of woodlands where the majority of adjacent woodland exists outside the project corridor, but small portions extend slightly into the proposed project corridor. The woodland edges impacted in these areas are highly degraded and have been adversely impacted by adjacent land uses and urbanization. Forest edge does not provide quality nesting habitat for neotropical migrant birds, compared to forest interior habitat. However, forest edge does provide some wildlife habitat (including for other bird species that use woodland edges), windbreaks, shading, and air quality benefits.

The largest closed woodland impact would occur at the northwest quadrant of the intersection of York Road and Thorndale Avenue (11.8 acres). This woodland is surrounded by industrial and commercial development, and the dominant tree species composition and structure indicate that primarily lower-quality and invasive trees would be lost in this area. The largest scrub-shrub woodland impact (13.8 acres) would occur at York Road and Sivert Court. The dominant presence of noxious common buckthorn, gray dogwood, and cut-leaved teasel indicates that adverse environmental impacts resulting from the loss of this scrub-shrub woodland would be minimal. It should be noted that the removal of noxious and invasive woodland and scrub-shrub species can have a net beneficial environmental affect by reducing noxious seed dispersal and subsequent spread into adjacent regional forest preserves.

Impacted landscape woodlands would include a wider variety of more desirable trees, consisting of primarily nursery stock planted along existing roadways and within adjacent, maintained parkways and commercial grounds. The landscape woodlands and associated nursery trees provide primarily aesthetic functions and values in the urbanized environment, and these areas provide little or no natural woodland functions or values typically associated with native woodland. The majority of the planted landscape trees also consist of non-native species and smaller-sized stems. Impacts to the smaller-sized landscape trees, and subsequent replacement of many landscape trees in the post-construction condition would create little or no adverse impacts to the woodland resources of the proposed project corridor.

Wooded Riparian Areas

Riparian areas include the vegetated portion of the regulatory floodplain located adjacent to surface waters. Wooded riparian areas within the proposed project corridor are located adjacent to Addison Creek, Higgins Creek, Meacham Creek, Salt Creek, and Willow

Creek.⁹⁷ Riparian areas containing a mixture of wetland, narrow woodland along creek banks, or upland herbaceous plant communities would be impacted by the proposed project, as discussed below.⁹⁸

The largest proposed wooded riparian impact would be at Salt Creek for the construction of the Elgin O'Hare corridor, frontage road, and requisite compensatory flood storage and stormwater detention. The majority of the wooded riparian impacts would be located on the west side of the creek, south of Thorndale Avenue, and would consist of a closed woodland (approximately 3.2 acres). The Salt Creek riparian area includes lower-quality trees and shrubs consisting of predominately box elder, silver maple, green ash, and eastern cottonwood in the overstory and non-native, invasive common buckthorn, and reed canary grass in the mid-canopy and understory, respectively.

Wooded riparian corridors associated with Addison Creek, Higgins Creek, and Willow Creek also would be impacted by the proposed project. These wooded riparian areas are located adjacent to existing transportation corridors and are generally restricted to the tops of the channel banks. Wooded riparian areas include small, isolated (or fragmented) closed woodland areas that extend outward from the creek.⁹⁹ The riparian areas consist of predominately herbaceous cover types with relatively narrow widths of lower-quality trees and shrubs containing primarily box elder, common buckthorn, green ash, black cherry, honeysuckle, eastern cottonwood, and gray dogwood. The Meacham Creek riparian corridor that would be impacted by the proposed project consists of primarily marsh habitat with sporadic shrubs within seasonally inundated areas.

The typical woody riparian corridor provides cover for fish and wildlife, keeps streams cool, minimizes bank erosion and promotes bank stability, and adds organic material to the aquatic food chain. Due to the urban nature of the proposed project and the relatively narrow, degraded, and fragmented riparian environment within its corridor, these functions are limited. Subsequently, adverse impacts to riparian corridor functions and values as a result of the proposed project are expected to be minimal and would be mitigated as described below (in subsection 3.14.3) and in subsections 3.10.3 and 3.13.3.

3.14.2.2 Invasive Species

During construction, vegetation is removed and soil is exposed. The seeds of invasive plant species could be deposited on exposed soil surfaces by wind or animal droppings, transported in topsoil, or planted with impure seed mixes. The proposed project's side slopes and ditches would be most susceptible for supporting nuisance species. Invasive plant species could establish populations in idle disturbed areas, if best management practices are not employed.

In the existing condition, non-native and invasive plant species are found throughout the proposed project corridor. Erosion control and landscaping best practices would be used to

⁹⁷ The proposed project corridor crosses Bensenville Drainage Ditch on O'Hare Airport property. Land cover at O'Hare Airport was previously discussed in this subsection. Bensenville Drainage Ditch is not discussed further in this subsection.

⁹⁸ Any component of the project in DuPage County that may be local non-IDOT/Illinois Tollway roads may be subject to the DuPage County Countywide Stormwater and Flood Plain Ordinance with respect to riparian impacts.

⁹⁹ Riparian impacts to small isolated closed woodlands are located at Willow Creek (South Tributary). The wooded riparian impact at this location is approximately 3 acres, and is part of a larger closed woodland located northwest of the existing Thorndale Avenue and York Road intersection.

minimize the spread of invasive plant species, to the extent practicable. However, even with the use of best management practices, it will be difficult to control the establishment of invasive plants.

All idle disturbed areas would be stabilized in accordance with NPDES permit requirements. By limiting the length of time idle soil is exposed, the potential for invasive species to spread and establish can be minimized. Specific erosion control measures (e.g., seed mixes) would be specified in the project erosion control plan. Earthwork, landscaping, and erosion control would follow the applicable sections of the IDOT and Illinois Tollway standard specifications (including supplemental specifications), Chapter 59 (“Landscape Design”) of the *BDE Manual* (IDOT, 2011), and/or the Illinois Tollway’s *Erosion and Sediment Control, Landscape Design Criteria* manual (Illinois Tollway, 2012).

These documents include guidance on furnishing and excavating topsoil, and construction requirements for seeding. Seed mixes would be required to meet purity and noxious weed seed requirements. Herbicides and/or other weed control methods would be used to control invasive and noxious plant species within the rights-of-way during operation of the facility.

Due to recent discoveries of emerald ash borer in Illinois, no varieties of ash trees will be planted in the project corridor to mitigate tree loss as part of this project. The removal and disposition of ash trees would comply with USDA/IDOA quarantine restrictions.

3.14.2.3 Wildlife Resource Impacts

The Build Alternative is located predominantly in developed areas associated with existing roadways that provide poor wildlife habitat. Wildlife that uses the available habitat tends to be tolerant of disturbance and human activities. Urban-tolerant wildlife species are generally common adaptable species and include limited numbers of birds, mammals, reptiles, and amphibians.

Wildlife can be affected by transportation projects constructed on new or existing alignment that results in a loss of habitat and cover type, disruption of habitat continuity, and creation of barriers to wildlife movement. Transportation improvement projects can lead to direct and indirect wildlife impacts, such as wildlife/vehicle collisions and loss of habitat (direct impacts). Construction (e.g., grading and equipment operation) could also result in wildlife impacts, as can traffic and construction noise. Many mobile wildlife species would avoid harm due to construction operations, but some mortality is expected, especially to small mammals, amphibians, and reptiles that might be present in construction areas.

Overall, project-related impacts to wildlife would be minimal. Potential wildlife impacts are discussed in the following subsections.

Habitat Loss and Fragmentation

Direct conversion from vegetative cover to paved areas would result in the loss of wildlife habitat for breeding, foraging, and resting. Impacts to wildlife could involve limited population reductions of species or displacement associated with the habitat within the construction limits of the proposed project. The proposed project corridor contains limited areas of high-quality wildlife habitat, and it is expected that the overall effect on wildlife using those areas would be minimal. Of the land cover types listed in Table 3-50, the most important type in the proposed project corridor for wildlife are forested lands and urban

open space. Surface waters and wetlands are also important to wildlife. Subsections 3.10 and 3.13 discuss the general distribution of aquatic and wetland habitats.

The Build Alternative avoids most of the potentially valuable habitat located near the proposed project corridor. No impacts to forest preserves or state designated lands are proposed. Because the proposed EO-WB project consists primarily of improvements to existing roads and land already dedicated to transportation infrastructure close to developed land, relatively large, protected habitats would remain following improvements.

Habitat fragmentation involves dividing larger continuous habitat (such as woodlands and old fields) into smaller habitat patches. Fragmentation can reduce habitat function and value. Transportation projects can cause fragmentation, thus creating additional edge habitat. However, in regard to this specific project, very little fragmentation would occur. The proposed project would take place primarily adjacent to and within transportation corridors that contain roadways and/or rail lines in the existing condition.

Edge habitat is the boundary between habitat types, such as between woodlands and fields. Some species identified near the project corridor, such as the American robin and the brown-headed cowbird, prefer edge habitat. Edge habitat is usually created at the expense of large continuous habitat – the smaller the habitat patch, the larger the edge effect. Edge effects could result in differences in predation, interspecific competition, and prey availability that may vary near the edge of a habitat when compared to the interior of a larger patch. For example, based on edge effect, nest predation could increase in fragmented wooded patches. Habitat fragmentation would favor species that are more adaptive to edge environments, thereby affecting non-edge species to a greater extent.

Edges often are associated with transportation rights-of-way or urbanized sections of the landscape. Most cover type impacts associated with the Build Alternative include urban and built-up land (including urban open space), which are already disrupted by residential, commercial, and industrial areas, roads, rail, utilities, and other types of development. Most of the forested area and open space impacts that will occur as a result of the proposed project are composed of edge habitat. Widening the transportation corridors, as proposed, generally will relocate the habitat edge. Many of the improvements that upgrade the existing transportation system would have a minimal effect upon wildlife species that have already adapted to edge habitat.

Neotropical migrant birds are a primary wildlife group that could be affected by the displacement and fragmentation of forest habitat. However, there would be little to no fragmentation associated with the proposed EO-WB project improvements. There would be some loss of bird nesting and foraging areas because of conversion of undeveloped land within the proposed right-of-way to highway uses. Some neotropical migrant birds require forested stands of a minimum size and are not found in smaller wooded areas, even if suitable habitat is present. The largest contiguous forested stands in the vicinity of the project corridor include forest preserve properties that will not be affected by the proposed transportation improvements, such as the Ned Brown Forest Preserve. The proposed improvements will not fragment a continuous forested parcel or wooded riparian corridors larger than 20 acres.

The largest woodland impact (13.8 acres) associated with the proposed transportation improvements consists of a scrub-shrub woodland located near York Road and Sivert Court.

The Build Alternative would also impact 11.8 acres of closed woodland located near the northwest corner of Thorndale Avenue and York Road. Both woodland areas are located near the west side of O'Hare Airport in a developed area. Given that the surrounding area includes commercial and industrial land uses, as well as O'Hare Airport, wildlife (such as birds and mammals) that uses the woodlands would likely relocate to available habitat within the developed areas or migrate outside the immediate area. Although developed portions of the adjacent O'Hare Airport are unlikely to provide desirable wildlife habitat, potential increased wildlife usage at the airport due to increased wildlife populations or movement of species may be addressed with wildlife deterrent methods. Impacts to forested areas are discussed in more detail in subsection 3.14.2.1.

Edge habitat may be widely used by several of the relatively urban-tolerant mammals identified near the project corridor. Impacts to neotropical migrant birds are expected to be minimal. Impacts to edge areas would reduce the size of available wildlife habitat, thus forcing relocation of remaining wildlife to interior locations. Forced relocation of wildlife can be expected to increase population densities and increase competition in the remaining interior habitat areas. Given the relatively small impacts to edge habitat compared with remaining cover and the adaptability of the urban-tolerant wildlife known to use these areas, adverse impacts to edge habitat as a result of the project are expected to be negligible.

Traffic Noise

Potential wildlife habitat in the project corridor is close and/or adjacent to existing noise generators, including O'Hare Airport, existing roads, tollways, highways, residential and industrial developed areas, truck routes, and rail lines and yards. Increased traffic associated with the proposed improvements was considered to determine if the proposed project would result in noise traveling farther into the existing adjacent landscape producing potential noise impacts. Current literature (Dooling and Popper, 2007) reveals that the effects of highway noise on birds ranges from negligible (under certain circumstances) to noticeable (e.g., physiological and behavioral responses, masking communication and impairing detection of predators or prey, and hearing damage).¹⁰⁰ Potential noise impacts generally decrease with an increase in distance from the roadway and reduction in noise level.

The USFWS, INHS, IDOT, and consultant staff met on March 4, 2010, to discuss the potential need for a bird survey as part of Tier Two environmental studies. The purpose of the bird survey would be to determine which species (particularly migratory birds, and rare and declining species) could be affected by noise as a result of the proposed EO-WB project improvements. The urban nature of the proposed project corridor, existing noise generators, and existing and projected traffic volumes were discussed with USFWS at the meeting. Based on the high volume of traffic in the existing condition and the relatively long distance between the proposed project corridor and habitat areas of concern, USFWS decided that a bird survey was not necessary to determine the potential noise impacts on birds (Cirton, 2010).

Migratory birds must travel long distances over similar urban landscape prior to reaching or leaving the proposed project corridor and its adjacent habitat. The high traffic volumes and

¹⁰⁰ Traffic noise levels do not reach the threshold that could cause bird hearing loss/damage, and even if the noise levels did, birds are most likely to leave the area that was exposed to the loud noise before damage could occur.

high ambient noise levels associated with the location and context of the proposed improvements affect wildlife habitat use in the existing condition. The future traffic volumes and noise levels that may be attributable to the EO-WB project are not anticipated to alter habitat use, and impacts to migratory birds, if any, are expected to be minimal.

Barriers to Wildlife Movement

Even in the most urban areas, certain corridors allow wildlife to travel between habitat patches. Wildlife use linear corridors, such as rights-of-way, fencerows, and riparian environments for movement, dispersal, and access to habitat divided by roads, rail, or other types of development. Newly constructed or widened roads or rail lines can reduce wildlife movement between adjacent habitats by interrupting established travel routes. However, improvements associated with the proposed project will take place primarily adjacent to and within existing transportation corridors. Many of the existing wildlife corridors, such as streams, are bridged or flow through culverts in the existing condition.

Bridges and culverts could facilitate wildlife movement. Proposed stream crossing structures generally match existing or nearby crossing treatments at each location. An exception is the West Bypass corridor, which would be constructed on new alignment in a reserved transportation corridor, located primarily on O'Hare Airport property. Trees, shrubs, and other vegetation within and adjacent to this corridor have been cleared to make way for future development, including OMP projects. Any potential habitat at O'Hare Airport is managed to discourage wildlife.

Barriers could pose a threat to wildlife because of traffic volumes, speeds, and width of roadway and rail corridors. Roadways and rail lines do not pose barriers to all forms of wildlife equally. Birds and larger mammals are relatively mobile; therefore, the direct loss of habitat as a result of the proposed project would not be as critical as it would be to other species of wildlife. Birds and mammals typically seek other areas in which to forage, breed, and rest. Small, terrestrial wildlife species would be more affected by barriers than birds and larger mammals.

Most reptiles and amphibians that have been identified near the project corridor are less mobile and rely on their immediate habitat. Reptiles and amphibians most likely would be affected by road and rail crossings during breeding, nesting, and seasonal movement. Although negative impacts might occur, overall reptile or amphibian population impacts are not anticipated as a result of the proposed project.

To minimize the potential "barrier effect" of transportation improvements on wildlife, direct impact to large contiguous open spaces, riparian habitat, greenways, and other wildlife corridors have been minimized or avoided as part of the planning process. The largest contiguous open space habitat types near the proposed project corridor were avoided in Tier One (e.g., Ned Brown Forest Preserve). The large percentage of urban development, habitat fragmentation, and existing transportation infrastructure along the proposed project corridor limits wildlife movement in the existing condition.

Construction Mortality

Wildlife could be affected by construction activities, such as stripping and clearing vegetation, grading, utility installation, moving heavy equipment, and sediment deposition in receiving waters. Relatively mobile species (birds and large mammals) would generally

avoid construction mortality. These species can move from the construction area to surrounding habitats during construction. However, some mortality may be expected with slower-moving wildlife (e.g., young animals) or smaller, less mobile animals (e.g., small rodents, reptiles, and amphibians), as habitat is displaced. Increased awareness can help minimize wildlife impacts. Construction noise and activity, in certain instances, can prompt wildlife movement, disrupt travel patterns or behaviors, and result in additional wildlife impacts. However, in this instance, considering that over 90 percent of the project corridor is urban open space or developed land, the small amount of habitat that would be affected by this project should not result in a net negative impact on existing wildlife populations.

Operational Mortality

Operational mortality would most likely result from vehicle/wildlife collisions along the proposed facility. The proposed project corridor is located in an urban setting, and the land use tends to limit the extent and frequency of wildlife use compared to rural areas and large protected open space. The proposed project would take place primarily adjacent to existing roadways and/or rail lines. As such, wildlife corridors along the Build Alternative are generally fragmented in the existing condition, which can limit the movement of urban wildlife. In general, when roads cross existing wildlife corridors, vehicle/wildlife collisions may occur. The frequency of these occurrences is expected to be higher near large contiguous habitats, especially if the habitat is crossed by a road in the existing condition or would be fragmented in the proposed condition. However, for this project, no large contiguous habitats would be fragmented by the proposed EO-WB project.

It is anticipated that the majority of the vehicle/wildlife collisions would be with common animal species in the vicinity of existing greenways that are crossed by the proposed project (e.g., near Salt Creek). The number of collisions most likely to occur in the proposed condition may be affected by factors such as driver awareness, visibility and sight distance, lighting, and weather. A relatively small number of deer/vehicle collisions occur along the project corridor in the existing condition, and these types of collisions would be a safety concern in the proposed condition, too. Deer are relatively mobile, and their mobility exposes them to collisions with vehicles as the deer attempt to cross roadways that have been widened or new roadways in areas not previously served. No negative impact to the overall deer population is expected. Minimal to no loss of species groups is anticipated as a result of operational mortality associated with the proposed EO-WB project.

3.14.3 Measures to Minimize Harm and Mitigation

Avoidance and minimization of impacts to natural resources (including upland plant communities and wildlife resources) was an important component in the development of the proposed project corridor and evaluation of alternates. In general, alternates that could impact special lands (e.g., forest preserves) with large wooded tracts; potential higher-quality forest, prairie, or other plant communities; or other valuable wildlife habitats were eliminated from consideration during the Tier One evaluation. With avoidance of natural resources as a primary objective, most of the proposed project corridor is located along the existing transportation network and on the west side of O'Hare Airport (where wooded land and wetlands already have been cleared or filled for future development). The use of OMP land for the proposed West Bypass corridor helped avoid and minimize socioeconomic and environmental impacts.

3.14.3.1 Upland Plant Communities

Impacts to upland plant communities would consist primarily of common, non-native, and invasive species with relatively low floristic quality. The proposed project limits have been designed to utilize existing roadways and rights-of-way to the extent practicable, which will minimize disturbances to undeveloped open space and commercially developed areas. No roadway alignments through large tracts of undisturbed open space or wooded land are proposed, and disturbances would be limited primarily to woodland edge impacts associated with widening and improving existing roadways and rights-of-way.

No contiguous closed woodland or scrub-shrub woodland communities of 20 acres or more in the proposed project corridor would be impacted. The largest closed woodland and scrub-shrub woodland impacts would be 11.8 acres and 13.8 acres, respectively. In future design phases and during construction, IDOT and Illinois Tollway would investigate and implement measures to minimize impacts to wooded areas.

These measures include:

- Minor refinements in roadway alignment.
- Narrower roadway cross-sections.
- Refined bridge and culvert specifications to minimize impacts to wooded riparian zones.
- Implementation of proper soil erosion and sediment control measures to minimize sediment deposition and indirect adverse impacts in wooded wetland and riparian zones.
- Construction fencing and woodland exclusion zones to reduce compaction of roots and soil.
- Responsible application of deicing salts and herbicides.

Construction activities close to wooded areas can have potential adverse impacts to preserved trees. Destruction of root zones and soil compaction can occur during grading, excavating, and other construction activities. Adverse impacts will be reduced and minimized by implementing a tree protection and preservation plan that may include guidance regarding root pruning in critical root zones close to site grading, tree trunk and/or dripline protection measures, and establishment of exclusion zones to protect wooded land outside the proposed project limits. Efforts will be made to avoid specimen trees identified during the next phase of the project, as practical and feasible.

Mitigation of upland forested areas, wooded riparian environments, and isolated or small groups of trees would comply with guidelines established by IDOT and Illinois Tollway for tree replacement. Tree and vegetation replacement would be guided by IDOT's *Preservation and Replacement of Trees* policy and Chapter 59 ("Landscape Design") of the *BDE Manual* for free roads. Along the proposed toll facility, tree and vegetation replacement would follow the "Criteria for Removal and Replacement of Trees" section and other applicable sections of the *Erosion and Sediment Control, Landscape Design Criteria* manual (Illinois Tollway, 2012). In addition, IDOT and Illinois Tollway will follow the FAA AC No. 150/5200-33B, *Hazardous Wildlife Attractants on or near Airports*, to the extent practicable. The sustainability goals outlined by the EO-WB Advisory Council would be considered throughout the final

design process. More detail on the EO-WB project's sustainable goals and recommendations can be found in Appendix A.

Guidelines for replacement of trees and vegetation include the following:

- Replace impacted woodland areas, including woody riparian corridors, and trees that provide screening with tree plantings intended to provide comparable functional values within the right-of-way, to the extent practicable. When this cannot be achieved, plantings outside the right-of-way will be considered.
- Plant replacement trees in suitable locations as close as practical to the removal site.
- Plant no ash trees of any variety within the project corridor, to help control the spread of the emerald ash borer.
- Restore disturbed areas with vegetation as appropriate, with emphasis on native species.
- Encourage contractors to use locally produced (within 200 miles) materials.
- Plant vegetation that has low maintenance requirements.
- Coordinate with FAA, OMP, and local officials, as necessary, regarding proposed plant species.
- Within defined wildlife hazard separation distances, install vegetation that minimizes aircraft/wildlife hazards with particular emphasis on large birds (e.g., waterfowl, gulls, and raptors), small mammals that might attract raptors, and small birds that congregate in flocks (e.g., blackbirds, starlings). In general, avoid the use of landscape materials that provide food and shelter for these types of animals, to the extent practicable. Avoid planting evergreen trees and shrubs, densely branched or foliated trees (e.g., *Acer* spp.), and vegetation that produces wildlife-edible fruit or seeds. The OMP developed a list of plant species to avoid and a list of acceptable plant species for use at O'Hare Airport; see subsection 3.10.3.2.

Disturbance of streamside/riparian vegetation will be kept to a minimum. Areas that are disturbed would be stabilized in accordance with NPDES and CWA Section 404 permit requirements. Erosion controls, stormwater quality/quantity best management practices (e.g., compensatory floodplain storage, bioswales, etc.), trees, shrubs, and other appropriate vegetation would be installed near streams to mitigate for riparian impacts. Coordination with the DRSCW would take place to investigate local sites within the Salt Creek Watershed that could provide additional riparian mitigation, if necessary. However, it should be noted that the project must abide by the FAA hazardous wildlife attractant AC, to the extent practical and feasible, to protect the traveling public. Through future plan reviews, FAA (and USDA-APHIS) will dictate, to a large degree, what types of vegetation can be installed and where along the project corridor (including minimum spacing between tree plantings); with a goal of making the environment fairly uniform and unattractive to wildlife species that are considered the greatest hazards to aviation.

A landscaping plan would be developed during future engineering phases that would identify areas where trees, shrubs, and grasses would be planted on highway side slopes, on back slopes, and in the median, except where clear vision needs to be maintained at

highway entrances and exits, intersections, and median openings. Landscape trees and shrubs will be planted along post-construction parkways adjacent to existing commercial and residential developments to replace aesthetic woodland functions and values, as necessary.

3.14.3.2 Wildlife Resources

Development of the Build Alternative included consideration of avoidance, minimization, and mitigation of natural resource impacts. The Build Alternative primarily includes improvements to existing roadways. These roadways are already, for the most part, barriers to wildlife movement. Roadside barriers, such as fences and jersey walls, may restrict wildlife from entering roadways. They can also trap wildlife on the roadway, allowing no means of escape. In areas where there is a higher potential for wildlife activity, such as near the creek crossings and other greenways, fencing and other barriers would be limited to areas necessary for public safety. Short barrier walls that would be implemented as necessary near creek crossings and greenways will be designed mainly to restrict the movement of small animals (including reptiles, amphibians, and smaller mammals) from entering the roadway corridor. The walls would not limit the movement of larger mammals to prevent them from being trapped within the roadway.

Proposed stream crossing structures generally match existing or nearby crossing treatments. New bridges would be required at Higgins Creek (at I-90) and Salt Creek (at the proposed Elgin O'Hare corridor). In general, other crossings consist of culvert extensions, new culverts or bridges on OMP property (where wildlife is managed and discouraged),¹⁰¹ or no improvements to the existing structure (see Table 3-36).¹⁰² Stream crossings and culvert structure sizing will be designed in accordance with state and federal guidelines regarding floodplain encroachment and hydraulic capacity. All new structures would comply with these guidelines.

Because most of the proposed project corridor is located along an existing transportation network, most of the stream crossings exist in the current condition and would be extended with the roadway improvements. For example, at Meacham Creek, Addison Creek, and the Devon Avenue Tributary (at I-290) the existing box culverts are to remain in place. The culverts will be extended at one or both ends. Because the existing culverts are to remain in place, no additional terrestrial wildlife crossings are proposed at these locations as part of this project.

New creek crossings would be bridged, culverted, or otherwise designed to accommodate expected high water flows, allow the movement of aquatic biota, and not impede low water flows. Per the Illinois Tollway drainage design criteria, culverts are designed for the 50-year peak flow and checked for the 100-year and 500-year peak flows to avoid overtopping.

New culverts located on intermittent or perennial waters of the U.S. will be designed to accommodate fish passage (e.g., embedding the upstream and downstream culvert invert six to 12 inches below the streambed elevation). Existing culverts will be retained and in some cases extended in accordance with appropriate design criteria. The bottom of new culverts

¹⁰¹ The O'Hare Airport *Wildlife Hazard Management Plan* strictly limits the type of wildlife which is allowed to cross into the airport.

¹⁰² Because there are no proposed improvements at the West Branch DuPage River, Spring Brook, or Silver Creek – no terrestrial wildlife crossings are proposed at these locations as part of this project.

greater than 48 inches in diameter or height associated with waters of the U.S. will be buried below streambed elevations to maintain a more natural condition for aquatic wildlife, when feasible. Bottomless culverts will be considered in final design, when feasible based on size of the span, geometry, skew, potential environmental impact associated with its installation, and cost. It is important to note that if a culvert is less than 48 inches in diameter, it is very difficult to place riverbed material within the entirety of the pipe. New culverts to be buried include I-90 over Higgins Creek Tributary A, Elmhurst Road over Higgins Creek (if a second culvert alternative is selected during a future design phase), culverts associated with the proposed Elgin-O'Hare Expressway and West Bypass interchange ramps over Willow Creek South Tributary, and culverts associated with the headwaters of Devon Avenue Tributary.

A portion of Willow Creek South Tributary will be slightly shifted as part of the improvements. Within the project corridor, this tributary is located immediately adjacent to Thorndale Avenue and York Road in a heavily developed commercial/industrial area. The tributary is located just west of O'Hare Airport (and drains onto the airport) and portions of the tributary are located within an RPZ. Portions of wooded areas and other potential wildlife habitat that exist near this tributary will be displaced during construction. To meet FAA requirements, vegetation to be re-planted near the airport will consist of species that are unattractive to wildlife. For these reasons, no terrestrial wildlife crossing is proposed for this tributary.

Proposed Willow Creek and Bensenville Drainage Ditch crossings are located immediately adjacent to, or are located on, existing O'Hare Airport property. In accordance with FAA policy to minimize wildlife passage onto O'Hare Airport, no terrestrial wildlife crossings are proposed at these locations. In addition, there are existing upstream drainage structures at York Road, CP railroad, and UP railroad that are not included as part of this project. These upstream drainage structures may limit wildlife passage near the project corridor.

Where new bridges would be installed (e.g., Higgins Creek and Salt Creek), final bridge design would accommodate aquatic biota, small mammal, reptile, and amphibian movement, to the extent practical and feasible. Large terrestrial mammal movements will not be specifically accommodated, beyond that which occurs under existing conditions.

Under existing conditions, wildlife movement at Higgins Creek (at I-90) and Salt Creek (at Thorndale Avenue) is limited. At the I-90 crossing of Higgins Creek, the existing bridge pier and spill through abutments will remain in place. The creek sideslopes are hard-armored with no shelf that would accommodate terrestrial wildlife movement under the existing bridge (see Figure 3-21). The proposed improvements include widening the existing I-90 bridge in-kind and constructing two new bridges over the creek (one to the north and one to the south of I-90) for ramps. Adding a shelf to accommodate terrestrial wildlife passage at the existing bridge is not practical or feasible. A shelf at this location would reduce the waterway opening and add fill in the floodway, which are adverse effects from a hydraulic standpoint.

At the Thorndale Avenue crossing of Salt Creek, the existing 2-span, concrete beam bridge will also remain in place. The existing bridge is approximately 134 feet wide and has stub abutments with slopewall/riprap at Salt Creek. Existing Thorndale Avenue will be re-established as a frontage/service road; the bridge will remain in place and is not proposed to be modified. There is no shelf for terrestrial wildlife under the existing bridge and thus wildlife movement is limited in the existing condition. The proposed Elgin-O'Hare Expressway would cross Salt Creek approximately 82 feet

south of existing Thorndale Avenue. To accommodate wildlife passage, the proposed crossing would provide an approximately 80-foot wide shelf on the east bank of the creek (roughly two to four feet above the normal water level) with six to eight feet of vertical clearance under the bridge. Providing additional clearance for large mammals (up to 13 feet total vertical clearance) is not practical, as it would require the bridge to be raised an additional two to five feet, and necessitate larger and taller embankments and a higher roadway profile. This could increase floodplain and floodway impacts. Higher roadway embankments would create additional conflicts with nearby ComEd substation overhead power lines, and potentially encroach upon the adjacent Wood Dale - Itasca Reservoir and trail to the south, or upon Thorndale Avenue and existing businesses to the north.

3.14.4 Indirect and Cumulative Natural Resource Impacts

Although some indirect and cumulative impacts to natural resources are likely with the EO-WB project improvements, unlike wetlands, there is little regulatory protection for habitat types, such as wooded areas and old fields, unless they contain jurisdictional wetlands or floodplains, are located in special lands, or provide critical habitat for threatened or endangered species.

The proposed project corridor is located in a densely developed portion of northeastern Illinois with a high percentage of urban and built-up land. Exceptions include preserved open space associated with forest preserves and municipal parks. Over the next several decades, additional development through infilling and selective redevelopment is expected to occur in the vicinity of the proposed EO-WB project improvements. Unprotected open space may be developed to take advantage of better transportation and access following completion of the EO-WB project. This land development has the potential to displace natural resources. Based on information developed by S.B. Friedman & Company (2011), an

FIGURE 3-21
EXISTING BRIDGE AT I-90 AND HIGGINS CREEK LOOKING
UPSTREAM



Source: DB Sterlin, 2009.

evaluation of potential development could be prompted by the EO-WB project over the next 30 years. It is estimated that approximately 90 percent of potential development would impact existing urban or built-up land. Almost six percent would impact wooded land, and a little over four percent would impact wetlands/waters, agricultural land, and barren/exposed land (i.e., areas without vegetation or structures).

In general, the majority of the potential development that could be spurred by the Build Alternative is anticipated to take place along the existing interstates and the proposed EO-WB project. Property that is unprotected open space, underdeveloped, or underused may be developed. However, generally speaking, direct impacts to higher-quality natural resources (e.g., Ned Brown Forest Preserve) and resources with regulatory protection (e.g., wetlands) near the project corridor are anticipated to be minimal (see Exhibit 3-21). One example includes the higher-quality natural area and nature preserve at the north end of Ned Brown Forest Preserve located west of Arlington Heights Road and adjacent to the south side of I-90. The proposed EO-WB improvements end at the east side of Arlington Heights Road, and stormwater runoff from the project corridor drains east in this location toward Higgins Creek. The nature preserve is located west of Arlington Heights Road in the Salt Creek Watershed. No direct impacts to the nature preserve at Ned Brown are anticipated from this project. The potential indirect and cumulative impacts of the induced development areas on higher-quality natural resources and wetlands can be managed at the local, state, and federal levels through permit requirements, the implementation of best management practices, and the increasing consideration of sustainable practices.

Excluding special lands, the remaining natural resources near the project corridor are generally confined to relatively small, isolated parcels that are primarily located adjacent to existing roadways, rail lines, and other built-out parcels; in essence, these areas are already fragmented. Development induced by the proposed EO-WB project improvements could cause loss of habitat and increased competition in remaining natural areas. However, in regard to induced or cumulative impacts as a result of this specific project, very little habitat fragmentation is anticipated. Preservation of special lands can reduce fragmentation by protecting habitat resources.

In the vicinity of the project corridor, large contiguous areas of open space are generally located within special lands or are adjacent to waterways. Due to the large percentage of urban development, fragmented habitat, and transportation infrastructure near the project corridor in the existing condition, wildlife movement is limited. No substantial indirect or cumulative impacts to wildlife movement are anticipated.

Future development has the potential to create additional edge effect at the perimeter of larger preserved open space and to displace isolated habitat areas (old fields or small wooded lots) that are not within special lands. The extent of habitat area affected by edge effect could continue to move inward due to the cumulative effect of other developments and projects in the area. Additional developments could further reduce the number and size of remaining open spaces and available habitat.

3.15 Section 4(f)

Significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, and historical sites of national, state, or local significance are afforded special protection under

