

SECTION 2

Affected Environment

This section describes the social, economic, and environmental setting of the study area. It describes the human and natural environment within the study area for the purpose of establishing baseline conditions from which to evaluate and compare potential impacts of the alternatives described in Section 3. The resources discussed in this section relate to FHWA Technical Advisory T6640.8A.

Several resource topics do not affect the consideration of project alternatives and, therefore, are not discussed including surficial geology, bedrock geology, and mineral resources. For the Tier One analysis, the study area's social and environmental characteristics were first determined using readily available census data, existing maps, GIS data, and other existing information with detailed field studies to be conducted during Tier Two as agreed to by FHWA, IDOT, and regulatory resource agencies early in the study process. (See Section 5.2.1 for a summary of the agency scoping meetings at which this topic was discussed). See Appendix A for the list of GIS sources. As the location of the proposed improvements became better defined, windshield surveys and site visits were conducted in the surrounding area proximate to the proposed improvements to locate more accurately resources that could be affected by the proposed improvements. Exhibit 2-1 portrays the study area and the areas of detailed analysis. Exhibits 2-2 and 2-3 show the major natural and built features within the study area.

2.1 Socioeconomic Characteristics

2.1.1 Demographics

The study area encompasses 27 communities within northwest Cook and northeast DuPage counties. Approximately 509,900 individuals, or 5.3 percent of the Chicago metropolitan area's population of 9.7 million, reside within the study area (CMAP, 2006a). In evaluating the study area, special attention is focused on six core communities: Elk Grove Village, Wood Dale, Bensenville, Itasca, Schaumburg, and Roselle (see Exhibit 1-1 for locations and boundaries). The communities represent the heart of the study area and include most of the industrial land use and concentrations of major transportation facilities there. Demographically, the study area's population is similar to other built-out suburbs; however, population density is slightly less because of the concentration of transportation, commercial, and industrial land uses (see Exhibit 2-4).

The population of the study area grew substantially following 1960, as parts of the population in Chicago began to shift from the urban core to the outlying suburbs. In the past 15 years, growth in the study area has stabilized, with major population growth expanding farther into outlying Kane, Lake, McHenry, and Will counties. Growth figures for the counties from 2000 to 2008 have ranged from about 10 to more than 40 percent, whereas growth in mature counties, such as Cook and DuPage, have declined or slowed (see Table 2-1). Though population forecasts differ for individual communities in the study area, the population of the study area, as a whole, is projected to grow (see Table 2-2). Population forecasts range from an

8.0 percent decrease in Bensenville to a 34.2 percent increase in Schaumburg. The number of households in the study area is forecast to increase in every community in the study area.

TABLE 2-1
Chicago Region Population Growth by County

	2000	2008	% Change
Cook County	5,376,741	5,294,664	-1.5
DuPage County	904,161	930,528	+2.9
Kane County	404,119	570,579	+41.2
Lake County	644,356	712,453	+10.6
McHenry County	260,077	318,641	+22.5
Will County	502,266	681,097	+35.6
Six-County Area	8,091,720	8,507,962	+5.1

Source: U.S. Bureau of the Census, 2009.

TABLE 2-2
Population and Household Projections for the Core Communities in the Study Area

	Population			Households		
	2000	2030	Change (%)	2000	2030	Change (%)
Elk Grove Village	34,727	36,948	6.4	13,278	14,030	5.7
Bensenville	20,703	19,048	-8.0	6,885	7,582	10.1
Itasca	8,302	10,706	29.0	3,179	3,912	23.1
Wood Dale	13,535	13,869	2.5	5,117	5,245	2.5
Schaumburg	75,386	83,284	34.2	31,799	33,571	5.6
Roselle	23,115	26,784	15.9	8,443	9,830	16.4
Total Core Communities	175,768	190,639	8.5	68,701	74,170	8.0

Source: CMAP, 2006a.

2.1.2 Economic Characteristics

Communities within the study area exhibit large concentrations of employment. According to 2006–2007 estimates by CMAP, total employment within the study area is 569,500, representing a considerable percentage (11.08) of the overall metropolitan employment total of 5,141,090. As of 2000, Elk Grove Village represents the largest concentration of employment in the Chicago metropolitan region outside the central business district in downtown Chicago. Schaumburg represents the second largest and O'Hare Airport the fifth largest (McMillen, 2003).

Transportation facilities, including highways and O'Hare Airport, largely contribute to the concentration of employment within the study area. Employment density is greatest in Elk Grove Village directly adjacent to the O'Hare Airport, along major thoroughfares like Thorndale Avenue, I-90 north of Elk Grove Village, and I-294 east of O'Hare Airport. Junctions of Thorndale Avenue and I-290, and I-90 and I-290, are substantial employment centers.

Table 2-3 lists the largest employers within each core community. They include hospitals (Alexian Brothers), manufacturers (Videojet Technologies and Tigerflex Corp), and global

service companies (Automatic Data Processing and Household Credit Services). All require proximity to efficient transportation facilities. Other nearby major employers include the international headquarters of the Motorola Corporation, and the operational headquarters of United Airlines, which is one of the largest passenger airlines in the world. An estimated 60,000 individuals work at O'Hare Airport for the numerous companies and agencies affiliated with airport related functions and services.

TABLE 2-3
Major Employers within the Core Communities in the Study Area

Company	Employees	Company	Employees
Elk Grove Village		Bensenville	
Alexian Brothers Medical Center	1,800	Sara Lee	750
Automatic Data Processing	850	Lifelink Corp.	500
Citigroup	600	Quebecor World (1130 W. Thorndale)	400
Metal Impact	315	U.S. Food Service, Inc.	400
Sizmons	300	Victor Envelope	320
American Academy of Pediatrics	300	Restoration Inc, JC	315
Bigston	270	Quebecor World (110 Foster)	300
RR Donnelly	250	A. S. G. Staffing, Inc.	250
Elk Grove High School	250	Allmetal, Inc.	200
Manor Care	230	ATA Trucking, Inc.	200
Itasca		Wood Dale	
Gallagher – Bassett Services, Inc.	675	Corning Clinical Laboratories	900
Boise Cascade Office Products	625	Videojet Systems International	900
Fellowes Manufacturing Company	600	Sales Force Cos. Inc.	625
Westin Hotel	320	Household Retail Services	600
Continental Web Press, Inc.	425	Market Day	450
Oce-Bruning	330	AEC Inc.	360
Nestle	320	Majesty Maintenance Inc.	350
		AAR Corporation	300
		Florstar Sales, Inc.	280
		Tempco Electric Heater	275
Schaumburg		Roselle	
Motorola	7,000	Service Decorating and Construction	250
Woodfield Shopping Center	3,800	NEC Technologies	200
School District 54	2,274	Roman, Inc.	160
Zurich American Insurance	1,600	Exhibit Group	158
Experian	1,400	Rich Graphics	150
Cingular	1,200	Compton Presentations	125
IBM	1,150	Genesis	125
Nation Pizza Products	1,000	Electri-Flex	90

TABLE 2-3
Major Employers within the Core Communities in the Study Area

Company	Employees	Company	Employees
G.E. Financial Assurance	800	Larson-Juhl	65
AC Nielson	610	Sony	62

Source: IDCEO, 2008.

The transportation hub formed by crossing interstate highways, railroads, and one of the world’s largest airports is a factor that will continue to contribute to future growth. The 2030 employment forecast for the study area is estimated at 680,500, an increase of more than 100,000 employees. Estimates indicate that the core communities will gain 76,579 jobs, or more than half the overall growth projected for the entire study area (see Table 2-4). Elk Grove Village is expected to have the largest increase.

TABLE 2-4
Employment Projections for the Core Communities in the Study Area

	2000	2030	Change	% Change
Elk Grove Village	61,121	97,974	36,853	60.3
Bensenville	28,903	31,862	2,959	10.2
Itasca	31,374	37,210	5,836	18.6
Wood Dale	24,897	29,273	4,376	17.6
Schaumburg	87,688	111,229	23,541	26.9
Roselle	8,862	11,876	3,014	34.0
Total	242,845	319,424	76,579	31.5

Source: CMAP, 2006a.

2.1.3 Land Use

The study area is a mix of open space, residential, industrial, and commercial land uses (see Exhibit 2-4). The existence of transportation infrastructure has contributed to a concentration of commercial and industrial land uses within the study area, while substantial open space and residential neighborhoods remain.

Most communities have a well-developed core of commercial and retail business that adequately serves their respective populations. Regional business and commercial centers have primarily developed at major roadway junctions such as I-90 and I-290, and I-290 and Thorndale Avenue.

Transportation accounts for 11 percent of the land use within the study area (see Table 2-5) and includes several major transportation facilities. Among them is O’Hare Airport, on more than 7,000 acres. Also present are six major roadway facilities: I-294, I-90, I-190, I-290/IL 53, I-355, and the Elgin O’Hare Expressway.

TABLE 2-5
Land Use in the Study Area

Land Use	Area (mi ²)	Acres	% of Study Area
Residential	47.3	30,250	37
Commercial	10.5	6,740	8
Institutional	4.6	2,970	4
Industrial	18.0	11,520	14
Transportation ^a	14.5	9,250	11
Open Space ^b	32.6	20,870	26
Total	127.5	81,600	100

Source: CMAP, 2006b.

^a Includes roadways, rail, and O’Hare Airport.

^b Includes park, forest preserve, and undeveloped land.

Major freight and commuter rail, whose operators include Metra, UPRR, Canadian Pacific Railroad (CPRR), and Canadian National Railroad (CNRR), also cross the study area and operate freight yards and intermodal transfer facilities in the area (see subsection 2.1.6).

Fourteen percent of land use within the study area is industrial, which is twice the percentage of the Chicago six-county metropolitan area (CMAP, 2006b). The industrial facilities include some of the largest and most concentrated employment centers in the metropolitan region, including Elk Grove Village, with the largest industrial business center in the United States. As noted, the study area includes the largest employment in the Chicago region, other than downtown Chicago.

Residential land use in the study area is proportionately less than the six-county metropolitan area. According to the Chicago Metropolitan Land Use Inventory (2001), nearly 46 percent of land use within the greater Chicagoland area is residential, compared to 37 percent in the study area. Residential areas are primarily concentrated along the southern and western parts of the study area, whereas O'Hare Airport and adjacent industrial facilities dominate the northern and eastern part. Residential areas are representative of typical suburban areas with moderately dense populations and little undeveloped land.

Open space within the study area primarily comprises units within the DuPage and Cook Counties Forest Preserves (see also subsection 2.7.1, Forest Preserves). The Ned Brown Preserve, the largest tract of open space in the study area, is a 3,700-acre public forest in northwestern Cook County. The preserve, also known as Busse Woods, surrounds Busse Lake, a 590-acre lake that is the focus of the area. Within the eastern part of the study area is a system of Forest Preserve District of DuPage County (FPDDC) properties along the Des Plaines River running north-south. Collectively, they total 1,650 acres within the study area. The FPDDC manages several smaller public open spaces, including Salt Creek Marsh (100 acres), the Silver Creek Preserve (18 acres), Salt Creek Park (90 acres), Wood Dale Grove (187 acres), Fischer Woods (149 acres), and Songbird Slough (391 acres) in the southern and western parts of the study area. There are also many golf facilities in the study area, ranging from 162 to nearly 250 acres, including Oak Meadows Golf Club, Maple Meadow Golf Club, White Pines Golf Club, Salt Creek Golf Club, Itasca Country Club, and the River Forest Country Club.

A comparison between the land use make-up of the six core communities within the study area (see Table 2-6) and the greater six-county Chicago region shows that the communities in the study area have more urban and built-up lands (75.9 percent and above compared to 44 percent). These communities exhibit a large concentration of industrial and commercial land use. Elk Grove Village, with nearly 40 percent of land use designated as industrial, has the highest concentration. Similarly, four of the six core communities contain a lower percentage of residential land use than the Chicagoland area. Communities farther from Chicago (Schaumburg and Roselle) exhibit higher percentages of residential and commercial land uses and lower industrial land use than the other core communities. The amount of vacant land in each community is 5.9 percent or less, so growth that occurs represents infilling or selective redevelopment.

TABLE 2-6
Land Use within the Core Communities in the Elgin O'Hare–West Bypass Study Area

	Elk Grove Village		Bensenville		Itasca		Wood Dale		Schaumburg		Roselle	
	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%
Residential	2,691	37.9	1,369	35.6	876	27.5	1,295	43.3	5,878	48.0	2,105	61.0
Commercial and services	390	5.5	211	5.5	393	12.3	142	4.8	2,727	22.3	298	8.6
Institutional	276	3.9	180	4.7	85	2.7	51	1.7	377	3.1	223	6.5
Industrial	2,777	39.1	1,378	35.8	674	21.1	849	28.4	504	4.1	200	5.8
Transportation, communication and utilities	148	2.1	104	2.7	330	10.4	49	1.6	510	4.2	100	2.9
Under construction	24	0.3	37	1.0	64	2.0	0	0.0	117	1.0	24	0.7
Total urban and built-up land uses	6,306	88.8	3,279	85.3	2,422	75.9	2,386	79.8	10,113	82.7	2,950	85.5
Agriculture	6	0.0	11	0.3	1	0.0	8	0.3	21	0.2	87	2.5
Open space (includes wetlands and water)	647	9.1	448	11.7	580	18.8	527	17.6	1,503	12.3	310	9.0
Vacant	146	2.1	106	2.8	187	5.9	69	2.3	601	4.9	102	3.0
Total	7,105	100	3,844	100.1	3,190	100	2,990	100	12,239	100.1	3,450	100

Source: CMAP, 2006b.

2.1.4 Environmental Justice

For all federal funded programs and activities, the issue of equality must be addressed in compliance with Title VI of the 1964 Civil Rights Act (Title VI) and Environmental Justice Executive Order (EO) 12898. Title VI states that “No person in the United States shall, on the grounds of race, color age, sex, disability, religion or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.”

EO 12898 further requires that federal agencies achieve environmental justice by identifying and addressing disproportionately high and adverse human health and environmental effects, including both the social and economic effects of their programs, policies, and activities on minority and low-income populations. The most recent data from the Census 2000 were used to characterize the population in the study area. Census data were collected for the core communities and compared against the county and state Census information (see Table 2-7). Census information for the core communities is considered representative of the broader study area. The core communities make up most of the area within which the proposed improvements would occur. The study area outside the core communities was reviewed to determine if any neighborhoods were not represented by the core community statistics.

As a group, the core communities in the study area have a minority population of less than 20 percent. Individually, Bensenville and Schaumburg have percentages of minority populations of 29.4 percent and 21.2 percent, respectively.

Bensenville also has a higher percentage of Hispanic or Latino population than the other core communities, the counties, or the state. Asians are the largest minority group in the six core communities.

The average household size in the study area is three, except in Schaumburg where it is two. The U.S. Department of Health and Human Services defined the 2009 poverty guideline for a family of three at \$18,310 and \$14,570 for an average household size of two. The median household income levels for core communities in the study area are well above the poverty threshold (see Table 2-8).

Census data for the six core communities indicate household and individual poverty levels to be a small percentage of the total population (see Table 2-9). The core communities have relatively low poverty levels, with none of the communities having poverty levels exceeding five percent of the households. Again, the core communities were very similar to DuPage County as a whole, and markedly lower than the average poverty level of Illinois.

TABLE 2-8
1999 Median Household Income for the
Core Communities in the Study Area

Elk Grove Village	\$62,132
Bensenville	\$54,662
Itasca	\$70,156
Wood Dale	\$57,509
Schaumburg	\$60,941
Roselle	\$65,254
DuPage County	\$67,887
Cook County	\$45,922
State of Illinois	\$46,590

Source: U.S. Bureau of the Census, 2000.

TABLE 2-7
 Comparison of the Demographics of the Core Communities in the Elgin O'Hare–West Bypass Study Area to DuPage and Cook Counties and the State of Illinois

	Elk Grove Village	Bensenville	Itasca	Wood Dale	Schaumburg	Roselle	DuPage County	Cook County	State of Illinois
White	29,874 (86.0%)	14,615 (70.6%)	7,309 (88.0%)	12,076 (89.2%)	59,391 (78.8%)	20,315 (87.9%)	759,924 (84.0%)	3,025,760 (56.3%)	9,125,471 (73.5%)
Black or African American	490 (1.4%)	579 (2.8%)	140 (1.7%)	78 (0.6%)	2,526 (3.4%)	383 (1.7%)	27,600 (3.1%)	1,405,361 (26.1%)	1,876,875 (15.1%)
American Indian and Alaska Native	33 (0.1%)	94 (0.5%)	22 (0.3%)	20 (0.1%)	77 (0.1%)	48 (0.2%)	1,520 (0.2%)	15,496 (0.3%)	31,006 (0.2%)
Asian	3,051 (8.8%)	1,318 (6.4%)	484 (5.8%)	439 (3.2%)	10,697 (14.2%)	1,685 (7.3%)	71,252 (7.9%)	260,170 (4.8%)	423,603 (3.4%)
Native Hawaiian and other Pacific islander	15 (0.0%)	5 (0.0%)	2 (0.0%)	10 (0.1%)	43 (0.1%)	11 (0.0%)	217 (0.0%)	2,561 (0.0%)	4,610 (0.0%)
Some other race	797 (2.3%)	3,438 (16.6%)	143 (1.7%)	650 (4.8%)	1,307 (1.7%)	333 (1.4%)	28,166 (3.1%)	531,170 (9.9%)	722,712 (5.8%)
Population of 2 or more races	467 (1.3%)	654 (3.2%)	202 (2.4%)	262 (1.9%)	1,345 (1.8%)	340 (1.5%)	15,482 (1.7%)	136,223 (2.5%)	235,016 (1.9%)
Total Population	34,727	20,703	8,302	13,535	75,386	23,115	904,161	5,376,741	12,419,293
Percent minority of total population	14.0%	29.4%	12.0%	10.8%	21.2%	12.1%	16.0%	43.7%	26.5%
Percent Hispanic or Latino (of any race) of total population ^a	6.2%	37.1%	7.0%	13.1%	5.3%	5.2%	9.0%	19.9%	12.3%

Source: U.S. Bureau of the Census, 2000.

^a Percent Hispanic or Latino of total population is calculated separately from percent minority of total population and is not represented in the minority percentages.

TABLE 2-9
Poverty Levels (percentages) in the Core Communities in the EO-WB Study Area

	Elk Grove Village	Bensenville	Itasca	Wood Dale	Schaumburg	Roselle	DuPage County	Cook County	Illinois
Families below poverty level	1.5	4.2	3.1	2.9	2.0	1.3	2.4	10.6	7.8
Individuals below poverty level	2.0	6.5	4.7	4.1	3.0	2.0	3.6	13.5	10.7

Source: U.S. Bureau of the Census, 2000.

2.1.5 Public Services and Facilities

Communities within the study area are well established with a comprehensive range of public services and facilities. According to a database search completed in 2007, 253 public community parks, 174 schools, 102 churches, nine libraries, 25 cemeteries, 35 police and fire stations, and three medical facilities are located within the study area.

2.1.6 Transportation Facilities

The transportation system in the study area consists of an established roadway system, commuter and freight rail, and the second largest airport in the world. Commuter rail, bus routes, bicycle routes and pedestrian paths further compliment the system of transportation.

2.1.6.1 Existing Roadways

The study area is the crossroads of several interstate and major routes. Among the fully access-controlled facilities (freeways and tollways) in the area are I-294, I-90, I-190, I-290/IL 53, I-355 and the Elgin O'Hare Expressway. Eighteen percent of all trips in the Chicago region start, stop, or pass through the study area. With more than four million daily vehicle trips in the study area, 86 percent of the freeways and principal arterials are congested during peak hour travel periods.

Major arterial roadways form a grid throughout most of the study area (except for O'Hare Airport, which blocks east-west and north-south travel in the study area) and provide high volume travel and access within it. In the study area, many arterials are designated as Strategic Regional Arterials (SRAs)—routes that carry large volumes of traffic through the area. There are eight SRAs with a total length of roughly 50 miles either fully or partially within the study area. Almost 32 percent of all travel during the P.M. peak is on roadways classified as principal and minor arterials (see Table 2-10). Principal arterials are 79 percent congested and minor arterials are 59 percent congested during the P.M. peak. The combination of arterials and freeway type facilities account for 94 percent of congestion in the P.M. peak travel periods. Both facilities are projected to be more than 90 percent congested by 2030.

TABLE 2-10
Traffic Congestion P.M. Peak Period: 2007 and 2030

Road Type	2007 Existing VMT			2030 Baseline VMT		
	Total	Congested	% Congested	Total	Congested	% Congested
Freeway	1,576,000	1,381,000	88	1,693,000	1,522,000	90
Principal arterial	434,000	344,000	79	529,000	489,000	92
Minor arterial	410,000	241,000	59	585,000	526,000	90
Collector	153,000	62,000	41	259,000	155,000	60
Total	2,573,000	2,028,000	79	3,066,000	2,692,000	88

A well-established secondary street system of collectors extends from the arterial network of roadways providing the connection between the traveler’s origin and destination and the remainder of the roadway system. Roadways classified as collectors account for six percent of travel during the P.M. peak period. Whereas congestion is lowest of any category in 2007 at 41 percent, congestion on collectors will grow to 60 percent by 2030.

Although the roadway network is well-established, it carries large traffic volumes that exceed roadway capacity. With 79 percent of the roadways congested, travel delays on the system during peak periods are notable. The equivalent of seven workdays is lost annually by every employee in the study area due to travel delay. Access from the interstate system to the study area is impeded by partial interchanges, and access to freeway connections is impeded by roadway capacity issues and congestion. Efficient travel is complicated by numerous at-grade railroad crossings that slow vehicular travel with crossing freight train traffic.

Analysis of travel desires in the study area shows that the area is a pivotal location for travel to and from the Chicago downtown area, and for travel that bypasses downtown and goes around the city. I-294, the principal north-south beltway around the Chicago core, carries the highest traffic volumes of the interstate facilities in the study area. I-355 is a major north-south corridor, a key transportation link between communities and employment centers in the northwest, west, and southwest suburbs. I-90 is a principal radial east-west corridor in the northwest Chicago metropolitan area serving travel to and from the Chicago core area. I-290 is another principal radial east-west corridor that connects west and northwest suburban areas with downtown Chicago. With this confluence of routes serving major regional travel patterns, it is noted that 61 percent of all travel in the study area is on the interstate system.

2.1.6.2 Existing Public Transit System

The public transit system serving the study area is extensive. It includes services provided by all of the Regional Transportation Agency’s (RTA) operating agencies: the CTA; Metra, the region’s commuter rail operator; and Pace, the suburban bus operator (see Exhibit 2-5). Table 2-11 summarizes the commuter and bus routes in the study area. Yet another system, the airport “people mover,” provides circulation and distribution within the O’Hare Airport.

TABLE 2-11
Commuter and Bus Routes in Study Area

Facility	Quantity
Commuter rail lines	5
Commuter rail stations	37
Bus routes	35

CTA Rapid Transit. CTA provides rapid transit service in the study area through its Blue Line. Five Blue Line stations are near the study area: Jefferson Park, Harlem, Cumberland, Rosemont, and the O'Hare Airport. The Jefferson Park Station is a pivotal point with connecting Pace routes and a convenient transfer option from Metra's Union Pacific-Northwest (UP-NW) line.

Bidirectional Blue Line service is provided 24 hours a day, from every four minutes during the evening peak period to 30 minutes in the middle of the night. During most periods, trains operate on average at seven to eight minute intervals. Not only does the Blue Line connect the Chicago Central Business District to O'Hare Airport; it also serves Forest Park, Oak Park, west-central Chicago in the I-290 corridor, and downtown Chicago. It then extends northwest through the city, serving neighborhoods with either elevated or subway lines before entering the I-90 and I-190 corridors to complete the route to O'Hare. Thus, the line connects several communities and corridors to the study area.

Metra Commuter Rail System. Four Metra lines, all connecting to Chicago's downtown, serve the study area: the North Central Service (NCS), UP-NW, MDW, and Union Pacific-West (UP-W). Service on these and all Metra lines is configured to bring large numbers of suburban residents to work in downtown Chicago in the A.M. peak period, and to transport them to the suburbs in the P.M. peak. Although most service is oriented to bring suburban residents into downtown Chicago, more service is being added to accommodate the reverse commute (i.e., from downtown to the suburbs).

In and near the study area, the NCS rail line has five stations, UP-NW has 12, MDW has 11, and UP-W has four. In most cases, railroad companies operate passenger service under a service area agreement with Metra.

Pace Bus System. In the study area, there are 35 Pace routes consisting of 24 CTA connectors, four suburban links, three community-based routes, three Metra feeder services, and one intracommunity route. The density or route coverage is greatest in the eastern part of the study area. CTA's Blue Line stations at Harlem, Cumberland, and Rosemont serve as terminals for numerous Pace bus routes, with the station at Rosemont functioning as an important Pace transportation center. Many routes, including express services to employment sites at Schaumburg and Prairie Stone, originate there. Another important facility is Pace's Northwest Transit Center in Schaumburg where nine routes including express services intersuburban connector and local routes converge, and where there are park and ride facilities.

Existing Freight Rail System. The Chicago region is a major junction for transcontinental freight systems, and a critical element of the continental land bridge connecting the Pacific and Atlantic coasts. At the Chicago facilities, eastern and western railroads meet and transfer loads. The region is also the location of many intermodal facilities, where trucks collect to deliver or receive and distribute freight containers. There are five freight lines and five freight yards in the study area (see Exhibit 2-6). Intermodal operations occur at three freight yards: CPRR's yards in Bensenville and in Schiller Park and UPRR's Proviso yard spanning Bellwood, Berkeley, and Melrose Park. There are 120 at-grade railroad crossings in the study area, 15 of which are on major roads. Delays at some locations are lengthy (over 15 minutes) and can double the length of an average local trip.

2.1.6.3 Other Modes of Transportation

Air Transportation. O'Hare Airport is located in the northeastern part of the study area. O'Hare is the second largest airport in the world with almost one million airplane takeoffs and landings a year (see Table 2-12). The O'Hare terminal complex is located on the east side of the airfield, and access is provided from the east by major roadways and transit service. Other secured entrances are located on the north and south sides of the airfield. These entrances serve employee parking and cargo facilities. For the last six years, the City of Chicago has been working on the OMP, which is adding new runways and related infrastructure to reduce air travel delay at O'Hare Airport. Modernization of the airfield includes a new terminal complex on the west side of O'Hare field that would be served by ground transportation from the west. The estimated vehicle trips to the west terminal in 2030 are estimated to be 29,000 vehicles per day.

TABLE 2-12
O'Hare Airport Air Transportation in the Study Area: 2007

Facility	Quantity
Enplanements ^a	36,521,585 (passengers)
Aircraft movements ^b	926,973 (takeoffs/landings)

^a Source: FAA, 2008.

^b Source: City of Chicago, 2008.

Pedestrian and Non-motorized Facilities. The region's bicycle system consists of roadways available for shared use with autos and dedicated trails available for shared use with pedestrians. Gaps within the bicycle system result in a lack of access at transit stations or between various community activity centers in the study area. Three regional trails are located within close proximity of the study area: the North Central DuPage Regional Trail, the Salt Creek Greenway Trail, and the Des Plaines River Trail. The North Central DuPage Regional Trail is primarily an east-west trail extending from Ned Brown Forest Preserve south and west to Mallard Lake Forest Preserve. In the future, it will connect farther east to the Elgin Branch of the Illinois Prairie Path. The Salt Creek Greenway Trail is a north-south trail paralleling Salt Creek. Currently, six miles are completed in the study area across Thorndale Avenue and alongside Salt Creek Marsh Forest Preserve. When completed, the trail will extend from Ned Brown Forest Preserve to the Hinsdale Bikeway. The Des Plaines River Trail is a north-south trail paralleling the Des Plaines River through Lake and Cook counties, extending from the Illinois-Wisconsin state border to Maywood, Illinois. This is located east of I-294.

Several, but not all, of the communities within the study area have designated bicycle routes (both on- and off-street). The current trail system does not connect to all surrounding community centers, and not all trails are centrally located to schools, commercial and employment centers, or transit stops. There are opportunities to provide links, not only between communities but also within them. Opportunities for completing gaps in the bicycle system are discussed in Section 3.

2.2 Agriculture

Agricultural lands represent a small amount (3.3 percent) of the total land use for the core communities (see Table 2-6). General field surveys in 2008 and 2009 confirmed that there are agricultural areas located proximate to the proposed improvements, but no direct impacts are anticipated. As a result, agricultural lands are not discussed further in this document.

2.3 Water Resources and Quality

2.3.1 Water Resource and Watershed Characterization

The study area is within the Des Plaines River Watershed (Hydrologic Unit 07120004), and has been divided into seven smaller watersheds: Addison Creek, Des Plaines River,¹ East Branch DuPage River, Salt Creek, Weller Creek, West Branch DuPage River, and Willow Creek. The watershed limits are based on Illinois Environmental Protection Agency (IEPA) watershed boundaries. Table 2-13 summarizes some of the major and minor waterways that traverse the study area. No waterways in the Weller Creek Watershed traverse the study area. The East Branch DuPage River Watershed is within the study area, but because it is not near the proposed improvements, it was not considered further (see Exhibit 2-7).

Within Illinois, waters are protected and evaluated under the General Use Water Quality Standards (Title 35 Illinois Administrative Code, Subtitle C, Chapter I, Part 302, Subparts A and B). Designated uses under the General Use Water Quality Standards include aquatic life, fish consumption, primary contact, secondary contact, and aesthetic quality. States are required to classify waters with respect to impairments. Waters that do not fully support their designated uses are considered impaired and are cataloged in the 303(d) list of impaired water-quality-limited waters, requiring total maximum daily loads (TMDLs). TMDLs set pollution reduction goals to improve the quality of impaired waters.

TABLE 2-13
Study Area Waterway Summary

Waterway ^a	Tributary Area ^b (mi ²)	Waterway Length ^c (miles)	Flow Characteristic ^d
Addison Creek Watershed			
Addison Creek	8.2	4.3	Perennial
Des Plaines River Watershed			
Des Plaines River	630 ^e	6.1	Perennial
Bensenville Ditch	4.0 ^f	3.2 ^f	Intermittent
Silver Creek	8.7	3.3	Intermittent; perennial
Crystal Creek	4.8	2.3	Intermittent
Salt Creek Watershed			
Salt Creek	150.0 ^g	45.9 ^h	Perennial
Salt Creek Tributary D	4.3 ^j	0.8	Perennial
Arlington Heights Branch	12.7 ^j	0.9	Perennial
Salt Creek West Branch	12.1 ^j	6.2	Perennial
Westwood Creek	5.6 ^k	2.1	Intermittent
Spring Brook (Creek)	14.4 ^k	8.3	Perennial
Meacham Creek	5.1 ^k	2.1	Perennial
West Branch DuPage River Watershed			
West Branch DuPage River	10.1 ^k	2.7	Perennial

¹ As referred to in this Tier One study, the "Des Plaines River Watershed" represents one of the seven watersheds in the study area (see Exhibit 2-7). It includes areas that are tributary to the Des Plaines River, but are not included in the other six watersheds.

TABLE 2-13
Study Area Waterway Summary

Waterway ^a	Tributary Area ^b (mi ²)	Waterway Length ^c (miles)	Flow Characteristic ^d
Willow Creek Watershed			
Willow Creek	20.2 ^j	6.5 ⁱ	Intermittent, perennial
Higgins Creek	7.3 ^j	2.2	Perennial

Sources: U.S. Geological Survey (USGS) Quadrangle Map; Federal Emergency Management Agency (FEMA), 2004b; FEMA, 2007; FEMA, 2008b; Christopher B. Burke Engineering, Ltd. (CBBEL), 2004; CBBEL, 2007.

^a This table does not include waterways within the study area with drainage areas less than 4.0 mi². The Weller Creek Watershed also is not included. No waterways in the Weller Creek Watershed traverse the study area.

^b Approximate area of watershed to downstream limit of study area including areas upstream of the study area (except as noted).

^c Length of waterway within the study area; generally based or calculated from FEMA Flood Insurance Studies (FIS) Flood Profiles (except as noted).

^d Periodicity of flow is based on USGS 7.5-minute Quadrangle Maps.

^e Data per USGS gauge at Riverside.

^f Data from CBBEL, 2007 report.

^g Tributary area at confluence with Des Plaines River.

^h Approximate length per GIS estimate.

ⁱ Data from CBBEL, 2004 report.

^j Data from FEMA Cook County FIS, 2008b.

^k Data from FEMA DuPage County FIS, 2004b.

TMDLs have been prepared for waters in the Salt Creek Watershed² and the West Branch DuPage River (CH2M HILL, 2004b). In addition, segments of four waterways in the study area – Addison Creek, Salt Creek, West Branch DuPage River, and Higgins Creek – are in the first stage of TMDL development to address additional impairments (IEPA, 2008a). Stage 1 TMDL development includes describing the watershed, collecting/analyzing available data, identifying methodologies, procedures, models, and determining if additional data are needed.

In addition to the 303(d) list, the Illinois Department of Natural Resources (IDNR) released biological stream ratings for Illinois streams that can be used to identify aquatic resource quality (IDNR-ORC, 2008).³ The ratings are useful in identifying biologically diverse streams and those with a high degree of biological integrity. No Biologically Significant Streams (BSS) or Wild and Scenic Rivers are within the study area, but the Des Plaines River is listed on the Nationwide Rivers Inventory as being eligible or potentially eligible for designation as a Wild and Scenic River because of its remarkable scenic and recreational values.

Preliminary field reconnaissance resulted in the identification of 225.6 acres of water resources near the proposed improvements. They include rivers/creeks, lakes/ponds, reservoirs, ditches, and open water stormwater management facilities. Based on preliminary field reconnaissance of potential stream crossings, the water clarity was generally good and the stream substrates generally consisted of silt, sand, or gravel. Many modified stream channels have been lined with hardscape measures (e.g., rock or concrete). Most of the vegetated stream channels have narrow corridors of habitat for flora and fauna.

² The Salt Creek TMDLs address segments of the following waterways within the study area: Salt Creek, Addison Creek, Spring Brook, Meacham Creek, Busse Woods Lake (CH2M HILL, 2004a).

³ Based on information from IDNR, the new stream ratings replace the Biological Stream Characterization (BSC) and Biologically Significant Streams (BSS) developed in 1984 and 1992, respectively.

Within the study area, the Weller Creek Watershed comprises mostly residential land uses. The Addison Creek, Salt Creek, and West Branch DuPage River Watersheds within the study area are almost half residential land use. However, the Willow Creek and Des Plaines River watersheds consist largely of O'Hare Airport and the adjacent industrial and transportation corridor (see Table 2-14). Additional information regarding land use within the study area is provided in subsection 2.1.3, Land Use. Table 2-14 also summarizes the number of flood control structures, dams, and wastewater treatment plants within the study area.

TABLE 2-14
Study Area Watershed Land Use Summary

Watershed	Predominant Land Use within Study Area ^a	Flood Control Reservoirs ^b	Dams ^{b, c}	Wastewater Treatment Plants ^b
Addison Creek	46% residential	7	1	1
Des Plaines River	20% O'Hare Airport; 15% industrial	3	2	0
Salt Creek	42% residential	5	4	4
Weller Creek	63% residential	1	0	0
West Branch DuPage River	49% residential	1	0	2
Willow Creek	39% industrial; 28% O'Hare Airport	3	2	1

^a Source: CMAP, 2001; CH2M HILL, 2008.

^b Source: Review of aerial photograph of study area; PhotoMapper, 2007.

^c The number of dams is an estimate based on those primarily associated with flood control projects.

Table 2-15 provides IDNR and IEPA water quality assessment designations for waterways within the study area. Most of the waterways listed in Table 2-15 are impaired and do not support aquatic life, have been channelized or modified, and are surrounded by developed or mowed overbanks, with forest preserve areas generally being an exception. Lake Opeka and Busse Woods Lake fully support aquatic life. Willow Creek, Higgins Creek, and the Des Plaines River are impaired as a result of urban runoff, storm sewers, and point source discharges. The IEPA has listed upstream impoundments as sources of water quality impairment within the Addison and Salt Creek Watersheds. Most watersheds within the study area include creeks that have municipal point source discharges (MPSD) as a source of impairment, which can be associated with effluent from wastewater treatment plants (IEPA, 2008a).

TABLE 2-15
Study Area Waterway Quality/Rating Summary

Waterway ^a	Diversity ^{b, c} (Score)	Integrity ^{b, d} (Score)	Designated Use ^{e, f}	Causes of Impairment ^f	Source of Impairment ^f
Addison Creek Watershed					
Addison Creek	E (0.286)	E (0.250)	Not supporting: AL, PC ^g Not assessed: AQ, FC, SC	Aldrin, .Alpha.-BHC, littoral vegetative covers, copper, chloride, chromium, dichloro-diphenyl-trichloroethane (DDT), hexachlorobenzene, nickel, other flow regime alterations, dissolved oxygen, polychlorinated biphenyls (PCBs), total suspended solids (TSS), fecal coliform, phosphorous, aquatic algae	Channelization, contaminated sediments, loss of riparian habitat, streambank modification, combined sewer overflows (CSO), MPSD, storm sewers, urban runoff, upstream impoundments
Des Plaines River Watershed					
Des Plaines River	Not rated	Not rated	Not supporting: AL, FC, PC. Not assessed: AQ, SC	Chlorine, dissolved oxygen, sedimentation/ siltation, TSS, pH, phosphorous, mercury, PCBs, fecal coliform, littoral vegetative covers, chloride, other flow regime alterations	CSO, road runoff, MPSD, urban runoff, storm sewers, site clearance, atmospheric deposition - toxics, source unknown, streambank modifications, impacts from hydrostructure flow regulation
Lake Opeka	Not rated	Not rated	Fully supporting: AL Not supporting: AQ Not assessed: FC, PC, SC	Cause unknown	Not applicable
Salt Creek Watershed					
Salt Creek	C (0.714) ^h	C (0.500) ^h	Not supporting: AL, FC, PC ⁱ ; Not assessed: AQ, SC	Chloride, other flow regime alterations, dissolved oxygen, phosphorous, aquatic algae, mercury, PCBs, fecal coliform, littoral vegetative covers, DDT, heptachlor, sediment/siltation, TSS, pH, aquatic plants	Urban runoff, storm sewers, impacts from hydrostructure flow regulation, atmospheric deposition - toxics, source unknown, channelization, contaminated sediments, CSO, sanitary sewer overflows, site clearance, MPSD, streambank modifications, upstream impoundments
Spring Brook	Not rated	Not rated	Fully supporting: AL ^j Not assessed: AQ, FC, PC, SC	Littoral vegetative covers, DDT, endrin, hexachlorobenzene, other flow regime alterations, dissolved oxygen, sedimentation/siltation, TSS, phosphorous, aquatic algae	Channelization, contaminated sediments, impacts from hydrostructure flow regulation, MPSD, upstream impoundments, urban runoff, storm sewers

TABLE 2-15
Study Area Waterway Quality/Rating Summary

Waterway ^a	Diversity ^{b, c} (Score)	Integrity ^{b, d} (Score)	Designated Use ^{e, f}	Causes of Impairment ^f	Source of Impairment ^f
Meacham Creek	Not rated	Not rated	Not supporting: AL Not assessed: AQ, FC, PC, SC	Other flow regime alterations, dissolved oxygen	Impacts from hydrostructure flow regulation, urban runoff, storm sewers
Busse Woods Lake	Not rated	Not rated	Fully supporting: AL Not supporting: AQ, FC Not assessed: PC, SC	Mercury, PCBs, cause unknown, aquatic algae	Atmospheric deposition - toxics, source unknown, waterfowl, urban runoff, storm sewers, runoff from forest/grassland
West Branch DuPage River Watershed					
West Branch DuPage River	Not rated	Not rated	Not supporting: AL, PC Not assessed: AQ, FC, SC	Chloride, iron, dissolved oxygen, sedimentation/siltation, silver, zinc, pH, phosphorus, fecal coliform, manganese, TSS	MPSD, urban runoff, storm sewers, site clearance
Willow Creek Watershed					
Willow Creek	D (0.333)	Not rated	Not supporting: AL; Not assessed: AQ, FC, PC, SC	Phosphorus	MPSD
Higgins Creek	Not rated	Not rated	Not supporting: AL, PC; Not assessed: AQ, FC, SC	Chloride, nickel, zinc, pH, phosphorus, fecal coliform, dissolved oxygen	MPSD, urban runoff, storm sewers

Sources: IEPA, 2008a; IDNR-ORC, 2008.

^a The information provided for each waterway summarizes data provided for all Assessment Unit IDs (AUID) for that waterway segment within the study area. Designated uses and impairments may vary per AUID. Waterways within the study area that do not have an AUID are not listed in the table. Waterway segments with AUID within the study area that are not rated for diversity or integrity and do not have designated uses assessed are not listed in the table.

^b From IDNR-ORC, 2008. All integrity and diversity ratings for the study area were rated with macroinvertebrates; no fish, mussel, or crayfish data were available for the streams. The diversity and integrity scores fall within one of five ratings ranging from A to E, with A representing the highest biological integrity or diversity of evaluated stream segments. Streams without available data or that did not fit the assessment tools were "not rated."

^c The diversity score provided is based on the Macroinvertebrate Taxa Score.

^d The integrity score provided is based on the Macroinvertebrate Index of Biotic Integrity (MIBI).

^e Abbreviations: AL: Aquatic Life; AQ: Aesthetic Quality; FC: Fish Consumption; PC: Primary Contact; SC: Secondary Contact. Assessment guidelines have not yet been fully developed for the following uses: AQ and SC (for Illinois streams) and SC (for Illinois inland lakes).

^f Source: IEPA, 2008a.

^g Addison Creek segment (AUID IL_GLA-04) located downstream of I-290 not assessed for primary contact.

^h Parts of Salt Creek located upstream of Busse Woods Lake and downstream of I-290 within the study area are not rated for diversity or integrity.

ⁱ Salt Creek segment (AUID IL_GL-03) located downstream of the confluence with Spring Brook within the study area is not assessed for Primary Contact.

^j Spring Brook segment (AUID IL_GLB-01) located downstream of the confluence with Meacham Creek within the study area was assessed as Not Supporting Aquatic Life.

2.3.2 Groundwater Resources

The study area contains groundwater resources and aquifers, within the surficial glacial deposits and within the bedrock. Within the surficial deposits, the accessible shallow aquifers can be found in the lenses of sands and gravels within the glacial till. The aquifers are connected hydrologically and are recharged directly by seepage from precipitation.

Within the bedrock, the shallow dolomite produces water in varying quantities depending on the presence of water-bearing sands in the overlying drift. The shallow dolomite aquifer is separated from deeper aquifers by the shales of the Maquoketa Group. Below the shale is the Cambrian-Ordovician aquifer. The Cambrian-Ordovician aquifer is the most developed deep aquifer within the Chicago region and consists primarily of the St. Peter Sandstone. Shallow aquifer wells supply low water demand needs (e.g., single-family homes). Deep aquifer wells typically are used for large water demand needs (e.g., community supply).

According to the U.S. Environmental Protection Agency (USEPA), there are no designated sole source aquifers in Illinois (USEPA, 2008b). The Illinois State Geological Survey (ISGS) publishes a map titled *Potential for Aquifer Recharge* (Keefer and Berg, 1990). The map indicates that the study area has a relatively low potential for aquifer recharge. Consequently, there is a low potential for groundwater contamination except in the Des Plaines River, East Branch DuPage River, Salt Creek, and West Branch DuPage River corridors, where greater sand and gravel resources are present.

2.3.3 Groundwater Quality

In northeastern Illinois, including parts of Cook and DuPage counties, the primary groundwater quality issues concerning deep bedrock aquifers include high levels of naturally occurring barium, radium, and total dissolved solids (TDS). Public water systems treat these groundwater contaminants as necessary (by ion-exchange softening, lime softening, etc.) to make groundwater potable. In general, the groundwater quality of deep bedrock aquifers is less susceptible to chemical contamination by vertical migration from the land surface than shallow aquifers, although groundwater in deep bedrock aquifers tends to have higher mineral concentrations than groundwater in shallow aquifers (this varies by location).

Shallow aquifers can be affected by surface contamination. Road runoff, underground storage tanks (USTs), landfills, septic fields, industrial discharges, sewage treatment plants, and atmospheric deposition are common sources of pollutants. Potential contaminants include chloride, TDS, heavy metals, and petroleum compounds. In northeastern Illinois, over the last 20 years, contaminants, such as TDS and chloride, have been increasing in many shallow wells. Chloride can be used to indicate surface aquifer contamination. Chloride concentrations have been increasing in shallow aquifers throughout the Chicago metropolitan area, especially in the outer counties (DuPage, Kane, McHenry, Will). The smallest changes in chloride concentrations have been in Cook and Lake counties. The increase in chloride concentrations in shallow aquifers may be attributed primarily to road salt runoff (ISWS, 2008a; ISWS, 2008b; Kelly and Wilson, 2003).

2.3.4 Water Supply Wells

Within the study area, most water supply needs are met using Lake Michigan water. There are 1,693 water supply wells in the study area, according to the ISGS Water and Related

Wells Database. According to the IEPA Source Water Assessment Program, 93 wells are classified as community water supply wells and another 120 wells as non-community water supply wells (IEPA, 2008b). The wells vary in depth from less than 100 feet to more than 2,200 feet. Of the 1,693 water supply wells, 1,587 are in the shallow aquifer averaging about 200 feet deep, and 106 are in the deep aquifer, 1,200 to 2,200 feet deep. Every community within the study area receives its main water supply from Lake Michigan, supplied by either the City of Chicago or the City of Evanston. Municipal wells provide water for irrigation and serve as backup for Lake Michigan supplies.

2.3.5 Aquatic Species

Aquatic species were not surveyed as part of the study. Instead, national, state, and county databases were searched for fish, mussel, and crustacean information. Available data indicate that most of the aquatic species near the study area are locally common, widespread, or relatively adaptable. No state- or federal-listed fish, mussels, or crustaceans were listed in the information provided by IDNR or U.S. Fish and Wildlife Service (USFWS) for the study area.

Fish. Based on a review of Illinois Natural History Survey (INHS) and USGS data and available Cook County and DuPage County Forest Preserve information, 52 fish species were recorded in aquatic resources located in (or near) the study area. Game fish, such as bass (largemouth [*Micropterus salmoides*] and smallmouth [*Micropterus dolomieu*]), bluegill (*Lepomis macrochirus*), bullhead (*Ameiurus* spp.), channel catfish (*Ictalurus punctatus*), crappie (*Pomoxis* spp.), northern pike (*Esox lucius*), rainbow trout (*Oncorhynchus mykiss*), sunfish (*Lepomis* spp.), and walleye (*Stizostedion vitreum*), are included in the available fish information. Many of these species are stocked for recreational purposes in waterways within or crossing through the study area. Most of the study area is highly urbanized, and most of the sampled streams are impaired or degraded. Fish species collected from creeks within or crossing through the study area generally represent pollution tolerant to intermediate tolerant species (Adolphson et al., 2002; Anderson, 1995; Barbour et al., 1999; Headrick, 2002).

Mussels. Based on a review of available INHS data and information provided by the county forest preserves, there are 19 species of mussels from aquatic resources located in (or near) the study area including Axehead Lake (within Cook County Forest Preserve property), the Des Plaines River, Salt Creek, Salt Creek Marsh, Spring Brook, West Branch DuPage River, and a DuPage County wetland (in Salt Creek/Des Plaines River drainage area).⁴ Mussel populations have declined in recent decades as a result of siltation, pollution, and competition from exotic species. More than half the 80 mussel species native to Illinois are threatened, endangered, extirpated, or extinct (IDNR, 2009). However, most mussel species recorded in the aquatic resources described above are widespread or common/locally abundant species (INHS, 2005).

Crustaceans. Based on a review of available INHS data, eight species of aquatic crustaceans, including crayfish, sowbugs (isopods), and scuds (amphipods) were recorded from aquatic resources located in (or near) the study area. The data does not include planktonic species, such as cladocerans (e.g., *Daphnia* spp.) and copepods. In general, sowbugs are often

⁴ Three of the mussel species have not been observed since 1958 and may no longer be present in the study area.

indicators of poorer water quality, whereas scuds and crayfish are moderately tolerant to pollution though not usually found in severely polluted waters.

2.4 Wetlands

Wetlands generally are associated with lakes, streams, or localized depressional areas. Within the study area, the relief is gently rolling to nearly flat. Most of the study area is urbanized and has been affected by development. Based on a review of the resources discussed below and preliminary fieldwork, there are 3,828 acres of wetland within the study area (see Exhibit 2-8).⁵ Of that total, roughly 71 percent (2,702 acres) are within special lands (see subsection 2.7) that would not be directly affected by the proposed improvements.

Wetlands are “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”⁶ The 1987 *Corps of Engineers' Wetland Delineation Manual* identifies three essential characteristics of a jurisdictional wetland: hydrophytic vegetation, hydric soils, and wetland hydrology (Environmental Laboratory, 1987).⁷

Published wetlands data sources were used to locate mapped wetlands. The DuPage County Wetland Inventory (DCWI) was used to identify mapped wetlands in DuPage County (DuPage County Department of Development and Environmental Concerns, 1999). In general, it is considered more locally accurate than the National Wetlands Inventory (NWI).⁸ Because the DCWI does not include Cook County information, the NWI was used for Cook County.⁹ Wetland data from the OMP was used for parts of the study area that overlapped with the OMP project limits.

The DCWI identifies two categories of wetlands: critical and regulatory.¹⁰ Critical wetlands are high quality wetlands that “play crucial roles in storing or conveying flood waters, controlling erosion, maintaining or enhancing water quality, and providing habitat for threatened or endangered species.” All wetlands in DuPage County that are not designated as critical are considered regulatory. The NWI does not distinguish between critical and regulatory wetlands for the purposes of quality evaluation. Based on the DCWI, approximately 142 acres of mapped critical wetland are located within the study area.¹¹

⁵ Mapped wetlands adjacent to the proposed improvements were refined based on preliminary field reconnaissance. Open waters (e.g., creeks, ponds, etc.) located proximate to proposed improvements were also identified during preliminary field reconnaissance, but are not included in this total. For the remainder of the study area, open waters mapped in the NWI and DCWI GIS database were not excluded when calculating wetland totals. Unvegetated open water areas are not regulated by the Interagency Wetland Policy Act, but still may be regulated by the USACE, following a jurisdictional determination.

⁶ 40 CFR 230.3(t)

⁷ The *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region*, (September 2008) provides additional guidance regarding completion of wetland delineations in most of Illinois (USACE, 2008).

⁸ The NWI is a series of topical maps developed by the USFWS to show wetlands and deepwater habitats. The NWI serves only as a large-scale guide and actual wetland locations and types often vary from those that are mapped.

⁹ The NRCS Wetland Maps were not used for this study. The NRCS Wetland Maps, if available, will be used as a reference during the formal wetland delineation process to be completed as part of the Tier Two environmental studies and/or during the approval process for individual projects.

¹⁰ Several criteria are used to determine if a wetland is regulatory or critical. Wetlands, in addition to those mapped as critical on the DCWI, may be considered critical following site investigation and data analysis (DuPage County, Illinois, 2008).

¹¹ Based on preliminary field reconnaissance, approximately 12.4 acres of mapped critical wetland are located near proposed project improvements.

After identifying wetland locations from the published wetland inventories described above, field reconnaissance was conducted to generally confirm wetland boundaries and to identify other potential wetlands in the area. Field reconnaissance focused on wetland resources near the proposed improvements and resulted in better definition of about 247 acres of wetlands proximate to those improvements.¹² The U.S. Army Corps of Engineers (USACE), USFWS, and USEPA concurred with the Tier One wetland methodology, wherein the level of detail and field truthing was sufficient to support reasonably representative levels of impact for this type of study.¹³ See Appendix B for further discussion of methodology.

Past human disturbances and runoff from the urban environment appear to have adversely affected the majority of the wetlands located near the proposed improvements. In general, most of the wetland sites identified in the field are characterized by low diversity and richness of native plant species. The palustrine cover type is dominated by invasive plant species. Except for wetlands identified in special lands, within constructed stormwater facilities, or exhibiting hydrologic connections to creeks, most appear to be hydrologically isolated¹⁴ and average less than one acre in size. The principal functions performed by most existing wetland sites are stormwater storage, which can reduce water quality impacts, and conveyance. The wetlands may also provide habitat for common and adaptable wildlife. The stormwater storage function and water quality benefit of most of the wetlands is limited because of their small size and apparent shallow depth and storage capacity. Though providing limited functional value on an individual basis, when combined, the wetlands contribute to the functions of stormwater storage, conveyance, and overall water quality benefits.

Wetland resources evaluated by field reconnaissance are summarized in Tables 2-16 and 2-17 and discussed by watershed below. Slightly higher wetland acreage totals were identified during preliminary field reconnaissance in Cook County (128 acres) when compared to DuPage County (119 acres). Over 47 percent of the field identified Cook County wetlands were located in the Des Plaines River Watershed and roughly 70 percent of the field identified DuPage County wetlands were located in the Salt Creek Watershed. Note that detailed wetland studies that fully comply with state and federal approved methodology will be completed as part of Tier Two environmental documents for individual project improvements.

¹² Wetland acreage includes wetlands, wetland bottom stormwater management facilities, and wetland mitigation sites located near the proposed project improvements.

¹³ Resource Agency field visit on November 12, 2008.

¹⁴ Isolated status is based on preliminary assessment. Jurisdictional status is subject to change pending more detailed studies to be completed as part of the Tier Two environmental studies and following a USACE jurisdictional determination.

TABLE 2-16
Summary of Wetlands and Watersheds by County

Watershed	Cook County			DuPage County		
	Watershed Acreage in Study Area	Wetland Acreage in Study Area	Wetland Acreage ^a Near Proposed Improvements	Watershed Acreage in Study Area	Wetland Acreage in Study Area	Wetland Acreage ^a Near Proposed Improvements
Addison Creek	2,787.3	15.5	0.1	5,843.6	161.7	8.1
Des Plaines River	12,864.7	352.4	60.4	2,487.2	104.1	3.0
Salt Creek	18,057.4	1242.1	35.7	17,513.2	1350.6	82.8
Weller Creek	2,634.5	16.6	0	0	0	0
West Branch DuPage River	3,029.3	178.1	11.5	2,259.5	160.9	9.3
Willow Creek	10,377.7	74.4	20.3	2,862.2	65.1	15.7
Totals	49,750.9	1,879.1	128.0	31,852.3	1,842.4^b	118.9

^a Wetland acreages are approximate and are based on preliminary field reconnaissance. Wetland acreage includes wetlands, wetland bottom stormwater management facilities, and wetland mitigation sites located near the proposed project improvements.

^b In the study area, 106.3 acres of wetland are mapped within the East Branch DuPage River Watershed. The East Branch DuPage River Watershed is within the study area, but it is not located proximate to proposed improvements. Therefore, it was not included in this table.

TABLE 2-17
Summary of Field Reconnaissance for Wetlands Near Proposed Improvements

Wetland Type ^a	Addison Creek Watershed (acre)	Des Plaines River Watershed (acre)	Salt Creek Watershed (acre)	West Branch DuPage River Watershed (acre)	Willow Creek Watershed (acre)
Emergent wetland	3.5	0.6	64.8	10.8	17.3
Scrub-shrub wetland	0.1	0	3.1	0	0.5
Wet old field	0.1	0.4	8.4	3.5	2.5
Wooded wetland	0.7	0.9	7.2	0	2.9
Vegetated drainage ditch/channel	0.1	2.7	1.2	0	9.9
OMP wetlands ^b	0	27.7	0	0	0.6
Wetland mitigation sites ^c	0.5	0	10.6	2.5	0
Undetermined ^d	0.7	1.0	0	0	0
Wetland bottom stormwater management facility ^e	2.7	30.0	23.2	4.0	2.2
Total	8.4	63.4	118.5	20.8	35.9

TABLE 2-17
Summary of Field Reconnaissance for Wetlands Near Proposed Improvements

Wetland Type ^a	Addison Creek Watershed (acre)	Des Plaines River Watershed (acre)	Salt Creek Watershed (acre)	West Branch DuPage River Watershed (acre)	Willow Creek Watershed (acre)
%	3.4	25.7	48.0	8.4	14.5

Note: Acreages are approximate. Wetlands near proposed EO-WB project improvements were not identified in the East Branch DuPage River or Weller Creek Watersheds; therefore, they are not included in this table.
Source: CH2M HILL, 2008.

^a Some wetlands include more than one community type or contained areas of open water. The dominant community type is listed.

^b OMP obtained a Section 404 permit from the USACE in December 2005. As authorized by that permit, onsite wetlands are in the process of being filled and these wetland acreages are likely to decrease; as such, the wetlands within OMP limits are listed separately in the table above.

^c Mitigation wetlands within OMP limits are categorized as "OMP Wetlands." Mitigation sites may not meet all three wetland parameters (i.e., vegetation, soils, and hydrology).

^d Includes one potential wetland area (± 1.0 acre) that was identified within railroad property based on review of aerial photography, and additional wetland area (± 0.7 acre) that appeared recently planted based on 2008 field observation.

^e Stormwater management facilities were inventoried due to their potentially jurisdictional nature; however, several may be exempt from state or federal regulation following a review of soils data and site records.

2.4.1 Addison Creek Watershed

About 8.4 acres of wetlands in the Addison Creek Watershed are near the proposed transportation improvements. Of those, 1.7 acres are located in Fischer Woods Forest Preserve. Based on approximate locations and information provided by IDNR, some wetlands in and near Fischer Woods Forest Preserve may provide habitat for state-listed threatened and endangered species. Wetlands supporting state- or federal-listed threatened or endangered species are considered High Quality Aquatic Resources by the USACE and require higher wetland compensation ratios under the Interagency Wetland Policy Act. An additional 0.5 acre of wetlands comprises a mitigation site. The quality of the other wetland areas identified during field reconnaissance ranges from low to high.

2.4.2 Des Plaines River Watershed

About 63.4 acres of wetlands in the Des Plaines River Watershed are near proposed improvements. Roughly 91 percent of that area (57.7 acres) includes wetland bottom stormwater management facilities and wetlands within the OMP project limits. OMP wetlands within the study area are permitted for fill under Section 404 of the Clean Water Act (CWA). Thus, the acreage of OMP wetlands near the proposed improvements will decrease as wetlands are filled. Most remaining wetland resources in the watershed appear to be relatively low quality.

2.4.3 Salt Creek Watershed

An estimated 118.5 acres of wetlands in the Salt Creek Watershed are near the proposed improvements. Roughly one-third of that area is contiguous with, or mapped as, critical wetland or is a wetland mitigation site. Impacts to mapped critical wetlands or wetland mitigation sites most likely will require higher compensation ratios under Section 404 of the CWA and the Interagency Wetland Policy Act. Based on preliminary field reconnaissance,

most of the remaining wetland sites near proposed improvements in the watershed are relatively low quality, although higher quality wetlands are present.

2.4.4 West Branch DuPage River Watershed

An estimated 20.8 acres of wetlands in the West Branch DuPage River Watershed are near the proposed transportation improvements. Of that, approximately 12 percent (2.5 acres) are wetland mitigation sites. Most of the other wetlands identified during field reconnaissance are of low quality.

2.4.5 Willow Creek Watershed

An estimated 35.9 acres of wetlands in the Willow Creek Watershed are near the proposed transportation improvements. Approximately 82 percent (29.4 acres) of that area includes emergent wetland, vegetated drainage ditch/channel, or wetland bottom stormwater management facilities. Most of the wetlands are manmade or induced; are in channelized corridors adjacent to roads, buildings or parking lots in developed areas; or have an open water component. Based on field reconnaissance, most of the wetland sites are of low quality, although higher quality wetlands are present.

2.5 Floodplains

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs)¹⁵ for Cook and DuPage counties show 673 acres of 100-year floodplain (including Zone A floodplain) proximate to the project improvements. Table 2-18 lists watersheds containing 100-year floodplain near the proposed improvements. Some waterways have regulatory floodways.¹⁶ Exhibit 2-9 shows the 100-year floodplain from the FEMA FIRMs.

TABLE 2-18
Summary of Floodplain Areas Located near Proposed Improvements

Watershed	Floodplain (acres)	Contributing Floodplains
Addison Creek	96	Addison Creek and Addison Creek Tributary 2.
Des Plaines River	215	Bensenville Ditch, Crystal Creek, Crystal Creek Tributary, Industrial Tributary, Motel Tributary, Sexton Ditch, and Silver Creek.
Salt Creek	192	Devon Avenue Tributary, Meacham Creek, and Salt Creek.
West Branch DuPage River	16	West Branch DuPage River.
Willow Creek	154	Higgins Creek, Higgins Creek Tributaries A and B, Willow Creek, Willow Creek South Tributary, and Willow Creek North Tributary.

Sources: CBBEL, 2006; FEMA, 2004a; FEMA, 2008a.

¹⁵ The FEMA FIRMs used for the portions of the proposed study area located in Cook County became effective on August 19, 2008 while the FIRMs for DuPage County were effective December 16, 2004. The floodplain of the Willow Creek North Tributary and Willow Creek South Tributary were refined based on the *DuPage County Countywide Stormwater and Flood Plain Ordinance Stormwater Management Report for the Willow Creek Tributaries Improvements, Bensenville, DuPage County, Illinois* (CBBEL, 2006).

¹⁶ The floodway is defined as the channel of a waterway and its adjacent land areas that must be preserved to discharge the base flood (the 100-year flood) without cumulatively increasing the water surface elevation more than a designated height.

2.6 Biological Resources

The biological resources within the study area are varied in extent and quality, but generally consist of common/adaptable species. This section addresses vegetation, wildlife, and threatened and endangered species.

2.6.1 Vegetation and Cover Types

There are 1,803 species of plants recorded for Cook County and 1,311 for DuPage County (Iverson, 1999). Table 2-19 summarizes the land cover within the study area based on information from the *Land Cover of Illinois 1999–2000* inventory and associated database, which is the result of the Illinois Interagency Landscape Classification Project (IILCP).¹⁷

TABLE 2-19
Land Cover within the Study Area

Cover Type ^a	Area (mi ²)	Acres ^b	Percent of Total Land Cover within Study Area
Forested Land			
Upland	8.6	5,530.9	6.8
Partial canopy/savannah upland	3.6	2,305.2	2.8
Floodplain forest	0.2	105.3	0.1
Total	12.4	7,941.4	9.7
Urban and Built-up Land			
High density	32.4	20,753.8	25.4
Low/medium density	54.2	34,704.0	42.5
Urban open space	24.3	15,558.8	19.1
Total	110.9	71,016.6	87.0
Other			
Barren and exposed land	0.0	25.2	0.0
Total	0.0	25.2	0.0

Source: USDA National Agriculture Statistics Service, IDOA and IDNR, 2002.

^a See subsections 2.2 for agriculture, 2.3 for surface waters, and 2.4 for wetlands. Subcategories included in the IILCP data that were not mapped in the study area are not listed in the table. These subcategories include coniferous (forested land); clouds and cloud shadows (other).

^b Land cover acreages for this table were calculated for the study area based on data from the *Land Cover of Illinois 1999–2000*; the data may vary from data provided by other sources found in other tables within this document.

The study area is 81,603 acres (127.5 square miles) in size. Roughly 87 percent of the total cover is urban and built-up land, including low-, medium-, and high-density development, and also urban open space (see Table 2-19). In high density areas, nearly all the land surface is covered with built structures and facilities, such as buildings, roads, parking lots, and driveways. The high percentage of impervious surface provides limited cover, foraging, and

¹⁷ IILCP includes the following agencies: USDA National Agricultural Statistics Service, Illinois Department of Agriculture (IDOA), and IDNR.

resting areas for wildlife. In areas of low/medium density, up to half of the land surface is covered with manmade structures. The remaining surface area is intermixed with urban landscaping, open space, or forested cover. Such areas can have more area for foraging and cover habitat. Urban open space includes parks, golf courses, cemeteries, and other grass-covered surfaces within developed areas.

Of the land cover types listed in Table 2-19, the most important for wildlife are forested lands and urban open space. Within the study area, large contiguous wooded areas generally are within special lands or adjacent to waterways. Roughly 10 percent of the study area comprises forested land and approximately five percent of the study area comprises wetlands or surface waters (see Table 2-19). Surface waters and wetlands are also important to wildlife. This combination of cover types provides important habitat for many species of plants and wildlife, including threatened or endangered species. Subsection 2.3, Water Resources and Quality, and subsection 2.4, Wetlands, discuss the general distribution of aquatic/wetland habitats.

Field reconnaissance near the proposed transportation improvements found that most of the open space habitat consists of old field successional areas and degraded woodlands, which are low to moderate quality. The old field successional areas are entirely herbaceous or have scattered trees. Nonnative or quickly colonizing plant species dominate these areas. Trees are beginning to colonize the old successional fields that have been abandoned or undisturbed for a long time. A moderate quality successional prairie dominated by native vegetation is located at the south end of the Ned Brown Preserve near the proposed transportation improvements. Three higher quality woodlands near the proposed project improvements are also associated with forest preserve property, including Fischer Woods,¹⁸ Cricket Creek, and Salt Creek Marsh.

The least productive cover types for providing wildlife habitat in the study area 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. Plants and wildlife in these areas are limited primarily to species tolerant of disturbance or that have adapted to urban environments.

2.6.2 Wildlife

The study area contains limited areas of prime wildlife habitat. Roughly 87 percent of the study area is urban and built-up land (see Table 2-19). Development in the study area has limited the distribution of sensitive wildlife species to protected lands, such as forest preserves. The largest forest preserves in the study area are the Ned Brown Preserve and several properties located along the Des Plaines River, both in Cook County. There is also a cluster of forest preserves in DuPage County along Salt Creek and adjacent to I-290. The preserved open space and Salt Creek provide connectivity between the DuPage County preserves and may allow for animal movement between these areas. Overall, urban development and habitat fragmentation limits wildlife movement throughout much of the study area.

The developed parts of the study area provide minimal wildlife habitat. Wildlife species in urban/suburban areas tend to be tolerant of disturbance and human activities. Some will

¹⁸ Fischer Woods Forest Preserve includes one of the few wet forests in DuPage County (FPDDC, 2008b). A state threatened plant species has been recorded in the seasonally wet, unique wet forests at Fischer Woods (Swink and Wilhelm, 1994).

use urban and suburban habitats, but species diversity generally is lower than in forest preserves and rural habitats. Urban tolerant wildlife species are generally common, adaptable species and include limited numbers of mammals, birds, reptiles, and amphibians. Aquatic species, such as fish, mussels, and crustaceans are discussed in subsection 2.3.5, Aquatic Species. A wildlife survey was not conducted as part of the study; instead, national, state, and county databases were searched for wildlife information.¹⁹

Birds. Based on information from a national public bird database and the Forest Preserve District of Cook County (FPDCC) and FPDDC, 226 bird species have been documented within the study area including seasonal spring-fall migrants, breeding residents, and overwintering species. Of those, 128 species have been recorded as nesting within the study area. In general, most of the birds are passerine species (or perching birds), with a complement of birds of prey, waterfowl, woodpeckers, and shorebirds. (Per USFWS's comments on the Draft EIS, the list of bird species within the study area has been included in Appendix C of this Final EIS. See Page 5-25 for a description of the agency's entire comment and IDOT's response. USFWS's comment letter can be found in Appendix D beginning on Page D_5-6).

The study area is within the eastern half of the Mississippi flyway, which is used by migratory birds in the United States and Canada. Many bird species that migrate through the corridor also nest in the study area, including neotropical migrants. Neotropical migrants, including all or part of their population, fly through or breed in the United States and Canada but winter in the tropical habitats of Latin America and/or the Caribbean. Ninety-four neotropical migrants²⁰ are known to breed in the study area based on county forest preserve district data. Neotropical migrants may use the habitats found in the study area, such as wetlands, prairies, woodlands, and shrub-lands, for breeding. In general, based on habitat types, neotropical migrants that may be found in the study area include the house wren (*Troglodytes aedon*) in urban areas, eastern kingbird (*Tyrannus tyrannus*) in undeveloped areas, common yellowthroat (*Geothlypis trichas*) in wetlands/shrub-lands, and red-eyed vireo (*Vireo olivaceus*) in woodlands. Additional neotropical migrants that may commonly be observed in the study area include the barn swallow (*Hirundo rustica*), chimney swift (*Chaetura pelagica*), and gray catbird (*Dumetella carolinensis*).

Mammals. Based on data compiled from the INHS, the University of Illinois Museum of Natural History, the FPDCC, and the FPDDC, 43 mammal species have been recorded in the study area. Several mammal species listed for the study area are 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 squirrel (*Sciurus carolinensis*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and to some extent white-tailed deer (*Odocoileus virginianus*).

Reptiles and Amphibians. Based on data compiled by the INHS, FPDCC, and FPDDC, 17 reptile species and 13 species of amphibians have been recorded in the study area. Three state-listed reptile species – eastern massasauga (*Sistrurus catenatus*), Kirtland's snake

¹⁹ FPDDC provided a wildlife species list for all preserves in the study area, except Salt Creek Greenway (list not available). The wildlife lists included birds, mammals, reptiles, amphibians, fish, and mussels.

²⁰ Based on a list of neotropical migrants provided by Cotton et al, 2008, and USFWS – Division of Bird Habitat Conservation, last updated February 2008. The migratory bird lists include both nearctic and neotropical migrants – no distinction between the two types is made.

(*Clonophis kirtlandii*), and Blanding's turtle (*Emydoidea blandingii*) – are on the INHS lists and in the wildlife lists provided by the county forest preserves. However, the eastern massasauga was not included in the threatened and endangered species list for the study area provided by IDNR, while the other two species were on that list. FPDDC considers the massasauga a "historical record."²¹ The snake may no longer exist within the study area, and it was not included in the FPDDC wildlife list. Additional information from INHS states that there are no historical records that definitively place the eastern massasauga in or near the proposed improvements; 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; and suitable habitat is lacking near or within the proposed improvements near historical localities (Kuhns, 2009). INHS concluded that impacts to the eastern massasauga by work within the boundaries of the proposed improvements are unlikely. Other than the state-listed species mentioned above, most of the reptiles and amphibians in the study area are considered locally common.

Invasive Species. Invasive species are those not native to a particular ecosystem, whose introduction does or is likely to 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/prevent actions that may cause or promote the introduction or spread of invasive species. Invasive species should be considered during all phases of the environmental process to meet NEPA requirements.

Based on available data, the U.S. Department of Agriculture (USDA)–Natural Resources Conservation Service (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*), marijuana (*Cannabis sativa*), musk thistle (*Carduus nutans*), and perennial sow thistle (*Sonchus arvensis*). Additional invasive plant species dominate many of the upland and wetland habitats in the study area, such as common buckthorn (*Rhamnus cathartica*), garlic mustard (*Alliaria petiolata*), purple loosetrife (*Lythrum salicaria*), reed canary grass (*Phalaris arundinacea*), Tartarian honeysuckle (*Lonicera tatarica*), and teasel (*Dipsacus* spp.).

Invasive species also include several aquatic nuisance species²² and injurious wildlife species²³ that can potentially harm an ecosystem. Examples of aquatic nuisance species and injurious wildlife that have been recorded from the study area include the Asian clam (*Corbicula fluminea*), common carp (*Cyprinus carpio*), grass carp (*Ctenopharyngodon idella*), rusty crayfish (*Orconectes rusticus*), and zebra mussel (*Dreissena polymorpha*).

²¹ Historical records include wildlife species data for which a year of observation is not provided or collection dates predate 1980. Some of the historical wildlife observation/collection records were made as early as the 1850s and it is possible that these species no longer inhabit the locale where they were identified.

²² An aquatic nuisance species as defined in the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 USC 4701 *et seq.*) is a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural or recreational activities dependent on such waters.

²³ 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 IAC §805.20.

2.6.3 Threatened and Endangered Species

Federal-Listed Species. Based on a letter from the USFWS (January 29, 2009), the study area includes two known locations of the federal-threatened eastern prairie fringed orchid (*Platanthera leucophaea*) (Rogner, 2009). Possible habitat for the eastern prairie fringed orchid includes mesic prairie, sedge meadows, marsh edges, and bogs. Any moderate to high quality wetland habitat within the study area could support the species. There is no known federally designated critical habitat for this protected species within the study area. A letter from the USFWS (April 10, 2008) states that the Indiana bat (*Myotis sodalis*) is not likely present in northeastern Illinois and that transportation projects are not likely to affect the species adversely (Rogner, 2008). The Indiana bat was not listed in USFWS's letter of January 29, 2009, regarding the study area. Appendix D contains copies of both letters.

State-Listed Species. Based on information provided by the IDNR and Illinois Natural Heritage Database, 23 state-listed threatened or endangered species²⁴ are potentially within the study area: 17 plants,²⁵ four birds, and two reptiles (see Table 2-20). No state-listed mammals, amphibians, fish, insects, mussels, snails, or crustaceans were mentioned in the information provided by IDNR for the study area. However, INHS identifies two state-listed threatened or endangered mussel species – slippershell mussel (*Alasmidonta viridis*) and rainbow mussel (*Villosa iris*) – as having been collected from Salt Creek in recent years (1997, 2006) in Cook County. Based on additional information provided by INHS, both mussels were found downstream of the study area as represented by relict or weathered dead shells.

In the study area, the presence of threatened and endangered species generally coincides with special lands, such as forest preserves or natural areas. Fischer Woods Forest Preserve, a protected resource located near the proposed transportation improvements, has six state-listed plant species within its boundaries. Wildlife lists from FPDDC include three more state-listed birds for Fischer Woods. Other special lands near the proposed transportation improvements with state-listed species recorded within their boundaries include the Ned Brown Preserve (with nine species) and a natural area near the southwest corner of the Ned Brown Preserve (with one species).

TABLE 2-20
State-Listed Species Potentially within the Study Area as Identified by IDNR

Common Name	Scientific Name	State Status ^a
Plants		
Alkali bulrush	<i>Bolboschoenus maritimus</i>	delisted ^b
Buffalo clover	<i>Trifolium reflexum</i>	LT
Dog violet	<i>Viola conspersa</i>	LT
Downy Solomon's seal	<i>Polygonatum pubescens</i>	LE
Dwarf raspberry	<i>Rubus pubescens</i>	LT
Ear-leafed foxglove	<i>Tomanthera auriculata</i>	LT
Eastern prairie fringed orchid	<i>Platanthera leucophaea</i>	LE
Marsh speedwell	<i>Veronica scutellata</i>	LT

²⁴ The alkali bulrush (*Bolboschoenus maritimus*) was delisted in 2009 by the Illinois Endangered Species Protection Board.

²⁵ Ibid.

TABLE 2-20
State-Listed Species Potentially within the Study Area as Identified by IDNR

Common Name	Scientific Name	State Status ^a
Northern grape fern	<i>Botrychium multifidum</i>	LE
Pretty sedge	<i>Carex woodii</i>	LT
Purple fringed orchid	<i>Platanthera psycodes</i>	LE
(Brome hummock) sedge	<i>Carex bromoides</i>	LT
Small sundrops	<i>Oenothera perennis</i>	LT
Spotted coral-root orchid	<i>Corallorhiza maculata</i>	LT
Star-flower	<i>Trientalis borealis</i>	LE
Tuckerman's sedge	<i>Carex tuckermanii</i>	LE
White lady's slipper	<i>Cypripedium candidum</i>	LT
Birds		
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	LE
Common moorhen	<i>Gallinula chloropus</i>	LE ^c
Least bittern	<i>Ixobrychus exilis</i>	LT
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	LE
Reptiles		
Blanding's turtle	<i>Emydoidea blandingii</i>	LE ^c
Kirtland's snake	<i>Clonophis kirtlandii</i>	LT

Sources: IDNR and Illinois Natural Heritage Database, 2008a; IDNR and Illinois Natural Heritage Database, 2008b).

^a LE = state-listed as endangered; LT = state-listed as threatened.

^b The Illinois Endangered Species Protection Board delisted the alkali bulrush (*Bolboschoenus maritimus*) in 2009.

^c The Illinois Endangered Species Protection Board changed the status of the common moorhen (*Gallinula chloropus*) and Blanding's turtle (*Emydoidea blandingii*) from state-threatened to state-endangered.

2.7 Special Lands

Special lands include publicly owned parks, recreational areas, wildlife and waterfowl refuges, and historic sites.²⁶ Within the study area, numerous properties in the public domain are managed and protected for their special resources, including 18 forest preserve areas, one nature preserve, eight Illinois Natural Areas Inventory (INAI) sites,²⁷ and several local parks (see Exhibit 2-10). These areas provide open space and habitat for different types of plants and wildlife, including common species and threatened and endangered species that rely on this habitat for survival. Forest preserves and parks also provide recreational

²⁶ Properties with these qualities are protected under Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 USC 303). Special lands potentially affected by the proposed improvements that qualify as Section 4(f) properties are described in Section 4.6. Lands purchased or developed using Land and Water Conservation funds (Section 6(f) lands) or Open Space Land Acquisition and Development (OSLAD) grant program funds are also protected. Potential impacts to Section 6(f) lands are discussed in Section 4.7.

²⁷ One INAI site, WGN Marsh, is privately owned. It is located within the study area near the southwest corner of the Ned Brown Preserve – outside of forest preserve limits.

activities. However, nature preserves and natural areas are usually not developed for public access. In cases where public forest preserves incorporate a nature preserve or natural area, access is usually limited or restricted to well-defined trails. Forest preserves and associated nature preserves and INAI Sites within the study area are described in Table 2-21.

TABLE 2-21
County Forest Preserves and Associated Nature Preserves and INAI Sites within the Study Area

Forest Preserve Name	County	Approximate Size (acre) ^a	Function ^b	Nature Preserve/ Natural Area ^c
Cricket Creek	DuPage	192	R	None
Des Plaines River Preserves	Cook	1,650 ^d	—	—
Axehead Lake	—	—	R	None
Catherine Chevalier Woods	—	—	R	None
Che-Che-Pin-Qua Woods	—	—	U	None
Chippewa Woods	—	—	R	None
Dam No. 4 Woods – East	—	—	R	None
Iroquois Woods	—	—	R	None
Robinson Woods	—	—	R	None
Schiller Woods	—	—	R	Schiller Woods Prairie INAI Site
Fischer Woods ^e	DuPage	149	U	Fischer Woods INAI Site
Fullerton Park	DuPage	185	R	None
Maple Meadows Golf Club	DuPage	245	G	None
Mallard Lake	DuPage	949	R	None
Meacham Grove	DuPage	252	R	Meacham Grove INAI Site
Medinah Wetlands	DuPage	23 ^f	U	None
Ned Brown Preserve	Cook	3,700	R	Busse Woods INAI Site; Busse Forest Nature Preserve
Oak Meadows Golf Club	DuPage	210	B, G	None
Salt Creek Greenway	DuPage	49	U	None
Salt Creek Marsh	DuPage	100	U	None
Salt Creek Park	DuPage	90	R	None
Silver Creek	DuPage	18	U	None
Songbird Slough	DuPage	391	R	Songbird Slough INAI Site
Spring Creek Reservoir	DuPage	88	R	None
Swift Prairie	DuPage	106	U	Swift Road Meadow INAI Site

TABLE 2-21
County Forest Preserves and Associated Nature Preserves and INAI Sites within the Study Area

Forest Preserve Name	County	Approximate Size (acre) ^a	Function ^b	Nature Preserve/ Natural Area ^c
Wood Dale Grove	DuPage	187	R	Wood Dale Grove INAI Site

Sources: CH2M HILL, 2008; FPDDC, 2008a; FPDDC, 2006a; FPDDC, 2006b; FPDDC, 2008a; IDNR and Illinois Natural Heritage Database, 2008a.

^a Unless otherwise noted, acreages are for the entire preserve and were obtained from forest preserve district sources listed above.

^b B = banquet/meeting facilities; G = golf; R = recreational opportunities, U = undeveloped.

^c One additional INAI site within the study area is not associated with a forest preserve (see Exhibit 2-10).

^d Acreage from CH2M HILL GIS database; includes only part of forest preserve within study area.

^e Fischer Farm Park at the south end of the preserve is operated by the Bensenville Park District through a lease with the FPDDC. Educational opportunities and other programs/events are available at Fischer Farm.

^f Acreage from CH2M HILL GIS database; does not include proposed forest preserve acquisition areas.

2.7.1 Forest Preserves

Forest preserve properties, account for roughly nine percent of the study area (see Exhibit 2-10). The largest preserves are in Cook County and include the Ned Brown Preserve and several properties located along the Des Plaines River.²⁸ There is a cluster of several forest preserves located near the southwestern part of the study area in DuPage County. The forest preserves in the study area provide a combination of protected open space, plant/wildlife habitat, and recreational facilities. IDNR identified state-listed threatened and endangered species at 10 forest preserve sites within the study area. Of the 18 forest preserve sites, 12 provide trails or opportunity for recreation (fishing, picnicking, golfing).²⁹ The remaining six are open to the public but have no established recreational facilities or parking.³⁰

Forest preserve trails provide opportunities for walking, jogging, hiking, bicycling, inline skating, and cross-country skiing. They also provide a means to travel within the preserve and connect with other trails outside the preserves. Parts of several regional trails have been constructed or are proposed to cross forest preserve property within the study area. These include the Des Plaines River Trail, Salt Creek Greenway Trail, North Central DuPage Regional Trail, and the East Branch DuPage River Greenway Trail (see Table 2-22).

TABLE 2-22
Summary of Regional Trails Crossing Through Forest Preserve Land within the Study Area

Trail Name	Existing Length (miles) ^a	Proposed Length (miles) ^a	Primary Use	Owner
Des Plaines River Trail	5.9	N/A	Multipurpose	FPDCC
Salt Creek Greenway Trail	6.6	6.1	Multipurpose	FPDDC; local communities

²⁸ The “Des Plaines River Preserves” include several individually named “woods.” The woods form a large contiguous system of forest preserve property, including the Des Plaines River Trail System (South). This system of preserves is counted as one forest preserve site for the purposes of this section of the document.

²⁹ Che-Che-Pin-Qua Woods, one of several FPDDC woods located adjacent to the Des Plaines River, was included in the total.

³⁰ Fischer Woods Forest Preserve is described by FPDDC as undeveloped. Fischer Farm Park, which is located at the south end of the preserve, is leased by the Bensenville Park District. It includes an old farm house and offers programs/events and parking facilities.

TABLE 2-22
Summary of Regional Trails Crossing Through Forest Preserve Land within the Study Area

Trail Name	Existing Length (miles) ^a	Proposed Length (miles) ^a	Primary Use	Owner
North Central DuPage Regional Trail ^b	8.9	N/A	Multipurpose	FPDDC; DuPage County Division of Transportation; IDOT; local communities
East Branch DuPage River Greenway Trail	1.7	0.1	Multipurpose	FPDDC, DuPage County Division of Transportation; local communities

Sources: DuPage County Department of Economic Development and Planning and the DuPage Mayors and Managers Conference, 2008; FPDDC, 2009; CH2M HILL, 2008.

^a Approximate trail lengths within the study area are based on sources above. Trails may extend beyond study area limits.

^b Includes part of a local trail system (3.3 miles in length).

Several forest preserves within the study area are in the floodplain or were purchased by the respective forest preserve districts for flood control/stormwater quantity and quality improvements. This was accomplished through floodplain acquisition, construction of reservoirs/stormwater facilities, preservation of wetlands and riparian habitat, and public education/awareness opportunities.

2.7.2 Parks

In addition to the Cook and DuPage County forest preserve sites, there are numerous local parks and golf courses within the study area owned by municipalities and park districts (see Exhibit 2-10). Parks provide open space, plant/wildlife habitat, educational opportunities, and recreational facilities, such as picnic sites, playgrounds, ball fields, skate parks, and trails. Based on information provided by IDNR, some municipal parks within the study area provide potential habitat for state-listed threatened and endangered species or overlap with INAI sites. There are no state parks within the study area.

2.7.3 Illinois Nature Preserves

Busse Forest Nature Preserve is the only nature preserve in the study area (see Exhibit 2-10). IDNR defines a nature preserve as “an area of land or water in public or private ownership that is formally dedicated, pursuant to the terms of the law, to being maintained in its natural condition.” A major objective of the nature preserve system is the preservation of adequate samples of all the important natural features of the state, including threatened and endangered species. This 440-acre site is a registered National Natural Landmark by the U.S. Department of Interior for its rich mixture of flatwoods, upland forest, and marsh communities.

2.7.4 Illinois Natural Areas

The Illinois Natural Areas Preservation Act (525 ILCS 30) defines a “natural area” as “an area of land in public or private ownership which, in the opinion of the [Illinois Nature Preserves] Commission, either retains or has recovered to a substantial degree its original natural or primeval character, though it need not be completely undisturbed, or has floral, faunal, ecological, geological or archaeological features of scientific, educational, scenic or esthetic

interest.” Natural areas include lands registered under the Illinois Natural Areas Preservation Act or identified in the INAI. Many INAI sites are associated with nature preserves, land and water reserves, or natural heritage landmarks and may overlap a forest preserve. Based on information provided by the IDNR and Illinois Natural Heritage Database, there are eight INAI sites within the study area (see Exhibit 2-10), seven of which are associated with forest preserves (see Table 2-21).

2.8 Visual Resources

Visual resources are aspects of the environment that determine the physical character of an area and the manner in which it is viewed. Visual resources include scenery viewed at various distances, as well as cultural manmade modifications, vegetation, and other landforms.

Most landscape within the study area is urban, having been substantially altered for development purposes, resulting in the leveling of large areas of the natural topography. Within the study area, there are few long distance natural vistas, unless one looks skyward or the viewer is within an open area (a park, a forest preserve), on a manmade hill, or looking out the window of a multistory building. Otherwise, views generally are obstructed by roads, buildings, and tree lines. These urban features stand upon nearly flat to gently rolling terrain within the study area, with natural elevations ranging from 620 to 820 feet (North American Datum, 1927). Large hills within the study area are primarily **built** spoil piles, fill piles, or embankments for roadways or other development. No large naturally occurring hills exist within the study area.

Most of the study area (63 percent) is a mix of residential, industrial, institutional, and commercial land uses. Transportation accounts for an additional 11 percent. The transportation system includes an established roadway system, commuter and freight rail, a regional airport, and an international airport; and is complemented by bicycle routes and pedestrian paths. Thus, transportation is an integral part of the visual scene of the area and does not represent an unusual or uncommon visual image.

Residential areas are primarily concentrated along the southern and western parts of the study area, whereas O'Hare Airport and adjacent industrial facilities dominate the northern and eastern parts. Residential areas are representative of typical suburban areas with moderately dense populations and little undeveloped land. Complementing the suburban landscape are community centers that provide a sense of community and architectural style and have composition that creates integrity and intactness in visual quality.

Open space accounts for about 26 percent of the study area and primarily comprises forest preserves, parks, and other undeveloped land. Preliminary field reconnaissance of the land near the proposed improvements shows that most of the open space habitat consists of old field successional areas and degraded woodlands of low to moderate quality. Nestled among the developed landscape is the Ned Brown Preserve, the largest forest preserve in the study area, and several adjacent to the Des Plaines River, both in Cook County. There is also a cluster of forest preserves near the southwestern part of the study area in DuPage County. In general, the largest contiguous open spaces within the study area are located along the Des Plaines River and Salt Creek, or adjacent to existing transportation corridors (such as I-290 and Des Plaines River Road). These facilities are most sensitive to visual

change and not only offer visual amenity; they also serve ecological and recreational purposes, such as habitat and wildlife corridors and trails.

Determining the potential effects of the project's visual resources requires identification of the visual quality of the study area and an understanding of potential viewers, the infrastructure to be installed, and the alteration such infrastructure has on the various levels of view, both near and far.

The degree to which viewers can be affected by changes to the visual environment varies with their financial and emotional investment in the aesthetic quality of the land and their urban surroundings. For example, people who reside or work near the project corridor may be affected to a greater degree by changes in visual character than people who spend very little time in and have little connection to that area. Even though a project may not alter the basic view within an urban environment, a change in distance of view length could change a viewer's perception, from open to enclosed space.

2.9 Air Quality

Chicago is the third largest metropolitan area in the nation, with a large number of both industrial and vehicle air emission sources. The USEPA National Ambient Air Quality Standards (NAAQS) set maximum allowable concentration limits for six criteria air pollutants. Table 2-23 lists the NAAQS. The primary standards are established at levels that are intended to protect the public health. Secondary standards are required to protect the public welfare from any known or anticipated adverse effects of a pollutant.

One exceedance of the 24-hour standard for PM_{2.5}³¹ was recorded in the study area, while no exceedances or violations within the study area were recorded for carbon monoxide, lead, and nitrogen dioxide. Ozone, PM₁₀, and sulfur dioxide were not monitored in the study area.³²

TABLE 2-23
National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon monoxide	9 ppm (10 mg/m ³)	8-hour ^a	None	
	35 ppm (40 mg/m ³)	1-hour ^a		
Lead	0.15 µg/m ³ ^b	Rolling 3-month average	Same as primary	
	1.5 µg/m ³	Quarterly average		
Nitrogen dioxide	0.053 ppm (100 µg/m ³)	Annual (arithmetic mean)	Same as primary	
Particulate matter (PM ₁₀)	150 µg/m ³	24-hour ^c	Same as primary	

³¹ PM_{2.5} is particulate matter 2.5 micrometers or smaller.

³² PM₁₀ is particulate matter 10 micrometers or smaller.

TABLE 2-23
National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Particulate matter (PM _{2.5})	15.0 µg/m ³	Annual ^d (arithmetic mean)	Same as primary	
	35 µg/m ³	24-hour ^e	Same as primary	
Ozone	0.075 ppm (2008 std)	8-hour ^f	Same as primary	
Sulfur dioxide	0.03 ppm	Annual (arithmetic mean)	0.5 ppm (1300 µg/m ³)	3-hour ^a
	0.14 ppm	24-hour ^a		

Source: USEPA, 2009a.

^a Not to be exceeded more than once per year.

^b Final rule signed October 15, 2008.

^c Not to be exceeded more than once per year on average over three years.

^d To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

^e To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective December 17, 2006).

^f To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008).

Areas in which air pollution levels persistently exceed the NAAQS may be designated “nonattainment” areas. The study area is located within Cook and DuPage counties, which are included in the moderate nonattainment area for the 8-hour ozone standard. Due to the nonattainment status of the area, the State of Illinois has developed a State Implementation Plan identifying programs intended to reduce emission of ozone precursors.

In addition, USEPA has designated Cook and DuPage counties as not attaining the PM_{2.5} standard (70 Code of Federal Regulations [CFR] 944, 968). The designations became effective April 5, 2005.

Illinois EPA publishes air quality information for the state in its *Annual Air Quality Report*. Table 2-24 summarizes the 2008 status (the latest Air Quality Report available) for each air quality pollutant sampled in the study area.

TABLE 2-24
2008 Status on Air Quality Pollutants

Pollutant Name	Status (2008)
Carbon monoxide	No exceedances of the 1-hour standard of 35 ppm or the 8-hour standard of 9 ppm.
Lead	No violations of the 3-month maximum mean standard of 0.15 µg/m ³ .
Nitrogen dioxide	No violations of the annual arithmetic mean standard of 0.053 ppm.
PM ₁₀	Not evaluated in the study area. However, no exceedances of the 24-hour standard of 150 µg/m ³ were recorded statewide.

TABLE 2-24
2008 Status on Air Quality Pollutants

Pollutant Name	Status (2008)
PM _{2.5}	One exceedance of the 24-hour standard of 35 µg/m ³ ; no exceedances of the annual arithmetic mean of 15.0 µg/m ³ .
Ozone	Not evaluated in the study area. However, no exceedances of the former 1-hour, former 8-hour, or current 8-hour standards were recorded in the Metropolitan Chicago Area.
Sulfur dioxide	Not evaluated in the study area. However, no exceedances of the annual arithmetic mean standard of 0.03 ppm, the 24-hour standard of 0.14 ppm, or the 3-hour standard of 0.5 ppm were recorded statewide.

Source: IEPA, 2009.

The Tier One analysis is exempt from conformity because it is a planning level study that would not directly involve construction or physical impacts and there would be no generation of pollutants that would substantially impact air quality. The federal regulations pertaining to this issue are contained in 40 CFR 93.126, which lists projects that are exempt from air quality conformity. These include specific activities that do not involve or lead directly to construction, such as planning and technical studies. During the Tier Two environmental studies, the preferred alternative must be included in a conforming RTP and Transportation Improvement Plan (TIP) and the design concept and scope must not change significantly from what was included in the regional emissions analysis for the conforming RTP and TIP; any analysis will use the latest planning assumptions and emissions model; a PM_{2.5} hot spot analysis will be completed if the project is determined to be of air quality concern; and compliance with any control measures in the PM_{2.5} state air quality implementation plan will occur. Because conformity is a Tier Two issue, it is not discussed further in this Tier One document.

Carbon monoxide levels are not permitted to exceed the 8-hour NAAQS of nine parts per million and the one-hour NAAQS of 35 parts per million. IDOT uses the computer screening model *Illinois Carbon Monoxide Screen for Intersection Modeling (COSIM)* to estimate worst-case carbon monoxide concentrations for proposed roadway projects affecting signalized intersections with a sensitive receptor within 1,000 feet of the intersection. A COSIM analysis will be performed during Tier Two to determine whether the proposed improvements have the potential to violate the 8-hour standard, and so is not discussed further in this Tier One document.

In addition to criteria air pollutants for which there are NAAQS, USEPA regulates air toxics. Mobile source air toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The MSATs are compounds emitted from highway vehicles and nonroad equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics result from engine wear or from impurities in oil or gasoline. FHWA's Interim Guidance on Air Toxics Analysis in NEPA Documents suggests a tiered approach for addressing MSATs in NEPA documents. In this approach, projects with no potential for meaningful MSAT effects do not need an analysis, including those exempt under the Clean Air Act Conformity Rule

section 93.126. Therefore, no MSAT analysis will be completed at this time. Rather, it will be undertaken during Tier Two and is not discussed further in this Tier One document.

2.10 Noise

Sound is caused by the vibration of air molecules and is measured on a logarithmic scale with units of decibels (dB). Sound is composed of a wide range of frequencies, but the ear is not sensitive to all frequencies. The “A” weighted scale was devised to correspond with the ear’s sensitivity, and sound levels are measured as dBA on this scale. Highway agencies use a one-hour equivalent sound level, Leq(h), as a descriptor of traffic noise levels. Studies show that a change of three dBA is a barely perceivable change in noise, whereas a change of 10 dBA is perceived as being twice or half as loud.

Title 23 CFR 772 has developed noise abatement criteria (NAC) for assessing potential noise impacts (see Table 2-25). The criteria set forth in the regulations consider appropriate noise levels based upon land use activity. A traffic noise impact occurs when traffic noise levels approach (in Illinois this means within one dBA), meet or exceed the NAC for the associated land use activity, or if a substantial increase (in Illinois this means an increase of more than 14 dBA over existing noise levels) in predicted traffic noise level occurs over existing traffic generated noise levels even though the applicable NAC has not been reached.

TABLE 2-25
Noise Abatement Criteria Hourly A-Weighted Sound Level

Activity Category	Leq (h) ^a	Description of Activity Category
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if they are to continue to serve their intended purpose.
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	Developed lands, properties or activities not included in Categories A and B.
D	—	Undeveloped lands.
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: FHWA. April 1992. Code of Federal Regulations. Title 23 CFR 772: Procedures for Abatement of Highway Traffic Noise and Construction Noise.

^a Considered a noise impact if the traffic noise level approaches (within one dBA), meets, or exceeds the NAC, or increases more than 14 dBA above existing traffic noise levels.

2.10.1 Noise Sources and Existing Conditions

Noise monitoring or modeling to determine traffic noise impacts was not conducted for the Tier One analysis. Existing noise sources and conditions are described below, and potentially affected noise-sensitive receptors (e.g., residences, churches, schools, parks) located adjacent to the proposed improvements have been identified (see subsection 2.10.2 regarding their locations.) A detailed noise analysis will be undertaken in Tier Two to

identify traffic noise impacts, and consideration of abatement measures where a traffic noise impact is identified will be undertaken, as necessary.

As the study area is moderately to highly urbanized and the population density is high, many noise-producing human activities are present. Noise sources include road, railroad, aircraft, and other human activity. Major roadway and interstate facilities are located in the study area as are passenger and freight railroads. One notable noise source is O'Hare Airport on the eastern side of the study area. The study area is beneath the flight paths.

2.10.2 Potentially Noise-Sensitive Resources

Locations of potentially noise-sensitive residential areas and non-residential receptors were identified in the study area. Forty-nine noise-sensitive residential areas representing concentrations of residential noise receptors and 30 noise-sensitive non-residential receptors, including 24 parks, three schools, and three churches, are spread throughout the study area. The largest concentrations of properties potentially affected by noise are along Thorndale Avenue and west of IL 83, along I-90, and along County Line Road (see Exhibit 2-11).

Other potential noise-sensitive resources in the study area could include wildlife species, such as migratory birds. As a result of the highly urbanized nature of the study area, wildlife species that are less tolerant of development may prefer to use protected habitats within special lands, such as forest preserves. The locations of the special lands within the study area are shown on Exhibit 2-10. Proposed improvements near special lands could potentially affect noise sensitive wildlife species, such as migratory birds. However, the special lands located proximate to the proposed improvements are already near existing noise generators (i.e., interstates/roadways, industrial/developed areas with truck traffic, rail yards and railroads, and/or airports). Habitat located adjacent and/or in close proximity to noise generators is generally used by wildlife species that may be more tolerant of disturbance and human activities and/or may have adapted to urban noise levels. See Section 4.5.2 for further discussion on this topic.

2.11 Cultural Resources

Cultural resources include archeological and architectural items, places, or events considered important to a culture, community, tradition, religion, or science. Archeological resources are locations where human activity measurably altered the earth or left deposits of physical or biological remains. Prehistoric artifacts include arrowheads, rock chips from tool creation, and village remains. Architectural resources represent properties or districts that are notable in American history and culture. The National Historic Preservation Act and its implementing regulations require federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings.

2.11.1 Archaeological Resources

University of Illinois personnel conducted a Phase I archaeological survey on behalf of the Illinois State Archaeological Survey (ISAS) to identify any archaeological resources within 6,673 acres of the study area proximate to the proposed improvements. Areas within the survey limits with good ground surface visibility (greater than 75 percent visibility) were

visually inspected. Areas with less than 25 percent visibility and not obviously disturbed were shovel-tested in 50-foot intervals, and sediments were screened through ¼-inch hardware cloth. Areas clearly indicating previous ground disturbance were not evaluated.

Eighteen previously recorded sites are located within the survey area and were revisited. One new site and two findspots were found during the survey. Temporal affiliations of the surveyed sites appear to include Prehistoric Unknown, Paleoindian, Archaic, Early Archaic, Late Archaic, Early Woodland, Historic, Frontier (1841-1870), Early Industrial (1871-1900), Urban Industrial, and Post-War (1964-present). Artifacts were found at only one site. None of the sites or findspots is eligible for listing on the National Register of Historic Places (NRHP). The Illinois State Historic Preservation Officer (SHPO) concurred with this finding on September 14, 2009 (see Appendix D). Therefore, no further archaeological work is recommended for any of the locations and are not discussed further in this document.

2.11.2 Architectural Resources

The customary data sources were reviewed to identify potentially historic structures in the study area. A review of recorded information on historic resources resulted in the finding that no known historic structures would be affected by the proposed action. A photo log of all structures affected by the build alternatives that are at least 50 years old was submitted to IDOT's Cultural Resources Unit for review. IDOT's Cultural Resources Unit, in turn, provided the photo log to the Illinois SHPO with a finding of No Architectural Resources Affected. The Illinois SHPO concurred with this finding on July 22, 2009. Architectural resources are not discussed further in this document.

2.12 Special Waste

“Special waste,” as defined in the Illinois Environmental Protection Act (415 ILCS 5/3.475), includes hazardous waste, potentially infectious medical waste, and industrial process waste or pollution control waste.³³ In Illinois, highway projects are evaluated to determine a project's potential involvement with special waste and other regulated substances, such as hazardous substances and petroleum products.

Sites reported to USEPA because of a release or potential release of a hazardous substance into the environment are listed in the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS). CERCLIS sites that rank high enough to be eligible for USEPA to expend funds for cleanup because the sites pose a risk to human health or the environment are placed on the National Priorities List. Based on USEPA data, no sites on the National Priorities List are within the study area (USEPA, 2008c).

Table 2-26 summarizes the special waste sites located within the greater study area and those located specifically near the proposed improvements. More detailed special waste assessment will be completed, as necessary, in the area of the improvements as part of any Tier Two studies. Most special waste sites are within industrial areas or along major arterial roadways within the study area (see Exhibit 2-12).

³³ Refer to the Illinois Environmental Protection Act for exceptions.

TABLE 2-26
Special Waste Sites within the Study Area

Type of Special Waste Site	No. within Study Area	No. near the Proposed Improvements ^a
CERCLIS ^b		
Active	14	13
Archived	42	36
Resource Conservation and Recovery Act (RCRA) ^c	1,803	324
UST ^d	2,846	529
Leaking Underground Storage Tank (LUST) ^e	1,304	443
Toxics Release Inventory (TRI) ^f	254	57
Site Remediation Program (SRP) ^e	201	40
Landfills ^g	9	3

^a Includes CERCLIS sites within ± 1 mile and LUST sites within $\pm 1,000$ feet of proposed improvements.

^b Data provided by USEPA, dated October 7, 2008.

^c RCRA data includes (1) Conditionally Exempt Generators, (2) Large Quantity Generators, and (3) Small Quantity Generators; *Source*: USEPA, dated January 21, 2009.

^d UST data includes "all" facility status (e.g., active, closed, exempt, etc.) (Office of the State Fire Marshal, as of December 17, 2008).

^e *Source*: IEPA, as of December 17, 2008.

^f TRI sites reported through 2007. Data from USEPA, as of November 4, 2008.

^g *Source*: Illinois Waste Management and Research Center, 1997.