Eisenhower expressway

I-290 | Eisenhower Expressway

From west of Mannheim Road to Racine Avenue

SECTION 3.0
Environmental Resources, Impacts and Mitigation

Environmental Resources, Impacts and Mitigation

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Illinois Department of Transportation

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Federal Highway Administration

3.0 Environmental Resources, Impacts, and Mitigation

This section discusses the existing conditions and potential beneficial and adverse social, economic, and environmental impacts of the build alternatives. In addition, this section includes discussion of anticipated construction related impacts, a summary of potential mitigation measures, and identification of necessary permits and certifications.

This discussion is divided into the following 19 sections:

Throughout Section 3.0, the terms Study Area and Project Corridor are used to describe the following areas:

- Study Area: the approximately 55 square mile area surrounding I-290 with the northern boundary at North Avenue, the southern boundary at Cermak Road, the western boundary at the intersection of I-290 and I-294, and the eastern boundary at the intersection of I-290 and I-90.

- Project Corridor: general term covering the one mile wide area along I-290 from the I-88/290 Split in the west to Racine Avenue in the east.

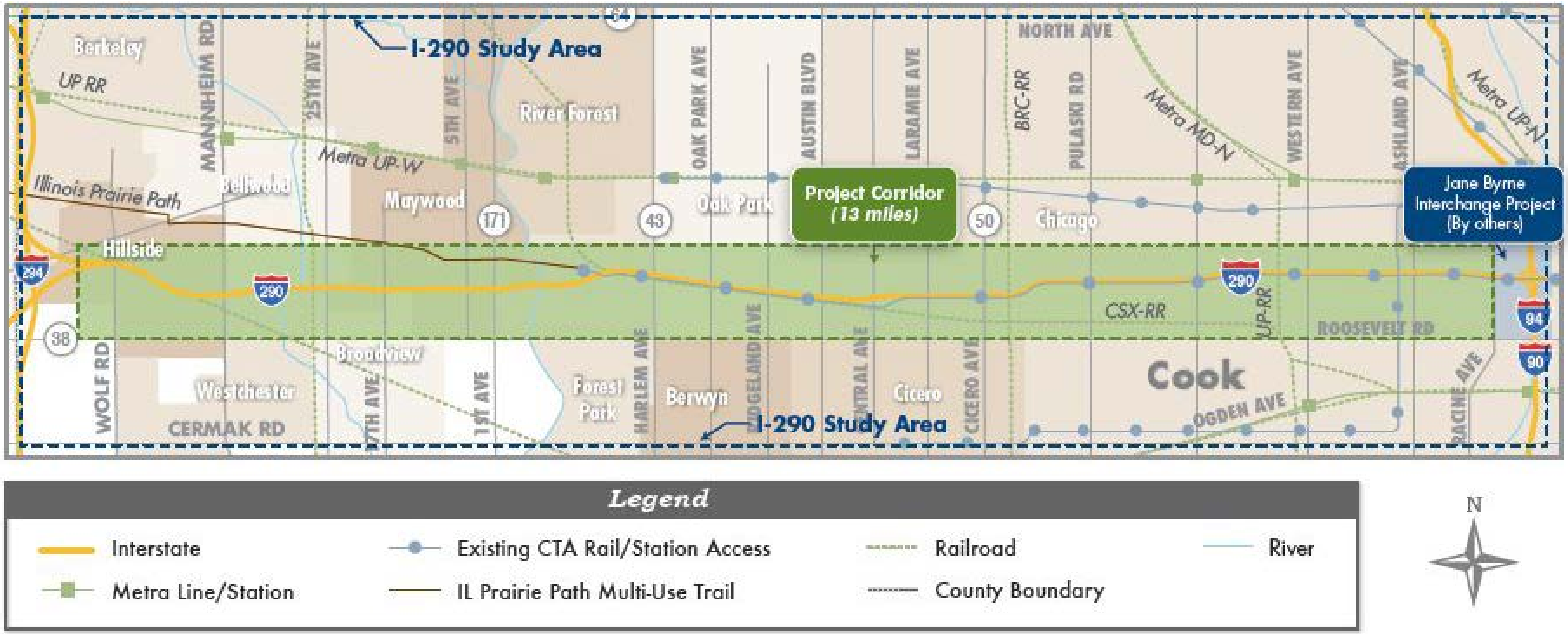
Figure 3-1 below shows the location of the Study Area and the Project Corridor (which was initially located between the intersection of I-290 and I-294 to east of Cicero Avenue, and was subsequently extended east to Racine Avenue).

Also throughout Section 3.0, the build alternatives (described in detail in Section 2.0) are identified with the following naming structure:

- General Purpose Lane Alternative (GP Lane)
- HOV 2+ Lane Alternative (HOV 2+)
- HOT 3+ Lane Alternative (HOT 3+)
- HOT 3+ Lane and Toll Alternative (HOT 3+ & TOLL)

Each of the build alternatives for the Project Corridor share the same right-of-way footprint. This footprint would require only a small amount of new right-of-way outside of the existing I-290 right-of-way area and would cause no residential, business, public facility, or other displacements or relocations.

Figure 3-1. I-290 Study Area and Project Corridor



3.1 Social/Economic Characteristics

This section describes and analyzes the socio-economic conditions of the Project Corridor. This assessment examines population trends, economic conditions, Environmental Justice (EJ), existing communities, traffic and transportation impacts, land use and potential impacts caused by any of the build alternatives and the No Build Alternative.

Social and economic impacts are analyzed in accordance with the procedures of the IDOT Community Impact Assessment Manual (IDOT, 2007), the FHWA Community Impact Assessment Handbook (FHWA, 1996), and the IDOT BDE Manual (IDOT, 2010). Generally, social and economic conditions would have minimal impact from any of the build alternatives that have been carried forward. The build alternatives each share the same right-of-way footprint and do not require relocations of any residences, business or public facilities. There are small areas of additional right-of-way that may be required near two interchanges, which are detailed below.

3.1.1 Population Characteristics

3.1.1.1 Existing Conditions

The Project Corridor traverses highly developed areas of the Chicago metropolitan region. Communities that are either partially or wholly within the Project Corridor are listed in Table 3-1. All of the affected communities have reached a mature state, and are almost fully built-out with little unused underdeveloped urban land. The communities along the Project Corridor include the following land uses: residential, commercial, industrial, recreational, and transportation.

As shown in Table 3-1, the population in Oak Park and Chicago saw moderate to substantial population decreases between 1950 and 1980, while communities further west in the Project Corridor experienced dramatic population increases, most notably Hillside (288.5 percent), Bellwood (126.5 percent) and Westchester (311.5 percent). From 1950 to 1980 the City of Chicago had the greatest decline in population at - 38.9 percent of all communities in the Project Corridor. In the 30 years following 1980, the trend of decreasing population for cities in the eastern portion of the corridor and population increases for those communities in the western portion of the corridor stabilized. Also, the “daytime” population of Chicago increases by 177,457, according to the US Census, Commuter Adjusted Daytime Population, 2006-2010, 5-year American Community Survey. In most cases, communities in the Project Corridor experienced slight population declines from 1980 to 2012. Cicero saw the greatest increase in population between 1980 and 2012.

The total population within the Project Corridor is presented in Table 3-2.

Table 3-1. Population Changes in Project Corridor Communities 1950-2012

Community	1950	1980	2012	% Change 1950 – 1980	% Change 1980 – 2012
Elmhurst	21,273	44,276	44,385	**108.1%**	**0.2%**
Hillside	2,131	8,279	8,192	**288.5%**	**-1.1%**
Bellwood	8,746	19,811	19,141	**126.5%**	**-3.4%**
Westchester	4,308	17,730	16,799	**311.6%**	**-5.3%**
Broadview	5,196	8,618	7,963	**65.9%**	**-7.6%**
Maywood	27,473	27,998	24,149	**1.9%**	**-13.7%**
Forest Park	14,969	15,177	14,205	**1.4%**	**-6.4%**
Oak Park	63,529	54,887	51,942	**-13.6%**	**-5.4%**
Cicero	67,544	61,232	84,103	**-9.3%**	**37.4%**
Chicago	4,920,816	3,005,061	2,704,340	**-38.9%**	**-10.0%**
Cook County	**4,508,792**	**5,253,655**	**5,227,992**	**16.5%**	**-0.5%**
Illinois	**6,759,271**	**11,426,518**	**12,868,192**	**69.0%**	**12.6%**

Source: US Census Bureau, 2014

Note: Numbers are rounded to one decimal point unless less than 0.05.

Table 3-2. Project Corridor Population, 2010

	Project Corridor	Cook County	Illinois
Total Population	134,829	5,194,675	12,830,632

Source: US Census Bureau, 2013

Race and Ethnicity

The overall racial and ethnic breakdown of the Project Corridor is presented in Table 3-3. The predominant racial groups in the Project Corridor are whites at 29.8 percent of the total population and African American at 58.1 percent of the total. Population by race and ethnicity for each of the communities in the Project Corridor is presented in Table 3-4. Detailed maps showing distribution of racial groups within the Project Corridor are presented in Section 3.1.3 Environmental Justice.

Of the communities within the Study Area, the Villages of Bellwood, Broadview, and Maywood are predominately African American while Elmhurst and Oak Park are predominately white. The other communities in the Project Corridor also have a mix of racial groups.

Populations comprising the communities of the Project Corridor are diverse, with varying levels of minority population between the communities. This variation can be seen in Oak Park having the lowest minority population while Cicero has the highest minority population. Taken as a whole, the communities within the Project Corridor are comprised of 86.3 percent minority population, which is higher than Cook County (68.5 percent) and the State of Illinois (44.2 percent).

Table 3-3. Project Corridor Race and Ethnicity Characteristics, 2010

	Corridor Total	Corridor %	Cook County	Illinois
White	40,306	29.9%	2,877,212 (55.4%)	9,117,877 (71.1%)
Black / African American	78,526	58.2%	1,287,767 (24.8%)	1,866,414 (14.5%)
American Indian / Alaska Native	224	0.1%	21,559 (0.4%)	43,963 (0.3%)
Asian	6,967	5.2%	322,672 (6.2%)	586,934 (4.6%)
Native Hawaiian / other Pacific Islander	0	0.0%	1,724 (0.03%)	4,050 (0.03%)
Other Race	6,516	4.8%	551,971 (10.6%)	861,412 (6.7%)
Two or More Races	2,409	1.8%	131,770 (2.5%)	289,982 (2.3%)
TOTAL POPULATION	**134,948**	**100%**	**5,194,675**	**12,830,632**
Hispanic / Latino [a]	**13,216**	**9.7%**	**1,244,762 (24.0%)**	**2,027,578 (15.8%)**

Source: US Census Bureau, 2009 – 2013 ACS

[a] As presented in FHWA Order 6640.23A, Hispanic or Latino populations are classified as a minority group, regardless of race. Consistent with US Census data, Hispanic or Latino origins are considered as ethnicity data and a separate designation from race data.

Note: Numbers are rounded to one decimal point unless less than 0.05.

Approximately 9.7 percent of the population of the Project Corridor considers themselves Hispanic or Latino, as compared to the 24.0 percent average for Cook County and the 15.8 percent average for Illinois.

As presented in FHWA Order 6640.23A, Hispanic or Latino populations are classified as a minority group, regardless of race. According to the US Census Bureau, the terms "Hispanic" or "Latino" refer to persons who trace their origin or descent to Mexico, Puerto Rico, Cuba, Spanish speaking Central and South America countries, and other Spanish cultures. Origin can be considered as the heritage, nationality group, lineage, or country of the person or the person's parents or ancestors before their arrival in the US. People who identify their origin as Hispanic or Latino may be of any race, consistent with the FHWA Order 6640.23A, thus the Hispanic ratio was not added to percentages for racial categories.

Table 3-4. Population by Race and Ethnicity for Project Corridor Communities

	Elmhurst	Hillside	Bellwood	Westchester	Broadview	Maywood	Forest Park	Oak Park	Cicero	Chicago (I-290 Project Area)	Chicago*	Cook County*	Illinois*
White	667 (66.8%)	2,450 (26.8%)	72 (5.3%)	799 (50.0%)	7 (14.9%)	990 (7.9%)	5,119 (59.4%)	10,017 (67.3%)	13 (54.2%)	18,322 (22.2%)	1,212,835 (45.0%)	2,877,212 (55.4%)	9,117,877 (71.1%)
Black / African American	142 (14.2%)	4,994 (54.5%)	1,010 (74.1%)	672 (42.0%)	37 (78.7%)	11,053 (88.0%)	2,744 (31.8%)	3,295 (22.1%)	0	54,011 (65.5%)	887,608 (32.9%)	1,287,767 (24.8%)	1,866,414 (14.5%)
American Indian / Alaska Native	0	0	0	0	0	12 (0.1%)	0	20 (0.1%)	0	191 (0.2%)	13,337 (0.5%)	21,559 (0.4%)	43,963 (0.3%)
Asian	34 (3.4%)	166 (1.8%)	0	14 (0.9%)	3 (6.4%)	50 (0.4%)	346 (4.0%)	747 (5.0%)	0	5,438 (6.6%)	147,164 (5.5%)	322,672 (6.2%)	586,934 (4.6%)
Native Hawaiian / other Pacific Islander	0	0	0	0	0	0	0	0	0	0	1,013 (0.04%)	1,724 (0.03%)	4,050 (0.03%)
Other Race	156 (15.6%)	1,369 (15.0%)	281 (20.6%)	0	0	388 (3.1%)	203 (2.4%)	180 (1.2%)	10 (41.7%)	3,355 (4.1%)	360,493 (13.4%)	551,971 (10.6%)	861,412 (6.7%)
Two or More Races	1 (0.1%)	176 (1.9%)	0	115 (7.2%)	0	71 (0.6%)	207 (2.4%)	628 (4.2%)	1 (4.2%)	1,166 (1.4%)	73,148 (2.7%)	131,770 (2.5%)	289,982 (2.3%)
TOTAL POPULATION	**999**	**9,156**	**1,363**	**1,599**	**47**	**12,556**	**8,619**	**14,888**	**24**	**82,483**	**2,695,598**	**5,194,675**	**12,830,632**
Total Minority	**332**	**6,706**	**1,291**	**800**	**40**	**11,576**	**3,500**	**4,871**	**11**	**64,161**	**1,483,388**	**2,313,189**	**3,647,749**
Hispanic / Latino[a]	**212**	**1,920**	**301**	**206**	**0**	**1,058**	**618**	**776**	**21**	**7,026**	**778,862 (28.9%)**	**1,244,762 (24.0%)**	**2,027,578 (15.8%)**

Sources: * US Census Bureau, 2010
US Census Bureau, 2009 – 2013 ACS
[a] As presented in FHWA Order 6640.23A, Hispanic or Latino populations are classified as a minority group, regardless of race. Consistent with US Census data, Hispanic or Latino origins are considered as ethnicity data and a separate designation from race data.
Note: Numbers are rounded to one decimal point unless less than 0.05.

The majority of the City of Chicago lies outside of the Study Area. To better assess the population and demographic characteristics of only the sub-area of Chicago, census blocks within the half-mile project area were examined to provide better detail. The racial makeup of Chicago within the Study Area has a percentage of minority populations similar to the city as a whole with 86.3 percent of the Chicago Project Corridor sub-area being minority versus 83.9 percent for all of the City of Chicago. The largest minority group within the Chicago Project Corridor sub-area is African American, comprising 65.4 percent of the Chicago sub-area's population.

Within the project area, populations are generally more diverse than either Cook County or the State of Illinois. Overall, the Project Corridor is just over 64.5 percent African American, as compared to only 24.8 percent of Cook County, or 14.5 percent of Illinois. Hispanic/Latino populations make up a smaller percentage of the corridor population (9.7 percent) than Cook County (24 percent) or Illinois (15.8 percent).

Age

Data on ages of populations of communities in the Project Corridor are presented in Table 3-5. Four communities had higher percentages of populations of children (under age 18) than the Cook County average of 23.64 percent. The four communities are the Village of Bellwood (25.10 percent), Oak Park (24.89 percent), Maywood (23.92 percent) and Cicero (34.0 percent). Cicero had the highest percentage of its population under 18 of all Project Corridor communities. The average population for seniors (ages 65 +) in Cook County was 12.04 percent. Of the Project Corridor communities, Hillside (14.49 percent), Westchester (21.75 percent), Broadview (13.08 percent), Elmhurst (13.59 percent) and Maywood (12.64 percent) had higher percentages of senior populations than Cook County, with Westchester being the highest.

Table 3-5. Age Characteristics of Project Corridor Communities

Community	Total Population	% < 18	% 18-21	% 22-29	% 30-39	% 40-49	% 50-64	% 65 +
Elmhurst	44,385	21.7%	6.3%	6.8%	10.4%	16.7%	18.8%	13.6%
Hillside	8,136	21.6 %	7.5%	8.9%	12.1%	17.4%	18.04%	14.5%
Bellwood	19,105	25.1%	7.1%	11.5%	13.4%	11.3%	21.1%	10.6%
Westchester	16,684	19.6%	3.7%	8.7%	12.9%	12.01%	21.2%	21.8%
Broadview	7,938	20.7%	4.5%	7.6%	12.3%	17.3%	24.5%	13.1%
Maywood	24,177	23.9%	6.2%	11.1%	13.1%	13.7%	18.7%	12.6%
Forest Park	14,194	17.8%	3.0%	13.6%	17.8%	13.5%	22.6%	11.8%
Oak Park	51,781	24.9%	2.8%	10.2%	14.4%	16.2%	21.2%	10.3%
Cicero	83,756	34.0%	4.8%	13.1%	18.1%	11.8%	11.4%	5.3%
Chicago	2,702,471	23.03%	5.9%	15.3%	16.1%	13.1%	16.1%	10.5%
Chicago (within I-290 Study Area)*	82,432	24.8%	7.6%	16.2%	17.5%	10.8%	14.5%	8.7%
Cook County	5,197,677	23.6%	5.4%	12.8%	14.6%	13.6%	17.9%	12.04%
Illinois	12,823,860	24.3%	5.7%	11.1%	13.4%	14.1%	18.8%	12.7%

Sources: US Census Bureau 2008-2012 ACS, 5-Year Estimates

* US Census Bureau 2009-2013 ACS, 5-year Estimates

Note: Numbers are rounded to one decimal point unless less than 0.05.

3.1.1.2 Population Impacts

Year 2040 market-driven socio-economic forecasts were developed as part of the I-290 Study (full discussion in Section 3.15.1, Indirect and Cumulative Impacts and Appendix B). This included both 2040 No Build and 2040 Build population forecasts. The 2040 No Build population forecasts assumed no I-290 Eisenhower Expressway improvements (no additional lanes on I-290) and no high capacity transit extension to the west from the CTA Blue Line Forest Park station (no Blue Line Forest Park Branch extension). The 2040 No Build population forecasts assumed the implementation of other major capital transportation projects outside of the Study Area that are included in the approved, fiscally-constrained, metropolitan transportation plan and Transportation Improvement Program (TIP) for the region.

The Study Area population forecast for the 2040 No Build is 649,215 persons, and for the 2040 Build Scenario the 2040 population forecast is 651,912 persons. The build alternatives would result in an additional 2,697 persons, or a 0.4 percent increase in population.

The slight differences between the 2040 Build and No Build population forecasts are due to the transportation improvements included in the I-290 build alternatives. The increase is small due to the existing built-out urban conditions in the Study Area and that the I-290 project reflects improvements to an existing facility that already provides accessibility to the Study Area. These highway and transit improvements result in improved accessibility for the Study Area, which then affect the population forecasts. The improvement of access to developable or re-developable sites increases the development potential of those sites, attracting development that may have occurred elsewhere in the region. Because the I-290 build alternatives include both highway and transit improvements, composite accessibility effects were used to measure changes in accessibility for the build alternatives.

3.1.2 Corridor Economic Characteristics

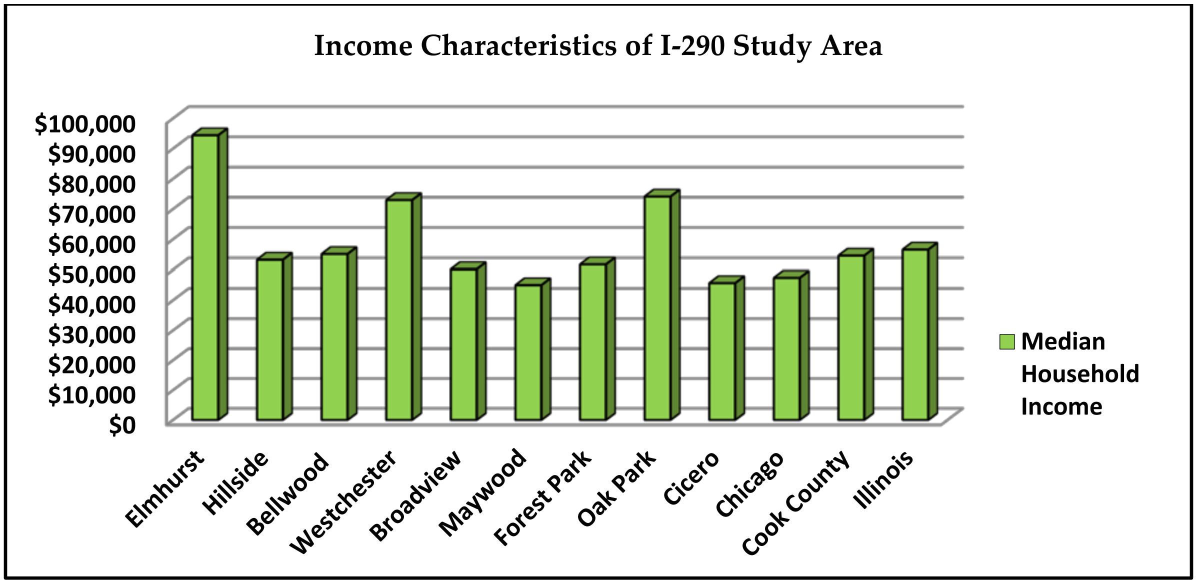
This section provides data on current economic conditions within the Project Corridor, including employment characteristics, income levels, poverty rates, auto ownership, housing and travel time to work.

3.1.2.1 Existing Conditions

Income and Poverty

The American Communities Survey 5-year estimates were used to compile the income characteristics of the communities for the Project Corridor. For comparative analysis, income and demographic data was gathered for Cook County and the State of Illinois. With the exception of Westchester ($72,966), Oak Park ($74,141), Elmhurst ($94,424), and Bellwood ($55,123), each of the communities has a lower median family income level than that of Cook County ($54,598) or the State of Illinois ($56,576) (Figure 3-2). Of the communities analyzed, Elmhurst had the highest median family income, while Maywood had the lowest ($44,979).

Figure 3-2. I-290 Median Household Income for Project Corridor Communities (2011)



Source: US Census Bureau, 2007-2011 ACS, 5-Year Estimates, 2013

According to the United States Department of Health and Human Services (HHS), the poverty guidelines for 2014 are an income of $19,790 for a family of three and $23,850 for a family of four. The Poverty Guideline for individuals is an income of $11,670. The Poverty Guidelines are issued annually and serve as an administrative function for the federal government in determining eligibility for certain federal programs. Median household incomes for all core communities are higher than the poverty guidelines. Westchester and Elmhurst had the lowest percentages of persons living below the poverty line while communities with the highest percentage of persons living below the poverty line were generally found on the eastern portion of the corridor. Chicago has the highest percentage of persons below the poverty line at 21.4 percent. Poverty information for the Study Area is shown in Figure 3-3. Additional discussion of low income populations is included in Section 3.1.3, Environmental Justice.

Unemployment

Unemployment numbers are shown by community in Table 3-6. Over the past decade, US Census data has shown an increase in seasonally adjusted civilian unemployment in the Project Corridor communities and Cook County. This trend is likely the result of the recent economic recession that began in 2008. Increases in unemployment rates are not localized to the Project Corridor as seen in the national unemployment rate climbing from 4.0 percent in 2000 to 9.6 percent in 2010[1].

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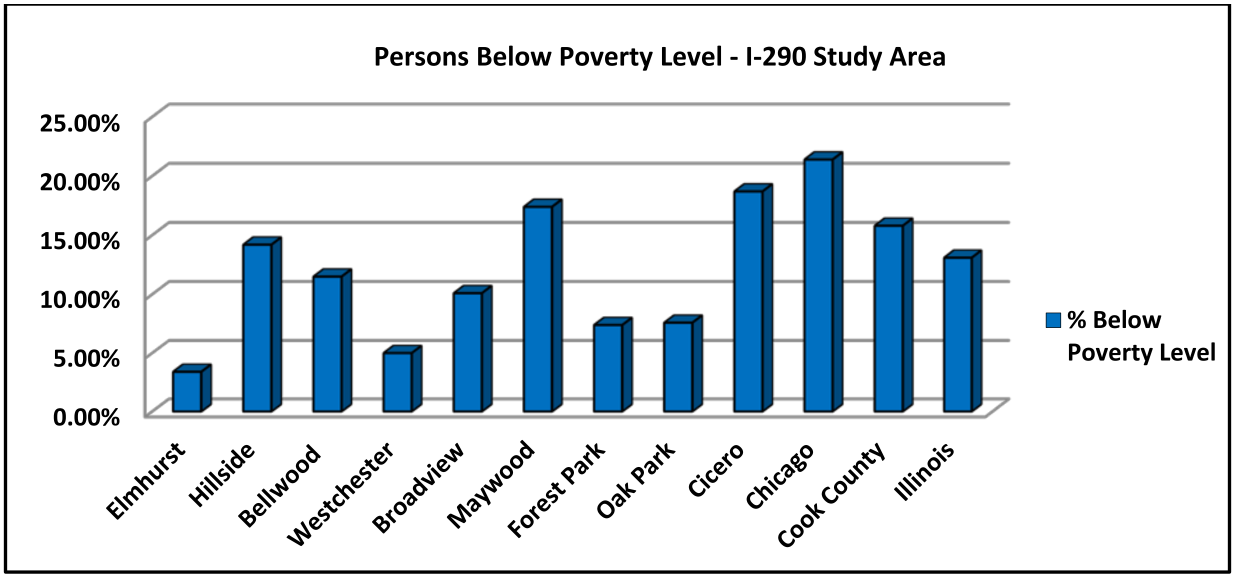
[1] United State Bureau of Labor Statistics, 2013. http://data.bls.gov/pdq/SurveyOutputServlet

Figure 3-3. Poverty Levels for Project Corridor Communities (2011)



Source: US Census Bureau, 2007-2011 ACS, 5-Year Estimates, 2013

Table 3-6. Project Corridor Community Unemployment Percentages 2000 – 2014

Community	Percent Civilian Workforce Unemployed 2000	Percent Civilian Workforce Unemployed 2014
Elmhurst	1.9% [a]	4.8% [c]
Hillside	4.4% [a]	6.7% [c]
Bellwood	6.5% [a]	10.3% [c]
Westchester	2.5% [a]	4.7% [c]
Broadview	5.3% [a]	10.9% [c]
Maywood	7.5% [a]	11.4% [c]
Forest Park	2.5% [a]	8.7% [c]
Oak Park	2.4% [a]	5.9% [c]
Cicero	5.5% [a]	9.2% [c]
Chicago	6.2% [a]	8.7% [c]
Cook County	7.4% [b]	7.8% [c]
Illinois	6.8% [b]	6.6% [c]

Sources: [a] US Census Bureau, 2000 Decennial Census
[b] Illinois Department of Employment and Security, October 2013
[c] US Bureau of the Census, 2010 – 2014 ACS, 5-Year Estimate
Note: Numbers are rounded to one decimal point unless less than 0.05.

Housing

The total number of occupied housing units within communities of the Project Corridor was 1,121,652 according to the American Communities Survey 5-year estimates (Table 3-7). In the State of Illinois the average rate of home ownership is 68 percent and 59 percent in Cook County. Of the Project Corridor communities listed in Table 3-7, the only communities with lower percentages of home ownership than that of Cook County were Forest Park (47.4 percent), Chicago (46.1 percent), and Cicero (52.5 percent). The portion of the City of Chicago that lies within the one-mile wide Project Corridor has the lowest rate of home ownership at 34.1 percent. The Village of Westchester had the highest percentage of owner occupied homes in the Project Corridor at 91.1 percent.

Table 3-7. Housing Characteristics of Project Corridor Communities

Community	Total Occupied Housing Units	% Owner Occupied	% Renter Occupied
Elmhurst	15,307	81.4%	18.6%
Hillside	2,994	68.9%	31.1%
Bellwood	5,974	75.3%	24.7%
Westchester	6,381	91.1%	8.9%
Broadview	3,164	64.4%	35.6%
Maywood	7,708	63.5%	36.5%
Forest Park	6,894	47.4%	52.6%
Oak Park	21,750	62.2%	37.8%
Cicero	21,404	52.5%	47.5%
Chicago	1,030,076	46.1%	53.9%
Chicago (within Project Corridor)	30,377	34.1%	65.9%
Cook County	1,933,670	59.0%	41.0%
Illinois	4,774,275	68.0%	32.0%

Sources: US Bureau of the Census, 2008-2012 American Communities Survey 5-Year Estimates
Note: Numbers are rounded to one decimal point unless less than 0.05.

Auto Ownership

The percent of autos owned per household indicates whether people rely on personal vehicles or another form of transportation (e.g. walking, bicycle, bus) to get to and from work, the grocery store, school, etc.

Within the Project Corridor communities, the only community to have a higher percentage of zero and one car households than both the State of Illinois and Cook County was the City of Chicago (26.8 percent Zero Car, 44.5 percent 1 Car) (Table 3-8). The portion of the City of Chicago that lies within the Project Corridor 1/2-mile buffer has 31.4 percent of its population without access to a car and 48.4 percent of the population with access to one car. This indicates that 31.4 percent of households (without a car) within the Chicago portion of the Study Area rely on another form of transportation besides a personal car. Outside of the City of Chicago, the Project Corridor communities with the highest percentage of zero car households are Forest Park (15.8 percent) and Maywood (15.2 percent). Both are slightly below the Cook County average but higher than the statewide average.

Table 3-8. Auto Ownership Characteristics of Project Corridor Communities

Community	% 0 Cars	% 1 Car	% 2 Cars
Elmhurst	0.7%	13.9%	52.3%
Hillside	10.6%	37.8%	34.3%
Bellwood	8.4%	37.1%	34.6%
Westchester	4.9%	33.7%	47.7%
Broadview	6.9%	50.1%	30.4%
Maywood	15.2%	35.3%	33.4%
Forest Park	15.8%	52.6%	28.3%
Oak Park	12.8%	47.0%	34.2%
Chicago (within I-290 Project Area)*	31.4%	48.4%	17.0%
Cicero	5.0%	25.1%	39.3%
Chicago	26.8%	44.5%	22.1%
Cook County	17.7%	40.7%	30.3%
Illinois	10.7%	34.9%	37.2%

Sources: US Bureau of the Census 2008-2012 ACS, 5-Year Estimates
* US Bureau of the Census 2009-2013 ACS, 5-Year Estimates
Note: Numbers are rounded to one decimal point unless less than 0.05.

Travel Time to Work

Generally, travel times to work of employees within the Project Corridor communities grow longer in the eastern portions of the corridor. In the State of Illinois, the percent of employees whose travel time to work was greater than 30 minutes was 42.8 percent. For Cook County, the average was 53.6 percent. With the exception of the Village of Broadview (41.6 percent), every community in the Project Corridor had a greater percentage of its population with a 30-minute or greater travel time to work than the statewide average (Table 3-9). According to the US Census, 2011-2014 data, the average commuter in the Chicago metropolitan region has a one-way commute of 30 minutes, while the national average is 26 minutes.

Oak Park (61.4 percent), Cicero (55.4 percent) and Chicago (58.3 percent) were greater than the Cook County and the statewide average for a 30-minute or greater travel time to work. Of all Project Corridor communities, the Village of Oak Park had the greatest percentage of its population with travel time to work at 30 minutes or higher. Of the communities in the Project Corridor, (using the US Census definition of a 'long commute' as traveling 60 or more minutes to work) Forest Park has the highest percentage of long commuters at 15 percent with Elmhurst second at 11.4 percent.

Travel time to work is important to analyze because it:

- Provides an understanding how the entire transportation system serves each community getting to and from jobs;
- Is a measure of the efficiency of the transportation system; and
- Plays a role in shaping residential and commercial land use patterns; that is, people may base their decision of where to live and work based on the convenience and duration of their commute.

A shorter travel time to work is preferred over a longer travel time.

Table 3-9. Travel Time to Work Characteristics of Project Corridor Communities

Minutes to Work	Percentage of Population											
	Illinois	Cook County	Elmhurst	Hillside	Bellwood	Westchester	Broadview	Maywood	Forest Park	Oak Park	Cicero	Chicago
Less Than 10	12.6%	7.3%	14.4%	10.2%	8.6%	7.6%	9.7%	7.8%	6.4%	7.4%	6.0%	5.3%
10 - 14	13.0%	9.7%	11.9%	9.8%	11.0%	12.9%	19.3%	13.4%	10.2%	8.8%	8.2%	8.1%
15 -19	13.1%	11.0%	11.1%	14.5%	14.5%	13.5%	10.7%	11.3%	11.3%	7.6%	11.8%	10.0%
20 - 24	12.9%	13.0%	12.6%	15.4%	14.2%	16.6%	10.9%	13.6%	13.7%	10.4%	14.1%	13.2%
25 - 29	5.6%	5.4%	5.8%	5.1%	4.8%	5.0%	7.8%	7.0%	6.6%	4.4%	4.6%	5.1%
30 - 34	14.0%	17.9%	15.2%	18.4%	18.2%	18.0%	25.0%	18.8%	14.6%	20.8%	22.6%	19.6%
35 - 44	7.9%	9.6%	8.3%	10.9%	8.6%	5.2%	2.8%	9.7%	9.2%	14.1%	8.6%	9.8%
45 - 59	9.9%	12.7%	9.1%	9.2%	9.5%	9.8%	10.6%	10.5%	13.0%	17.8%	12.1%	14.0%
60 +	11.0%	13.4%	11.6%	6.5%	10.6%	11.4%	3.2%	7.9%	15.0%	8.7%	12.1%	14.9%
Greater Than or Equal to 30	42.8%	53.6%	44.2%	45.0%	46.9%	44.5%	41.6%	46.9%	51.8%	61.4%	55.4%	58.3%
Less Than 30	57.2%	46.4%	55.8%	55.0%	53.1%	55.6%	58.4%	53.1%	48.2%	38.6%	44.7%	41.7%
Mean Time in Minutes	28.1	31.8	27.8	N/A	29.3	29.6	N/A	27.7	31.3	31.7	30.9	33.5

Source: US Bureau of the Census 2008-2012 ACS, 5-Year Estimates
N/A: Not available
Note: Numbers are rounded to one decimal point unless less than 0.05.

Employment

A summary of those industries providing the greatest number of jobs in the corridor communities is presented in Table 3-10. Generally, the greatest numbers of jobs are located in the eastern portion of the Project Corridor in the communities of Forest Park, Oak Park, and Chicago. The healthcare and manufacturing industries tend to provide the largest number of jobs in the Project Corridor communities. Bolded numbers in Table 3-10 indicate the largest employment sector for each community along the Project Corridor.

The Project Corridor is home to hundreds of businesses and employers of varying types and sizes. Many of the largest employers in the corridor are medical facilities such as the University of Illinois Medical Center (Chicago), Rush University Medical Center (Chicago), Jesse Brown Veterans Administration Medical Center (Chicago), and Loyola Medical Center (Maywood). Other large employers within the Project Corridor include Corn Products International (Westchester), Dynamic Manufacturing (Hillside), United States Postal Service Bulk Mail Facility (Forest Park), and Ferrara Pan Candy (Forest Park). Corn Products International is headquartered in Westchester and processes corn, wheat, potatoes and other raw materials to provide ingredients for food, beverage, pharmaceutical, and other industries. Corn Products International employs over 11,000 worldwide. Dynamic Manufacturing in Hillside, manufactures automotive, off-road, industrial and racing powertrain products. The United States Postal Service Bulk Mail facility in Forest Park is part of a greater network of Network Distributions Centers located around the country used to sort and process mail for a large geographic region. The Ferrara Candy Company directly south of I-290 at Circle Avenue in Forest Park is a candy manufacturer, best known for producing Atomic Fireballs and Lemon Heads. Each of these employers, along with other businesses in the Project Corridor are dependent on reliable connections to local roadways, freight rail access, and I-290 to ship and receive goods and to move customers and employees to their locations.

3.1.2.2 Economic and Employment Impacts

All of the build alternatives would result in long-term benefits associated with improved access to and from I-290. In addition, the reduction in vehicle hours of travel associated with all of the alternatives would provide productivity savings, which is measured by multiplying the travel time savings by the time value of money. The alternatives provide the following savings in daily vehicle hours of travel as compared to the No Build Alternative (Table 3-11).

Assuming a $24/hour value of time per the NCHRP Report 456 Guidebook for Assessing the Social and Economic Effects of Transportation Projects, the annual benefit to productivity in 2040 would range from $92 to $203 Million depending on the alternative as shown in Table 3-11.

Table 3-10. Employment by Major Industries for Project Corridor Communities

Industry	Elmhurst	Hillside	Bellwood	Westchester	Broadview	Maywood	Forest Park	Oak Park	Cicero	Chicago	Cook County
All Industries Total	27,554	5,489	3,145	7,795	7,674	9,181	5,217	14,312	15,383	1,088,765	2,095,533
Manufacturing	1,973	**936**	**1,491**	144	**3,151**	415	**1,049**	197	2,773	63,074	188,427
Wholesale Trade	3,445	728	245	302	1,244	128	199	115	1,992	36,501	100,774
Retail Trade	2,347	516	189	253	677	98	1,000	953	486	90,128	224,306
Transportation & Warehousing	612	423	121	20	329	228	A/	24	92	60,328	111,375
Finance and Insurance	1,596	131	45	925	33	29	105	470	328	103,217	142,393
Professional, Scientific & Tech Services	1,795	394	17	1,038	39	49	79	959	125	138,046	199,214
Administrative & Waste Services	1,263	66	74	**2,922**	732	421	748	417	**5,215**	91,549	176,056
Healthcare & Social Assistance	**6,508**	915	383	777	46	A/	561	**6,092**	1,392	**164,465**	**326,892**
Accommodations & Food Service	1,940	418	154	287	173	**455**	711	1,800	1,102	110,257	206,848

Source: Illinois Department of Employment and Security, 2013. Where Workers Work 2014

A/ = Numbers omitted to avoid disclosure of individual data

BOLD: Indicated largest employment sector for each community

Table 3-11. Alternatives Daily Vehicle Hours of Travel Savings and Annual Productivity Benefits Change vs. No Build Alternative

Build Alternatives	GP Lane	HOV 2+	HOT 3+	HOT 3+ & Toll
Daily Vehicle Hours of Travel Change	-23,132	-10,530	-18,998	-20,550
2040 Annual Productivity Change	$203 Million	$92 Million	$166 Million	$180 Million

Changes caused by the build alternatives are not anticipated to generate substantial new areas of developable land along the Study Area. With the proposed construction of a single-point urban interchange (SPUI) at the interchange at 25th Avenue, the existing ramps to the northwest, southwest, and southeast of the interchange would be removed. The quadrants to the south would then be used for storm water management areas. The area northwest of 25th Avenue and I-290 could be available for future development.

Employment Impacts

Year 2040 market-driven socio-economic forecasts were developed as part of the I-290 Study (full discussion in Section 3.15.1). This included both 2040 No Build and 2040 Build employment forecasts. The 2040 No Build population forecasts assumed no I-290 Eisenhower Expressway improvements (no additional lanes on I-290) and no high capacity transit extension to the west from the CTA Blue Line Forest Park station (no Blue Line Forest Park Branch extension). The 2040 No Build employment forecasts assumed the implementation of other major capital transportation projects outside of the Study Area that are included in the approved, fiscally-constrained, metropolitan transportation plan and Transportation Improvement Program (TIP) for the region.

The Study Area employment forecast for the 2040 No Build is 309,334 jobs, and for the 2040 Build Scenario, the 2040 employment forecast is 310,967 jobs, or a 0.5 percent increase in employment. This relatively small increase is due to the existing built-out urban conditions in the Study Area and that the I-290 project reflects improvements to an existing facility that already provides accessibility to the Study Area.

The differences between the 2040 Build and No Build employment forecasts are due to the transportation improvements included in the I-290 build alternatives (full discussion in Section 3.15.1, Indirect and Cumulative Impacts and Appendix B). These highway and transit improvements result in improved accessibility for the Study Area, which then affect the employment forecasts. The improvement of access to developable or re-developable sites increases the development potential of those sites, attracting development that may have occurred elsewhere in the region. Because the I-290 build alternatives include both highway and transit improvements, composite accessibility effects were used to measure changes in accessibility for the build alternatives.

3.1.3 Project Corridor Neighborhoods

3.1.3.1 Existing Conditions

Residential neighborhoods exist along the entire length of the Project Corridor with many of these neighborhoods directly adjoining the Eisenhower Expressway. Neighborhoods in the Project Corridor are well established and include single and multi-family housing which has developed in a fairly compact pattern. These neighborhoods are served by a full range of community services including; hospitals, schools, libraries, parks, commercial/retail, churches, police, fire, post offices, public transit, and many others that are detailed in Section 3.1.4, Public Facilities and Services.

For the purposes of this Draft Environmental Impact Statement (DEIS), the term "neighborhood" refers to the portions of the nine communities plus the City of Chicago that are fully or partially within the Project Corridor. From west to east these neighborhoods are the City of Elmhurst, Villages of, Hillside, Bellwood, Westchester, Broadview, Maywood, Forest Park, Oak Park, the Town of Cicero and the City of Chicago. Brief summaries of each neighborhood as well as graphics depicting the neighborhood's place in the Project Corridor are detailed below.

Existing land uses throughout the Project Corridor are presented in Figure 3-4 through Figure 3-7. Overall, residential uses are the primary land use throughout the Project Corridor making up slightly less than thirty percent of the total land use. Non-parcel and unclassified right-of-way comprises the second largest overall land usage with approximately twenty-six percent of total usage. Non-parcel right-of-way is typically composed of roadways. The third largest land use in the Project Corridor is Civic and Institutional usage (hospitals, schools, churches, cemeteries, government, etc.) at just over 13 percent. In general the entire Project Corridor is mostly built out, with only four percent of the current land use vacant for residential, commercial or industrial usage.

City of Elmhurst

Elmhurst was incorporated in 1882. Elmhurst had a population of almost 43,000 (US Census Bureau, 2010). Although not directly adjacent to I-290, the City of Elmhurst is located at the western most edge of the Project Corridor's one-mile wide corridor. Only a small portion of the City of Elmhurst falls within the Project Corridor. The south eastern most portion of Elmhurst is in the Project Corridor. This very small portion of the city is all residential land uses.

Figure 3-4. Existing Land Use – I-290 Study Area (Subarea 1)

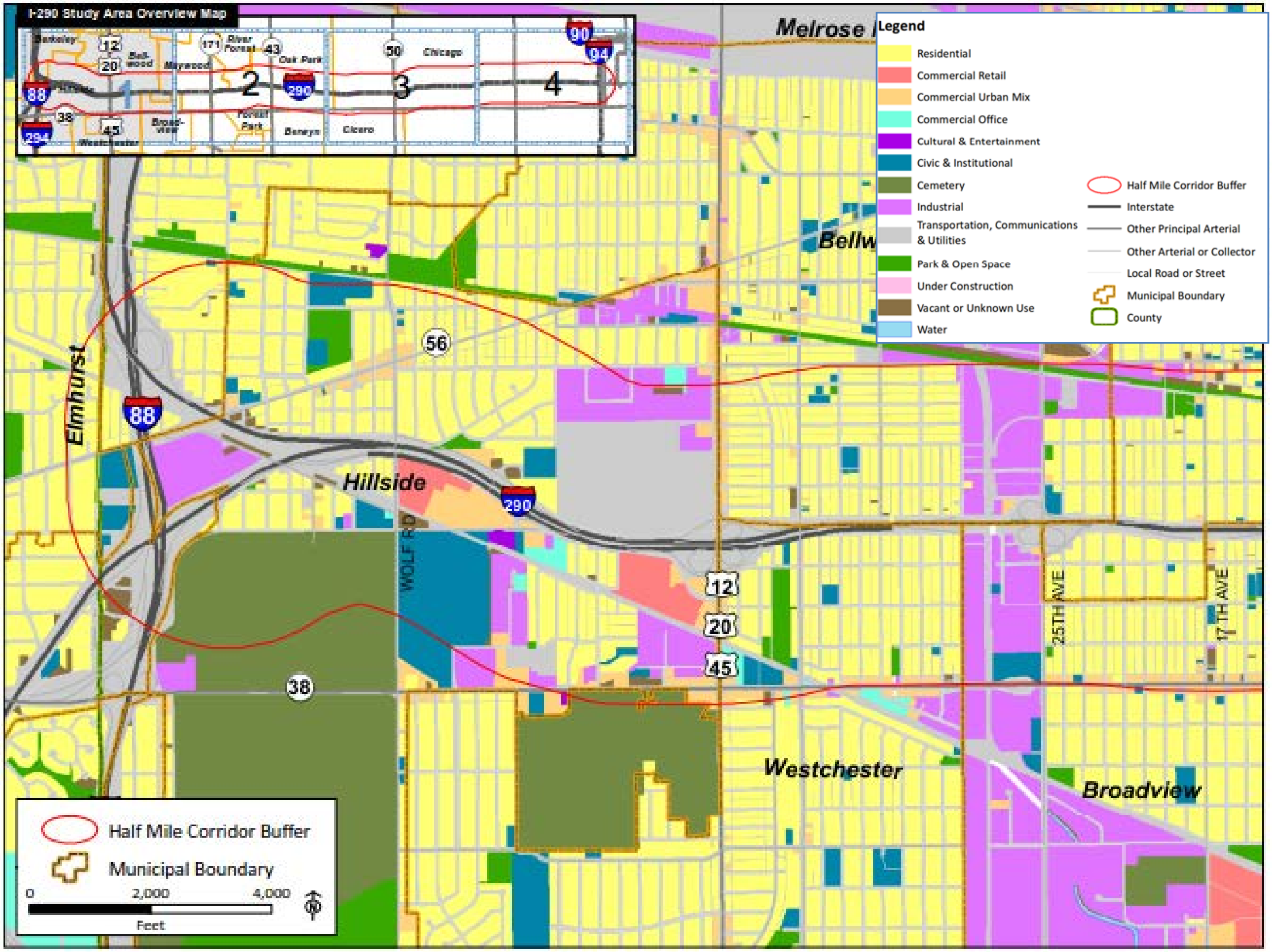


Figure 3-5. Existing Land Use – I-290 Study Area (Subarea 2)

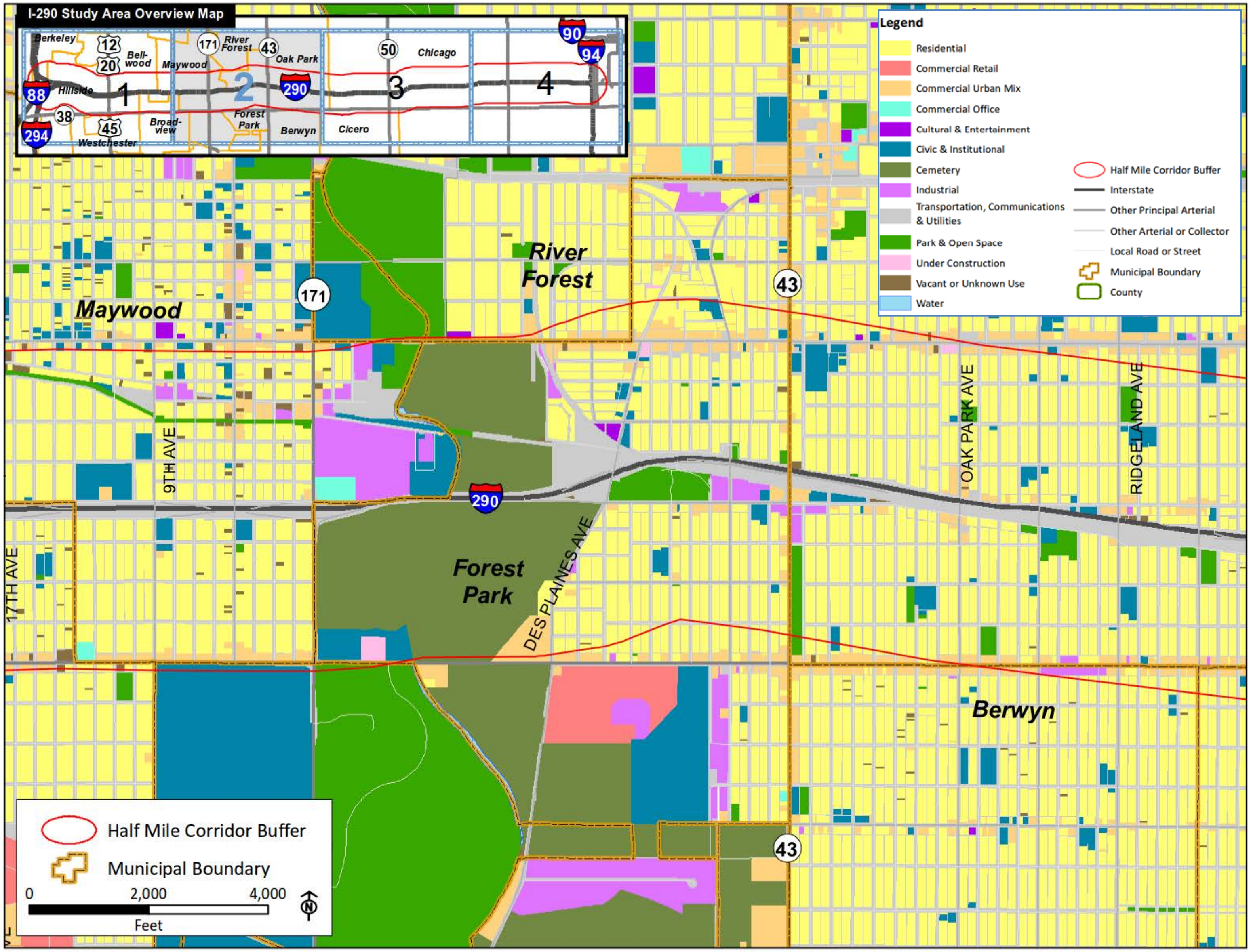


Figure 3-6. Existing Land Use – I-290 Study Area (Subarea 3)

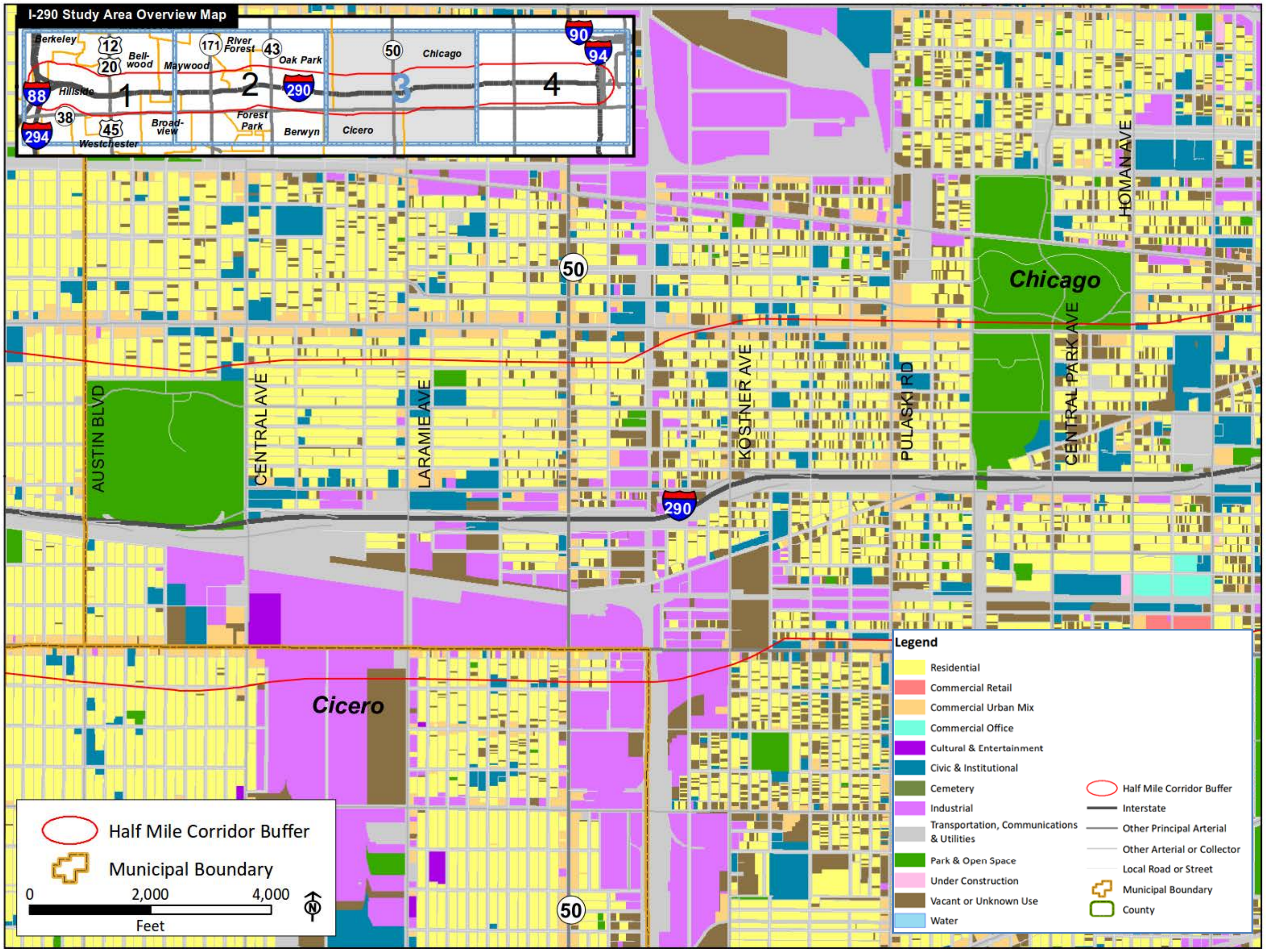
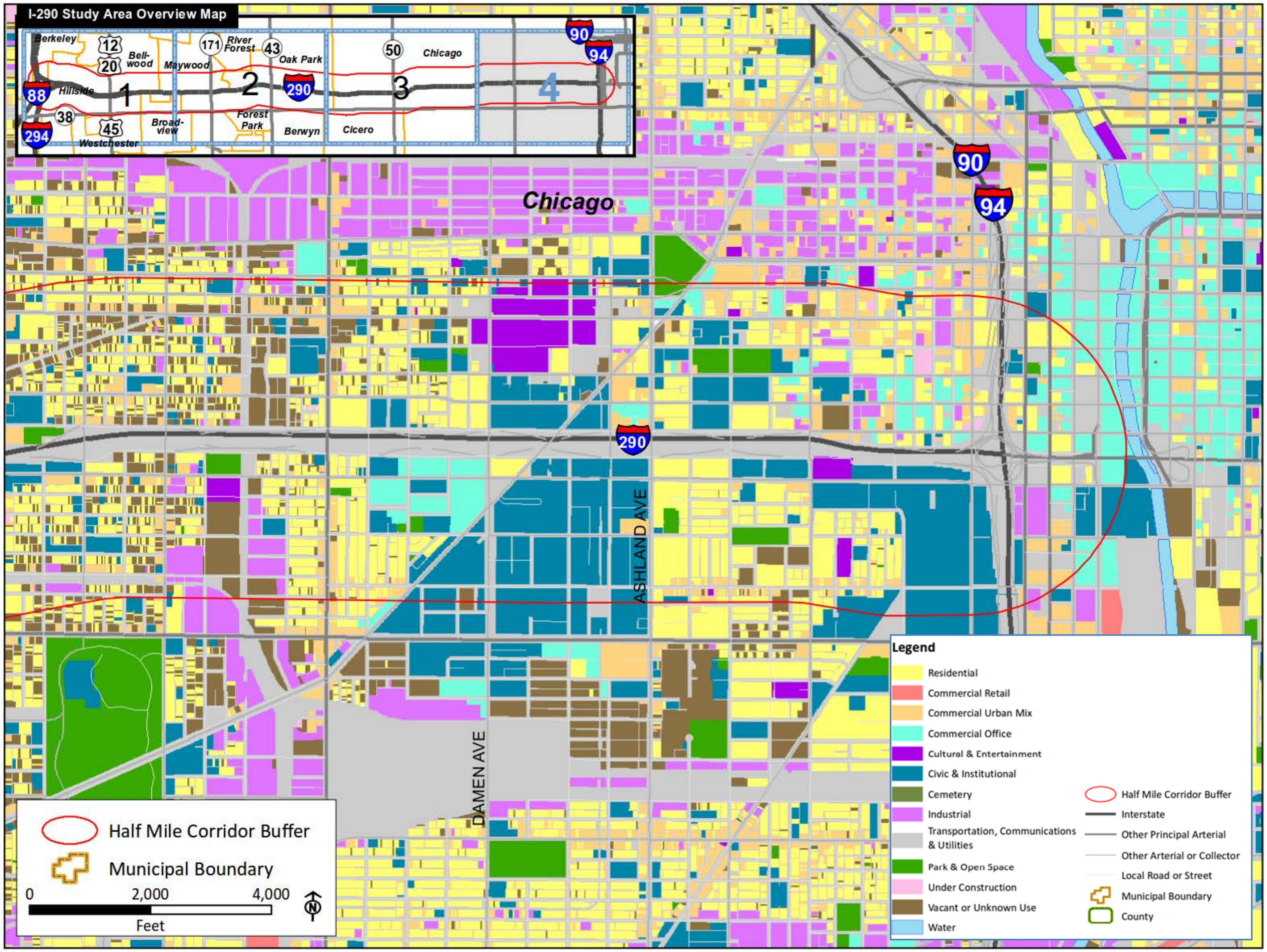


Figure 3-7. Existing Land Use – I-290 Study Area (Subarea 4)



Village of Hillside

The Village of Hillside was established in 1905 and had a population of 8,157 (US Census Bureau, 2010). The village has an approximate land area of 3.2 square miles and sits on the northwestern edge of the Project Corridor near the convergence of I-290, I-294, and I-88. The Project Corridor extends approximately 1.7 miles through Hillside. The Village of Hillside's main point of access to I-290 is at Mannheim Road (US Route 12/20/45).The land uses in Hillside that are adjacent to I-290 vary as the facility crosses the village from west to east. An industrial district exists on the far western edge of the village close to where I-290 and I-88 converge. Single family and multi-family land uses exist both on the north and south sides of I-290 in the west/central area of Hillside. South of I-290 at Wolf Road, there is a large commercial development with a Menards hardware store and Car Max auto dealership. Opposite this commercial district, on the north side of I-290, are two hotels. Near the intersection of Mannheim Road and the Project Corridor, the land north of the expressway is vacant, but zoned for office and limited industrial uses. Southwest of I-290 and Mannheim Road is retail big box development, such as Target, Petco, and Michaels.

Village of Bellwood

The Village of Bellwood is located east of the Village of Hillside in the northwest portion of the Project Corridor. Bellwood sits north of I-290 with a portion of the expressway forming its southern boundary from 22nd Avenue to Mannheim Road, and extends approximately 1.25 miles through Hillside. The Village of Bellwood was formally incorporated in 1900. In 2010 the village's population was 19,071 (US Census Bureau, 2010). The village's Comprehensive Plan states its total land area at 2.3 square miles. Bellwood's main point of access to I-290 is at the Mannheim Road (US Route 12/20/45) interchange and 25th Avenue.

Land uses directly adjoining the I-290 right-of-way are predominantly single family residences. At the northwest corner of the interchange of I-290 and 25th Avenue is a business/light industrial area. Located northeast of the 25th Avenue interchange is the vacant Wilson Elementary School building and more single family residences.

Village of Westchester

The Village of Westchester is located in the southwest area of the Project Corridor, south of I-290. The village was founded in 1924 and has a total land area of 3.69 square miles, with a 2010 population of 16,718 (US Census Bureau, 2010). Only a small northeastern portion of the village between Mannheim Road to the west and Gardner Road to the east directly abuts I-290 for an approximate distance of 0.8 mile. This area is generally a mix of commercial uses and single family residences. The primary access point for the Village of Westchester to I-290 is at Mannheim Road (US Route 12/20/45).

Village of Broadview

The Village of Broadview is located directly east of the Village of Westchester on the south side of I-290. The Village of Broadview was formally incorporated in 1914. I-290 forms the northern boundary of the village from Gardner Road to South 25th Avenue and from South 17th Avenue to South 13th Avenue. The overall land area of Broadview is 1.3 square miles[2], with a population of 7,932 (US Census Bureau, 2010). Broadview's main access points to I-290 are at South 25th Avenue and South 17th Avenue. The two separate portions of Broadview that share right-of-way with I-290 have a combined distance of approximately 0.5 miles.

The two primary areas of Broadview that directly abut I-290 have two distinct land uses. The area between Gardner Road and 25th Avenue is zoned for office and industrial uses while the area of Broadview between 17th Avenue and 13th Avenue is mostly comprised of single family residences and some commercial uses along 17th Avenue.

Village of Maywood

The Village of Maywood was established in 1881. As of 2010, the village's population was 24,090 (US Census Bureau, 2010) with an approximate land area just under three square miles. The Village of Maywood is located in the west-central portion of the Project Corridor and is bounded on the east by the Des Plaines River, on the south by the Village of Broadview, on the north by Melrose Park, and on the west by the Village of Bellwood. The majority of the village is located north of I-290, but two small portions are located south of the expressway. The approximate length of I-290 through Maywood is 2 miles.

The primary land uses adjacent to I-290 are single family residential. Multi-family uses are found along 5th Avenue directly south of I-290. North of I-290, along 1st Avenue (Illinois Route 171) is a commercial district. Northeast of 1st Avenue and I-290 is the Maywood Town Center, Cook County Sherriff's office, Circuit Court of Cook County – Fourth Municipal District Courthouse, and Cook County Clerk's office.

Maywood has four main access points to I-290 located at South 25th Avenue, South 17th Avenue, South 5th Avenue, and South 1st Avenue.

Village of Forest Park

The Village of Forest Park was established in 1884 and is located in the central portion of the Project Corridor. Portions of the village are located on the north and south sides of the expressway. The total land area of Forest Park is 2.4 square miles according to the US Census Bureau. Much of that area is taken up by three large cemeteries located in Forest Park; Forest Home, Waldheim, and Concordia. The Village of Forest Park had 14,167 residents (US Census Bureau, 2010).

The Forest Home Cemetery is located directly south of I-290, west of 1st Avenue and east of DesPlaines Avenue. Directly north of I-290, between the Des Plaines River on the west and Van Buren Street on the east, is the Concordia Cemetery.

[2] Village of Broadview. http://www.broadview-il.gov/common.php?id=16.

North of I-290 and west of DesPlaines Avenue is the terminus station and park and ride for the Chicago Transit Authority (CTA) Blue Line.

Single family residential areas are found in Forest Park directly north of I-290 between DesPlaines Avenue and the eastern boundary of the village at Harlem Avenue. South of I-290 between DesPlaines Avenue and Circle Avenue is the village's municipal offices and parks. South of Harrison Street are single and multi-family residences. Major access points to I-290 in Forest Park are at DesPlaines Avenue and Circle Avenue. The approximate length of I-290 through Forest Park is 1.5 miles.

Village of Oak Park

The Village of Oak Park is located centrally along the Project Corridor, directly west of the City of Chicago. Oak Park was established in 1902 and had a total population of 51,878 (US Census Bureau, 2010). The total land area for the Village of Oak Park is 4.7 square miles. The main points of access for Oak Park to I-290 are located at Harlem Avenue and Austin Boulevard. The approximate distance of I-290 through Oak Park is 1.6 miles.

On both the north and south sides of I-290 through the Village of Oak Park, the primary land use is residential that varies from single family homes to higher density multi-family uses along Oak Park Avenue, Harrison Street, and Austin Boulevard.

Several parks in proximity to I-290 in Oak Park include Rehm Park located between East Avenue and Gunderson Avenue, Barrie Park between Lombard Avenue and Taylor Avenue, and the Wenonah Tot Lot, at Wenonah Avenue and Harrison Street.

Town of Cicero

The Town of Cicero was established in 1857 and has a total population of nearly 84,000 residents (US Census Bureau, 2010). Cicero is located south of I-290 and shares its eastern border with the City of Chicago. Only the northern most edge of Cicero is located within the Project Corridor. Within this portion of Cicero, along Roosevelt Road, land uses include industrial, transportation, and residential.

City of Chicago

The City of Chicago was founded in 1837. Today, Chicago is the third largest city in the US with a population of 2,695,598 (US Census Bureau, 2010). The city's total land area is approximately 234 square miles. The I-290 expressway is one of several major transportation corridors providing access to and from downtown Chicago. The City of Chicago accounts for approximately 46 percent of the overall Project Corridor, or approximately 6 miles.

Chicago has multiple access points to I-290 including (from west to east):

- Austin Boulevard;
- South Central Avenue;

- South Laramie Avenue;
- South Cicero Avenue;
- South Kostner Avenue;
- South Independence Boulevard;
- South Homan Avenue;
- South Sacramento Boulevard;
- South California Avenue;
- South Western Avenue;
- South Oakley Boulevard;
- South Damen Avenue;
- South Paulina Street;
- South Ashland Street; and
- South Racine Avenue.

Land uses in the City of Chicago along the Project Corridor vary widely as the facility moves from Austin Boulevard on the west into the downtown loop where I-290 connects with I-94 and I-90 on the east end of the Project Corridor. At the western edge of Chicago, between Austin Boulevard and Central Avenue, is Columbus Park along the north side of I-290. The park was created in the early 1900's and is approximately 135 acres in size.

South of I-290, between Central Avenue and Kostner Avenue, is a large manufacturing district. On the north side of I-290 from Central Avenue east to Hamlin Boulevard is largely residential uses. Residential uses are also predominant south of I-290 from Kostner Avenue east to Western Avenue.

The Illinois Medical District is located south of I-290, west of Ogden Avenue, and east to Ashland Avenue. This medical district is home to several major hospitals in the region including; the John H. Stroger Cook County Hospital, Rush University Medical Center, University of Illinois Medical Center, and the Jesse Brown VA Medical Center.

Southwest of the confluence of I-290, I-90, and I-94 on the eastern end of the Project Corridor in Chicago is the University of Illinois – Chicago (UIC). The UIC campus is generally located between Racine Avenue on the west and I-94 on the east, extending south to approximately 16th Street.

A major attraction in this area is the United Center, located approximately 0.3 miles north of I-290 between Damen Avenue and Wood Street. The United Center is the home to the Chicago Bulls and Chicago Black Hawks, as well as hosts numerous events throughout the year attracting thousands of visitors. A new practice facility is also being completed north of I-290 at South Damen Avenue.

The northeastern most portion of the Project Corridor in Chicago is a dense mix of residential and commercial uses from Ashland Avenue east to I-90.

3.1.3.2 Impacts to Neighborhoods and Land Use

Each of the build alternatives would not result in any changes to the existing surrounding land uses. Access to and from I-290 would be maintained, with the exception of four ramps between 1st Avenue and 25th Avenue. Because the build alternatives do not require large areas of new right-of-way, the permanent impacts to the areas surrounding I-290 would be minimal. In many cases, improvements to traffic flow, pedestrian access, and bicycle access would help to enhance residential and commercial land uses along the Project Corridor.

3.1.4 Public Facilities and Services

3.1.4.1 Existing Conditions

This section provides a summary of the existing public facilities and services within the Project Corridor. For the purposes of this analysis, public facilities include schools, hospitals, emergency services (police/fire), places of worship, cemeteries, parks, recreation centers, libraries, and other municipal/government facilities such as city halls and post offices. Specific impacts to parks, recreation facilities, and other special land uses are discussed in greater detail in Section 3.12, Special Lands. Information used to locate public facilities was gathered through secondary sources, city/village websites and field visits. The Section 3.0 Map Set shows the public facilities within the Project Corridor.

There are 270 public facilities and services located within the Project Corridor (Table 3-12). The most common facility types found in the Study Area are churches (137) and schools (68). The majority of these facilities are located on the eastern half of the Project Corridor, within the City of Chicago.

Table 3-12. Public Facilities/Services in the Project Corridor

Facility	Elmhurst	Hillside	Bellwood	Westchester	Broadview	Maywood	Forest Park	Oak Park	Cicero	Chicago	Total
Schools	0	4	2	1	1	4	4	5	3	44	68
Libraries	0	1	0	0	0	0	1	1	0	3	6
Parks	0	0	1	1	0	0	1	7	0	23	33
Churches	0	4	1	2	8	11	4	9	0	98	137
Cemeteries	0	1	0	0	0	0	2	0	0	0	3
Emergency Services	0	0	0	2	0	2	2	0	0	3	9
Hospital/ Medical	0	0	0	0	0	0	1	1	0	3	5
Municipal/ Government	0	1	0	1	0	0	3	2	0	2	9
Total	0	11	4	7	9	17	18	25	3	176	270

Source: WSP Parsons Brinkerhoff, 2013

While the number of cemeteries found in the Project Corridor is relatively low (three), the location of these cemeteries is worth noting. On the western edge of the Study Area, the Mount Carmel Cemetery is located near the I-294/I-290 interchange at 1400 South Wolf Road in Hillside. The Village of Forest Park has two sizable cemeteries that are adjacent to I-290. The 230-acre[3] Forest Home Cemetery established in 1876 is located on the south side of I-290 at 863 DesPlaines Avenue. Directly north of I-290 and the Forest Home Cemetery is the Concordia Cemetery located at 7900 Madison Street in Forest Park.

Schools

The communities along the Project Corridor are served by multiple public schools, private schools, colleges, and universities. There are ten public school districts within the Project Corridor that are detailed in Table 3-13. Many of these school districts serve multiple communities in the Project Corridor and are largely made up of elementary and middle schools.

[3] Forest Home Cemetery. 2013. http://www.foresthomecemetery.net/

Table 3-13. School Districts Serving Project Corridor Communities

School District	School Type	Project Corridor Community Served
Hillside School District 93	Elementary, Middle School, High School	Hillside
Proviso Township District 209	High School	Maywood, Broadview, Forest Park, Bellwood, Hillside
Bellwood School District 88	Elementary, Middle School	Bellwood, Hillside, Maywood, Broadview
Westchester School District 92-5	Elementary, Middle School	Westchester, Broadview
Lindop School District 92	Elementary, Middle School	Broadview
Maywood-Melrose Park-Broadview School District 92	Elementary, Middle School	Maywood, Broadview
Forest Park School District 91	Elementary, Middle School	Forest Park
Oak Park & River Forest District 200	High School	Oak Park
Chicago School District 299	Elementary, Middle School, High School	Chicago

Three higher educational institutions are located at the eastern end of the Project Corridor in Oak Park and Chicago. The largest of these is UIC, located south of I-290 and west of I-90/I-94, in western Chicago. As of the 2015 fall semester, UIC had a total enrollment of 29,048 students.[4] Rush University and Rush University Medical Center are located directly south of I-290 at 600 South Paulina Street in Chicago and have approximately 2,000 students.[5] The third higher education institute located in the eastern portion of the Study Area is Malcolm X College, located directly north of I-290 at 1900 W. Jackson Boulevard in Chicago. Malcolm X College, hosting 5,000 students per semester,[6] is one of seven colleges that make up the City Colleges of Chicago network.

Religious Institutions

As shown in the Section 3.0 Map Set, there are numerous religious institutions scattered within the Project Corridor. These religious institutions represent a diverse range of denominations and vary in congregation size. By far the greatest concentration of religious institutions is located in the eastern portion of the Study Area, in the City of Chicago. Within the City of Chicago portion of the Project Corridor, there are nearly 100

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[4] University of Illinois at Chicago. 2015. UIC Key Facts. www.uic.edu/uic/about/keyfacts/index.shtml

[5] Rush University. 2013. About Rush University. http://www.rushu.rush.edu/servlet/Satellite?c=RushUnivLevel2Page&cid=1192572132561&pagename=Rush%2FRushUnivLevel2Page%2FLevel_2_Audience_Portal_Page

[6] Malcolm X College. 2013. About the College. http://www.ccc.edu/colleges/malcolm-x/menu/Pages/About-the-College.aspx

religious institutions. Outside of the Chicago portion of the Study Area, the highest number of religious institutions is located in Maywood (11), Oak Park (9), and Broadview (8).

Medical and Public Safety Services

Within the Project Corridor there are nine major hospitals serving the local residents and the greater Chicago metropolitan area. The Loyola University Medical Center is just outside the southern edge of the Project Corridor, but due to its size and high volume of visitors (over 1.38 million[7]); it was included in this analysis. According to the Illinois Department of Public Health, Loyola University Medical Center is the only designated trauma center in the project corridor. Hospitals located in the Project Corridor are listed in Table 3-14. The John H. Stroger, Jr. Hospital of Cook County has the highest number of emergency room visits with almost 110,000 annually.[8] Along with serving the medical needs of the surrounding communities, these medical centers also serve as economic generators for the local areas by employing large numbers of people.

Table 3-14. Major Hospitals / Medical Centers in the Project Corridor

Hospital Name	Type of Facility	Size (# of Beds)	Annual Patients (2012)	Number of Employees*
University of Illinois Hospital 1740 W. Taylor St. Chicago, IL 60612	General medical and surgical hospital	483	• Admissions: 17,984 • Outpatient Visits: 486,828 • Emergency Room Visits: 42,190	Full Time: 509 Part Time: 957
John H. Stroger Jr. Hospital of Cook County 1901 West Harrison Street Chicago, IL 60612	General medical and surgical hospital	460	• Admissions: 23,133 • Outpatient Visits: 724,215 • Emergency Room Visits: 136,618	Full Time: 1,748 Part Time: 12
Jesse Brown Veterans Affairs Medical Center 820 S. Damen Chicago, IL 60612	General medical and surgical hospital	240	• Admissions: 9,819 • Outpatient Visits: 897,361 • Emergency Room Visits: 16,899	Full Time: 553 Part Time: 43
Rush University Medical Center 1653 W. Congress Pkwy. Chicago, IL 60612	General medical and surgical hospital	664	• Admissions: 30,259 • Outpatient Visits: 415,508 • Emergency Room Visits: 50,123	Full Time: 1,533 Part Time: 871

[7] US News and World Report: Health. Loyola University Medical Center: Stats and Services. http://health.usnews.com/best-hospitals/area/il/loyola-university-medical-center-6430841/details. 10/27.14

[8] Cook County Health & Hospital System. About Us – John H. Stroger, Jr. Hospital of Cook County. http://www.cookcountyhhs.org/locations/john-h-stroger-jr-hospital/about-us/. 10/27/14.

Table 3-14. Major Hospitals / Medical Centers in the Project Corridor (continued)

Hospital Name	Type of Facility	Size (# of Beds)	Annual Patients (2012)	Number of Employees*
Rush Oak Park Hospital 520 S. Maple Ave. Oak Park, IL 60304	General medical and surgical hospital	114	• Admissions: 4,383 • Outpatient Visits: 94,386 • Emergency Room Visits: 23,814	Full Time: 157 Part Time: 82
Riveredge Hospital 8311 W. Roosevelt Rd. Forest Park, IL 60130	Psychiatric Hospital	224	• Admissions: N/A • Outpatient Visits: N/A • Emergency Room Visits: N/A	Full Time: N/A Part Time: N/A
RLM Specialty Hospital 3435 W. Van Buren Chicago. IL 60624	Long Term Care – Catastrophic/ Acute Illness	150	• Admissions: N/A • Outpatient Visits: N/A • Emergency Room Visits: N/A	Full Time: N/A Part Time: N/A
Loretto Hospital 645 S. Central Ave. Chicago, IL 60644	General medical and surgical hospital	187	• Admissions: N/A • Outpatient Visits: 33,000 • Emergency Room Visits: N/A	Full Time: 600 + Part Time: N/A
Loyola University Medical Center 2160 S. First St. Maywood, IL 60153	General medical and surgical hospital	535	• Admissions: 24,496 • Outpatient Visits: 1,260,000 • Emergency Room Visits: 51,231	Full Time: 1,770 Part Time: 512

Source: US News and World Report: Best Hospitals[9]
* *Many hospital's physicians and dentists are not on staff. They are paid as faculty by a medical school or through other arrangements, and may not be included in this total.*

Located in the southeastern portion of the Project Corridor is the Illinois Medical District (IMD). The District consists of 560 acres of medical research facilities, labs, biotech business incubators, raw development areas, universities, and more than 40 health care related facilities.[10]

Fire Protection

Each of the communities in the Project Corridor has its own municipal fire department providing fire protection and emergency medical services. Fire stations within the project corridor are identified in the Section 3.0 Map Set. All of the Project Corridor communities are part of the Mutual Aid Box Alarm System (MABAS). The MABAS allows all member communities' fire and emergency services to work together in situations where emergency events overwhelm the capabilities of local emergency services. The Villages of Oak Park and Forest Park are in MABAS Division 11. The Villages of Bellwood, Broadview, Hillside, Maywood, and Westchester are in MABAS

[9] US News and World Report. 2013. US News Best Hospitals 2013-14. http://health.usnews.com/best-hospitals/rankings
[10] Illinois Medical District Commission. 2013. http://www.imdc.org/

Division 20. The City of Chicago makes up MABAS Division 9. In total, there are 10 fire stations located within the Project Corridor.

Police

Police protection and law enforcement is provided by each of the municipalities in the Project Corridor. There are a total of five law enforcement stations within the Project Corridor, including municipal police stations, Cook County Sherriff Office, and Illinois State Police (ISP). The ISP has 21 divisions across the State of Illinois, with the Chicago District providing highway and expressway protection and enforcement in Cook County.

3.1.4.2 Impacts to Public Facilities and Services

No impacts to public facilities and services would occur with the No Build Alternative, although growing congestion along local streets, arterials, and the Eisenhower Expressway may be anticipated to occur over time as traffic volumes increase. The build alternatives would not directly impact public facilities and services as no displacements of existing facilities are planned as part of the reconstruction of the Eisenhower Expressway.

Improvements to interchange performance and travel times with all the alternatives will improve emergency access to many areas. Improvements in accessibility associated with local traffic volumes on the local street network were also evaluated based on the proposed access modifications and mainline improvements to I-290. Overall, it was determined the average local road network daily vehicle miles traveled (VMT) would be reduced for the GP Lane and HOT 3+ Alternatives, though increased for the HOV 2+ and HOT 3+ & TOLL Alternatives. Generally, the overall VMT reduction can be attributed to the capacity and operational improvements on I-290 that would shift regional, non-local pass-through trips onto the newly reconstructed expressway. These regional, non-local pass-through trips currently use the local network to bypass expressway traffic. Section 3.1.8.2, Impacts to Transportation, provides a more detailed description of future highway and local road network conditions.

3.1.5 Local Planning

3.1.5.1 Existing Conditions

This section describes the scope and status of planning documents for the multiple communities along the Project Corridor along with a brief description of each community within the Project Corridor. Each community has been analyzed to assess the current planning, land use, and zoning policies and how they relate to the build alternatives.

Metropolitan Transportation Plan

The region's Metropolitan Planning Organization (MPO), the MPO Policy Committee, is responsible for reviewing and programming projects that use federal transportation dollars. In 2014, the MPO adopted an updated metropolitan transportation plan. The plan update's primary transportation emphasis is to bring the transportation system to a state of good repair, but contains a handful of major capital projects that will maximize regional benefits of mobility and economic development.[11] The fiscally constrained projects in the plan update include expressway additions. The I-290 Eisenhower Express Toll Lanes are included in the expressway addition list.

Village of Hillside

The Village of Hillside has a comprehensive plan, but the most recent formally adopted plan was developed in 1976.

Village of Westchester

In June 2014, the Village of Westchester finalized an update of its comprehensive plan. For the most part, single family residential and commercial uses are currently found in Westchester in the Project Corridor.

While no specific plans are noted relating to the I-290 project alternatives, the comprehensive plan does state a desire for the Village to reach out to IDOT to identify improvements to state owned routes running throughout the community.[12]

Village of Bellwood

In 2013, the Village of Bellwood adopted its first village wide comprehensive plan. An important goal of this plan is to maintain and enhance access to the Project Corridor to attract new business and employers to the village.

Land uses near the Project Corridor are largely residential, consisting of single, or two family residential dwellings. There are some small pockets of multifamily residential along Bellwood Avenue. West of 25th Avenue and north of I-290 is a business park used for light industrial and manufacturing purposes.

The Village of Bellwood sees the reconstruction of the I-290 at the 25th Street interchange as a significant opportunity to develop a signature street in the community, and to provide an attractive gateway into the Village of Bellwood.

Village of Broadview

The Village of Broadview completed its most recent comprehensive plan update in April 2006. Areas of Broadview within the Project Corridor are largely single family residential and office / industrial areas.

The central goal of the comprehensive plan related to transportation issues is to maintain and enhance the high quality transportation opportunities which are available to Broadview residents.[13] The Plan recommends improvements to its 17th Street corridor

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[11] Chicago Metropolitan Agency for Planning (CMAP). 2014. *GO TO 2040 Plan Update Summary.* pp. 20. http://www.cmap.illinois.gov/documents/10180/332742/Update+Plan+Summary+FINAL+Word.pdf/55c7e22b-3edb-43cb-a5da-37302d33b17c

[12] Ibid. p.55.

[13] Village of Broadview. 2006. Village of Broadview Comprehensive Plan. p. 7. http://www.broadview-il.gov/upload/Broadview%20Comprehensive%20Plan1377292129.pdf

to improve access to I-290 for residential and truck traffic. Outside of this goal, there are no specific plans listed for the Project Corridor. Each of the proposed I-290 build alternatives include a reconstructed interchange at the 25th Street interchange and maintaining current access to and from the east at the 17th Street interchange in Broadview. Therefore, each of the build alternatives would conform to the Village of Broadview's 2006 Comprehensive Plan.

Village of Maywood

The Village of Maywood's Comprehensive Plan was adopted in December 2014. The central transportation goal of Maywood's Comprehensive Plan is to support regional access and circulation through multi-modal mobility.[14] The Plan recommends that Maywood stay involved in the I-290 planning process to ensure that their needs and desires are heard. [15]

Village of Forest Park

In December 2014, the Village of Forest Park updated its community wide Comprehensive Plan. The Comprehensive Plan outlines the goals and vision for the Village for the coming fifteen to twenty years. The plan states that the I-290 Eisenhower Expressway provides essential regional connections, but is a pronounced barrier for bicyclists and pedestrians as the few streets that cross over the expressway are not hospitable to walking and bicycling[16].

In relation to Transportation Goals related to I-290, the Plan identifies multimodal improvement goals along DesPlaines Avenue, Circle Avenue, and Harlem Avenue. Along DesPlaines and Circle Avenues, the plan calls for the Village to continue working with IDOT on potentially to widening these streets as part of the I-290 reconstruction to improve overall travel safety and provide better accommodations for bicyclists and pedestrians[17]. With respect to providing improved access to the CTA Blue Line, the plan calls for the Village to continue working with both IDOT and the CTA to ensure that the Village takes advantage of the proposed I-290 reconstruction project. The Village should make significant improvements for pedestrian and bicycle safety, and maximize access convenience to the transit stations[18].

Village of Oak Park

The current Village of Oak Park Comprehensive Plan, *Envision Oak Park*, was adopted in September, 2014. Planning for improvements or changes to the Project Corridor were issues of high importance in the final document.

The *Envision Oak Park Comprehensive Plan* sets as a goal to make the 'Eisenhower Transportation Corridor safe, convenient, and reliable with multimodal options that

[14] Ibid. p. 8.5.
[15] Ibid. p. 8.5.
[16] Village of Forest Park. 2014. Village of Forest Park Comprehensive Plan. p. 50.
[17] Ibid p. 101
[18] Ibid p.102

support environmental sustainability and livable communities.'[19] To achieve this goal *Envision Oak Park* sets four objectives:

1. Ensure that the Eisenhower Expressway supports both local and regional travel needs and improves public transit access to destinations to the west of Oak Park;

2. Maintain the existing expressway footprint, soften the visual barrier and preserve the established built form, character and historic assets;

3. Improve non-motorized mobility across the Eisenhower corridor by widening bridge sidewalks to safely accommodate bicycles and pedestrians and create small areas of open space; and

4. Explore and test creative solutions for managing transportation patterns, integrating all modes of travel, and designing infrastructure in order to maximize mobility and minimize impacts on surrounding neighborhoods.[20]

Most of the land uses in the Project Corridor in the Village of Oak Park are single family or multi-family residential uses with commercial uses along Garfield Street and Oak Park Avenue. It is the village's desire to maintain these neighborhoods and to minimize the negative impacts on the Project Corridor to the greatest extent possible. The plan suggests that as improvements to the Project Corridor are considered, Village government should work closely with IDOT, CTA, and Pace to see that project alternatives generated would comply with the newly adopted comprehensive plan. This would help maintain the character of its neighborhoods surrounding the Project Corridor and continue to advocate for the goals outlined in *Envision Oak Park.*

City of Chicago

The City of Chicago does not have a current city wide comprehensive master plan. The most recent comprehensive plan for the City of Chicago was adopted in 1966. Chicago does have several citywide plans such as the *Nature and Wildlife Plan, Adding Green to Urban Design Plan*, and *Transit Friendly Development Guide*, but none that relate directly to the I-290 Study. The City of Chicago also has multiple area plans that are highly focused on specific areas. The *Near West Area Plan* (2009) is the only one of these area plans with proximity to the Project Corridor. The I-290 Eisenhower Expressway is the southern boundary of the Near West Study Area. This plan is largely focused on land use issues within the Study Area, and it does not include any specific recommendations for improvements to the Project Corridor.

3.1.5.2 Impacts to Local Planning

The build alternatives comply with regional and local comprehensive plans. All of the build alternatives conform to the recommendations, goals and priorities of *GO TO 2040*[21]. Not all of the Project Corridor communities address I-290 in their comprehensive

[19] Village of Oak Park. Envision Oak Park - Comprehensive Plan. p. 148. 9/15/14.
[20] Village of Oak Park. Envision Oak Park - Comprehensive Plan. p. 148-149. 9/15/14.
[21] Chicago Metropolitan Agency for Planning (CMAP). 2014. *GO TO 2040 Plan Update Summary*

plans; however, below is a discussion of how the community plans are consistent with the Project:

- Hillside: The Hillside Comprehensive plan is from 1976 and does not discuss I-290.
- Westchester: The build alternatives are consistent with Westchester's comprehensive plan, which seeks to create a multi-modal transportation system in Westchester that enables the use of transit, bicycling and walking for daily trips.
- Bellwood: The build alternatives are consistent with the Village of Bellwood's comprehensive plan.
- Broadview: Each of the build alternatives includes a reconstructed interchange at the 25^{th} Avenue interchange and maintaining current access at the 17^{th} Avenue interchange in Broadview. Therefore, each of the build alternatives would conform to the Village of Broadview's 2006 Comprehensive Plan.
- Maywood: The build alternatives would comply with the Village of Maywood's Comprehensive Planning documents. In addition, the proposed 1^{st} Avenue interchange improvements are consistent with Maywood's redevelopment plans.
- Forest Park: The build alternatives are consistent with Forest Park's Comprehensive Plan, which calls for the Village to continue to work with IDOT on the potential to widen these streets as part of the I-290 reconstruction to improve overall travel safety and provide better accommodations for bicyclists and pedestrians.
- Oak Park: While the specific improvements in the build alternatives are not discussed in Oak Park's Comprehensive Plan, many of the goals and objectives expressed in the plan are in line with the outcomes sought by all of the proposed project alternatives.
- Chicago: The Chicago Comprehensive plan is from 1966 and does not discuss I-290 since it was focused mainly on land use.

3.1.6 Community Cohesion and Community Changes

3.1.6.1 Existing Conditions

The existing Project Corridor is extensively developed with a diverse mix of land use typical of a major metropolitan center. While the Eisenhower Expressway is one of several primary east-west transportation arteries in the western Chicagoland region, it was constructed approximately 60 years ago as one of the earliest sections of the Interstate Highway system. Its inception as a major east-west transportation facility was influenced, in part, by Daniel Burnham and Edward H. Bennett's 1909 *Plan of Chicago* which proposed a west side boulevard along Congress Street to connect the city to the western parks and the suburbs beyond the Chicago city limits. Over the following decades, city plans preserved the West Side route right-of-way for future expressway developments. Later, the city's 1940 Comprehensive Superhighway Plan included a

West Side route along the Congress Street alignment and was the city's first priority in establishing a comprehensive superhighway system. After World War II, the Congress Expressway route followed the proposed West Side route and Garfield Park "L" through Chicago, the "L" and railroad right-of-way through Oak Park and Forest Park, and continued near the alignment of Congress Street though the western suburbs, dipping south of Harrison Street through Maywood, Broadview, Bellwood and Westchester. In Hillside, construction angled northwest through the countryside to the present day location of the I-290/I-294/I-88 interchange. The Congress Expressway opened in sections between 1955 and 1960. A large extent of impacts to community cohesion, consequently, occurred with the original construction of the Eisenhower Expressway as now reflected by the project's setting.

Many of the proposed improvements are intended to improve community cohesion and the urban environment. Design features include expanded/widened cross-road bridge sidewalks, pedestrian plaza areas, ADA-compliant sidewalks and street crossings, additional green spaces, and a shared-use path extension of the regional Illinois Prairie Path trail. The proposed I-290 build alternatives would improve safety of the traffic operations on the Eisenhower Expressway for local residents and interstate commuters~~,~~ as well as improve access to existing transit facilities and bus/rail transfers. In addition, proposed noise barriers, landscape and streetscape improvement opportunities, created green spaces, and improved aesthetic appearance will help to restore the overall quality of life in each of the communities.

3.1.6.2 Impacts to Community Cohesion and Community Changes

The No Build Alternative would not change the communities since no infrastructure improvements would be completed. This section provides a summary of the proposed changes at the community level. For additional reference, a summary of the proposed interchange types is provided in Section 2.5.2, Interchange Type Selection and Refinement Summary, and a more detailed explanation of the interchange design, analysis, operational evaluations, and selection process is provided in the I-290 Phase I Combined Design Report.

> Each of the build alternatives for the Project Corridor share the same right-of-way footprint. This footprint would require only a small amount of new right-of-way outside of the existing I-290 right-of-way area and would cause no residential, business, public facility, or other displacements or relocations.

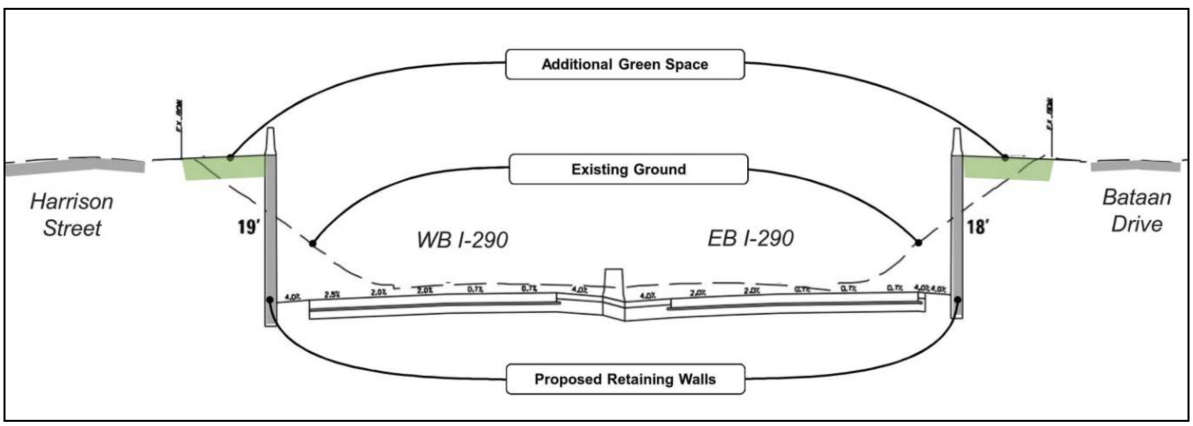
The existing I-290 facility affects community cohesion by historically separating communities to the north and south of the highway. All of the proposed build alternatives would improve community cohesion by providing wider crossings for both motorized and non-motorized travel, safer access to and from the expressway, and improved traffic flow on north-south arterials at the major interchanges.

For all of the build alternatives, some residents would experience changes in noise levels; however, the majority of properties evaluated for noise impacts have existing noise levels that exceed the Noise Abatement Criteria and, for a majority of these properties in the corridor, there would be no perceptible difference in noise levels between the projected 2040 No Build condition and the build alternatives. For areas where noise walls were found to be reasonable and feasible, the affected residents and property owners were provided an opportunity to vote on whether or not a noise wall in their area should be implemented (through a viewpoint solicitation process in accordance with IDOT policy). See Section 3.4, Traffic Noise for a more detailed discussion of traffic noise analysis and mitigation.

Edges and Green Space

The proposed mainline design provides several plans for expanded green space areas (flat, un-paved areas at the community level next to the expressway), additional sidewalk and pedestrian plaza spaces, and additional shared-use path space. The green spaces are generally accommodated where some alignment shifts and new retaining walls are proposed within the existing right-of-way that will convert existing expressway side slopes into flat green space areas that can provide additional opportunities to local communities. Figure 3-8 illustrates how new green space area is accommodated behind the proposed expressway retaining walls. This illustration is for the expressway section between 25th Avenue and 1st Avenue, but the concept is similar for other new green space areas provided adjacent to the expressway.

Figure 3-8. New and Additional Green Space Typical Section



Source: WSP Parsons Brinckerhoff, 2016

Overall, there is a combined total 12.99 acres of new edge and green space provided by the proposed project. The 12.99 acres consists of 7.36 acres of additional green space, 2.75 acres of additional sidewalk area and pedestrian plaza space, and 2.88 acres for the shared-use path. The expanded green space and sidewalk areas can be utilized by the communities for edge treatment improvements that could include improved landscaping, hardscaping, park space, or other community uses.

Villages of Bellwood, Broadview and Maywood

Within the expressway section between 25th Avenue and 1st Avenue, approximately 4.65 acres of new edge and green space are provided. Approximately 3.84 acres of new green space will be added along the north and south side of I-290 between the frontage roads and the proposed I-290 retaining walls, and 0.81 acre of additional sidewalk and pedestrian plaza areas along the reconstructed crossroad bridges. Within the three communities in the section, the additional edge and green space area provided is: Bellwood 0.33 acre, Broadview 0.42 acre, Maywood 3.90 acre.

Village of Forest Park

Within the Village of Forest Park, approximately 2.16 acres of new edge and green space will be created adjacent to, and over the expressway. Approximately 0.62 acre of green space area will be added along the north side of I-290 between the CSX railroad bridge and Circle Avenue, and between Circle Avenue and Harlem Avenue (between the proposed Harlem Avenue interchange ramp and the frontage road). In addition to the green space area, approximately 0.64 acre and 0.90 acre of new sidewalk and shared-use path area will also be created associated with the reconstructed crossroad bridges.

Village of Oak Park

Within the Village of Oak Park, the proposed design results in approximately 4.87 acres of edge and new green space area along the north side of I-290 between the proposed I-290 retaining wall and the adjacent frontage roads, and over the expressway along the reconstructed crossroads. Approximately 1.98 acres of new green space area will be created along with 1.98 acres of shared-use path (parallel to I-290) and 0.91 acre of additional sidewalk and pedestrian plaza areas.

City of Chicago – Columbus Park

In the City of Chicago, a total of 1.31 acres of new edge and green space areas is being created within the proposed mainline Reconstruction Section of the corridor associated with the proposed Austin Boulevard and Central Avenue interchange improvements adjacent to Columbus Park. Approximately 0.39 acre of new sidewalk and pedestrian plaza areas will be created as part of the reconstructed crossroad bridges, and 0.92 acre of additional greenspace along the south edge of Columbus Park.

Public Services/Facilities

As with fire and ambulance services, any build option selected for the Project Corridor would need to be closely coordinated and planned with local, county, and state law enforcement agencies to ensure access is maintained to the I-290 facility throughout construction phases. The build alternatives are not expected to result in impacts to public services/facilities.

3.1.7 Relocations and Right-of-Way

3.1.7.1 Existing Conditions/Impacts

Within the 13 mile long Project Corridor, the proposed project will require approximately 5.44 acres of right-of-way, primarily associated with expressway and interchange improvements at 25th Avenue, 1st Avenue, DesPlaines Avenue, and Harlem Avenue, as well as a 10-foot strip of parallel CTA right-of-way for expressway improvements. The area of right-of-way required is the same for all four build alternatives and does not require any displacements or relocations. It is anticipated that all right-of-way acquisitions will be made by IDOT. A summary of the new right-of-way required for the project is shown in Table 3-15 and described by location along the Project Corridor below.

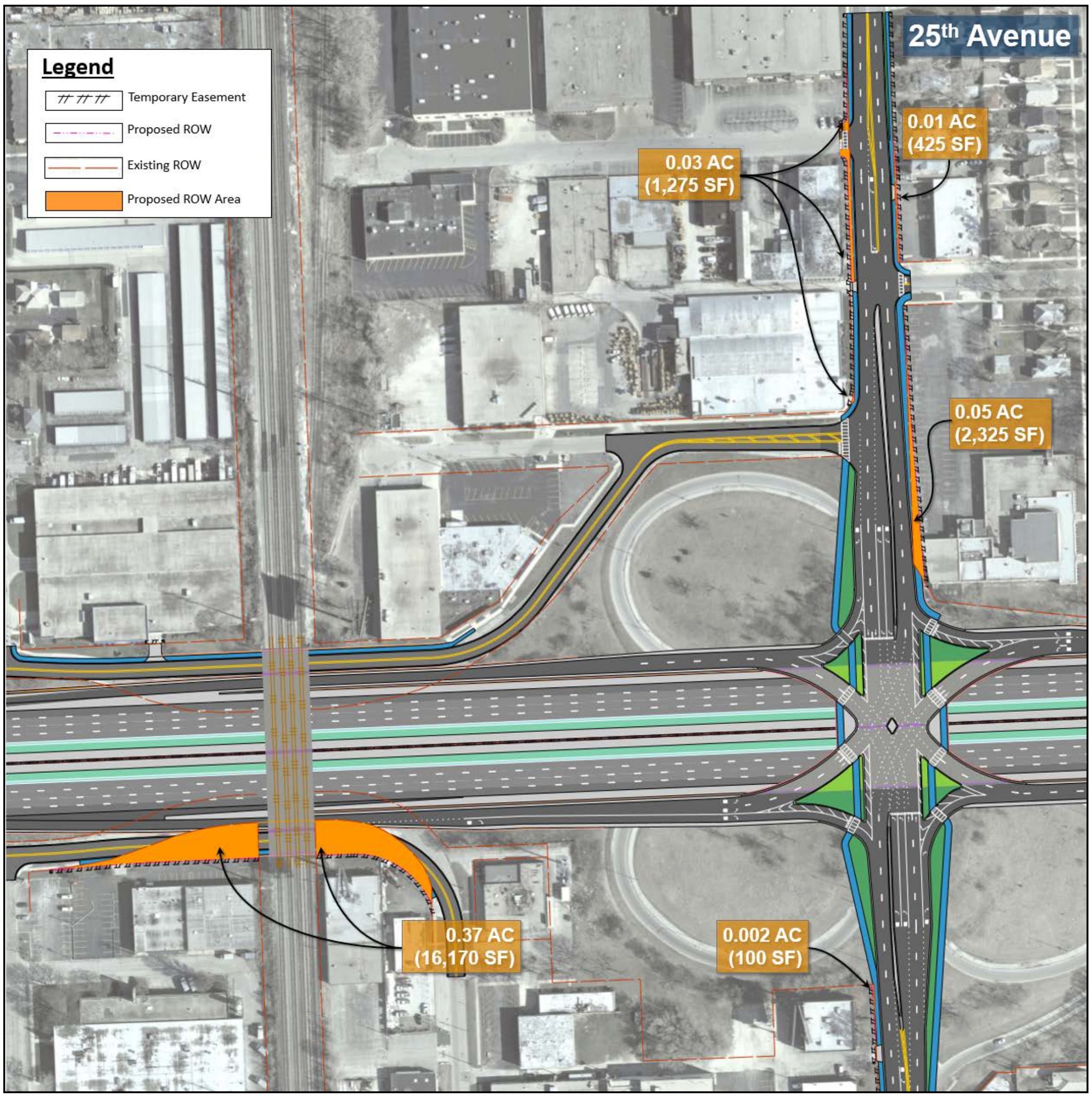
Table 3-15. New Right-of-Way Required for the Reconstruction of the I-290 Expressway

Location	Purpose	Area (acres)	No. of Parcels
25th Avenue (Bellwood & Broadview)	Expressway and interchange ramp improvements	0.462	16
1st Avenue (Maywood)	Expressway and interchange ramp improvements	2.233	8
DesPlaines Avenue (Forest Park)	Cross-road sidewalk improvements	0.050	2
Circle Avenue (Forest Park)	Cross-road sidewalk improvements	0.031	2
Harlem Avenue (Forest Park)	Cross-road sidewalk improvements	0.014	4
CTA Blue Line (10′ strip)	Expressway and interchange ramp improvements	2.650	1
	Total	5.440	34

25th Avenue

Approximately 0.46 acre of new right-of-way is required from 16 parcels at 25th Avenue for interchange and mainline expressway improvements. Along 25th Avenue, some additional right-of-way is required to accommodate revised north and south interchange approaches associated with the proposed Single Point Urban Interchange design. Along the mainline, additional right-of-way is required along the south side of the expressway, west of 25th Avenue, to accommodate an envelope for a potential future transit facility in the median of the expressway and new direct ramp connections to 25th Avenue.

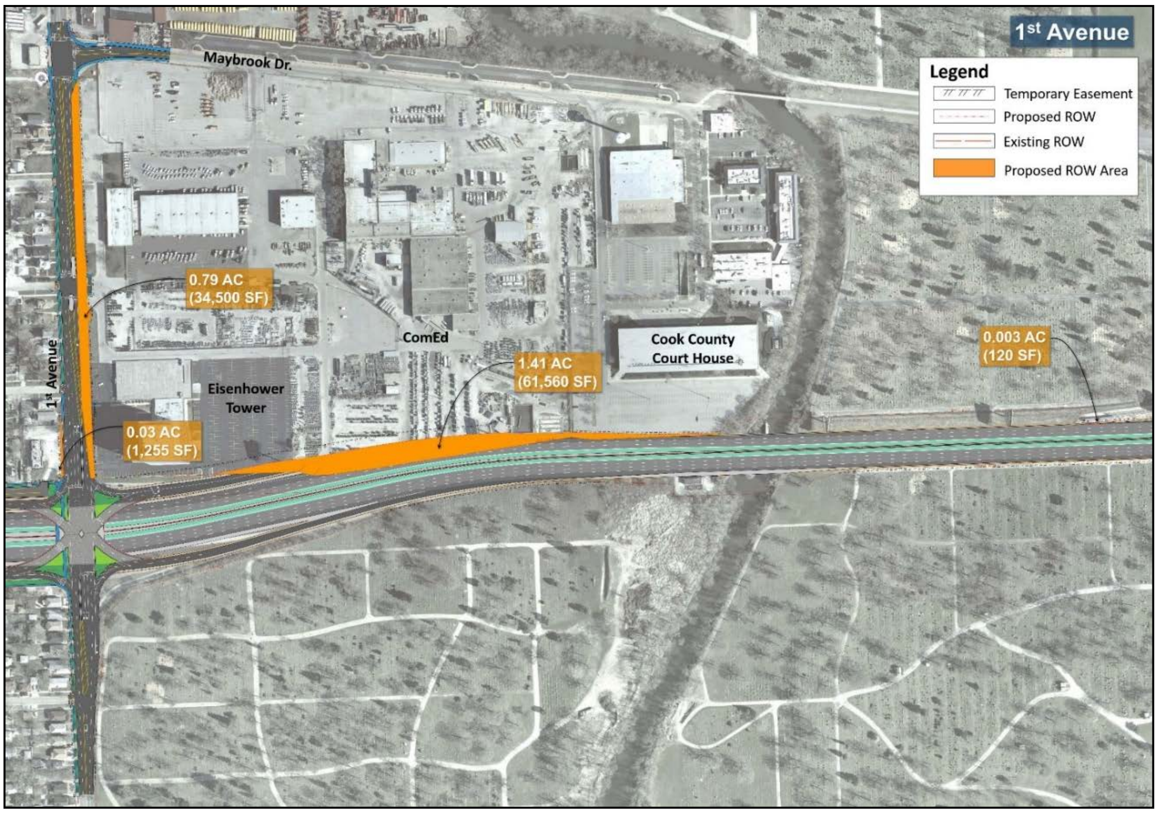
Figure 3-9. 25th Avenue Additional Right-of-Way Required



1st Avenue

A total of approximately 2.233 acres of right-of way is required from eight parcels for improvements to the 1st Avenue interchange approaches and mainline expressway improvements. Along 1st Avenue, improvements include dual left turn lanes and improved channelization as part of the proposed Single Point Urban Interchange design. Along the mainline of I-290, additional right-of-way is required to accommodate an envelope for a potential future transit facility in the median of the expressway and for improvements to the 1st Avenue ramps.

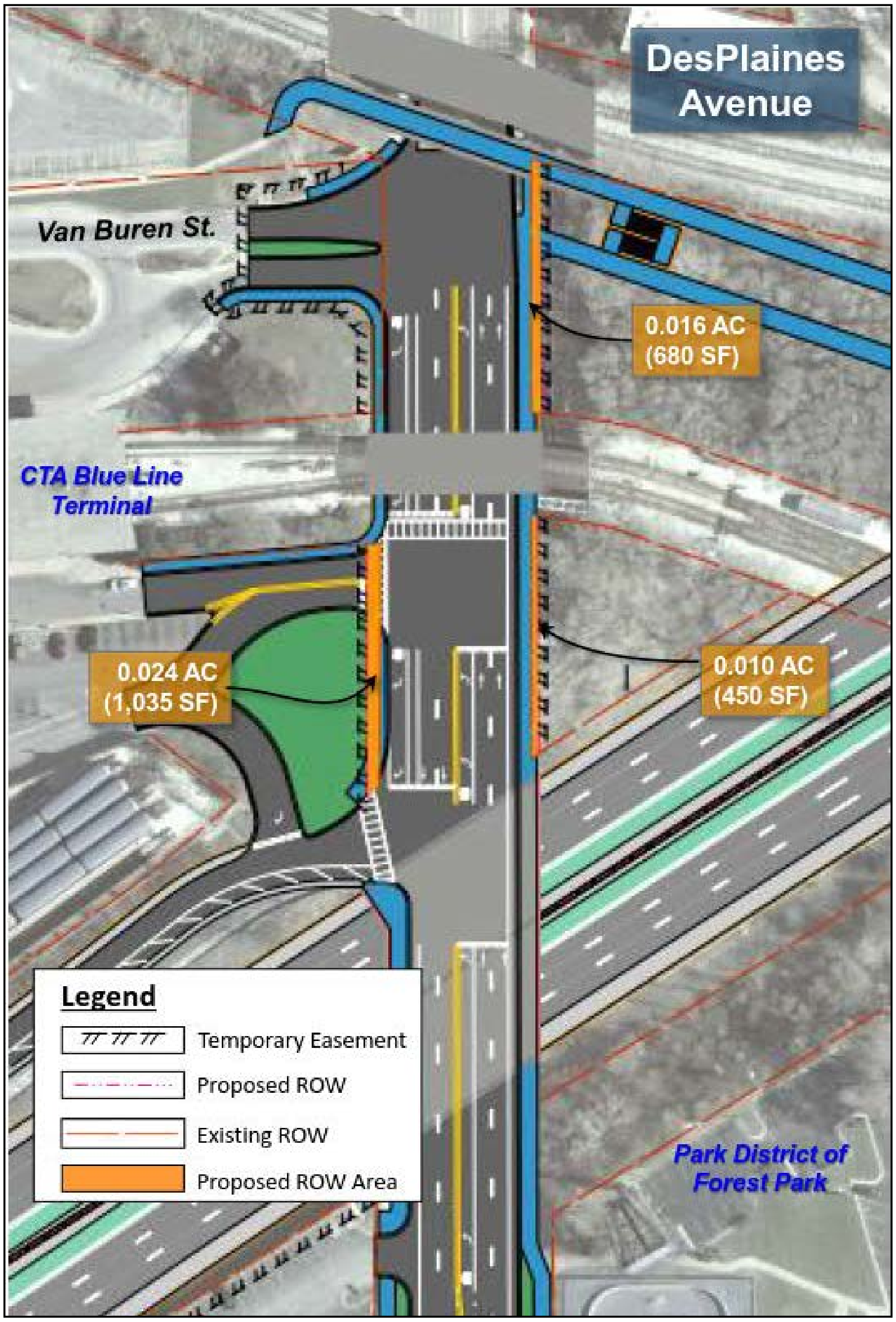
Figure 3-10. 1st Avenue Additional Right-of-Way Required



DesPlaines Avenue

Approximately 0.050 acre of new right-of-way is required from two parcels along DesPlaines Avenue associated with the proposed improvements to this street that include on-street bike lanes and sidewalk widening.

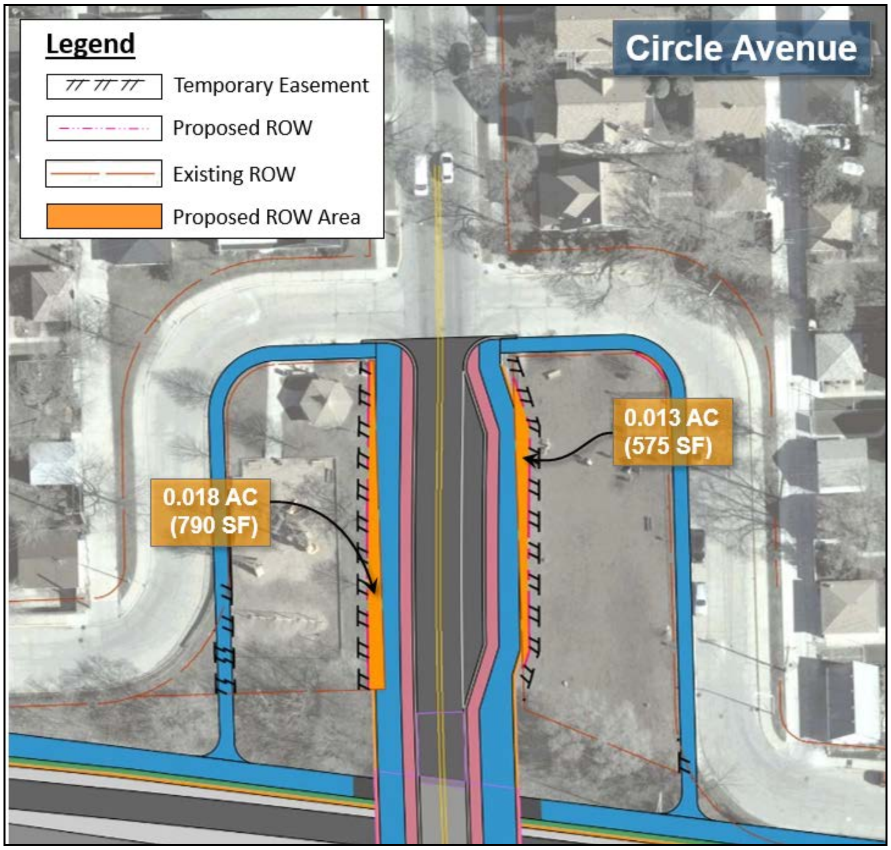
Figure 3-11. DesPlaines Avenue Additional Right-of-Way Required



Circle Avenue

Approximately 0.031 acre of new right-of-way is required from two parcels adjacent to Circle Avenue north of the expressway. The right-of-way required is associated with on-street bike lanes, sidewalk widening, and a vehicle turn out/CTA Blue Line kiss and ride waiting area.

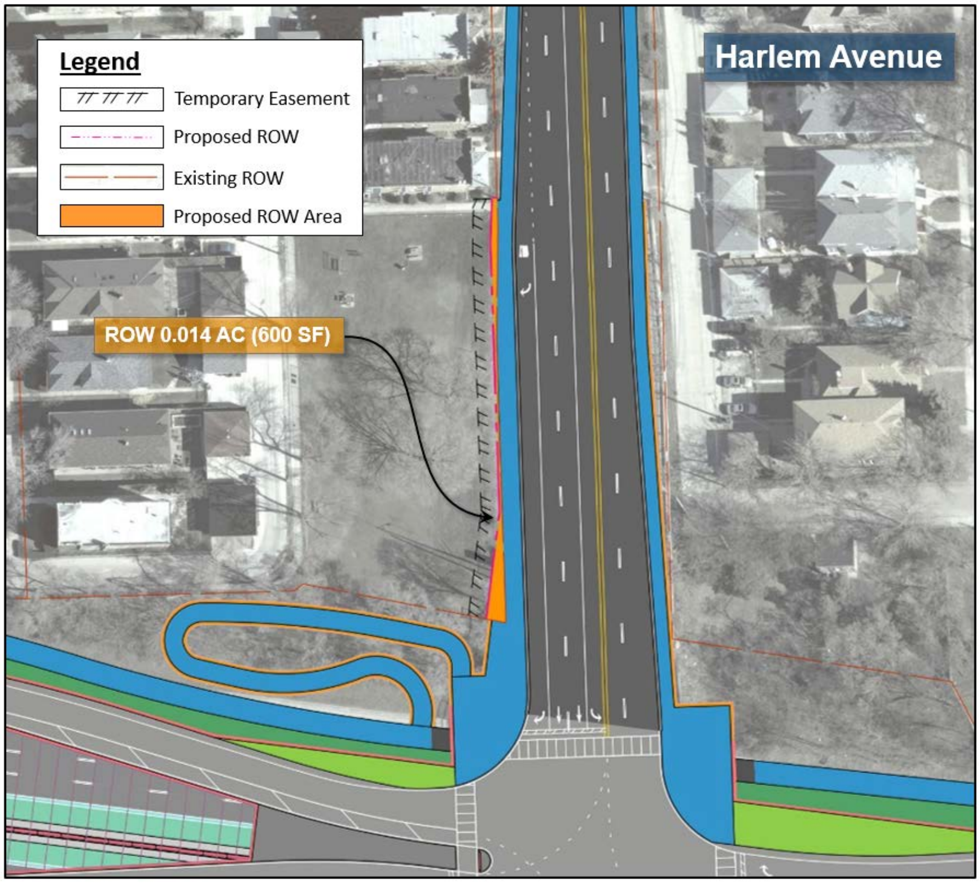
Figure 3-12. Circle Avenue Additional Right-of-Way Required



Harlem Avenue

An approximately 0.014 acre strip of new right-of-way is required from four parcels along the northwest quadrant of Harlem Avenue associated with the proposed sidewalk widening improvements.

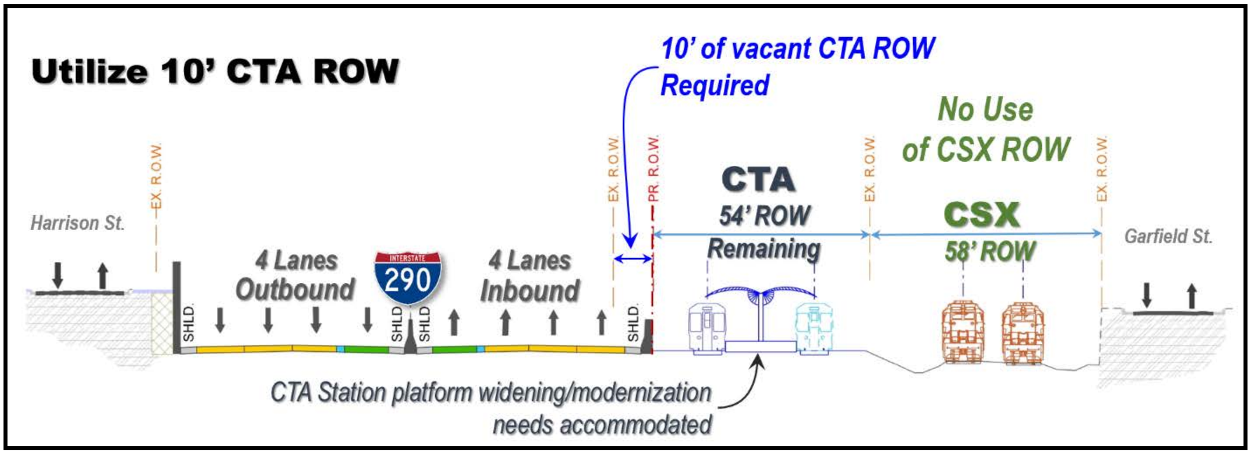
Figure 3-13. Harlem Avenue Additional Right-of-Way Required



CTA Right-of-Way

As part of the proposed project, a 10 foot-wide strip of existing vacant CTA Blue Line right-of-way will be utilized to accommodate expressway improvements, including wider shoulders and reconfigured ramps at Harlem and Austin Boulevard. The 2.65-acre strip of proposed right-of-way required from CTA comprises nearly half (49 percent) of the new right-of-way, extending approximately 11,700 feet (2.2 miles) along the north side of the CTA Blue Line generally from 700 feet west of Circle Avenue to 1,600 feet east of Austin Boulevard. The remaining CTA right-of-way accommodates CTA's future track and station platform improvement needs. No right-of-way from CSX is required.

Figure 3-14. CTA Additional Right-of-Way Required



3.1.7.2 Mitigation of Impacts to Relocations and Right-of-way

The Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Uniform Relocation Act) [Title 42 US Code (USC) Sections 4601-4655], as amended, applies to all federal or federally assisted activities that involve the acquisition of real property or the relocation of residences or businesses. Just compensation would be provided for any property acquired for project right-of-way. Just compensation is monetary payment most often equivalent to the "fair market" value of the property. Fair market value is the highest price estimated in terms of money that the property would bring. The fair market value is based on exposure to sale on the open market, a reasonable time allowed to find a buyer, the knowledge of all of the uses to which it is adapted, and uses for which the property is capable. Mitigation of relocation impacts or displaced structures would be in the form of financial remuneration or compensation for property loss and relocation expenses, as outlined in the Uniform Relocation Act.

In summary, areas of the Project Corridor where new right-of-way may be required have been identified in and around the interchanges of I-290 with 25th Avenue, 1st Avenue, DesPlaines Avenue, Circle Avenue and Harlem Avenue, along with a narrow strip of vacant CTA right-of-way. All necessary right-of-way acquisitions will conform to the Uniform Relocation Act, Real Property Acquisition Policies Act and the IDOT Land Acquisition Procedures Manual.

3.1.8 Transportation Network

3.1.8.1 Existing Conditions

The transportation network within the Study Area consists of local roads, highways, freight facilities, airports, heavy rail transit, intercity passenger bus, and non-motorized (pedestrian, bicycle, etc.) facilities.

The Study Area roadway network includes facilities with different functional classifications to accommodate a variety of trip types in a manner consistent with historical travel patterns. The roadway functional classification system provides the foundation for highway planning, and the framework for determining the geometric design of individual roadways. Within a transportation system, the different functional classifications create a hierarchy of facilities designed to serve a range of travel demands from the local trip that is generally slower, shorter, and has higher accessibility to the longer trip, that is generally higher speed, longer distance, and with fewer access options.

The hierarchy of the functional classification systems for rural and urban areas generally consists of principal arterials, minor arterials, and collectors, followed by local roads and streets. The Project Corridor is completely within urban areas. The Project Corridor contains 35 miles of Interstate facilities and 26 miles of roads designated as principal or minor arterials. However, approximately 79 percent of roadways (293 miles) are local or municipal streets. The distribution of miles based on functional classification is shown in Table 3-16.

Table 3-16. Project Corridor Lane Miles by Functional Class and Direction

Functional Classification	Total Lane Miles	Percentage of Total
Interstate	35	12%
Other Principal Arterial (Urban)	6	2%
Minor Arterial (Urban)	20	7%
Collector (Urban)	46	15%
Local Road or Street (Urban)	193	64%
Total	**300**	**100%**

Other east-west roads in the Project Corridor are primarily local roads, collectors, or minor arterials.

Trucks

The Surface Transportation Assistance Act (STAA) of 1982 resulted in the designation of a national network of highways to allow the passage of trucks of specified minimum dimensions and weight. The objective was to promote uniformity throughout the nation for legal truck sizes and weights on a National Truck Network.

The network includes all Interstate highways, designated as Class I truck routes, and large portions of the Federal-aid primary system (portions designated as Class II truck routes). Class I Highways are the Interstates and other four-lane, divided highways that are fully access controlled. Class II Highways are typically those routes with at least 11-foot wide lanes and no history of abnormal accidents. Both Classes I and II Highways can legally carry 80,000 pound maximum gross weight and the wider 102-inch vehicle.

Within the Project Corridor, Class I truck routes include all of the Interstates, including I-290, I-294, I-88, and I-90/I-94. In general, the Class II truck routes include all or portions of the other US and state marked routes. Table 3-17 lists the Class I and II routes in the Project Corridor.

Table 3-17. Class I and Class II Truck Routes in Project Corridor

Route	Location	Class
I-88	Interstate 80 to Interstate 290 (Including Tollway)	I
I- 90	Wisconsin State Line to Indiana State Line (Including Tollway)	I
I- 94	Wisconsin State Line to Indiana State Line (Including Tollway)	I
I-290	Interstate 90 (Tollway) to Interstate 94	I
Illinois Route 43	US Route 30 to Illinois Route 60	II
Illinois Route 50	Manhattan/Monee Road to Illinois Route 19	II
US Route 12	Wisconsin State Line to Interstate 290	II

Source: Illinois Department of Transportation

Class III truck routes are typically two-lane highways. This class can also carry the 80,000 pound load, but the width of vehicle is restricted to a maximum of 96-inches, the same as allowed on most state and local designated truck route systems. There are no Class III truck routes in the Study Area.

Public Transportation (Transit)

Public transportation in the Project Corridor is provided by the Chicago Transit Authority (CTA), and Metra and Pace, which are operating divisions of the Regional Transportation Authority (RTA).

CTA

The CTA provides heavy rail transit and bus service to the City of Chicago and 35 nearby suburbs, carrying over 1.6 million riders on an average weekday. The CTA Blue Line Forest Park Branch provides 24-hour rapid transit train service between downtown Chicago and the Forest Park terminal station along the I-290 right-of-way. Service on the Forest Park Branch began operations as the Congress Branch of CTA’s West-Northwest Route in June 1958.

The Congress Branch opened with stations on approximate one-mile spacing. Connections to CTA and suburban bus routes (now PACE bus routes) have been a feature of these stations since their opening. An additional station was added to the line after it opened and the west end of the line was relocated adjacent and to the south of the expressway right-of-way in 1959 and 1960. The two stations at either end of the Study Area, Clinton/Congress and DesPlaines Avenue (now Forest Park) terminal station are not located in the expressway median. The Clinton station is a subway station located east of the end of the expressway. In the case of the Forest Park terminal, sufficient land was required to provide bus interchange facilities, park-and-ride lots, a storage yard, repair shop and the rapid transit terminal facilities. Three of the fifteen stations (California, Kostner, and Central) on the branch were closed approximately 40 years ago as traffic declined. Current ridership on the Forest Park Branch is 33,000 average weekday riders, resulting in 60 percent utilization of its capacity.

Blue Line Forest Park Branch Feasibility/Vision Study

The CTA is conducting the Blue Line Forest Park Branch Feasibility/Vision Study concurrently with the I-290 EIS. The CTA Forest Park Branch originally began service in late June 1958. Many of the current infrastructure assets are original, while other facilities have undergone interim repair or replacement, but are overdue for replacement. Over time, maintenance has been conducted to sustain safe operations. This approach has not been able to sustain the level of service intended for the route, resulting in aged infrastructure, slow zones, and an overall reduced quality of service for customers. In order to provide a quality, efficient service for customers, there is a need for near total replacement and modernization of assets for the Forest Park Branch of the Blue Line.

The CTA recommends that the entire Forest Park Branch be reconstructed in entirety, similar to the programs that have addressed similar needs on the Red Line Dan Ryan Branch. Key recommendations include:

- Maintain existing entrance locations;
- Remove stations closed in 1970s;
- Improve infrastructure to a state of good repair;
- No third track or express service
- Improve the terminal site at Forest Park;
- Maintain existing service; and
- Work with IDOT on Project Corridor improvements through design, construction and funding.

In the short term, CTA would continue to perform interim slow zone and other maintenance work.

Given the scope and extent of upgrades needed along the Forest Park Branch, CTA plans to continue evaluating funding options and project phasing in conjunction with their larger mission of modernization and bringing the transit system to a state of good repair.

Blue Line Extension

An extension of the Blue Line Forest Park Branch was introduced early in the I-290 Study by stakeholders and received strong support for testing as an initial alternative in Round 1. As described in Section 2.3.3.1, a 3.5 mile extension of the Forest Park Branch from its existing terminus west to a new terminal station near Mannheim Road was relatively the most cost-effective extension. A majority (54 percent) of new ridership is estimated to consist of diversions from existing CTA, Metra, and Pace services, and more critically, current land uses along a Blue Line extension do not generate forecasted ridership to support a heavy rail transit extension. As described above, CTA's current focus is on their backlog of bringing the existing heavy rail transit system to a state of good repair, as well as other capacity enhancement priorities. The CTA acknowledged that future land use changes will be needed along the extension before the agency can support this major capital investment. For these reasons CTA is not currently pursuing an extension of the Blue Line.

As part of this I-290 Study, IDOT has committed to a multi-modal approach to alternatives development, and as part of this approach, all DEIS build alternatives include reserving space within the existing right–of-way from east of Forest Park to Mannheim Road as a potential future transit corridor either as an extension of the Blue Line or other fixed guideway transit extension. Express bus service could be provided as an initial transit extension service concept in this section, operating on the proposed shoulder or in a managed lane prior to any future heavy rail transit extension. Figure 2-28 depicts the convertible expressway section with the ultimate configuration accommodating the proposed Blue Line extension. The Blue Line Forest Park Branch west extension is listed as an unconstrained major capital project in the CMAP GO TO 2040 Comprehensive Regional Plan Update.

Metra Commuter Rail

Metra operates 12 commuter rail lines that together currently carry over 300,000 customers per day in the Chicago Region[22]. Metra's Union Pacific West line serves an area north and parallel to I-290, offers frequent service during traditional rush hour patterns, and less frequent service on off-peak weekday hours, holidays, and weekends.

Pace Bus Service

RTA's suburban bus division, Pace, provides fixed-route and express bus services between main boarding points, dial-a-ride, and paratransit service in less densely developed areas and for elderly and disabled patrons. Service is typically provided between 5:00 AM and 7:00 PM. The weekend service varies by route.

Bicycle and Pedestrian Trails

There is limited pedestrian and bicycle access across the Project Corridor. Only two out of 21 existing crossings of I-290, Home and Lavergne avenues, are dedicated for pedestrian/bicycle use. Five major street crossings of I-290 (Wolf Road, Mannheim Road,

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[22] Metra. Operations and Ridership Data: July 2011 – June 2012. http://metrarail.com/metra/en/home/about_metra/planning_records_reports/ridership_reports.html.

1st Avenue, DesPlaines Avenue, and Cicero Avenue) are designated 'Not Recommended for Bicycle Travel' by IDOT's Bicycle Map. The remainder of the streets crossing I-290 do not have shoulders or dedicated bicycle lanes that would provide safer, more comfortable operating zones for bicyclists. Figure 3-15 presents the existing bicycle crossings of I-290 in the Reconstruction Section of the Project Corridor, including those which are considered to be unsuitable.

In the Study Area communities, there are several shared-use trails, bicycle lanes, or designated bicycle routes that either cross or parallel I-290 as shown in Figure 3-23. Along with these existing bicycle and pedestrians facilities, there are also several planned future bicycle routes in the Project Corridor.

There are several dedicated bicycle lanes along existing roads within the Project Corridor in addition to existing and planned shared lane bicycle routes. The majority of the dedicated bicycle lanes are located in the City of Chicago including portions of Madison Street, Jackson Boulevard, Taylor Street, and Central Park Avenue. There are several dedicated lanes that cross I-290 including Clinton Street, Halsted Street, Ogden Avenue, and Central Park Avenue in Chicago, and DesPlaines Avenue and Circle Avenue in the Village of Forest Park. Also in Forest Park, dedicated bicycle lanes parallel I-290 along Lehmer Street and Harrison Street.

The Village of Forest Park has several bicycle lanes and bicycle routes/shared lanes. These routes cross I-290 at DesPlaines Avenue and Circle Avenue. The Village of Oak Park, Hillside, Westchester, and Broadview have no bicycle routes or shared lanes in the project area. Oak Park has marked shared lanes along Ridgeland Avenue. The City of Chicago has multiple existing and planned future bicycle routes crossing I-290.

Figure 3-15. I-290 Bicycle Crossings – Reconstruction Section

Note: bicycle crossings are not shown for locations east of Cicero Avenue. The overhead bridges from Kostner Ave. to Racine Ave. are part of a separate study.

3.1.8.2 Impacts to Transportation

Traffic Changes

The four build alternatives all provide additional capacity in the form of an added lane in each direction on I-290 generally between east of Mannheim Road and Austin Boulevard. Table 3-18 presents forecasted 2040 average daily traffic (ADT) on I-290 for each of the build alternatives.

Table 3-18. Projected 2040 I-290 Average Daily Traffic (ADT)

I-290 Segment	No Build	GP Lane Alternative		HOV 2+ Alternative		HOT 3+ Alternative		HOT 3+ & TOLL Alternative	
	2040 Avg. Vol.	2040 Avg. Vol.	Δ from NB	2040 Avg. Vol.	Δ from NB	2040 Avg. Vol.	Δ from NB	2040 Avg. Vol.	Δ from NB
I-88 to 1st	182,000	215,000	18.1%	206,000	13.2%	210,000	15.4%	190,000	4.4%
1st to Central	200,000	234,000	17.0%	222,000	11.0%	225,000	12.5%	200,000	0.0%
Central to Sacramento	222,000	233,000	5.0%	220,000	-0.9%	224,000	0.9%	195,000	-12.2%
Sacramento to Racine	210,000	216,000	2.9%	204,000	-2.9%	208,000	-1.0%	175,000	-16.7%
Average	203,500	224,500	10.3%	213,000	4.7%	216,750	6.5%	190,000	-6.6%

Source: WSP Parsons Brinckerhoff, 2015

Note: Numbers are rounded to one decimal point unless less than 0.05.

What is the difference between HOV Lanes and Managed Lanes?
HOV (High-Occupancy Vehicle) lanes are for vehicles with more than one occupant, and other exempt vehicles. Managed lanes can allow HOV use, but also may accept single-occupant vehicles that pay a toll. Managed lanes that allow both HOV and tolled use are referred to as HOT (High-Occupancy Toll) lanes.

The GP Lane Alternative results in the highest increase in ADT on I-290 versus the No Build Alternative, with 10.3 percent more traffic. This is because the additional GP Lane in each direction does not have any restrictions on who can use the lane (as opposed to a managed lane which is restricted to HOVs and those paying tolls). The added GP Lane carries more traffic, but has the least improvement in I-290 travel time as compared to the other three build alternatives with added managed lanes. This is because the additional capacity of the GP Lane is unmanaged and with strong demand, can result in saturated capacity conditions with unstable or forced stop-and-go traffic flow. As a result, on the western portion of I-290 between I-88 and Central, the GP Lane has the highest projected increase in traffic (between 17 and 18.1 percent). This added traffic on the western portion results in an increase in through traffic on I-290 on the eastern portion between Central Avenue and Racine Avenue. This is caused by regional trips being drawn into the corridor due to the I-290 capacity improvements west of Austin Boulevard.

The HOV 2+ and HOT 3+ Alternatives average 4.7 percent and 6.5 percent more traffic, respectively, along I-290 than the No Build Alternative. This traffic growth is less than the traffic growth for the GP Lane Alternative, as the additional capacity and lane conversion is managed in the HOV 2+ and HOT 3+ Alternatives. With the added managed lane capacity in the western portion of I-290, there is between 11 and 13.2 percent increase in traffic for the HOV 2+ Alternative, and between 12.5 and 15.4 percent increase in traffic for the HOT 3+ Alternative. This traffic growth is less than that of the GP Lane Alternative due to the use of the managed lane by only carpools, transit vehicles, and those vehicles paying tolls. The HOV 2+ and HOT 3+ Alternatives show a small decrease in traffic in the eastern portion of I-290 due to the conversion of a general purpose lane to a HOV or HOT lane. As described above, the managed lane will generally carry less traffic than a general purpose lane under congested conditions, but will have faster travel times and more reliability. Increased reliability of the managed lanes is due to the high-occupancy and toll restrictions controlling the amount of traffic that enters into them, allowing traffic to flow at an approximate minimum 45 mph during peak periods.

The HOT 3+ & TOLL Alternative is the only build alternative that results in a decrease in I-290 ADT as compared to the No Build Alternative, with an overall average of 6.6 percent less traffic. This is due to the tolling of all lanes on I-290 resulting in traffic diversion from I-290 to the arterial system. The western portion of I-290 exhibits similar traffic levels to the No Build Alternative, even though there is an added lane in each direction. The eastern portion of I-290 shows between 12.2 and 16.7 percent less traffic as a result of the tolling of all lanes.

The I-290 improvements in the four build alternatives are also expected to result in changes to arterial traffic in the Study Area. Table 3-19 presents forecasted 2040 daily changes in vehicle miles of travel and vehicle hours of travel in the Study Area for the build alternatives relative to the No Build Alternative. This table shows that the HOT 3+ & TOLL Alternative, which tolls all lanes on I-290, is expected to attract more traffic and increase congestion on the Study Area arterial system, with higher vehicle miles and hours of travel as compared to the No Build Alternative, due to diverted traffic off of I-290 because of the tolling of all lanes. The GP Lane, HOT 3+, and HOV 2+ Alternatives are expected to improve Study Area arterial performance, because the added capacity on I-290 west of Austin Boulevard is expected to draw longer distance traffic from the arterial system. A more detailed discussion regarding differences in Study Area arterial performance among the build alternatives is presented below.

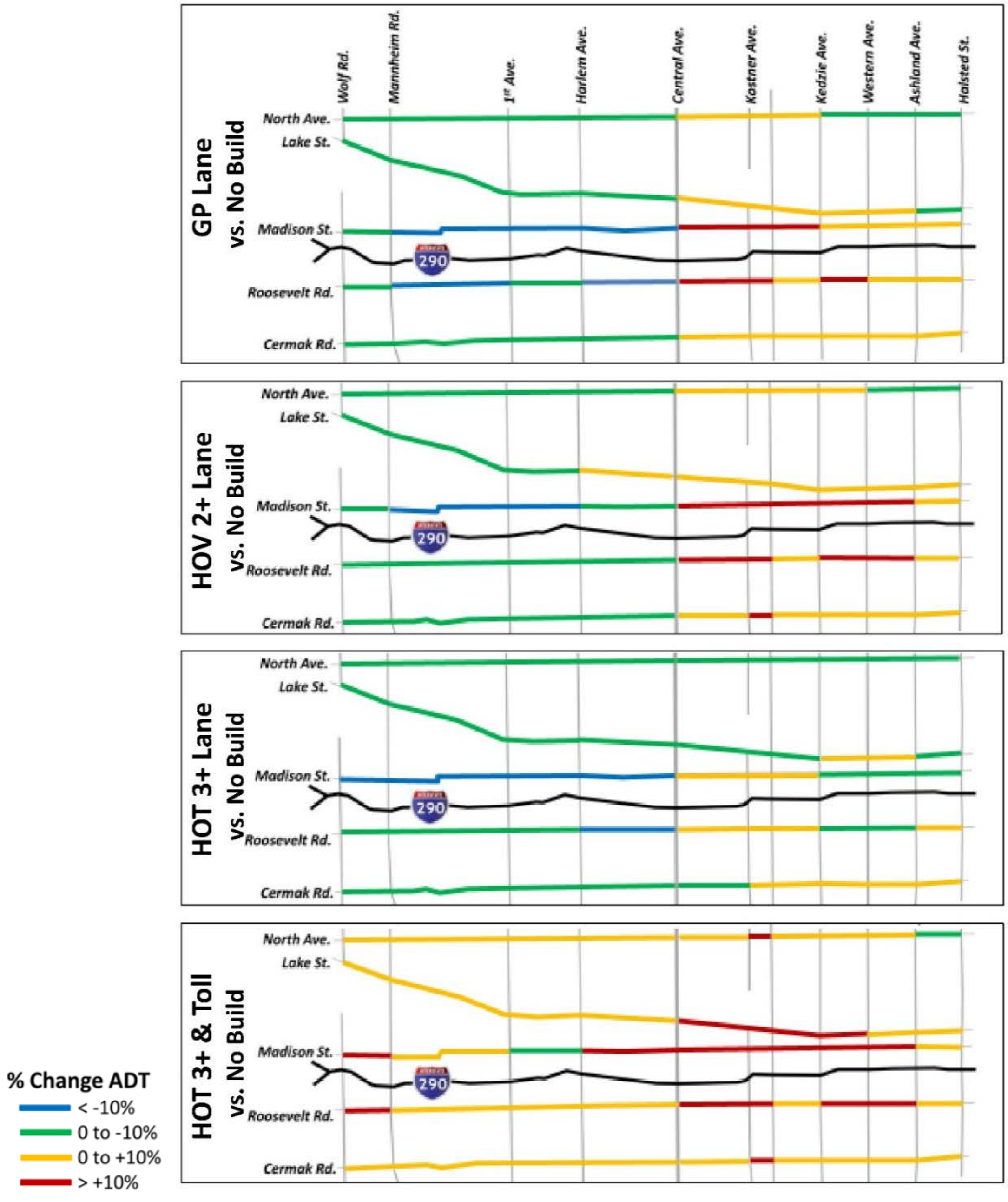
Table 3-19. Daily 2040 Study Area Arterial Travel Performance

Study Area Arterial Performance	2040 No Build	GP Lane	HOV 2+ Lane	HOT 3+ Lane	HOT 3+ & TOLL
Vehicle Miles of Travel	4,294,000	-24,600	+6,900	-8,900	+147,800
Vehicle Hours of Travel	255,300	-2,000	-1,000	-1,600	+6,800

Source: WSP Parsons Brinckerhoff, 2015

Figure 3-16 presents the forecasted change in 2040 average daily traffic (ADT) for the build alternatives on east-west arterials relative to the No Build Alternative. The following conclusions can be drawn from the information presented.

Figure 3-16. Projected 2040 East-West Arterial Volume Change for Alternatives versus No Build Alternative



GP Lane Alternative:

- Traffic volumes are reduced on east-west arterials west of Central Avenue due to increased capacity of I-290 from the additional GP Lane, drawing traffic off the arterials between Mannheim Road and Austin Boulevard.
- East-west arterial sections experience an increase in traffic east of Central Avenue from additional traffic being drawn to the I-290 corridor due to the increased mainline capacity west of Austin Boulevard.

HOV 2+ Alternative:

- Traffic is reduced on most east-west arterials west of Central Avenue due to increased mainline capacity from the HOV 2+ lane drawing traffic off the arterials between Mannheim Road and Austin Boulevard.
- East-west arterial sections experience an increase in traffic east of Central Avenue from additional traffic being drawn to the I-290 corridor due to the increased mainline capacity west of Austin Boulevard. Additionally, east of Central Avenue the HOV 2+ lane conversion of the general purpose lanes result in a reduction to existing mainline capacity, resulting in greater diversion of I-290 traffic to the arterial routes in this section than with the GP Lane Alternative.

HOT 3+ Alternative:

- Traffic volumes are reduced on east-west arterials west of Central Avenue due to increased capacity provided by the HOT 3+ lanes on I-290 between Mannheim Road and Austin Boulevard. The HOT 3+ lanes perform better than the HOV 2+ lanes in that they provide more vehicle throughput than the HOV 2+ lanes.
- East of Central Avenue, the HOT 3+ Alternative also results in reductions to some east-west arterial traffic. This is due to an improvement in overall expressway throughput as a result of more efficient traffic management of the added HOT 3+ lane capacity west of Austin Boulevard in conjunction with the expressway lane conversion to HOT 3+ use to the east.

HOT 3+ & TOLL Alternative:

- Traffic volumes are increased on nearly all east-west arterials due to more longer-distance trips diverting from I-290 to avoid the tolls.

Overall, the forecasted change in 2040 east-west arterial ADT for each build alternative provides an indication of the benefit of moving traffic from the arterial roadways back to I-290. In some cases, this improved mobility attracts growth in population and jobs, which provide economic benefit, but can also bring new traffic demand. For example, east of Cicero Avenue, there is an increase in forecasted Study Area population of 1,502 people and 417 jobs in the build scenario, but also a corresponding slight increase in arterial traffic (Cicero Avenue is between Central and Kostner Avenues in Figure 3-18 below).

Figure 3-17. 25th Avenue Proposed Access Modifications

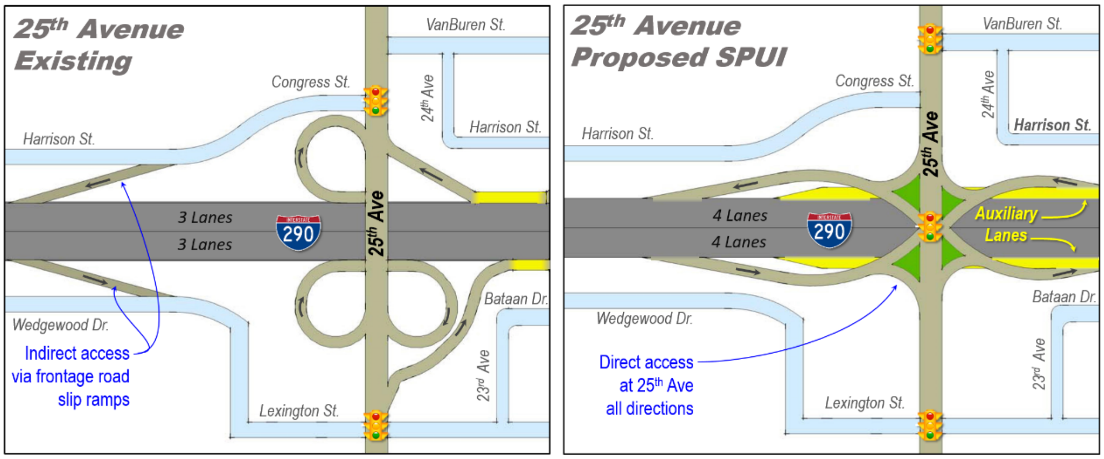
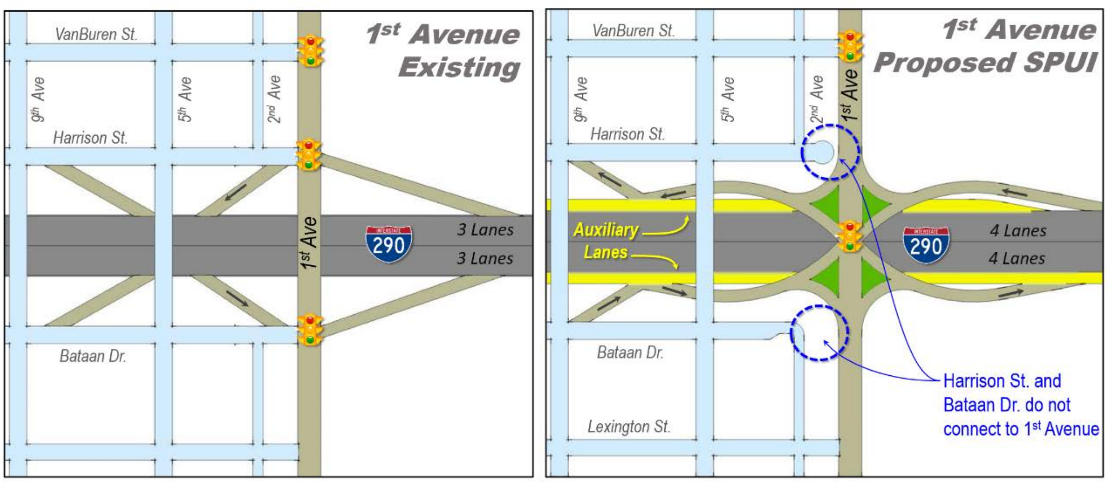


Figure 3-18. 1st Avenue Proposed Access Modifications



Roadway Network Modifications

Existing expressway access modifications within the Project Corridor, along with some supporting local roadway network changes, are limited to the 25th Avenue and 1st Avenue interchanges. The proposed changes are common to all four build alternatives and are proposed to address existing design, operational, and safety deficiencies. The proposed changes occur in the communities of Westchester, Maywood, and Bellwood.

The access modifications at 25th Avenue include reconfiguring the existing indirect frontage road ramp connections as direct ramp connections at 25th Avenue. The proposed interchange is a Single Point Urban Interchange (SPUI) which accommodates expressway access to/from all directions directly at 25th Avenue.

The access modifications at 1st Avenue involve reconfiguring the existing tight diamond interchange and frontage road slip ramp type access as a SPUI with full directional access to/from the expressway at 1st Avenue. As part of the reconfiguration, the Harrison Street and Bataan Drive frontage roads will no longer connect to 1st Avenue. As part of the local Maywood outreach process, the frontage road connections were found not to serve as a primary local community access point. Disconnecting the frontage roads resulted in the greatest local benefit of improved operational efficiency of this very congested interchange, while discouraging expressway traffic using the local frontage roads as an expressway bypass.

Overall, these local network modifications and associated interchange reconfigurations result in a 23 percent improvement in local travel times to both economic and residential areas within the adjacent communities between 1st Avenue and 25th Avenue. Much of this improvement in local travel times can be attributed to the proposed geometric and operational improvements at 1st Avenue which will reduce peak period traffic queuing by as much as 87 percent and intersection delay by 83 percent, compared to the No Build condition.

Truck Traffic

The I-290 build alternatives all reduce truck hours of travel in the Study Area and have mixed results for truck miles of travel, as seen in Table 3-20.

Table 3-20. Projected Daily 2040 I-290 Study Area Truck Performance

Measure	No Build Alternative	GP Lane Alternative	HOV 2+ Alternative	HOT 3+ Alternative	HOT 3+ & TOLL Alternative
Truck Miles of Travel	1,215,700	+46,300	-7,900	+19,900	-116,600
Truck Hours of Travel	57,510	-150	-410	-240	-7,320

Source: WSP Parsons Brinckerhoff, 2015

The GP Lane Alternative adds a general purpose lane in each direction on I-290 west of Austin Boulevard, resulting in increased truck capacity in this section. This results in increased truck travel on I-290 in 2040 ranging from 13,000 to 19,000 daily trucks, as compared to 12,000 to 16,000 daily trucks in the No Build Alternative. The increased number of trucks forecasted to use I-290 in the GP Lane Alternative results in an increase in truck miles of travel (+46,300). However, the I-290 travel times for the GP Lane Alternative are improved over the No Build Alternative by over nine minutes (Table 3-9), resulting in an overall decrease in truck hours of travel in the Study Area.

The HOV 2+ Alternative adds a HOV lane in each direction on I-290 west of Austin Boulevard. However, the added capacity provided by the HOV lane does not benefit trucks, as they will be restricted from using the HOV lane. As a result, 2040 truck volumes on I-290 for the HOV 2+ Alternative are forecasted to be 11,000 to 16,000 daily trucks, which is slightly less than the No Build truck volumes. Both truck miles of travel and truck hours of travel for the HOV 2+ Alternative are expected to decrease in the Study Area, as I-290 travel times for the general purpose lanes are improved by over seven minutes (Table 3-9).

The HOT 3+ Alternative adds a HOT lane in each direction on I-290 west of Austin Boulevard. However, similar to the HOV 2+ Alternative, the added capacity provided by the HOT lane does not benefit trucks, as they will be restricted from using the HOT lane. Forecasted 2040 truck volumes on I-290 are between 12,000 and 17,000 daily trucks, which is slightly higher than the No Build Alternative truck volumes. Those passenger cars using the HOT lane by paying a toll frees up a little more capacity in the general purpose lanes, as compared to the HOV 2+ Alternative, resulting in this small increase in trucks using I-290. This results in an increase in truck miles of travel in the Study Area, but a decrease in truck hours of travel due to the decrease in I-290 travel times by over seven minutes (Table 3-9) as compared to the No Build Alternative.

The HOT 3+ & TOLL Alternative adds a HOT lane in each direction on I-290 west of Austin Boulevard, and tolls all of the general purpose lanes. The combined result of tolling all lanes and trucks not being able to use the HOT lane is a drop in the number of trucks using I-290. The HOT 3+ & TOLL Alternative is forecasted to carry between 5,000 and 10,000 trucks, which is a 40 to 60 percent decrease in trucks as compared to the No Build Alternative. The HOT 3+ & TOLL Alternative is diverting trucks off of I-290 due to the tolling of all lanes, resulting in an overall reduction in truck miles of travel and truck hours of travel in the Study Area.

Pedestrian and Bicycle Facilities

All bicycle and pedestrian facilities proposed as part of the project have been coordinated with each local community in the corridor. Improvements to these non-motorized facilities are primarily associated with the proposed improvements to the cross-roads and pedestrian bridges, as well as a new shared-use path paralleling I-290. All proposed bike and pedestrian facilities:

- meet or exceed sidewalk width design standards;
- accommodate current ADA standards;
- include high visibility, well-marked crossings; and
- include updated signals with pedestrian countdown timers and/or signage.

Cross-Roads

Within the Reconstruction Section, the existing roads crossing I-290 are proposed to be reconstructed with bike and/or pedestrian improvements. These include:

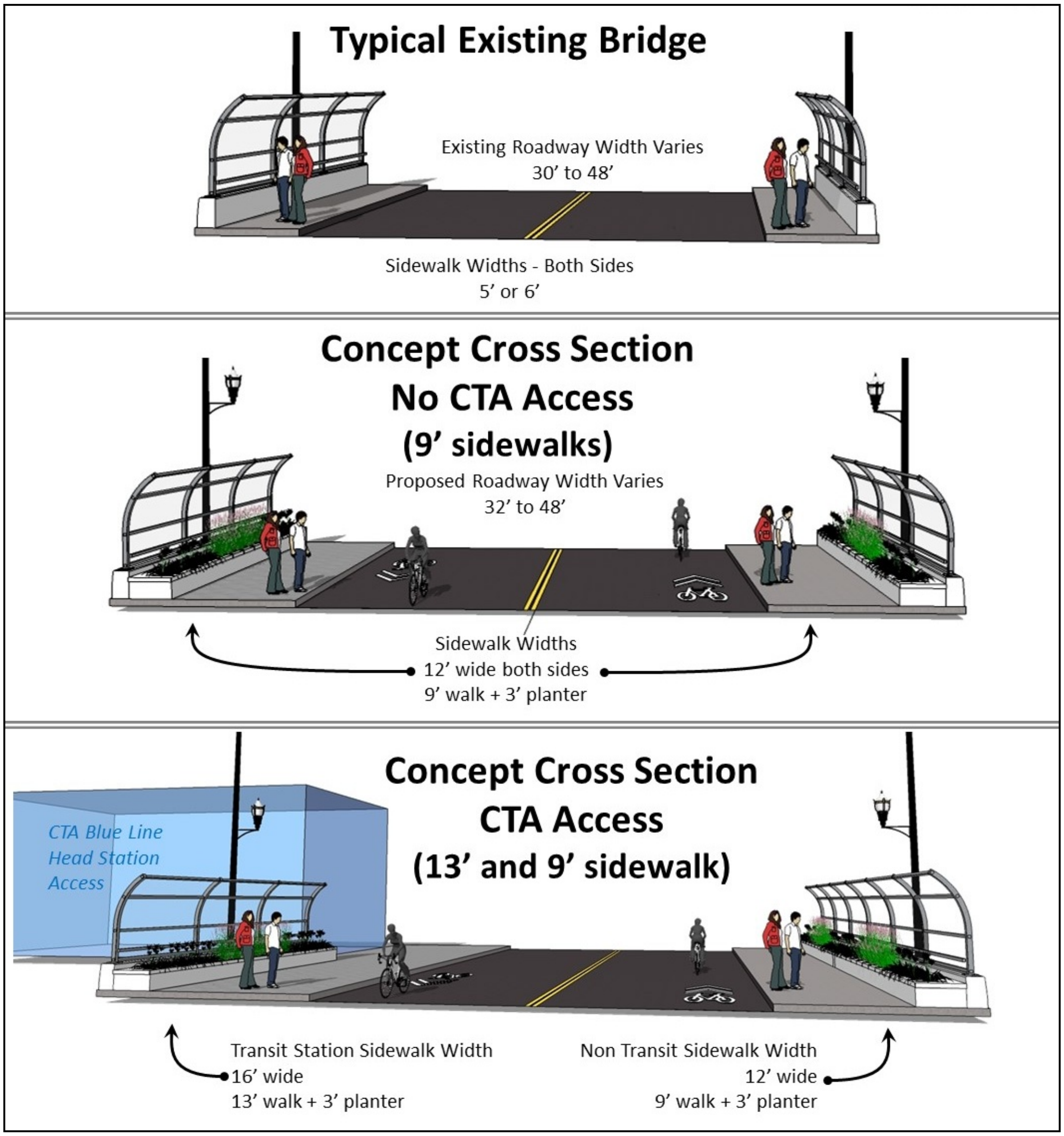
- 25th Avenue (US 12/45)
- 17th Avenue
- 9th Avenue
- 5th Avenue
- 1st Avenue (IL 171)
- DesPlaines Avenue
- Circle Avenue
- Harlem Avenue (IL 43)
- Oak Park Avenue
- East Avenue
- Ridgeland Avenue
- Lombard Avenue
- Austin Boulevard
- Central Avenue
- Laramie Avenue
- Cicero Avenue (IL 50)

Proposed bike and pedestrian improvements associated with each crossing were coordinated with the local municipalities, transit agencies, and stakeholders. Sidewalk widths and bike accommodations vary by location as determined through stakeholder coordination.

For more local cross-street bridges that were not part of a direct connection interchange with the expressway, a standard sidewalk typical section was developed and applied. This urban stitching approach to the local cross street typical section was developed to improve north-south community connectivity, non-motorized transportation and circulation across the expressway, improve transit connections, and accommodate hardscape and landscaping features that could be implemented by the local communities. This local cross-street typical section is illustrated in Figure 3-19 and was applied to the following local cross-streets:

- 17th Avenue
- 9th Avenue
- 5th Avenue
- Oak Park Avenue (CTA Access)
- East Avenue (CTA Access)
- Ridgeland Avenue
- Lombard Avenue (CTA Access)

Figure 3-19. Local Cross Street Bridge Typical Sidewalk Widths

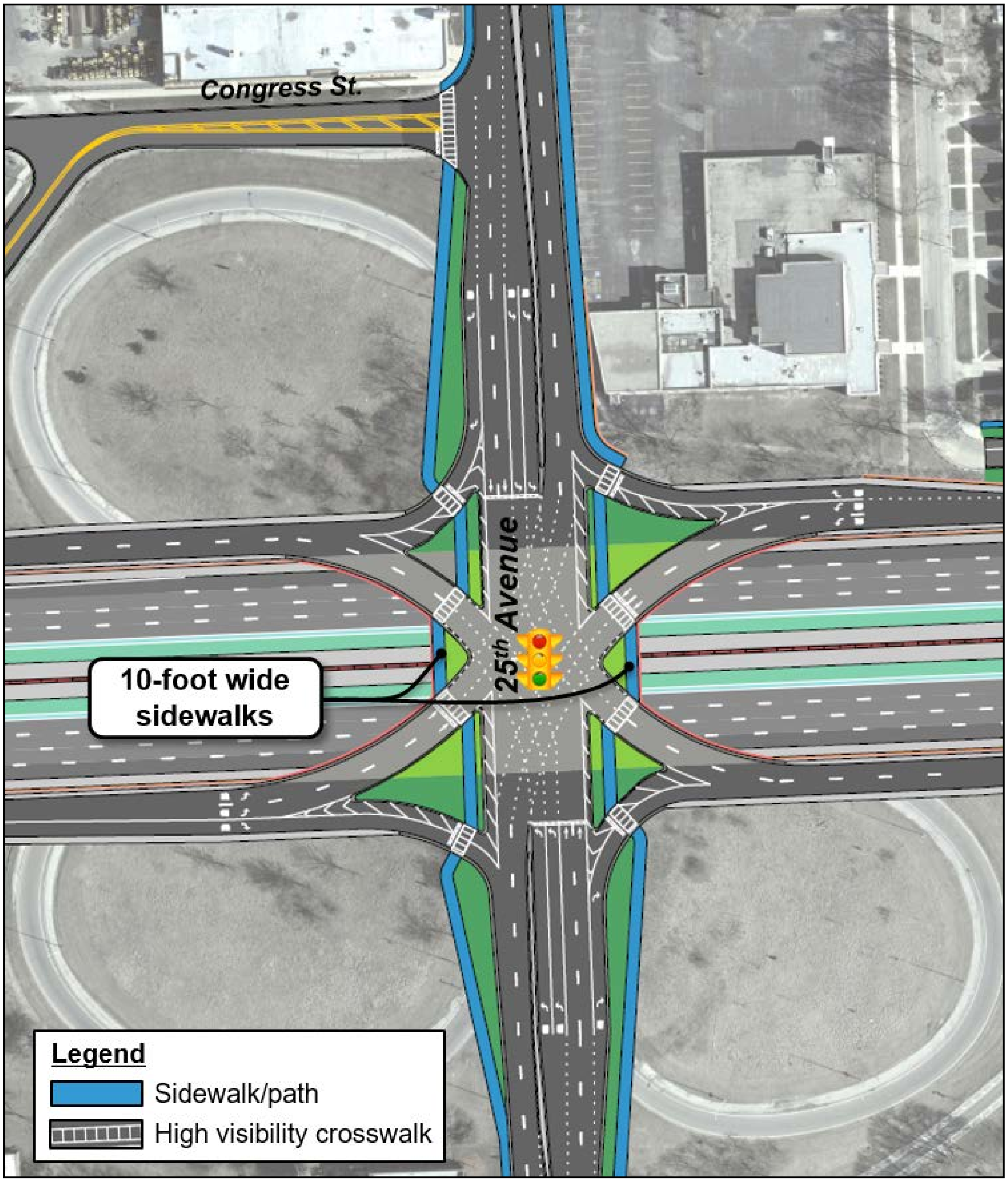


From west to east, the following bike and pedestrian improvements are proposed along the roads crossing I-290 in the Reconstruction Section:

25th Avenue (US 12/45)

Along the east and west side of 25th Avenue, a 10-foot wide sidewalk will be constructed over the expressway and through the proposed interchange. The 10-foot wide sidewalks will transition back to 5-foot wide sidewalks north and south of the interchange to minimize impacts, and to tie back into existing sidewalks.

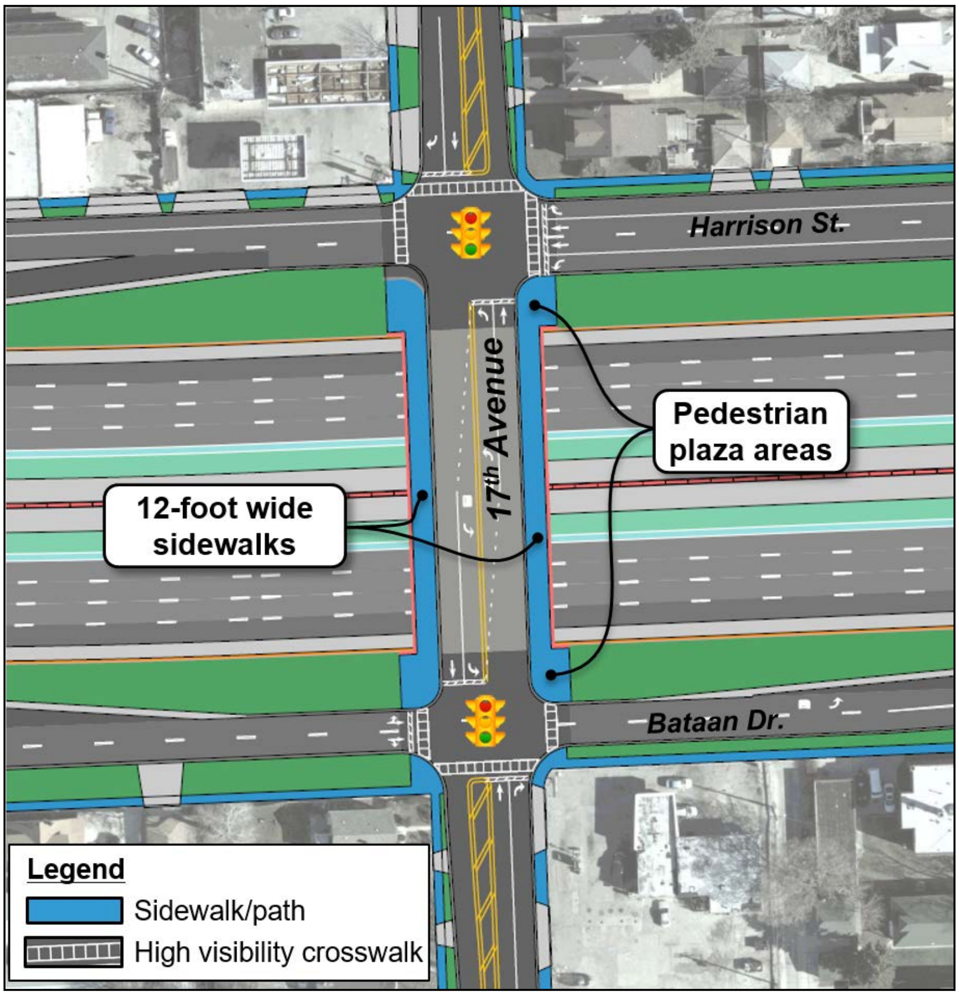
Figure 3-20. 25th Avenue Pedestrian and Bicycle Facility Improvements



17th Avenue

Twelve-foot wide sidewalks will be provided along both sides of the proposed 17th Avenue bridge over I-290 between Harrison Street and Bataan Drive, which are signalized intersections. Wider sidewalks and pedestrian plaza areas are provided in each corner to provide additional area for pedestrian visibility and queuing, and also provide space for hardscape/street furniture/aesthetic features if implemented by the local community.

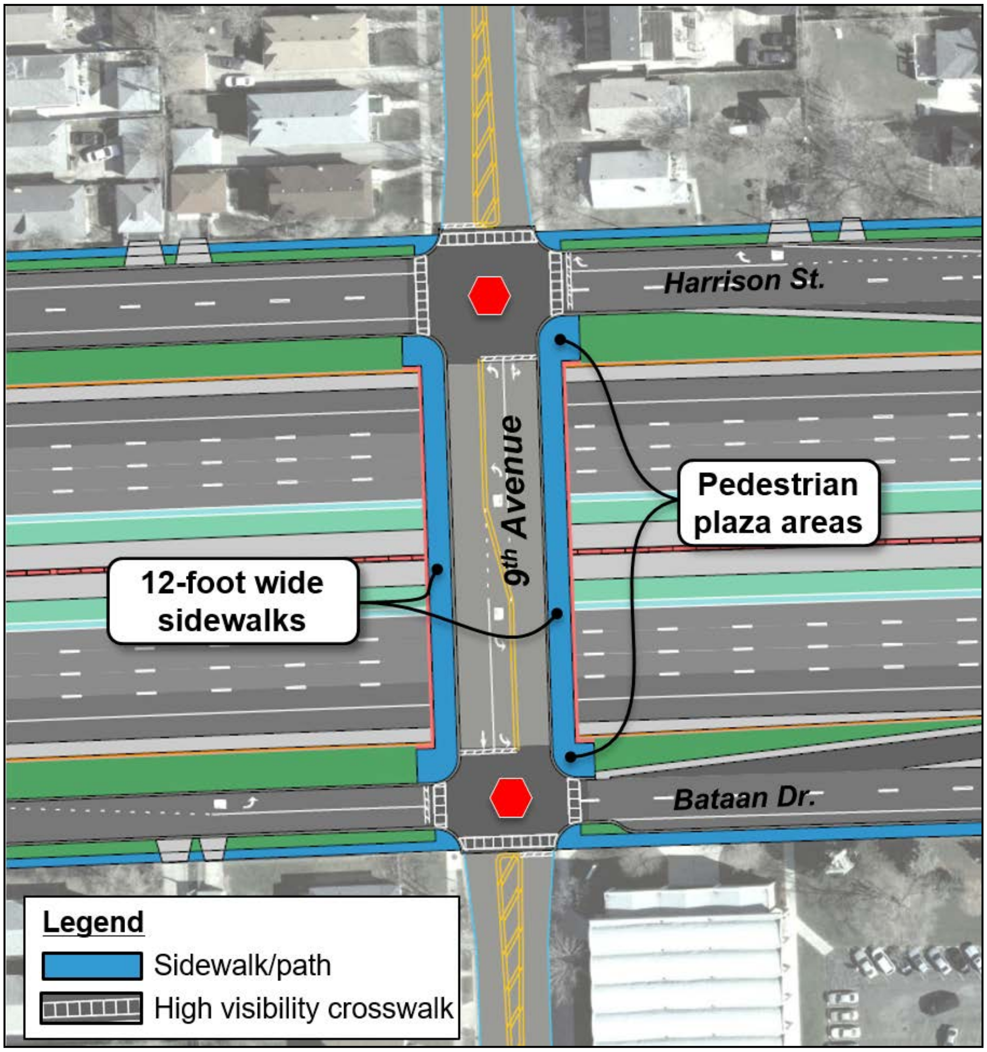
Figure 3-21. 17th Avenue Pedestrian Improvements



9th Avenue

Twelve-foot wide sidewalks will be provided along both sides of the proposed 9th Avenue bridge over I-290 between Harrison Street and Bataan Drive, which are stop-controlled intersections. Wider sidewalks and pedestrian plaza areas are provided in each corner to provide additional area for pedestrian visibility and queuing, and also provide space for hardscape/street furniture/aesthetic features if implemented by the local community.

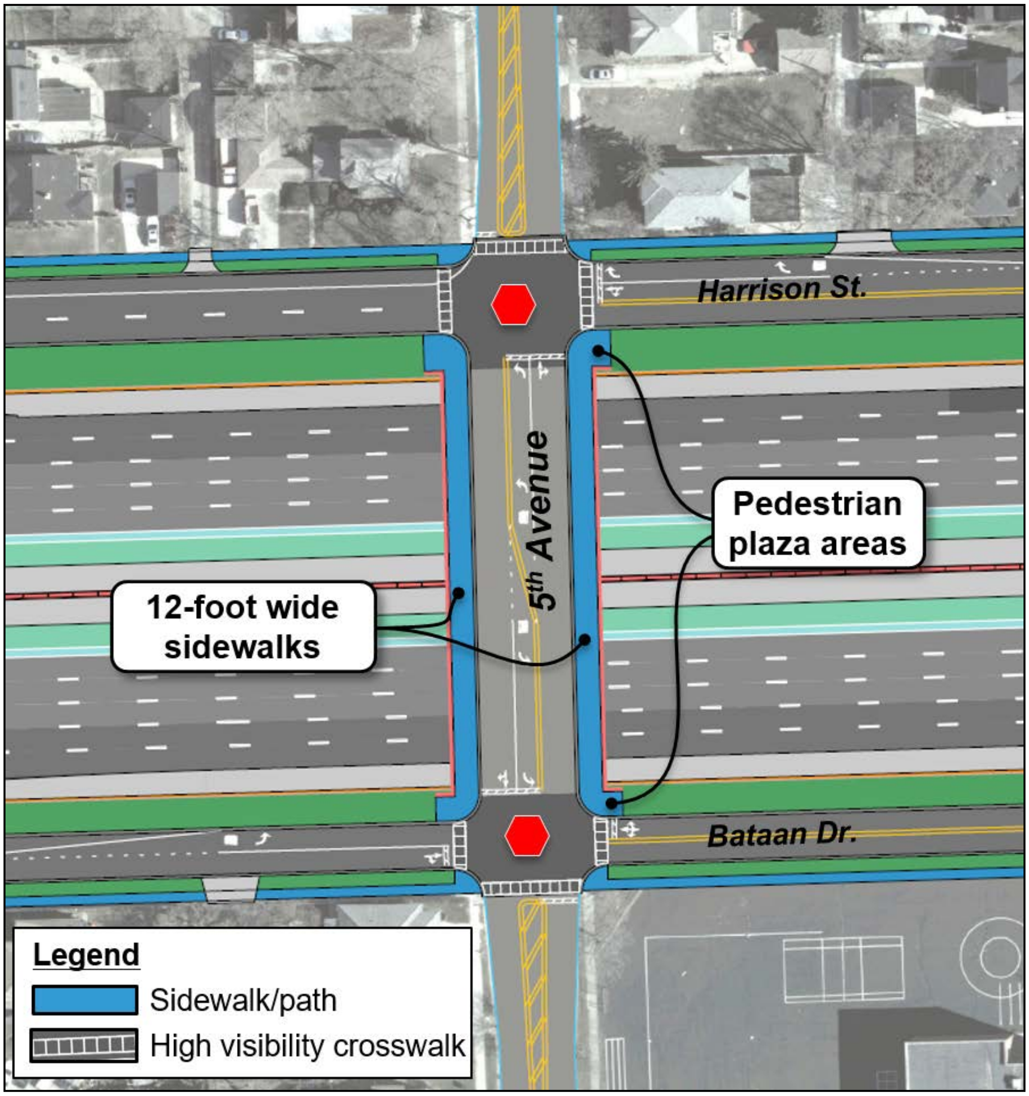
Figure 3-22. 9th Avenue Pedestrian Improvements



5th Avenue

Twelve-foot wide sidewalks will be provided along both sides of the proposed 5th Avenue bridge over I-290 between Harrison Street and Bataan Drive, which are stop-controlled intersections. Wider sidewalks and pedestrian plaza areas are provided in each corner to provide additional area for pedestrian visibility and queuing, and also provide space for hardscape/street furniture/aesthetic features if implemented by the local community.

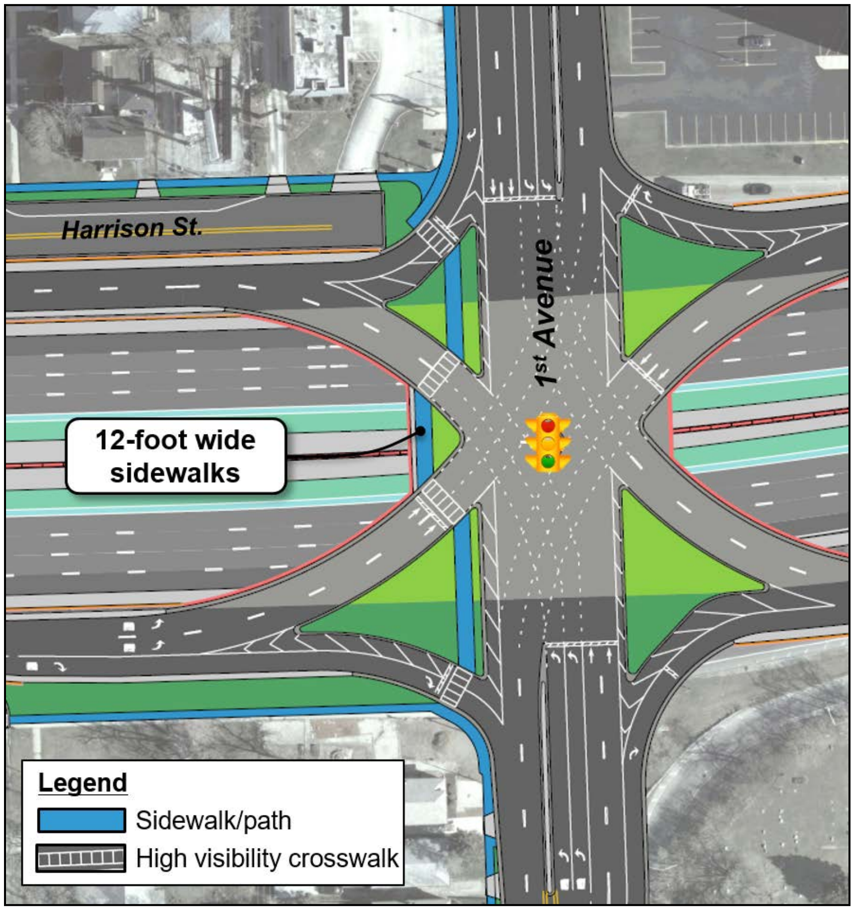
Figure 3-23. 5th Avenue Pedestrian Improvements



1st Avenue

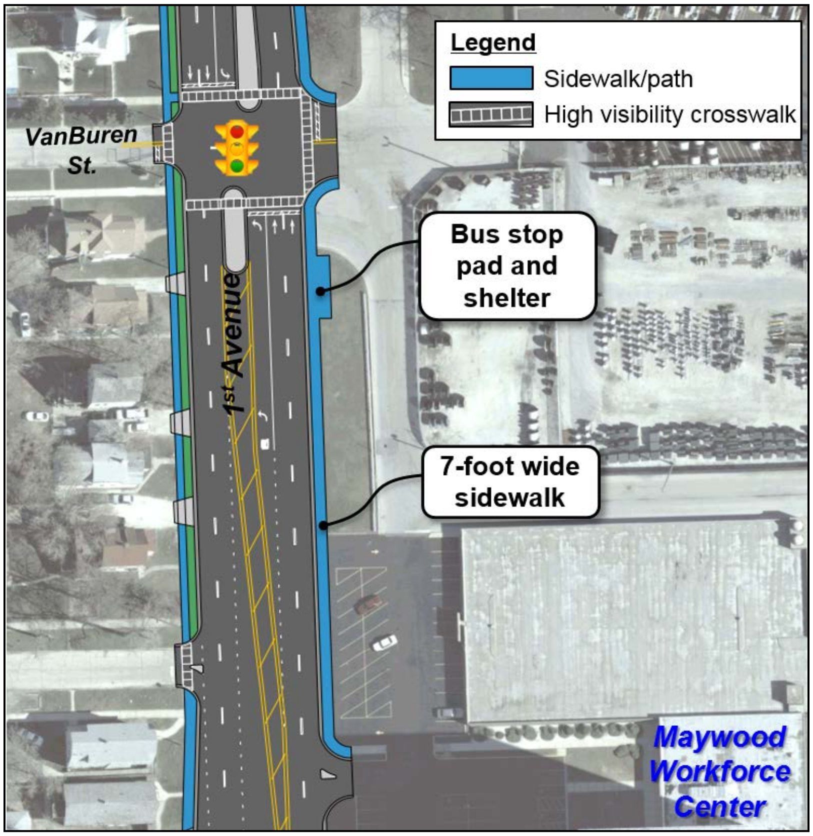
Along the west side of 1st Avenue, a 10-foot wide sidewalk/shared-use path will be constructed over the expressway and through the proposed interchange. The 10-foot wide sidewalk will transition back to a 5-foot wide sidewalk north and south of the interchange to minimize impacts, and to tie back into existing sidewalks along 1st Avenue, Harrison Street and Bataan Drive.

Figure 3-24. 1st Avenue Interchange Pedestrian Improvements



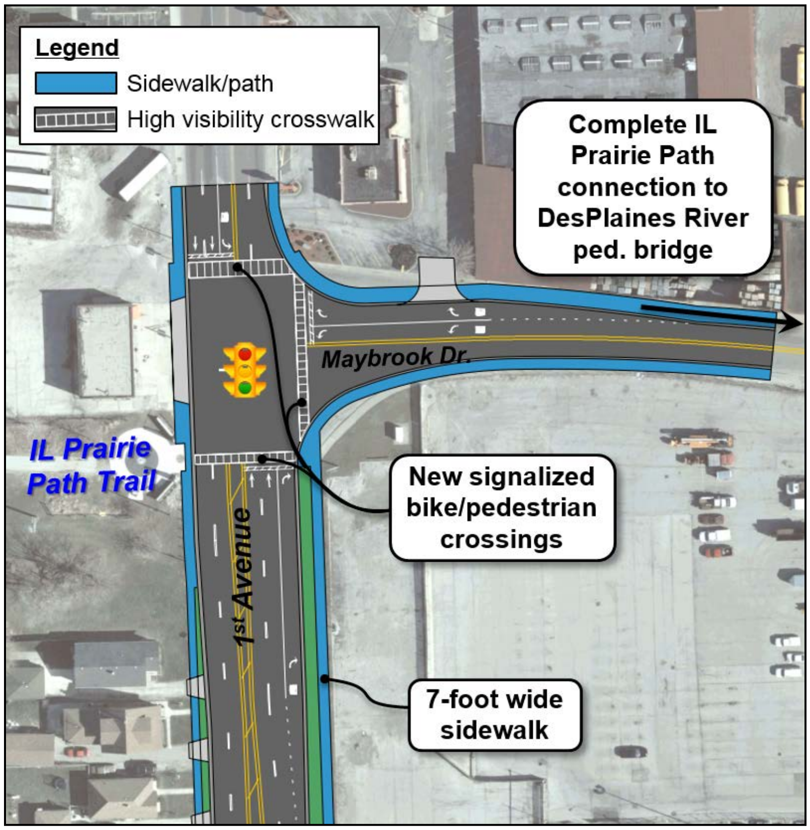
At 1st Avenue and VanBuren Street a Pace Bus Route 320 shelter will be located in the southeast corner. This bus shelter will service the Maybrook Workforce Center, located in the Eisenhower Tower building to the south, via a 7-foot wide sidewalk.

Figure 3-25. 1st Avenue and VanBuren Pedestrian Improvements



At 1st Avenue and Maybrook Drive, intersection improvements will add three new signalized bike and pedestrian crossings, including two east-west crossings of 1st Avenue and a north-south crossing of Maybrook Drive. These bike and pedestrian crossings will complete the missing connection of the Illinois Prairie Path to the existing Des Plaines River bike and pedestrian bridge crossing to the east, and provide connections to the CTA Blue Line Terminal and the proposed east-west shared-use path that will extend along I-290 between DesPlaines Avenue and Central Avenue.

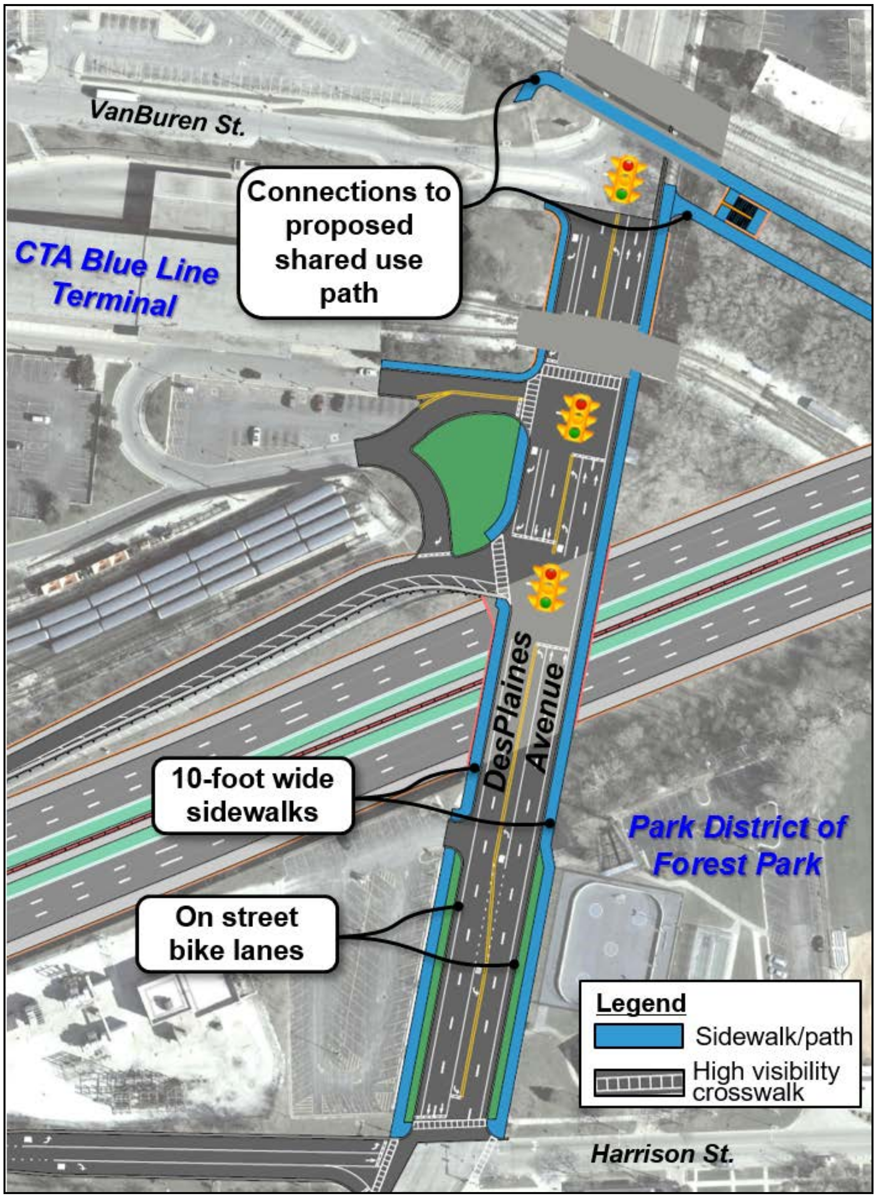
Figure 3-26. 1st Avenue and Maybrook Drive Bike and Pedestrian Improvements



DesPlaines Avenue Interchange

Ten-foot wide sidewalks and on-street bike lanes are proposed along both sides of DesPlaines Avenue between Harrison Street and VanBuren Street. Connections from DesPlaines Avenue to the proposed east-west shared-use path would also be provided via ramps and stairs. The shared-use path will cross over DesPlaines Avenue along to the south of the existing CSX railroad bridge.

Figure 3-27. DesPlaines Avenue Pedestrian and Bicycle Facility Improvements



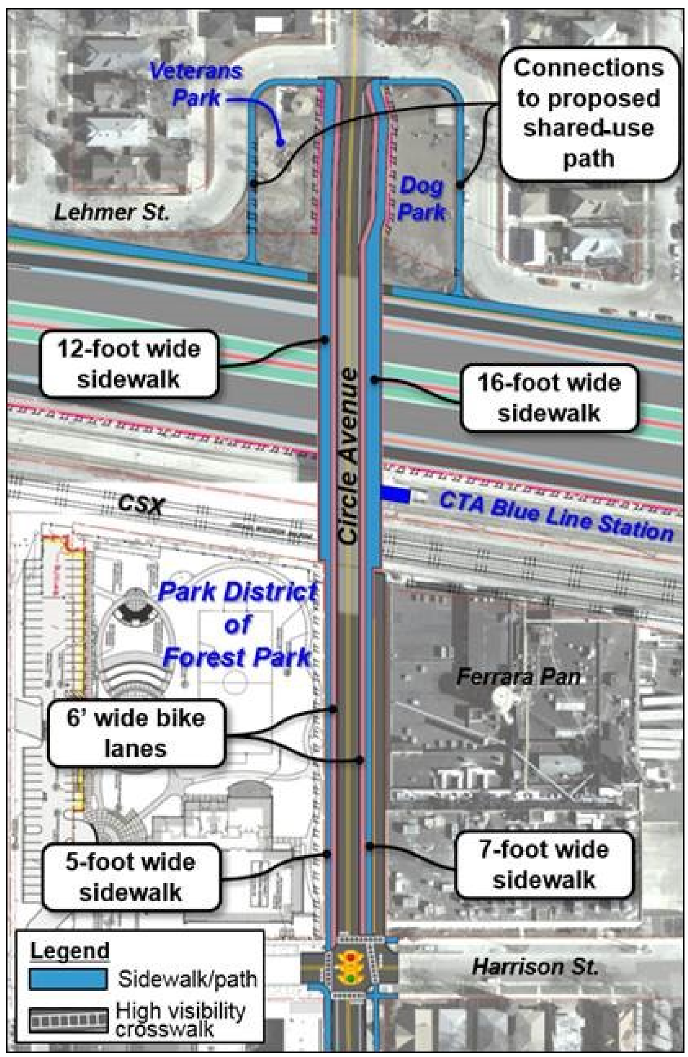
Circle Avenue

Circle Avenue is designated by the Village of Forest Park as its primary north-south bike route and is the only crossing of I-290 not associated with an interchange. Circle Avenue connects between the Park District of Forest Park, located just south of I-290, and two pocket parks just north of the expressway (Veterans Park and a Dog Park). Also, a CTA Blue Line station entrance is located along the east side of the bridge.

A 12-foot wide sidewalk is proposed along the entire west side of the bridge, and 16-foot wide sidewalk along the east side of the bride where the CTA Blue Line station access is located. Along the southeast side of the bridge, the sidewalk would narrow to 7-feet wide to maintain the existing alley access to the Ferrara Pan Candy Company. The Village of Forest Park is also considering adding a marked pedestrian crossing of Circle Avenue near the CTA Blue Line station entrance.

6-foot wide dedicated and marked bike lanes are also accommodated along Circle Avenue in each direction between Harrison Street and Garfield. To provide some physical separation between the street traffic and the bike lanes, the bike lanes will be located behind the street curb and be at the same level as the sidewalk. The 6-foot bike lane widths will be in addition to the proposed sidewalk widths.

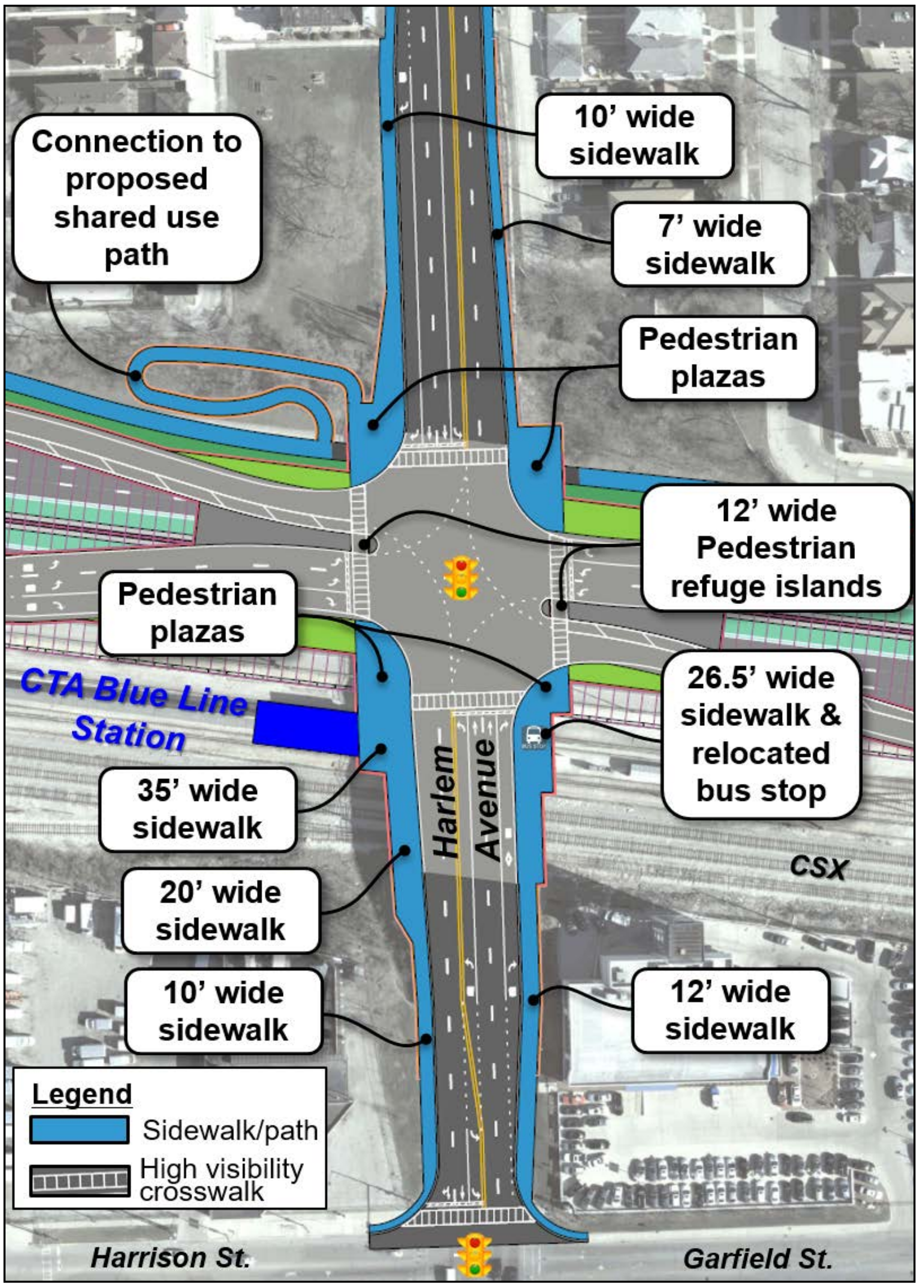
Figure 3-28. Circle Avenue Pedestrian and Bicycle Facility Improvements



Harlem Avenue

Approximately 15,200 square feet of additional sidewalk area is proposed along Harlem Avenue in connection with the proposed reconstruction of this interchange. Wider sidewalks, pedestrian plaza areas, and pedestrian refuge islands between the ramps are accommodated, as well as a bike and pedestrian connection to the proposed east-west shared-use path that passes underneath Harlem Avenue. Additional sidewalk width can also be utilized for hardscape/street furniture/aesthetic features if implemented by the local community.

Figure 3-29. Harlem Avenue Pedestrian and Bicycle Facility Improvements



Oak Park Avenue, East Avenue, Lombard Avenue, Ridgeland Avenue

Unless restricted by an existing right-of-way or other existing constraint, minimum 12-foot wide sidewalks are proposed to be included in the baseline design. If the sidewalk provides access to an existing Blue Line transit station, a 16-foot wide side walk is proposed. At Oak Park Avenue, 16-foot wide sidewalks are proposed along both sides of the street as this street serves to connect the Oak Park central business district. Both the 12 and 16-foot wide sidewalks could also accommodate other aesthetic treatments such as locally funded and maintained hardscape or planter box features.

Figure 3-30. Oak Park Avenue Pedestrian and Bicycle Facility Improvements

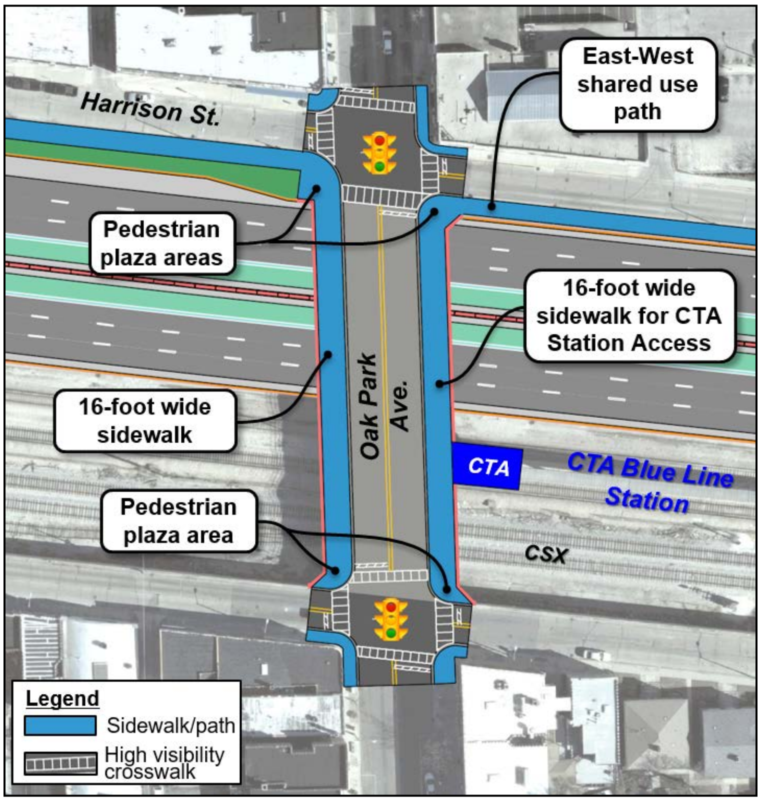


Figure 3-31. East Avenue Pedestrian and Bicycle Facility Improvements

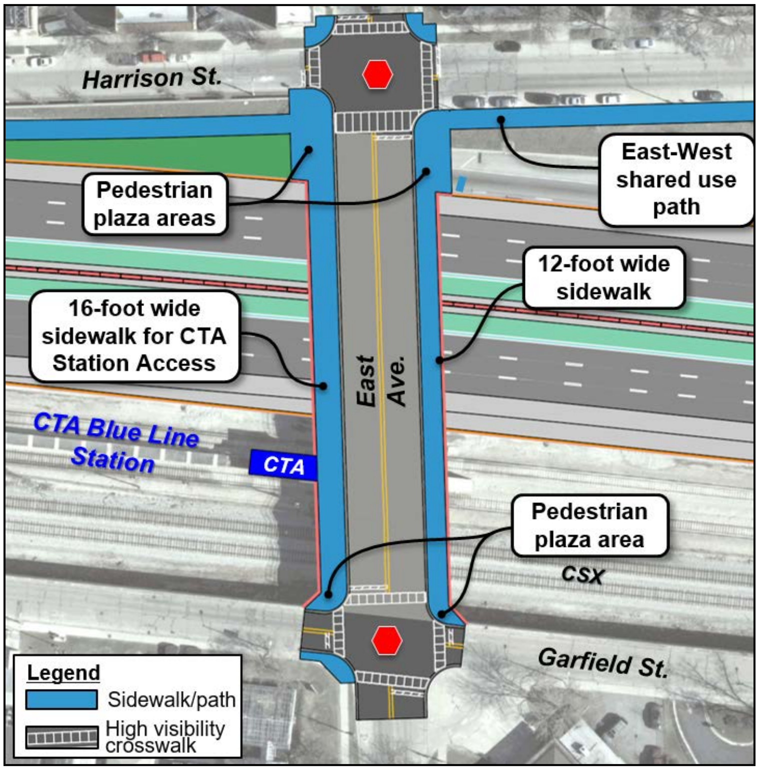


Figure 3-32. Ridgeland Avenue Pedestrian and Bicycle Facility Improvements

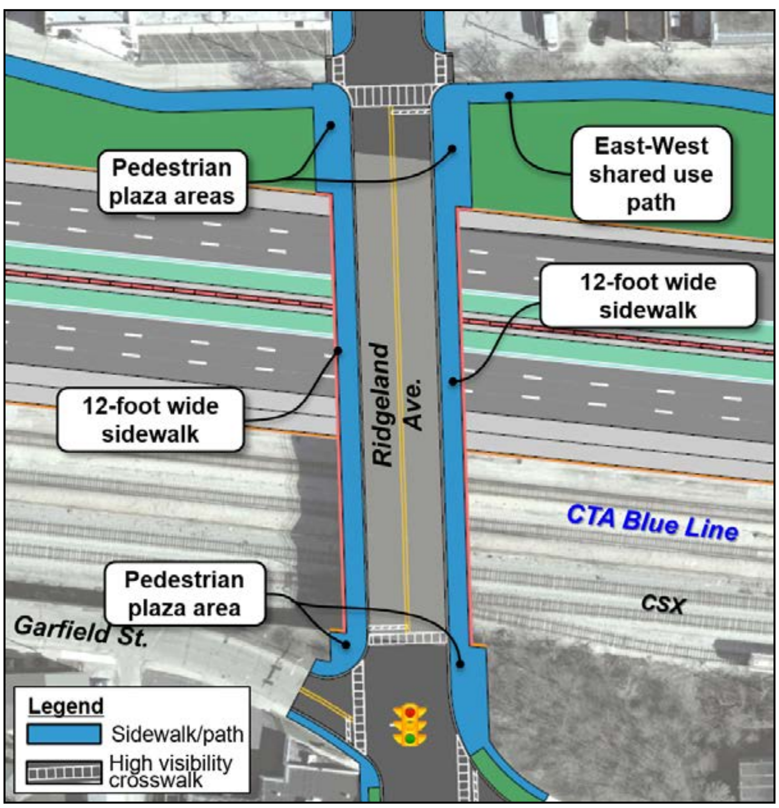
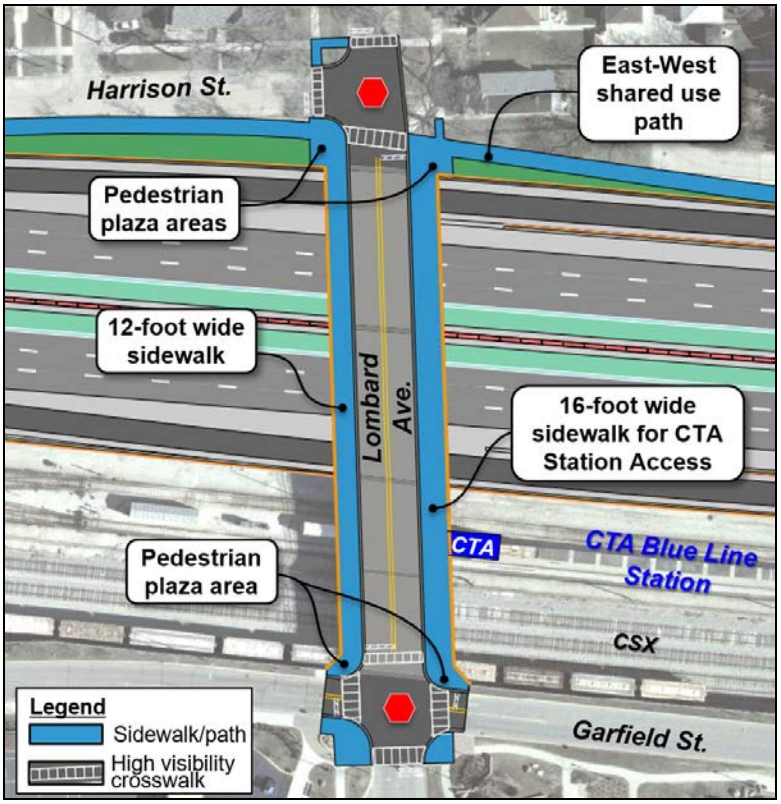


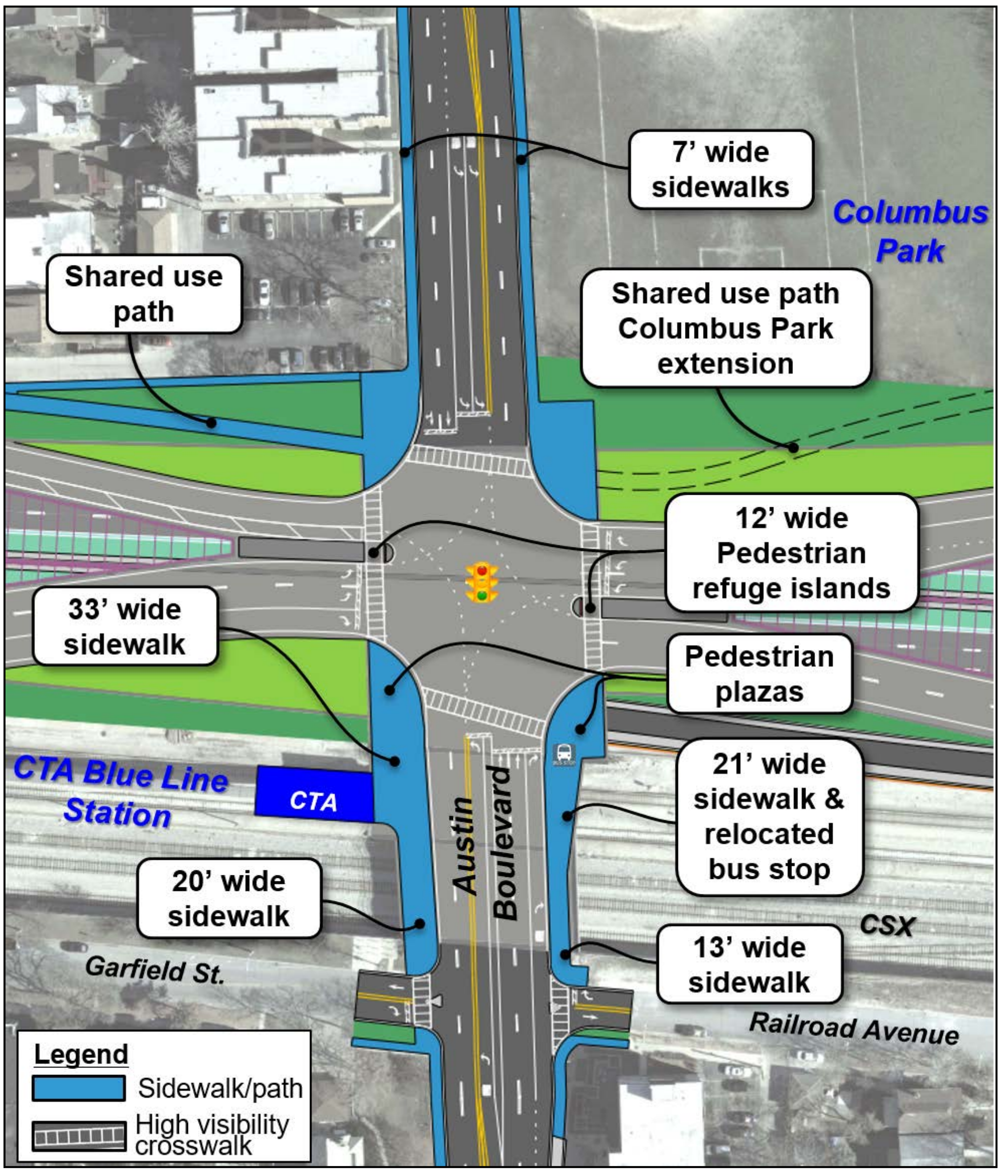
Figure 3-33. Lombard Avenue Pedestrian and Bicycle Facility Improvements



Austin Boulevard

Approximately 9,300 square feet of additional sidewalk area is proposed along Austin Boulevard in connection with the proposed reconstruction of this interchange. Wider sidewalks, pedestrian plaza areas, and pedestrian refuge islands between the ramps are accommodated, as well as a direct connection to the proposed east-west shared-use path. An eastward extension of the proposed shared-use path is planned to connect to the existing trail system in Columbus Park. Additional sidewalk width can also be utilized for hardscape/street furniture/aesthetic features if implemented by the local community.

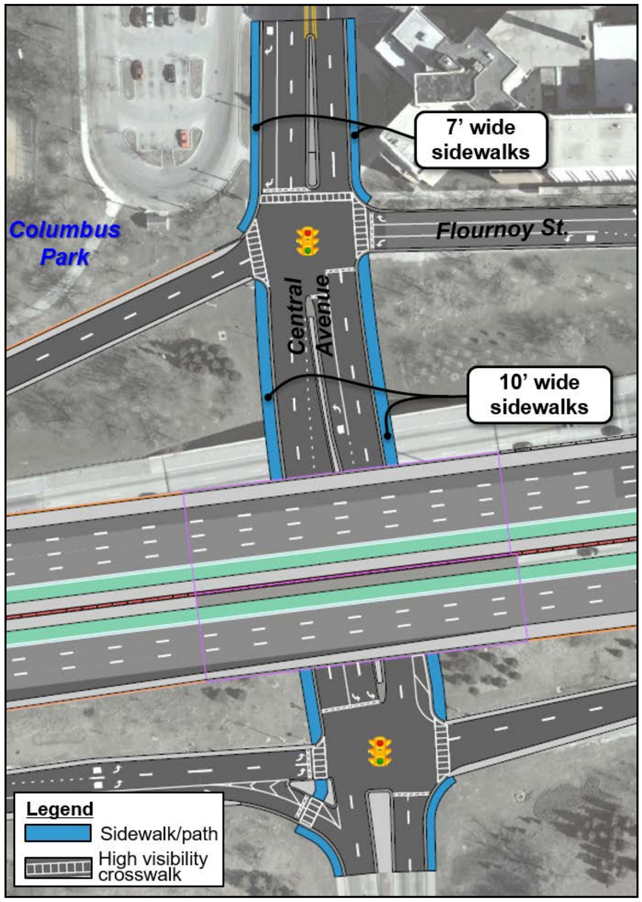
Figure 3-34. Austin Boulevard Pedestrian and Bicycle Facility Improvements



Central Avenue

Ten-foot wide sidewalks between the ramps are proposed to provide additional walking space behind the curb, increasing the buffer distance and reducing the likelihood of conflicts between pedestrians, bicyclists, and motor vehicles.

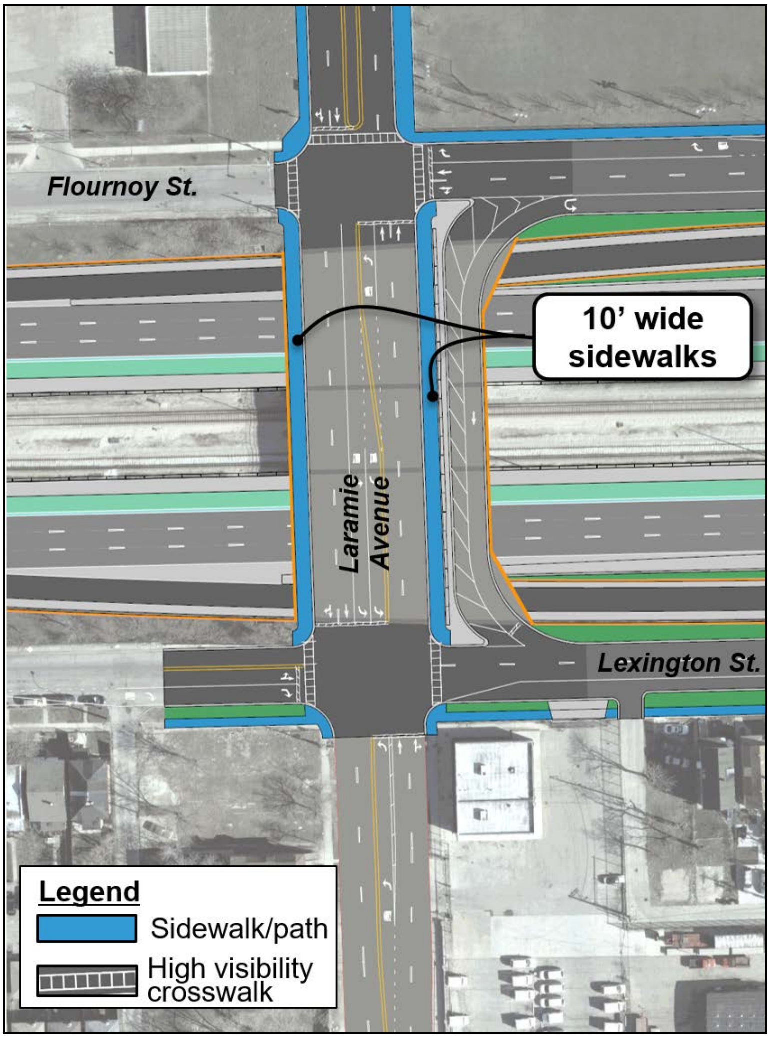
Figure 3-35. Central Avenue Pedestrian and Bicycle Facility Improvements



Laramie Avenue

The reverse diamond interchange design with U-turns provides improved north-south pedestrian access along Laramie Avenue by accommodating 10-foot sidewalks between Flournoy Street and Lexington Street. To the north, the sidewalks along both sides of the street will be reconstructed in-kind to Harrison Street.

Figure 3-36. Laramie Avenue Pedestrian and Bicycle Facility Improvements

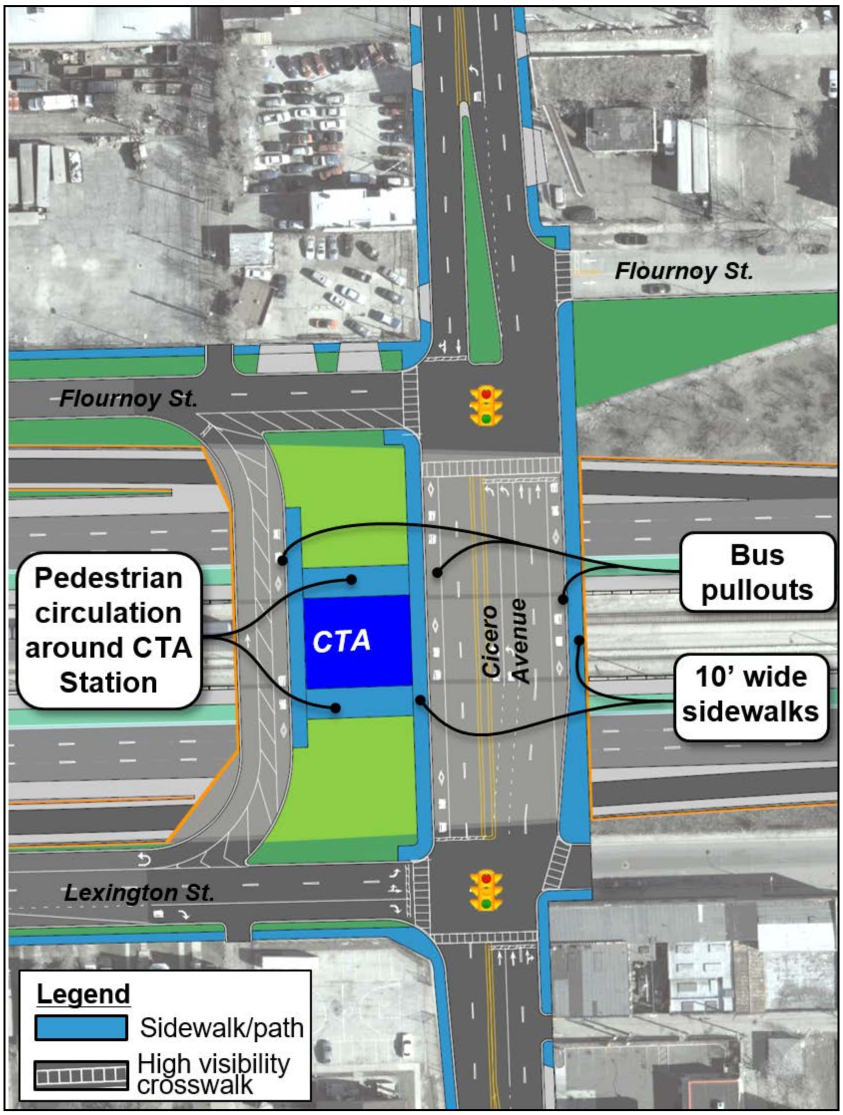


Cicero Avenue

The reverse diamond interchange with U-turns design provides improved north-south pedestrian access along Cicero Avenue, accommodating wider 10-foot sidewalks across the bridge between Flournoy Street and Lexington Street. A CTA head station is located on the west side of Cicero Avenue between the proposed frontage road U-turn bridge over I-290 and Cicero Avenue.

Bus lanes and stops are proposed along the west and east side of Cicero Avenue, in front of, and directly across from the CTA blue line station entrance. The bus pullouts and proposed crosswalks provide improved shorter and safer bus-rail transit transfers.

Figure 3-37. Cicero Avenue Pedestrian and Bicycle Facility Improvements

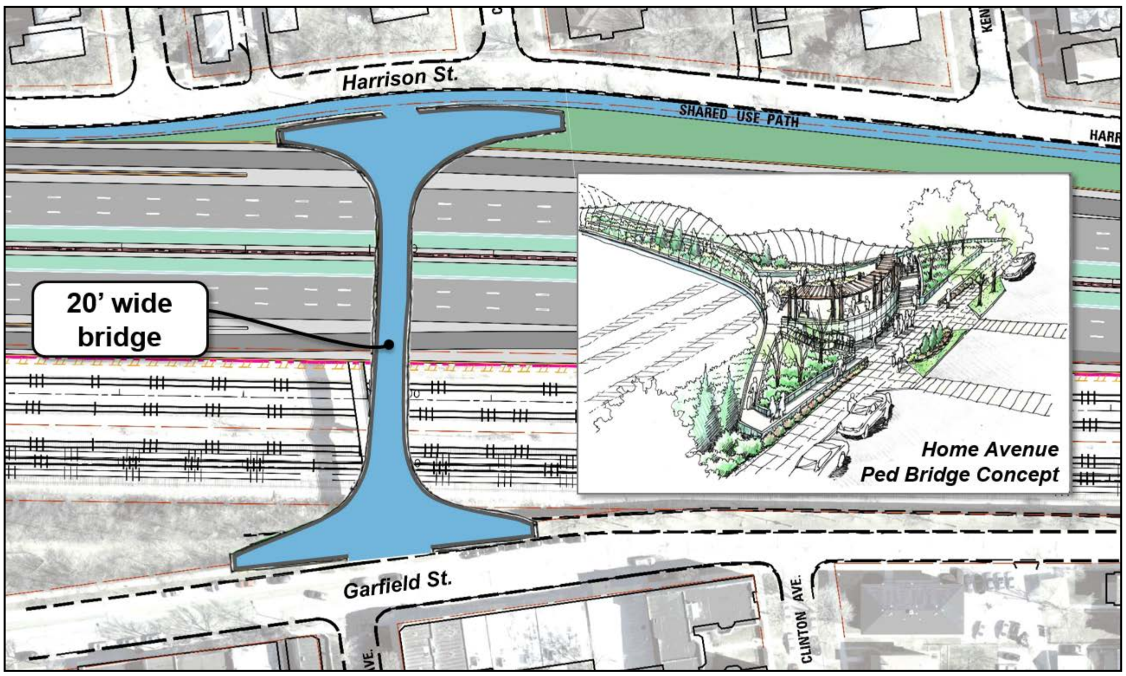


Pedestrian Bridges

Home Avenue Pedestrian Bridge

The Home Avenue pedestrian bridge crossing is located in the Village of Oak Park between Harlem Avenue and Oak Park Avenue. Based on coordination with the Village of Oak Park, the proposed baseline pedestrian bridge design will be 20-feet wide with 10-foot wide access ramps at minimum to accommodate maintenance equipment. The bridge will include improved lighting and ADA accessible access ramps that could accommodate other Village implemented aesthetic improvements, such as a linear park or other landscape/hardscape features. The aesthetic features/landscaping are subject to further coordination and analysis, as well as cost participation and maintenance requirements.

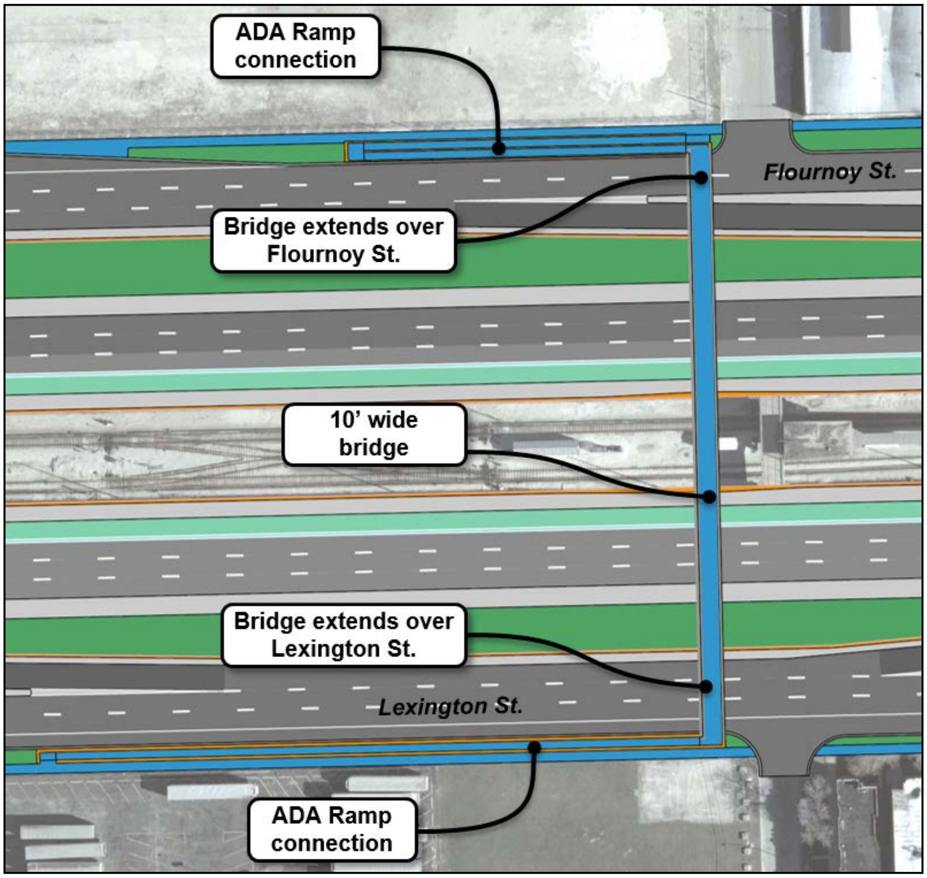
Figure 3-38. Home Avenue Pedestrian Bridge



Lavergne Avenue Pedestrian Bridge

The Lavergne_Avenue pedestrian bridge is located in the City of Chicago between Laramie Avenue and Cicero Avenue. The proposed bridge will be elevated and lengthened to extend over Lexington Street (south of I-290) and Flournoy Street (north of I-290). The proposed bridge will be 12-feet wide and will include ADA accessible ramp connections that will tie to the existing sidewalk on the north side of Flournoy Street, and to the existing sidewalk on the south side of Lexington Street.

Figure 3-39. La Avenue Pedestrian Bridge



Shared-Use Path – Illinois Prairie Path Extension

As part of the proposed mainline and crossroad improvements, a new 2 mile long shared-use path is provided along the north side of I-290 between DesPlaines Avenue and Austin Boulevard. The shared-use path would effectively extend the Illinois Prairie Path two miles from the CTA Blue Line Terminal in Forest Park to Columbus Park, located on the east side of Austin Boulevard in the City of Chicago.

Figure 3-40. New Shared-Use Path

At the west end, a dedicated bridge would provide a grade separated crossing of the path over DesPlaines Avenue to connect to the existing eastern terminus of the Illinois Prairie Path (Figure 3-27). The 10-foot wide path would then extend to the east along the north side of I-290 utilizing the additional community level green space created by the proposed expressway realignment and retaining walls. The proposed path will generally follow the elevation of the local frontage roads to provide a nearly continuous path access along its length. The path would be grade separated below the CTA Bridge, CSX Bridge, Circle Avenue, and Harlem Avenue. Graded path connections will be provided to the sidewalks at Circle Avenue (Figure 3-28) and Harlem Avenue (Figure 3-29). East of Harlem Avenue, the shared-use path connects at-grade to the Home Avenue pedestrian bridge connection and at Oak Park Avenue (Figure 3-30), East Avenue (Figure 3-31), Ridgeland Avenue (Figure 3-32), Lombard Avenue (Figure 3-32), and Austin Boulevard (Figure 3-32).

East of Austin Boulevard, the path is proposed to connect to the existing Columbus Park trail that runs along the south side of the park, which would effectively extend the reach of the Illinois Prairie Path an additional ½ mile to Central Avenue.

Implementation of the shared-use path pavement, lighting, and the proposed shared-use path bridge over DesPlaines Avenue is subject to local cost participation.

3.1.9 Environmental Justice

The goal of an Environmental Justice (EJ) assessment is to evaluate a proposed federal project based on potential disproportionate adverse impacts to minority and low-income populations, and make provisions so that those groups are treated fairly during (and can participate in) decision-making processes related to proposed federal projects.

FHWA Order 6640.23A defines the term "adverse effects" to include "the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects," which may include, but is not limited to: bodily impairment, infirmity, illness, or death; air, noise, and water pollution and soil contamination; destruction or disruption of human-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of FHWA programs, policies, or activities."

To guide federal agencies, Executive Order 12898 was put forward: "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," February 11, 1994. The Executive Order states that "each Federal agency shall make achieving EJ part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Pursuant to the Executive Order, the FHWA has adopted *FHWA Order 6640.23A, FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, June 14, 2012.

In terms of transportation policy, the EJ framework contains three fundamental principles:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations;
- To ensure full and fair participation by all potentially affected communities in the transportation decision-making process; and
- To prevent the denial of, reduction in, or considerable delay in the receipt of benefits by minority and low-income populations.[23]

Under FHWA Order 6640.23A, minority is defined as a person who is:

- **Black:** A person having origins in any of the black racial groups of Africa;
- **Hispanic or Latino:** A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;

[23] FHWA, 2000. http://www.fhwa.dot.gov/environment/environmental_justice/

- **Asian American:** A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent;
- **American Indian and Alaskan Native:** A person having origins in any of the original people of North America, South America (including Central America) and who maintain cultural identification through tribal affiliation or community recognition; or
- **Native Hawaiian or Other Pacific Islander:** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

As presented in FHWA Order 6640.23A, Hispanic or Latino populations are classified as a minority group, regardless of race. Consistent with the US Census data, Hispanic or Latino origins are considered as ethnicity data, a separate designation from race data.

According to the US Census Bureau, the terms "Hispanic" or "Latino" refer to persons who trace their origin or descent to Mexico, Puerto Rico, Cuba, Spanish speaking Central and South America countries, and other Spanish cultures. Origin can be considered as the heritage, nationality group, lineage, or country of the person or the person's parents or ancestors before their arrival in the US. People who identify their origin as Hispanic or Latino may be of any race, consistent with the FHWA Order 6640.23A. Thus, the percent Hispanic was not added to percentages for racial categories.

Under FHWA Order 6640.23A, low-income is defined as a person whose median household income is at or below the US Department of Health and Human Services (HHS) poverty guidelines.

3.1.9.1 Methodology

A detailed analysis was conducted for race, ethnicity, and poverty for census block groups located in the Project Corridor. The methodology for this analysis is further discussed in the Round 3 Environmental Justice Technical Memorandum (Appendix D). In conducting these assessments, available data for census block groups on population demographics were taken from the US Census. To identify concentrated racial and ethnic minority and low-income populations, 2010 Census block groups that met the following threshold criteria were classified as an EJ population of concern:

1. If the Census Block Group's population is more than 50 percent minority, ethnic group or low-income, or

2. If the percentage of low-income population, ethnic group or minority population in the Census Block Group is 10 percentage points higher than the percentage of low-income, ethnic group or minority population in Cook County (the Community of Comparison).

3.1.9.2 Existing Conditions

<u>*Race and Ethnicity Demographics*</u>

Using guidance from FHWA Order 6640.23A, populations are identified by race at the Census Block Group level. For the proposed project, the data is aggregated as White, Black, Asian, American Indian and Alaska Native, Native Hawaiian and Pacific Islander, Other Races, and those identified by two or more races.

As described in FHWA Order 6640.23A, along with race, ethnicity is classified as a separate minority population category. In the US Census data, Hispanic or Latino Ethnicity is a separate designation from race that may be selected in combination with any Race designation. The FHWA Order contains language consistent with the US Census designation of Hispanic or Latino.

In general, an EJ analysis is conducted by looking at minority groups singularly to identify if there is a large portion of one population subgroup in a census tract (map sets of the geographic distribution of each minority group and low income populations can be found in Appendix D).

3.1.9.3 Composite Analysis of Minority, Ethnic and Low Income Populations

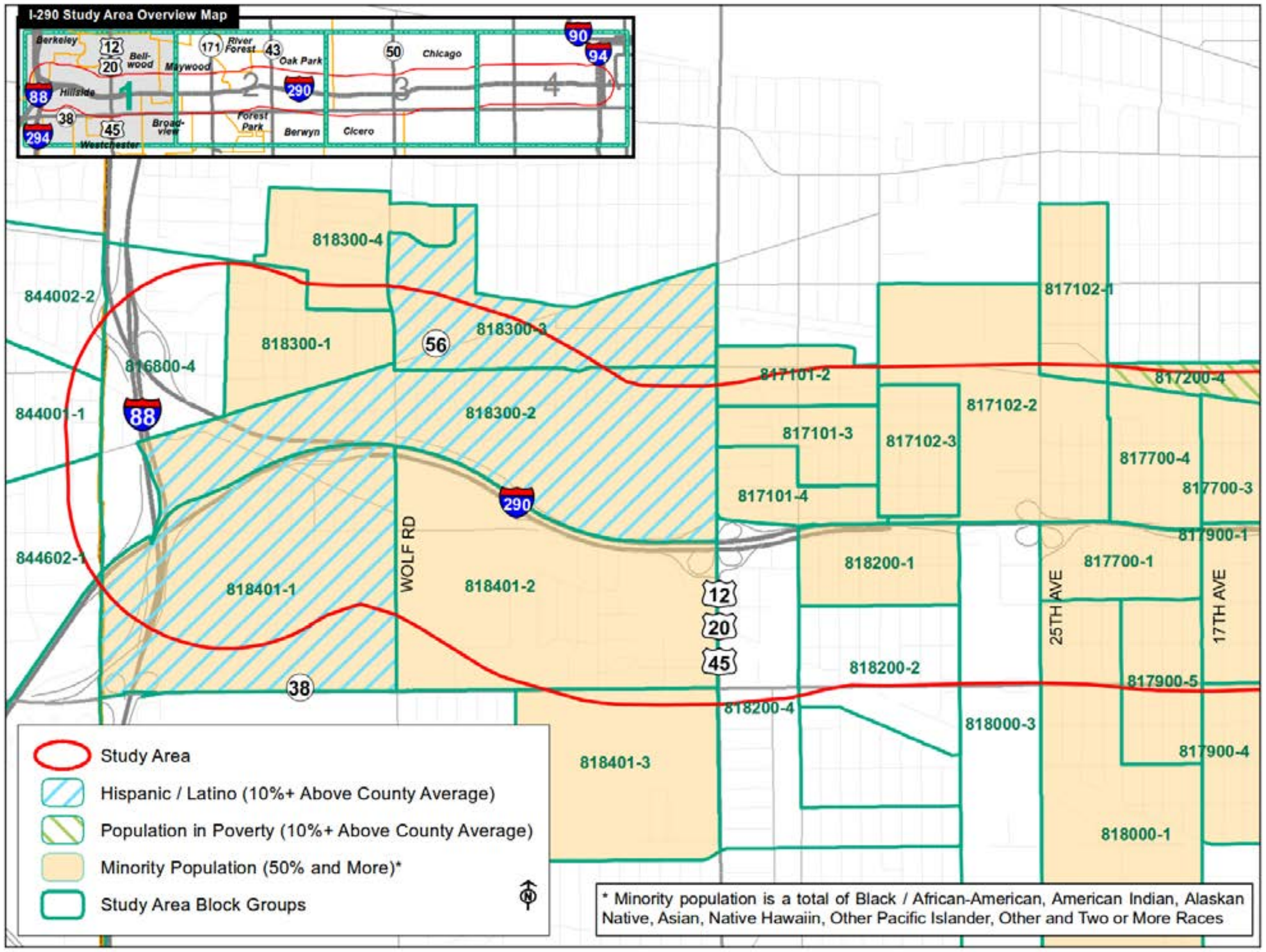
It is important to look beyond a singular population subgroup when conducting an EJ Analysis. In dense and diverse corridors, such as the Project Corridor, it is essential to combine all three population types (minority, ethnicity and low income) to identify locations throughout the corridors where diversity, and potentially low income status, may add additional EJ populations to the study that would not be considered when conducting an analysis of a single population subgroup.

Figure 3-41 through Figure 3-44 present a composite of minority, ethnicity and low-income status for the Project Corridor. The EJ Population composite maps show the consistency of EJ populations throughout the Study Area, with the exception of portions of Westchester, between Manheim and 25th south of I-290, the majority of the areas between 1st Avenue and Austin Boulevard, and some areas east of Ashland. Most block groups east of Austin Boulevard are both minority EJ populations and low-income EJ populations.

3.1.9.4 Evaluating Environmental Justice

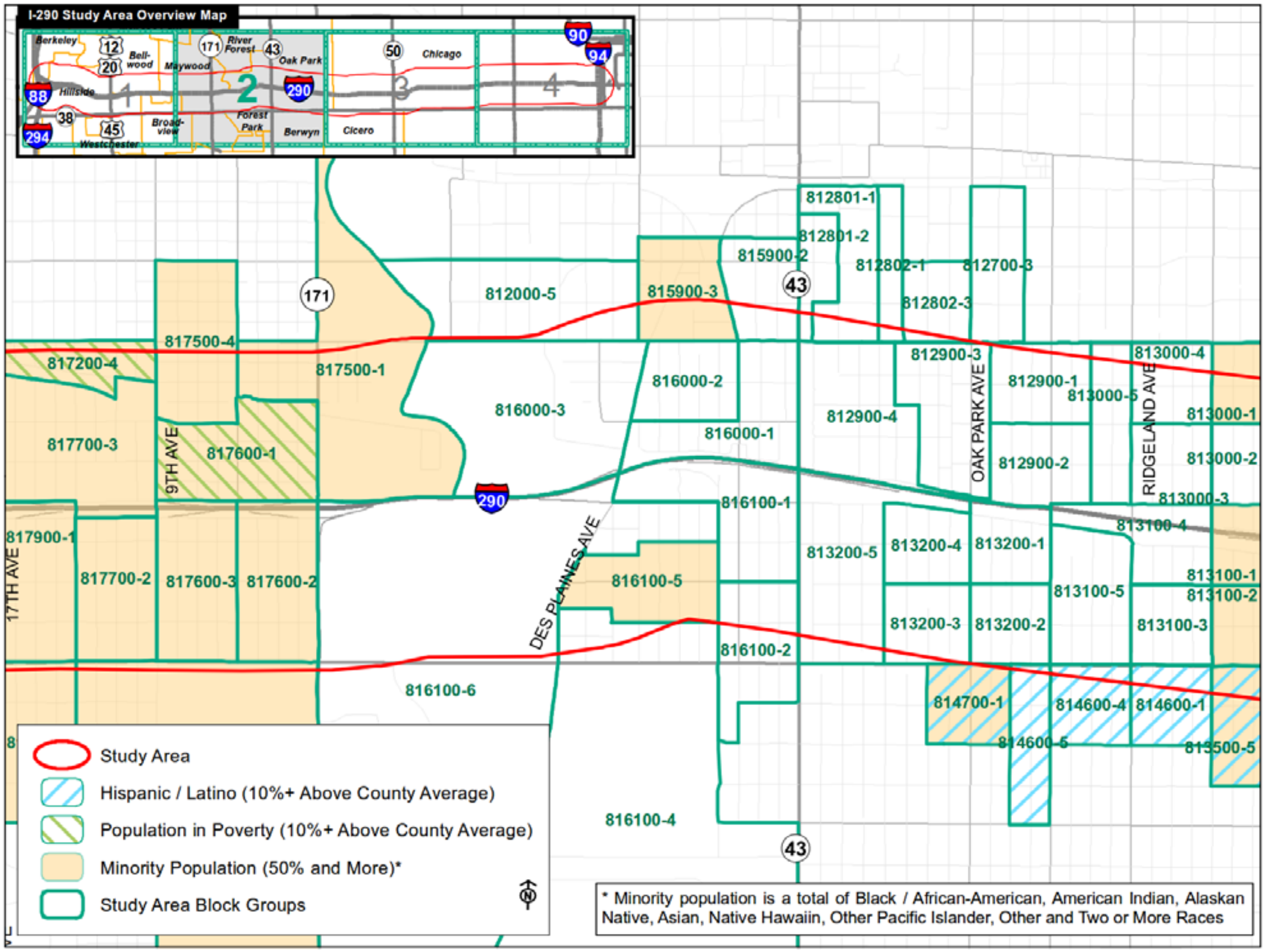
The remainder of this section focuses on addressing these three principles within the context of the No Build Alternative and build alternatives for the I-290 Study.

Figure 3-41. Environmental Justice Composite Analysis Summary by Census Block Group in the Project Corridor (Subarea 1)



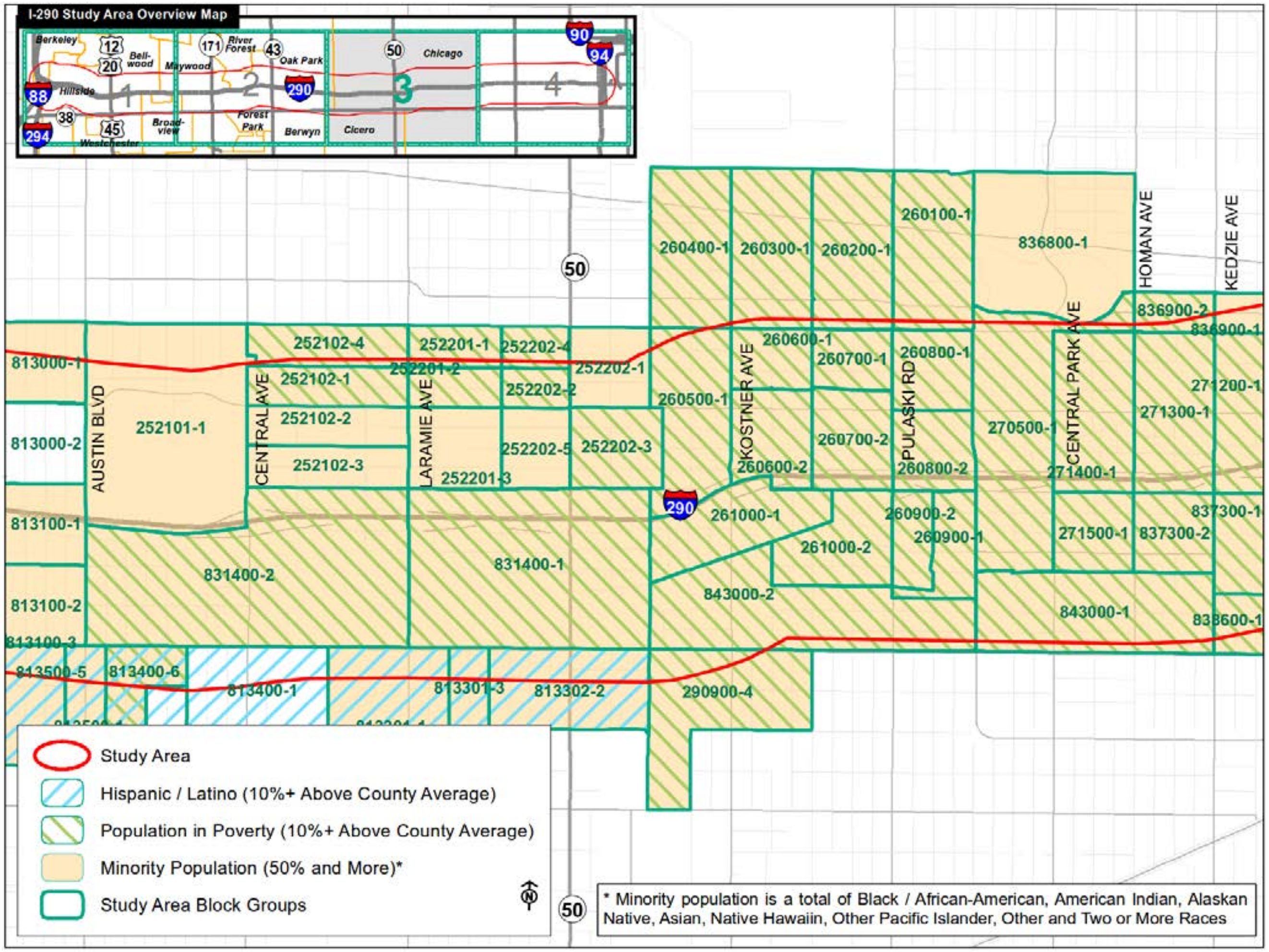
Source: US Bureau of the Census, 2013

Figure 3-42. Environmental Justice Composite Analysis Summary by Census Block Group in the Project Corridor (Subarea 2)



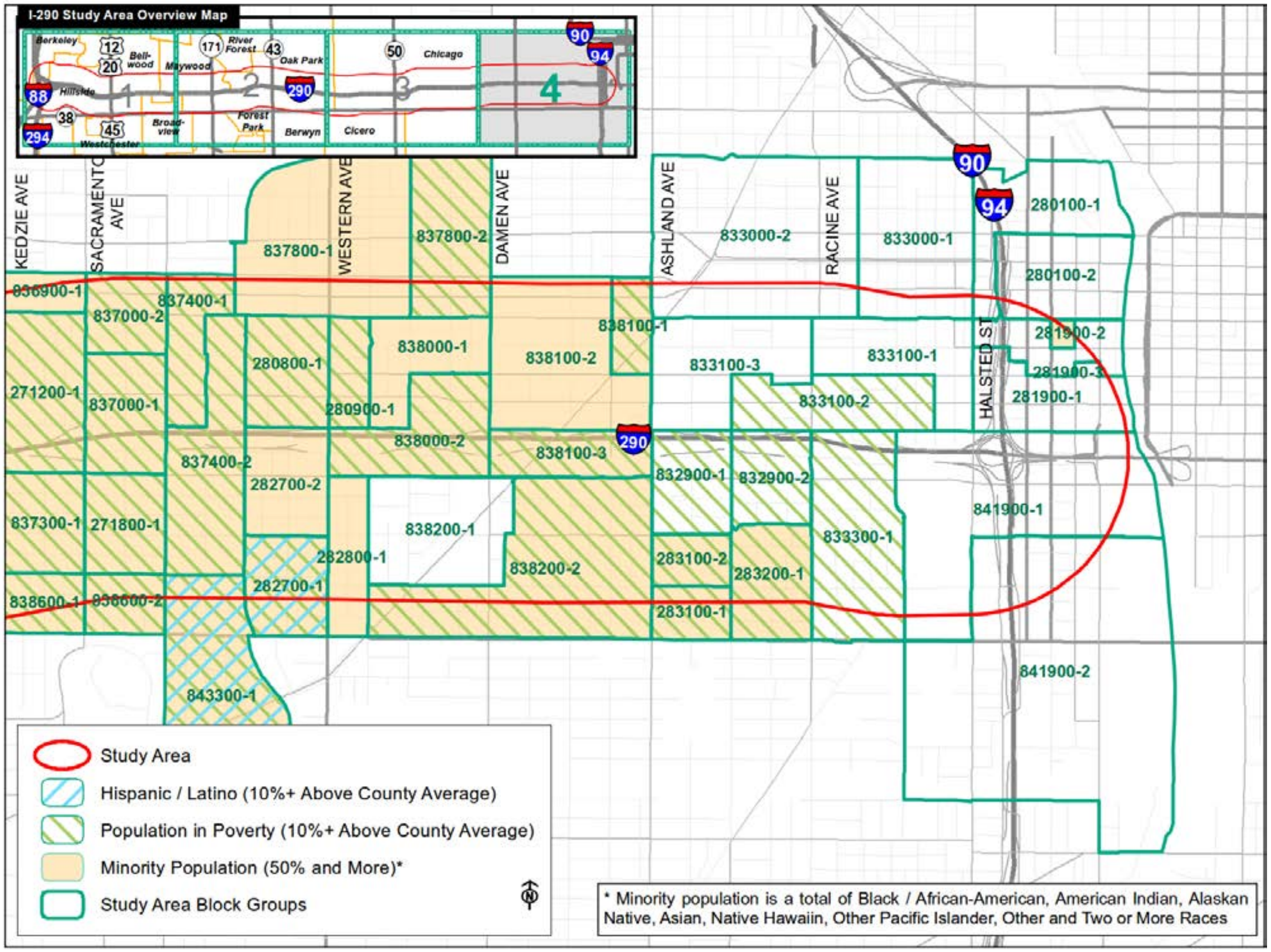
Source: US Bureau of the Census, 2013

Figure 3-43. Environmental Justice Composite Analysis Summary by Census Block Group in the Project Corridor (Subarea 3)



Source: US Bureau of the Census, 2013

Figure 3-44. Environmental Justice Composite Analysis Summary by Census Block Group in the Project Corridor (Subarea 4)



Source: US Bureau of the Census, 2013

Public Outreach to Environmental Justice Communities

The Project Team worked to ensure full and fair participation by all potentially affected communities in the decision-making process. For example, three public meetings were held (Public Meeting 1 - November 18, 2009, Public Meeting 2 - May 18, 2011, and Public Meeting 3 - October 7 and 8, 2013) to inform the public of the ongoing project developments, and to engage and solicit feedback from the public regarding the proposed project. Special effort has been made to advertise all of the public meetings in EJ communities throughout the Study Area. In addition to the regular notices in newspapers, libraries, and public agency offices; advertisements were placed in places of worship, laundromats, and local convenience stores. All facility logistics were Americans with Disabilities Act (ADA) compliant, easily accessible by public transportation, and located near the areas identified as EJ communities. Additionally, Spanish translation services were available at each meeting.

Other means of communicating and coordinating with the public, including the EJ populations, have been utilized. These additional outreach efforts include:

- Use of a project website to provide information to the public and receive input and comments. This website provides a central source of project study information and is available to anyone with access to the internet at any time. Additionally, key project information has been translated in Spanish on the website;

- Distribution of four project newsletter/fact sheets at key project milestones to all the contacts on the mailing list, including federal, state, and local officials; special interest groups; resource agencies; business and community leaders; and members of the public(Fall 2009, Spring 2011, Spring 2013, and Fall 2014);

- Utilization of press releases, media briefings, publication pieces, media correspondence, and media briefings with agency-designated spokespersons to inform the general public about the proposed project and its progress. To specifically reach minority populations regionally, the press releases were sent to targeted radio, print, and television outlets; and

- Focused outreach in the village of Maywood, including multiple town hall meetings, and the formation of an Advisory Working Group to address access issues brought about by the proposed interchanges between 25th and 1st Avenues.

Primary concerns from EJ communities are access to I-290, and the desire to directly benefit from the reconstruction of the Eisenhower Expressway in the form of jobs and job training. To address I-290 access concerns, the Maywood Advisory Group was formed. To address the jobs potential of the project, there have been representatives from IDOT’s community college career training program at the I-290 Study public meetings. IDOT has also been invited to speak on the I-290 Study at four town hall meetings and a civic group meeting since 2009. Other EJ concerns expressed at meetings include economic and business impacts (existing I-290 access will be maintained, and 1st Avenue interchange operations will be improved), community connectivity (1st Avenue interchange and 5th, 9th, and 17th Avenue I-290 cross-road bridges will have wider sidewalks and improved bicycle, ADA and pedestrian facilities), Maywood residential drainage/flooding issues due to undersized combined storm and waste water sewer system (proposed I-290 drainage improvements have potential for reducing flooding in 141 acres in Maywood), access to transit (wider sidewalks and improved ADA and pedestrian facilities will improve CTA station access), and financial impacts on the residents (shorter and quicker access to jobs with I-290 improvements).

Travel Demand Model:

A Travel Demand Model helps estimate and answer:

- How many trips will people take?
- Where will jobs and people locate?
- How will people travel (car, carpool, bus, train, etc.)?
- What route will people take?

Impacts Analysis to EJ Populations

The Project Team spent substantial effort on avoiding, minimizing, and mitigating high and adverse human health and environmental effects (including social and economic effects) on minority and low-income populations. There are no residential or commercial displacements within EJ communities, access to and within the EJ communities is not being reduced, and IDOT has responded to the concerns of EJ communities (the Village of Maywood in particular). As a result, no disproportionately high and adverse impacts to EJ populations are anticipated for any of the build alternatives. This section discusses the range of potential effects to EJ populations by discussing accessibility and mobility, safety, tolling, environmental effects, social, and economic effects.

Accessibility and Mobility

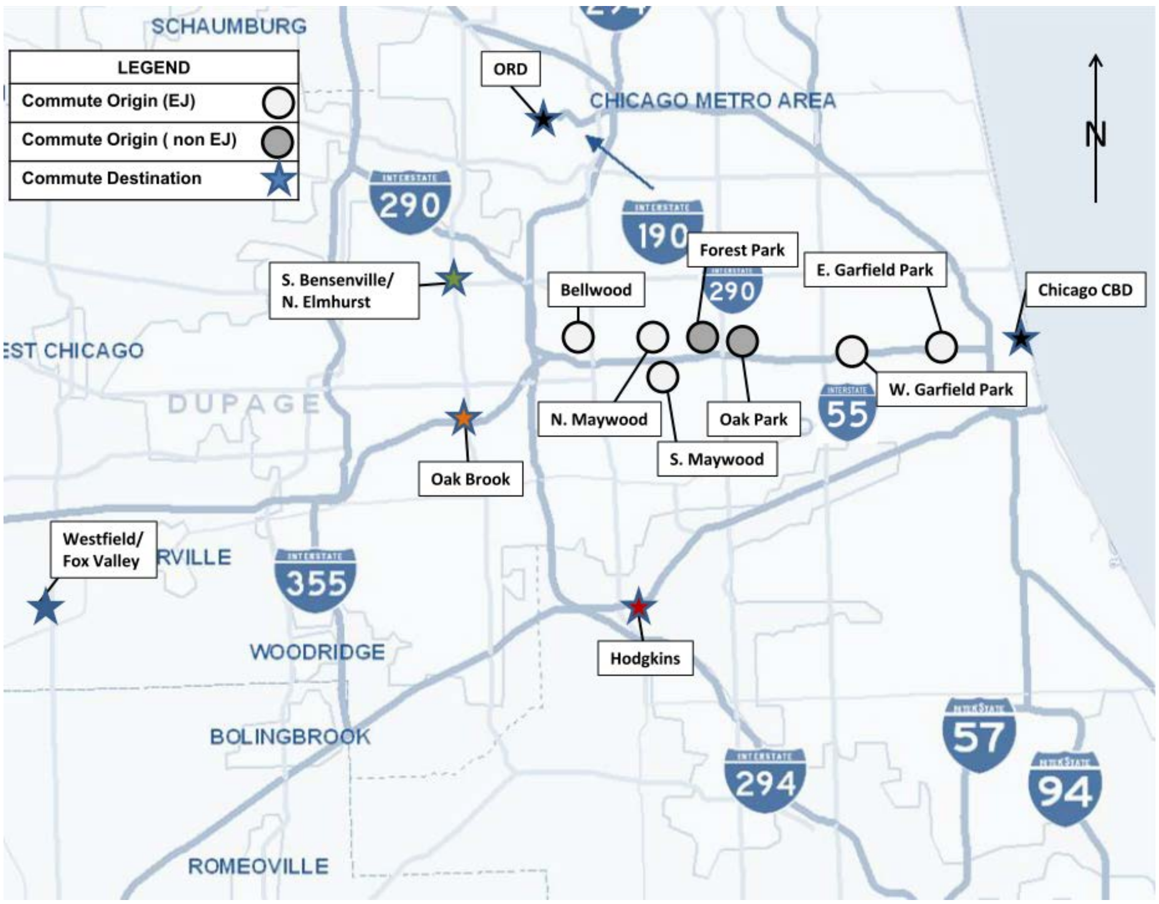
The Project's build alternatives would improve accessibility and mobility to all the communities along the Project Corridor. Detailed analysis was performed using a Travel Demand Model to examine how the build alternatives affect:

- Access to employment centers;
- Transit service, bicycle facilities, pedestrian facilities;
- Access to and from the highway between 25th and 1st avenues (where the access changes take place); and
- Localized traffic on the neighborhood arterial system.
- Access to Employment Centers

All of the build alternatives offer increases in average travel speed on I-290 through the length of the Project Corridor in the AM and PM Peak periods when compared to the 2040 No Build Alternative. The improved speeds on the expressway relative to the 2040 No Build Alternative would be a benefit to EJ populations, since they would be able to travel to and from their destinations more quickly.

An additional analysis of access to employment centers was completed by comparing travel times from different origin and destination (O/D) pairs in the Study Area for all the build alternatives (Figure 3-45 shows the origin and employment destination locations). For this analysis, the study's travel demand model was used. Trips were estimated for communities with high EJ populations, as well as communities with a low EJ component (referred to as "EJ" and "non-EJ" for the purposes of this analysis). Table 3-21 shows the average job commute time savings for five EJ communities and two non-EJ communities for each build alternative, as compared to the 2040 No Build Alternative.

Figure 3-45. Origins and Job Destinations for EJ and non-EJ Communities



Source: WSP Parsons Brinckerhoff, 2015

Table 3-21. Job Accessibility Travel Time Comparison between No Build and Build Alternatives (Average of Six Job Destinations)

Origin Community	2040 No Build Travel Time (min.)	Travel Time Difference per Build Alternative (min.)			
		GP Lane	HOV 2+	HOT 3+	HOT 3+ & TOLL
EJ Communities					
E. Garfield Park (GP Lanes)	52	-2	-2	-2	-8
E. Garfield Park (Managed Lanes)	--	--	- 9	-10	-8
W. Garfield Park (GP Lanes)	51	-3	-2	-2	-7
W. Garfield Park (Managed Lanes)	--	--	- 8	-8	-8
N. Maywood (GP Lanes)	37	-1	-1	-1	-2
N. Maywood (Managed Lanes)	--	--	- 4	-4	-3
S. Maywood (GP Lanes)	35	-1	-1	-1	-3
S. Maywood (Managed Lanes)	--	--	- 2	-2	-1
Bellwood (GP Lanes)	34	-2	0	-1	-9
Bellwood (Managed Lanes)	--	--	-8	-8	-9
Non-EJ Communities					
Oak Park (GP Lanes)	45	-2	-2	-2	-4
Oak Park (Managed Lanes)	--	--	- 5	-5	-6
Forest Park (GP Lanes)	40	-2	-2	-2	-4
Forest Park (Managed Lanes)	--	--	- 5	-5	-6

Source: WSP Parsons Brinckerhoff, 2015
Notes: Only one job destination (Chicago CBD) was studied for Bellwood because of the village's location at the western end of the I-290 Study Area; six job destinations were studied for all other communities. For the HOT 3+ & TOLL Alternative, "GP Lanes" refers to the tolled, non-High Occupancy lanes.

Summary

For both the eastbound and westbound commuting trips, the build alternatives will offer travel time savings to all the EJ communities. For eastbound commuting trips to the Chicago CBD, the build alternatives would generally offer more travel time savings for the EJ communities located farthest from the CBD (North and South Maywood and Bellwood), as compared to the nearby EJ communities of East and West Garfield Park. For the non-EJ communities of Forest Park and Oak Park, similar patterns are evident for trips to the CBD.

For westbound commuting trips (or reverse commute) to suburban employment cluster locations, the build alternatives would generally offer more travel time savings for the EJ communities located farthest from the suburban employment clusters (East and West

Garfield Park), as compared to the nearer EJ communities of North and South Maywood. For the non-EJ communities of Forest Park and Oak Park, similar patterns are evident for trips to the suburban employment cluster locations. As both Oak Park and Forest Park are located toward the center of the Project Corridor, little difference in performance would be expected in the westward direction among the two communities.

The managed lanes of the HOV 2+, HOT 3+, and HOT 3+ & TOLL alternatives generally offer the greatest commuting time savings to all users, including the EJ communities, while general purpose lanes of all alternatives offer more modest time savings. In some isolated cases from a community to a particular job location, the general purpose lanes offer unchanged or slightly longer commuting times, compared to the No Build Alternative. The tolled lanes of the HOT 3+ & TOLL Alternative also have relatively high time savings as compared to the No Build Alternative. It is noted that the HOT 3+ & TOLL Alternative is the most restrictive alternative with a requirement of three or more occupants to qualify for toll-free access to I-290, which could be a deterrent to low-income use for users who could not afford the toll or meet the HOV ridership criteria. The other managed lane alternatives offer three free, unrestricted lanes, and a fourth lane that can be accessed with no toll for vehicles meeting the occupancy requirements of two to three persons.

Overall, the commute travel times did not indicate a disproportionate impact to EJ communities, as all communities received travel benefits from the build alternatives. Refer to the "Tolling" discussion later on the potential effects of toll costs on EJ populations.

Transit, Bike, and Pedestrian Changes

As mentioned previously, the four build alternatives all include reconstruction of I-290 from just east of Cicero Avenue to the I-88 interchange, which would include the reconstruction of all overpasses (both roadway and pedestrian), except for Mannheim Road and Westchester Boulevard. The reconstruction of the overpasses would incorporate IDOT and local community provisions (which will be determined as the design progresses), Complete Streets policies, and wider sidewalks and bicycle facilities as part of any improvement. The proposed overpass improvements included in all four build alternatives would benefit access to the following existing CTA Forest Park Branch stations:

- Cicero Station – Bus transfers from two CTA routes occur at this station;
- Austin Station – Both Pace Bus and CTA have bus routes and Blue Line transfers on Austin Boulevard;
- Oak Park Station – Pace Bus operates along Oak Park Avenue with transfers at the Blue Line station;
- Harlem Station – Pace Bus operates along Harlem Avenue with transfers at the Blue Line station; and

- Forest Park Station – Pace Bus operations include both local and express bus transfers at the Forest Park CTA Blue Line terminal.

These stations, with the exception of the Oak Park station, all serve EJ communities in the Project Corridor.

Transit travel time improvements would also result from the build alternatives. For the GP Lane Alternative, buses on the shoulders of I-290 are proposed west of the Forest Park station. For the HOV 2+, HOT 3+, and HOT 3+ & Toll Alternatives, express buses would use the managed lane on I-290 west of the Forest Park station. These express bus services would see greater reliability and travel time improvements using the shoulder/managed lane.

All proposed improvements to I-290 would be designed in consideration of pedestrian and bicycle users for the communities within the Project Corridor. None of the pedestrian and bicycle improvements would adversely affect EJ communities. They would result in improved mobility across I-290 at the interchange connecting points, and in accessibility to adjacent arterials. Appropriate safety and ADA features would be applied uniformly based on established design guidelines.

The project's design would include improved bicycle access, and improved bike- and pedestrian-only crossings. In addition, a new east-west multi-use path would be provided between DesPlaines Avenue and Austin Boulevard (a distance of approximately 2 miles), providing an additional non-motorized travel option separated from vehicular traffic, and providing a transportation link to EJ communities located to the east and west of the path termini. Bicycle access would be incorporated into the project's design, consistent with Complete Streets guidance or other standards that may apply. As such, that future design conditions of existing cross streets would not preclude bicycle use at a later time should the affected community choose to accommodate future use.

Relating to pedestrian facilities, all sidewalks on cross-streets over I-290 are proposed to be 7 to 13 feet wide depending on the location, which is consistent with IDOT's Complete Streets guidance in the Bureau of Design and Environment (BDE) Manual (2010).

Access to/from the Highway
Access to and from the highway is improved by the build alternatives due to proposed improvements at each of the highway interchanges. Improved geometry, additional turning lanes, and improved signal timing all work to improve highway access to and from the communities for the interchanges in the Reconstruction Section.

Arterial Traffic
As previously presented in Section 3.1.8.2, Impact to Transportation, overall Project Corridor arterial travel performance of the build alternatives as compared to the 2040 No Build Alternative shows that the HOT 3+ & TOLL Alternative is expected to attract more traffic and increase congestion, with higher vehicle miles and hours of travel as

compared to the No Build Alternative. This is due to diversion of I-290 traffic to the arterial system from tolling all lanes on I-290. The other three build alternatives have improved arterial performance as compared to the 2040 No Build Alternative.

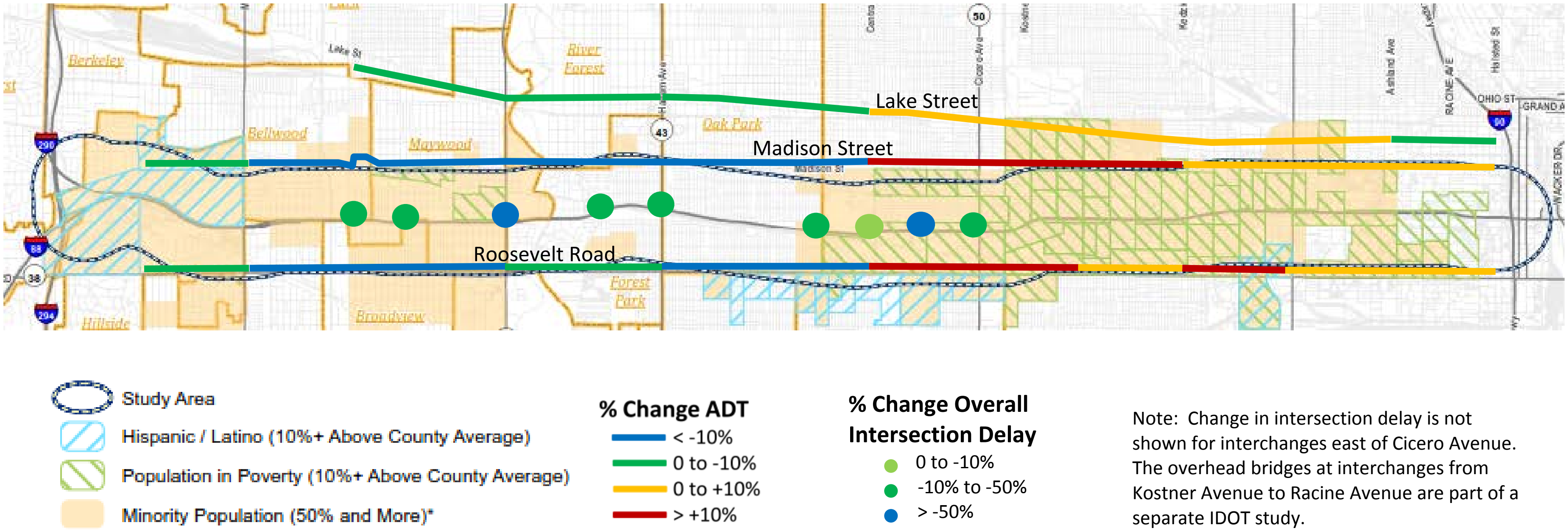
An analysis of the changes to arterial system performance relative to the geographic location of the EJ communities was performed. The forecasted change in 2040 east-west arterial ADT for each build alternative, relative to the No Build Alternative, is an indication of benefit for moving traffic from the arterial roadways back to I-290. In some cases, this improved mobility attracts growth in population and jobs, which provide economic benefit, but can also bring new traffic demand. For example, east of Cicero Avenue, there is an increase in forecasted Study Area population of 1,502 people and 417 jobs in the build scenario, but also a corresponding slight increase in arterial traffic (Figure 3-46 through Figure 3-49 below).

The forecasted change in arterial roadway traffic between the build and no build was overlaid on the mapped Project Corridor minority and low-income EJ communities (shown previously in Figure 3-41 through Figure 3-44). In addition, projected north-south arterial performance was examined based on the percent change in overall intersection delay at proposed new I-290 interchange configurations compared to the No Build Alternative. This was also overlaid on the Project Corridor minority and low income EJ community mapping. Figure 3-46 through Figure 3-49 show the results of the arterial performance for each of the four build alternatives.

Decrease Traffic on Local Streets

Reducing congestion on nearby east-west streets is a positive benefit of the I-290 project. As discussed on the next four pages, many vehicles currently use local, east-west streets (e.g. Madison Street, Roosevelt Road) to avoid the I-290 congestion. Because the project will relieve congestion on I-290, many of those vehicles that currently congest the local streets, would in the future travel on the expressway instead of the local east-west streets.

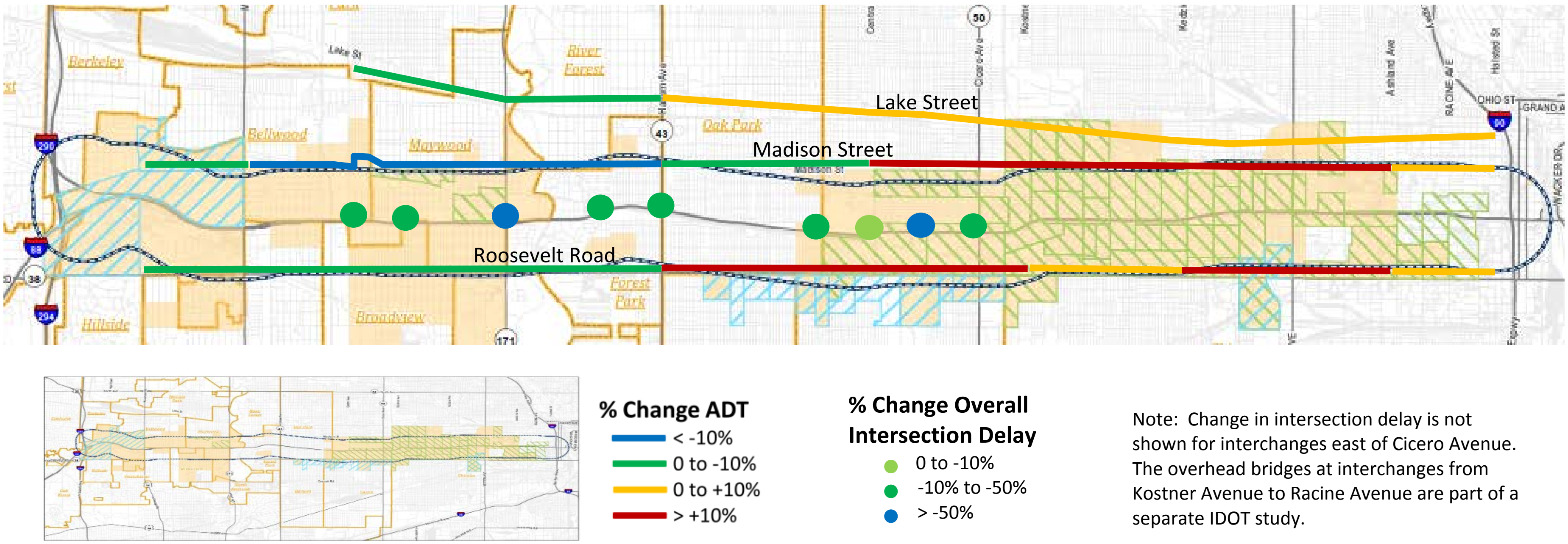
Figure 3-46. GP Lane Alternative Projected East-West Arterial ADT Change and North-South Arterial Intersection Delay Change at I-290 Interchanges Compared to the No Build Alternative and EJ Communities



Source: WSP Parsons Brinckerhoff, 2015

For the GP Lane Alternative, east-west arterial ADT on Madison Street and Roosevelt Road decreases through EJ communities in Bellwood, Westchester, Broadview, Maywood, Forest Park and Oak Park west of Central Avenue as compared to the No Build Alternative. However, ADT for both streets (as well as Lake Street) increases east of Central Avenue through EJ communities in Chicago, except for the section of Lake Street from Ashland Avenue to Racine Avenue where it decreases in comparison to the No Build Alternative. All intersections at the seven proposed reconstructed interchanges in or adjacent to EJ communities (25th Avenue, 17th Avenue, 1st Avenue, Austin Boulevard, Central Avenue, Laramie Avenue, and Cicero Avenue) are projected to have reduced intersection delay time, with 1st Avenue and Laramie Avenue having the highest percentage delay decrease as compared to the No Build Alternative.

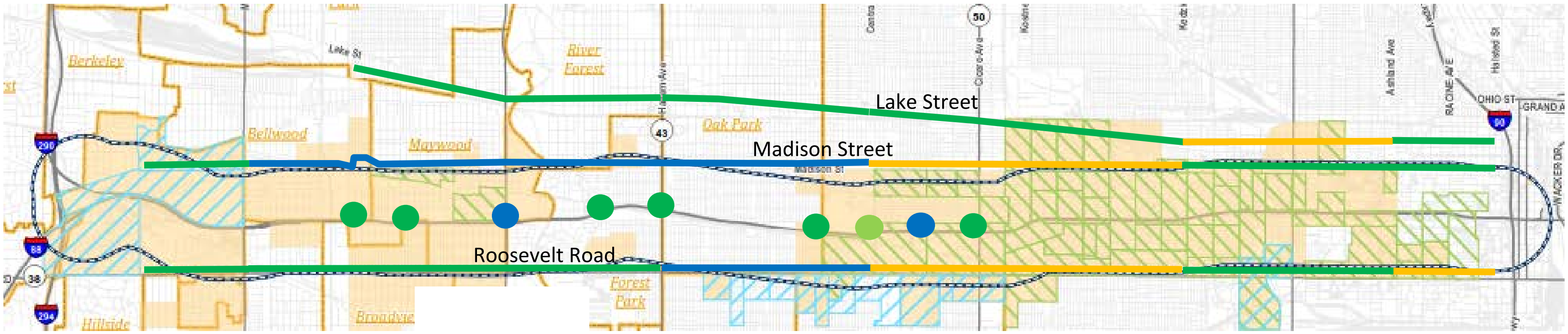
Figure 3-47. HOV 2+ Alternative Projected East-West Arterial ADT Change and North-South Arterial Intersection Delay Change at I-290 Interchanges Compared to the No Build Alternative and EJ Communities

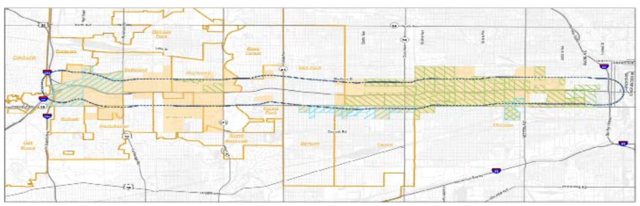


Source: WSP Parsons Brinckerhoff, 2015

For the HOV 2+ Alternative, east-west arterial ADT on Madison Street and Roosevelt Road decreases through EJ communities in Bellwood, Westchester, Broadview, Maywood, and Forest Park, west of Harlem Avenue, as compared to the No Build Alternative. However, ADT on both streets (as well as Lake Street) increases east of Harlem Avenue through EJ communities in Oak Park and Chicago, except for the section of Madison Street from Harlem Avenue to Central Avenue where it decreases, as compared to the No Build Alternative. All intersections at the seven proposed reconstructed interchanges in or adjacent to EJ communities (25th Avenue, 17th Avenue, 1st Avenue, Austin Boulevard, Central Avenue, Laramie Avenue, and Cicero Avenue) are projected to have reduced intersection delay time, with 1st Avenue and Laramie Avenue having the highest percentage delay decrease as compared to the No Build Alternative.

Figure 3-48. HOT 3+ Alternative Projected East-West Arterial ADT Change and North-South Arterial Intersection Delay Change at I-290 Interchanges Compared to the No Build Alternative and EJ Communities





% Change ADT
- < -10%
- 0 to -10%
- 0 to +10%
- > +10%

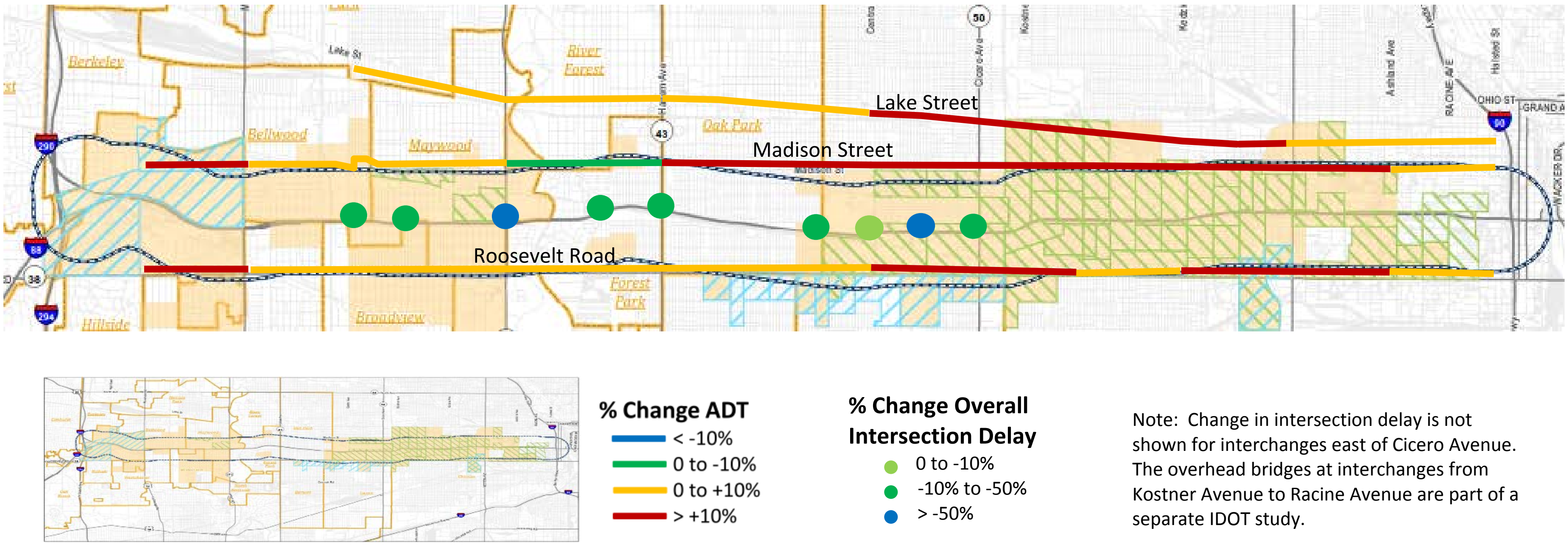
% Change Overall Intersection Delay
- 0 to -10%
- -10% to -50%
- > -50%

Note: Change in intersection delay is not shown for interchanges east of Cicero Avenue. The overhead bridges at interchanges from Kostner Avenue to Racine Avenue are part of a separate IDOT study.

Source: WSP Parsons Brinckerhoff, 2015

For the HOT 3+ Alternative, east-west arterial ADT on Madison Street and Roosevelt Road decreases through EJ communities in Bellwood, Westchester, Broadview, Maywood, Forest Park, and Oak Park, west of Central Avenue, as compared to the No Build Alternative. East of Central Avenue, ADT on both streets (as well as Lake Street) continues to decrease through EJ communities in Chicago, except for the sections of Lake Street from Kedzie Avenue to Ashland Avenue, Madison Street from Central Avenue to Kedzie Avenue, and Roosevelt Road from Central Avenue to Kedzie Avenue and Ashland Avenue to Halsted Street, where it increases as compared to the No Build Alternative. All intersections at the seven proposed reconstructed interchanges in or adjacent to EJ communities (25th Avenue, 17th Avenue, 1st Avenue, Austin Boulevard, Central Avenue, Laramie Avenue, and Cicero Avenue) are projected to have reduced intersection delay time, with 1st Avenue and Laramie Avenue having the highest percentage delay decrease as compared to the No Build Alternative.

Figure 3-49. HOT 3+ & TOLL Alternative Projected East-West Arterial ADT Change and North-South Arterial Intersection Delay Change at I-290 Interchanges Compared to the No Build Alternative and EJ Communities



Source: WSP Parsons Brinckerhoff, 2015

For the HOT 3+ & TOLL Alternative, east-west arterial ADT on Madison Street, Roosevelt Road and Lake Street increases through EJ communities in Bellwood, Westchester, Broadview, Maywood, Forest Park, Oak Park and Chicago throughout the Study Area compared to the No Build Alternative, with the exception being Madison Street between 1st Avenue and Harlem Avenue where it decreases as compared to the No Build Alternative. All intersections at the seven proposed reconstructed interchanges in or adjacent to EJ communities (25th Avenue, 17th Avenue, 1st Avenue, Austin Boulevard, Central Avenue, Laramie Avenue, and Cicero Avenue) are projected to have reduced intersection delay time, with 1st Avenue and Laramie Avenue having the highest percentage delay decrease as compared to the No Build Alternative.

Safety
A quantitative safety analysis was performed on the No Build Alternative and the four build alternatives. Expressway, arterial, and overall (auto and transit modes) safety performance was predicted, and used to identify any disproportionate impacts to EJ populations. Of the four build alternatives, the HOV 2+ and HOT 3+ Alternatives are projected to provide the greatest projected crash reduction from the 2040 No Build Alternative at -6.44 percent and -6.21 percent respectively, while the GP Lane and HOT 3+ & TOLL Alternatives provide the least overall crash reduction at -4.86 percent and -4.65 percent respectively. All of the build alternatives provide safety benefits over the No Build Alterative.

Tolling
A consideration for potential low-income users is the increased cost of using the tolled lanes of the HOT 3+ and HOT 3+ & Toll Alternatives. For purposes of estimating toll cost, passenger car rates of $0.20/mile in the AM and PM peak periods, $0.16/mile in the "shoulder" periods (just before and after the peak periods) and $0.12/mile in mid-day and overnight periods were used in the model. These toll rates apply to the HOT lane in the HOT 3+ Alternative and the HOT 3+ & Toll Alternative. For the regular tolled lanes in the HOT 3+ & Toll Alternative, a constant rate of $0.12/mile was modeled. Table 3-22 shows the typical cost of using the build alternatives on a 13 mile trip through the length of the Project Corridor from Wolf Road to Ashland Avenue.

Table 3-22. Estimated Toll Cost per Build Alternative (Wolf Road to Ashland Avenue)

Time Period	GP All Lanes	HOV 2+ All Lanes	HOT 3+ GP Lanes	HOT 3+ Toll Lane*	HOT3+/Toll Toll Lanes	HOT 3+/Toll HOT Lane*
Peak	$0.00	$0.00	$0.00	$2.60	$1.56	$2.60
Shoulder	$0.00	$0.00	$0.00	$2.08	$1.56	$2.08
Off-Peak	$0.00	$0.00	$0.00	$1.56	$1.56	$1.56

Source: WSP Parsons Brinckerhoff, 2015
* Vehicles with 3 or more occupants do not pay tolls.

It is noted that for all alternatives except the HOT 3+ & TOLL Alternative, there would be a minimum of three "free" non-tolled lanes in each direction that would also not require a minimum number of vehicle occupants. The GP Lane Alternative has four free lanes in each direction, while the HOV 2+ and HOT 3+ Alternatives have three free lanes in each direction. Figure 3-50 and Figure 3-51 show the free and managed lanes of the HOT 3+ and HOT 3+ & TOLL Alternatives, respectively.

Figure 3-50. Free General Purpose Lanes and HOT 3+ Lanes in HOT 3+ Alternative

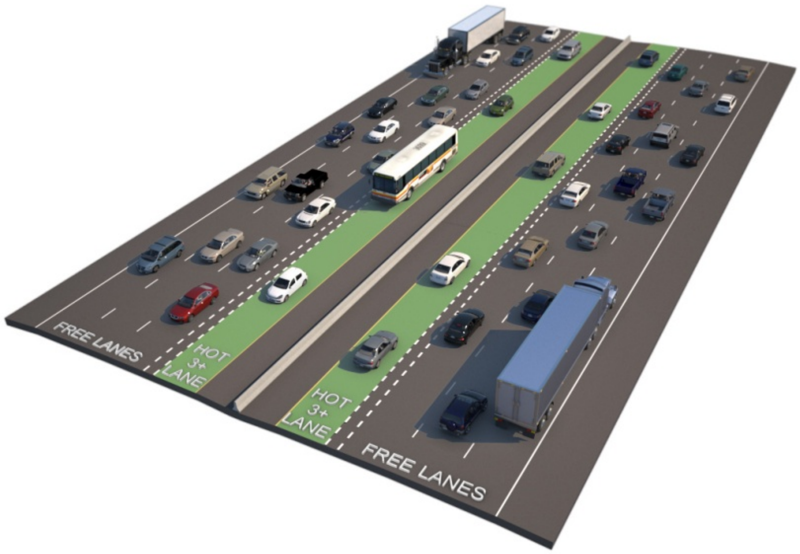
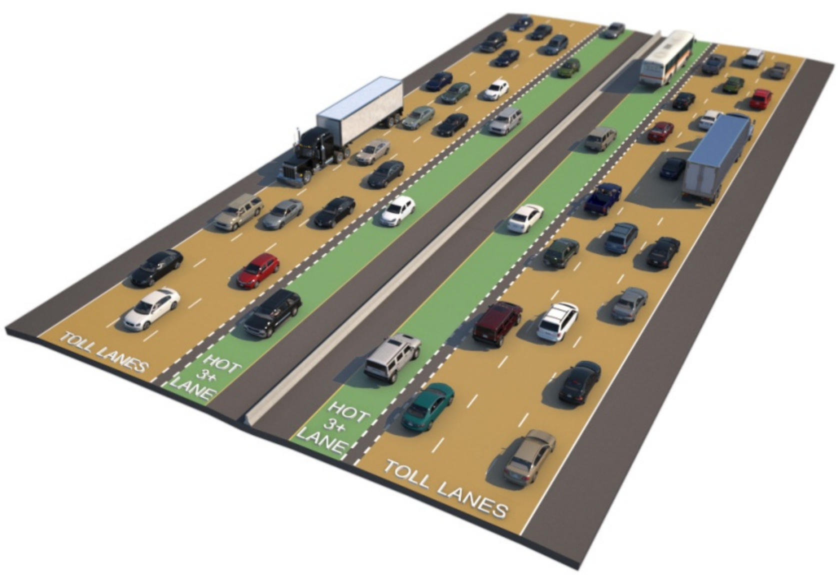


Figure 3-51. Tolled General Purpose Lanes and HOT 3+ Lanes in HOT 3+ & TOLL Alternative



Travel in the HOT lane for single occupancy vehicles (SOVs) would require payment; there is growing research examining effects to low-income populations for reference.

- Public outreach initiated in Washington State on income equity found that the choice to use the SR 167 HOT lanes was not based on income levels, or ability to pay the toll. Persons interviewed by Washington State Department of Transportation (WSDOT) in the low-income focus groups specifically stated they would use the HOT lane if it provided them a shorter travel time, a reliable travel time, and was fairly priced and enforced.[24]

- A survey conducted for the I-15 FasTrak HOT lanes in San Diego showed support for FasTrak was high across all income groups, with the lowest income group expressing as much support as the highest income group (about 80 percent). The survey found that most I-15 users believed the project to be fair to travelers in both the main lanes and the express lanes. Also, the survey showed there were very few differences in attitudes about the fairness of the lanes based on ethnicity or income.[25]

- Public outreach for the implementation of I-25/US-36 HOT lanes in Denver did not uncover critical concerns regarding equity or other social impacts, nor have such concerns arisen since implementation.[26]

- In Minneapolis, surveys have found that all income groups value time savings and reliability for certain trips. Worsening congestion and a shortage of transportation funds were also important to HOT lane usage. Surveys of corridor users found a relatively small difference in income between those who do, and those who do not own transponders.[27]

- Studies suggest that some low-income families choose to pay for HOT lanes to get to work on time, to keep childcare costs down, and to make appointments on time without taking as much leave from work.[28]

Potential remedial strategies for addressing greater access by low-income users to the full range of mobility options of the HOT 3+ or HOT 3+ & Toll Alternatives include increased promotion of carpooling or vanpooling to job centers from areas of low-income populations, or a toll subsidy program for low-income households. As an example, Los Angeles County has implemented an Equity Program that provides a monthly toll credit to qualifying low-income households.[29]

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[24] WSDOT, http://www.wsdot.wa.gov/NR/rdonlyres/9B439F74-7CB2-46BB-A669-7684D31BDCA6/0/EJ_HotLanesPilotProjectfinal.pdf
[25] FHWA, https://www.fhwa.dot.gov/environment/environmental_justice/resources/guidebook/guidebook04.cfm
[26] FHWA, http://media.metro.net/projects_studies/expresslanes/images/fhwahop08040.pdf
[27] FHWA, http://media.metro.net/projects_studies/expresslanes/images/fhwahop08040.pdf
[28] WSDOT, http://www.wsdot.wa.gov/NR/rdonlyres/9B439F74-7CB2-46BB-A669-7684D31BDCA6/0/EJ_HotLanesPilotProjectfinal.pdf
[29] See https://www.metroexpresslanes.net/en/faq/general.shtml

Environmental Effects

Air Quality
The build alternatives would result in an overall improvement to air quality as compared to the No Build Alternative; therefore, no disproportionate air quality impacts to EJ populations are anticipated (Section 3.3, Air Quality for full discussion).

Noise
Sensitive noise receptors, such as schools and residences, within the Project Corridor with noise impacts will be considered for noise walls to mitigate for noise impacts (Section 3.4, Noise for full discussion).

Social and Economic Effects

The social and economic effects of the proposed build alternatives are summarized below. No disproportionate impacts to EJ populations are anticipated in regards to effects related to any of the below social and economic effects.

- Displacements- The build alternatives are not expected to result in any residential or business relocations (Section 3.1.1, Population Characteristics for full discussion).

- Community Cohesion and Community Changes – The build alternatives will improve upon the existing design of the I-290 facility, enhance community connectivity by improving access for all users across the highway, and by improving roadway, pedestrian, bicycle, and transit connections. Noise walls will be included as part of this project, and can improve the community by reducing noise; however, they can also block sight lines that previously existed. For example, residents of some communities that are now able to see across the I-290 corridor would not be able to in the future due to the presence of noise walls. In addition, the use of non-traditional materials such as acrylic, see-through walls will be investigated and coordinated during Phase II design with the various communities that are eligible for noise abatement.

- Population, Economic, and Employment – The build alternatives will result in minor increases in population and employment in the Study Area based on the I-290 socio-economic forecasts. The build alternatives will also result in increased productivity due to travel time savings ranging from $92 million to $203 million annually in 2040.

- Land Use - The build alternatives are not expected to result in changes to land use (Section 3.1.1, Population Characteristics for full discussion).

- Public Services and Utilities - The build alternatives are not expected to result in impacts to public services and utilities. Improvements to interchange performance and travel times with all the alternatives will improve emergency access to many areas. In Maywood, there would be drainage improvements that will help limit future flooding (Section 3.9.2.2, Local Community Coordination, for full discussion).

- Economics – The build alternatives would all result in long-term benefits associated with improved access to and from the highway (Section 3.1.2.5, Economic Impacts for full discussion).

Parks

The build alternatives will not adversely affect Section 4(f) resources present in the Project Corridor; therefore, no disproportionate park impacts to EJ populations are anticipated (Section 3.12, Special Lands for full discussion).

Visual

The Project would work to create a consistent corridor aesthetic and will present an opportunity to work with each of the communities in the Project Corridor to develop a plan that identifies pedestrian and aesthetic features that will enhance each crossroad as a community asset. Noise walls would be an element in the project, as described in Section 3.4. The design of potential noise barriers will be coordinated with the local communities to achieve the desired character and aesthetic. The build alternatives are not expected impact visual resources; therefore, no disproportionate impacts to EJ populations are anticipated (Section 3.13, Visual Resources for full discussion).

Cultural Resources

The build alternatives are not expected to result in impacts to cultural resources; therefore, no disproportionate impacts to EJ populations are anticipated (Section 3.2, Cultural Resources for full discussion).

Construction

The build alternatives would result in short-term construction impacts to the adjacent communities. These impacts would last the length of construction and would be equitably spread along the Project Corridor. Construction could potentially cause reroutes to CTA stations and other short term impacts.

As shown in Figure 3-52, a series of off-system arterial improvements and the proposed I-55 Express Toll Lanes are proposed to help alleviate the short-term construction impacts by providing arterial and expressway relief routes to partially offset the reduction of I-290 expressway capacity during construction. Since these improvements will occur in all communities along the corridor; therefore, no disproportionately high and adverse impacts to EJ populations are anticipated (Section 3.14, Construction Impacts for full discussion).

Figure 3-52. Off-System Improvements

Benefits to Environmental Justice Communities

The overarching EJ principle is to prevent the denial of, reduction in, or considerable delay in the receipt of benefits by minority and low-income populations. The following points below describe how the project would adhere to this principle:

- All of the build alternatives offer increases in average travel speed on I-290 through the length of the Project Corridor in the AM and PM Peak periods when compared to the 2040 No Build Alternative. For the alternatives that include GP Lanes, the GP travel times are improved over the No Build Alternative.

- For the alternatives that include a HOT lane, this lane will be accessible for no toll to carpools with three or more occupants, thereby providing a low cost travel option to low-income users.

- The project will include off-system improvements to the nearby arterial road system (Figure 3-52) to improve travel for people who live in communities adjacent to the Project Corridor. These improvements will enhance travel through the EJ communities that currently abut I-290.

- Sidewalk widths on the streets that cross over I-290 will be improved from their existing widths. This will improve pedestrian connectivity for all the communities adjacent to the Project Corridor.

- As discussed previously in Section 3.1.2, Corridor Economic Characteristics, all alternatives provide new green space between 1st Avenue and 25th Avenue.

- The changes in access between 1st and 25th Avenues will be offset by improved interchange designs at these streets, which will prevent cut-through traffic and reduce queue lengths for north-south travelers on these arterials.
- The Project will give the opportunity to work with communities on a plan that identifies pedestrian and aesthetic features that will enhance each crossroad as a community asset.

3.1.9.5 Environmental Justice Summary

In summary, there are minority and low-income EJ Populations in the Study Area. The project was examined to identify any disproportionately high and adverse human effects on these populations, to ensure that participation in the transportation decision-making process was full and fair, and to ensure that project benefits would be received by EJ communities in an equitable and timely manner.

To measure the effects, access to employment, non-motorized transportation and transit access to and from I-290 between 1st and 25th Avenues, and traffic effects on neighborhood arterials were examined from a transportation standpoint. Also, social and environmental factors such as community changes, noise, air quality, and historic properties were examined for disparate impacts between the EJ and non-EJ communities served by the project. The public involvement/community outreach efforts were identified, both as to location, frequency, and method of delivery.

No substantial differences in transportation access were found with any of the build alternatives with respect to EJ communities, as compared to non-EJ communities, and all build alternatives had benefits in job accessibility and non-motorized and transit access for EJ communities that were similar to non-EJ communities. Of the build alternatives, the HOT 3+ & TOLL Alternative is expected to attract more traffic and increase congestion on the Study Area arterial system as compared to the No Build Alternative, while the other three build alternatives showed positive effects. Environmental effects such as those to air, noise, and social and economic resources (including construction impacts) were similar for both EJ and non-EJ communities, and no residences or businesses in either EJ or non-EJ communities are proposed to be displaced by any of the build alternatives. Public involvement was encouraged by the participation of representatives of EJ communities in the project's CAG study group, as well as traditional and non-traditional means of engaging the public in participation at public and community meetings. Though there will be impacts (noise and construction impacts in particular) to EJ and non-EJ communities along the Study Area, upon implementation of the planned mitigation, as described in this EIS, and coordinated with each community, the impacts will not be disproportionately high and adverse to EJ communities.

3.2 Cultural Resources

This section discusses the presence of cultural resources, which include historic and archaeological resources, within the Area of Potential Effects (APE) for the Project Corridor (APE defined in Section 3.2.2.1 below).

Because FHWA may provide funding for the proposed project, the project is considered a federal undertaking and is subject to compliance with the National Historic Preservation Act (NHPA) of 1966, as amended (54 USC 300101 et seq.), and its implementing regulations (36 CFR 800). Specifically, Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. Historic properties are defined in 36 CFR 800.16(l)(1) as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP)." The Section 106 evaluation process requires consultation and coordination with specific parties that have a demonstrated interest in historic properties in the project vicinity. These parties include the Illinois State Historic Preservation Officer (SHPO), local governments, and the public, and may involve tribal governments and parties with expertise regarding local historic properties. The ACHP and other federal agencies, if appropriate, may also be involved in the consultation process.

When a National Historic Landmark (NHL) is located within the APE and would be adversely affected by a project, the federal agency must also comply with Section 110(f) of the NHPA. Section 110(f) requires the agency undertake, to the maximum extent possible, planning and actions to minimize harm to any adversely affected NHL and afford the ACHP an opportunity to comment. The ACHP regulations require that the National Park Service (NPS), an agency of the US Department of the Interior, be notified and invited to participate in the consultation involving NHLs.

Section 4(f) of the US Department of Transportation Act of 1966 also applies to historic properties and is discussed separately in Section 3.12, Special Lands.

3.2.1 Consultation

Per the process outlined in the Section 106 implementing regulations, FHWA, in cooperation with IDOT, identified organizations with an interest in cultural resources in the project vicinity and invited them to participate as consulting parties during the study process. These included the SHPO/Illinois Historic Preservation Agency (IHPA), representatives of municipal and county governments, and cultural resources and historic preservation organizations. Consulting party invitation letters were sent to 24 agencies and organizations; of that, nine accepted consulting party status, including the Chicago Department of Transportation, City of Chicago Historic Preservation District/Commission on Chicago Landmarks, DuPage County, Friends of the Parks, Historical Society of Oak Park and River Forest, Oak Park Conservatory – Park District of Oak Park, Oak Park Township, Village of Hillside, and Village of Oak Park. FHWA also identified federally recognized American Indian tribes with potential interests in the APE. FHWA sought to initiate government-to-government consultation to identify the tribes' interests in the proposed project and to participate as consulting parties in the Section 106 process. Consulting party invitation letters were sent to eight tribal governments. A list of consulting parties and tribal governments who received the consulting parties' invitation letter, their response status, and copies of the respective letters of invitation are included in Appendix E.

Consulting parties can provide comments on eligibility, effects, and mitigation as part of the Section 106 process. Public involvement in the Section 106 process is achieved through the public involvement procedures under NEPA and separate Section 106 consulting parties meetings. Comments received on the Section 106 process after the distribution of the DEIS are addressed in the FEIS. Consulting parties' correspondence and meeting materials are included in Appendix E.

3.2.1.1 Columbus Park Consultation

Columbus Park, located on the north side of the I-290 right-of-way between Austin Boulevard and Central Avenue in the City of Chicago, was listed in the NRHP on May 20, 1991 and designated a NHL on July 31, 2003. It is considered nationally significant as the masterpiece of noted landscape architect Jens Jensen, reflecting the mature expression of his Prairie style philosophies in landscape architecture and programming components. The park was mostly completed by 1920 and originally bound by Lexington Avenue to the south. In 1953, the park's southernmost nine acres were taken for the construction of the I-290 Eisenhower Expressway. The two ridges at the park's south end, which were originally created by Jensen to provide a sense of enclosure at the south end of the park, were not affected by the expressway construction, but the original golf course configuration, softball and baseball fields, and gymnasium building were modified or moved. In the mid-1990s, a bike path was added along the golf course's south end to replicate the park's original circuit drive at the south perimeter.

At the request of the Chicago Park District, specific consideration was given to enhancing bicycle and pedestrian access along Columbus Park's southern boundary between Austin Boulevard and Central Avenue north of I-290 where no connectivity exists presently. This access would connect the proposed shared-use path from DesPlaines Avenue east to Austin Boulevard (proposed as part of each build alternative) with the existing path in the park as described above. Completing this section of the path would then provide continuous non-motorized access between DesPlaines Avenue and Central Avenue.

In correspondence received October 15, 2015, the Chicago Park District concluded that this proposed improvement along with other landscape enhancements would not adversely affect the park, and would provide additional opportunities to contribute to the park's historic integrity. Coordination is ongoing with the Park District and SHPO on the specific design elements of the proposed improvements, with consultation expected to continue into the project's design phase, focusing along the south boundary of Columbus Park. At this location, the Park District would donate at the west end a temporary easement for construction of a short section of paved shared-use path needed to connect the proposed multi-use path at Austin Boulevard to the existing park path. Grading, drainage and select tree plantings are also proposed.

Enhancements are further proposed at the east end to include landscape improvements, such as low earthen berms, drainage improvements, and tree plantings. All of these features would be located within the park along the south boundary, adjacent to the existing I-290 right-of-way in locations to be prescribed and approved by the Park District and SHPO. There are no right-of-way needs from Columbus Park for the proposed I-290 improvements. A discussion of the Section 4(f) implications of these proposed improvements is in Section 3.12, Special Lands.

3.2.1.2 IHPA Meeting and Field Review

On March 30, 2016, FHWA and IDOT held a meeting and field review of the Project Corridor for federal and state agency representatives. Attendees included FHWA, US Environmental Protection Agency (EPA), IHPA, IDOT Bureau of Design and Environment (IDOT-BDE), IDOT District 1, and the Project Team. The purpose of the meeting was to provide a briefing on the status of the study and design development; and to review corridor field conditions focusing on Section 106 properties and environmental justice communities along the Project Corridor. The field visit included stops at many of the historic properties evaluated in the *Section 106 Historic Properties Identification Report* (March 2016). IHPA staff provided informal comments on the NRHP eligibility of select properties, potential additional properties to be evaluated, and potential project effects to historic properties.

3.2.1.3 Consulting Parties Meeting

On August 11, 2016, the Project Team held a meeting with the Section 106 consulting parties to discuss the identification and evaluation of historic properties for the I-290 Study as discussed in the *Section 106 Historic Properties Identification Report* (March 2016) and *Section 106 Historic Properties Identification Addendum Report* (May 2016). The Project Team provided an overview of the Project Corridor and schedule, the Preferred Alternative, and the Section 106 review process and the role of consulting parties in that process. An overview of the identification and evaluation of historic properties and the proposed effects assessment methodology was also provided. Consulting parties' comments and discussion focused on the NRHP eligibility recommendations of individual properties contained in the reports, the process for delineating the APE, and potential effects to historic properties from proposed improvements, including noise walls.

3.2.2 Affected Environment

3.2.2.1 Area of Potential Effects

The APE is defined in 36 CFR 800.16 as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

The APE for the project has been defined to include the I-290 interstate right-of-way, cross streets and railroad crossings with planned improvements, and at least one tax parcel adjacent to the interstate and those cross streets. In some areas, the APE extends greater than one tax parcel to account for vacant parcels and viewshed considerations. The APE boundary and description were submitted to the SHPO for review on December 18, 2015. The SHPO concurred with the APE boundary in a letter dated February 5, 2016. See Appendix E for the APE map set and methodology.

3.2.2.2 Identification of Historic Resources

Within the APE, architectural historians conducted an intensive-level survey of the resources 50 years of age or older that were previously identified by IDOT-BDE cultural resources staff as potentially eligible for inclusion in the NRHP. NRHP-listed properties were also photographed to document their status at the time of review. Additional research was conducted and the NRHP criteria were applied to evaluate the NRHP eligibility of each identified resource. The individual determinations of NRHP eligibility are documented in the *Section 106 Historic Properties Identification Report* (March 2016) and the *Section 106 Historic Properties Identification Addendum Report* (May 2016) in Appendix E.

Within the APE, there is one NHL property, five NRHP-listed resources, and one historic district pending official NRHP designation. There are also two historic properties, including one district, that were previously determined eligible for inclusion in the NRHP within the APE. Table 3-23 provides a list of the nine NRHP-listed and previously determined NRHP-eligible properties within the APE.

Table 3-23. NRHP-Listed and Previously Determined NRHP-Eligible Historic Properties in the APE

Name	Address	NRHP Status	NRHP Criteria[1]	Map Set Sheet No.[2]
Hulbert Historic District	Roughly bounded by Madison and Harrison streets, Clinton and South Kenilworth avenues, Oak Park	Previously Determined Eligible[3]	Eligible under A and C for community planning and subdivision development by Thomas Henry Hulbert, and for its collection of early twentieth-century Queen Anne-style homes and American Foursquare homes with Craftsman and Prairie style influences.	7

Table 3-23. NRHP-Listed and Previously Determined NRHP-Eligible Historic Properties in the APE (continued)

Name	Address	NRHP Status	NRHP Criteria[1]	Map Set Sheet No.[2]
Oak Park Conservatory	615 Garfield Street, Oak Park	Listed	Listed under A and C for association with the park movement in Oak Park as a locally significant example of glass and steel greenhouse design and as a significant example of greenhouse design in Illinois.	8
Paulina Mansions	901-927 Wesley Avenue and 701-711 Garfield Street, Oak Park	Previously Determined Eligible	Eligible under C as example of early twentieth-century Tudor Revival-style, S-shaped courtyard apartment building in Oak Park.	8
Gunderson Historic District	Roughly bounded by Madison Street, Harrison Street, Gunderson Street, and South Ridgeland Avenue, Oak Park	Listed	Listed under A and C for association with community planning and subdivision development efforts undertaken by S.T. Gunderson and Sons firm, and for its uniformly designed collection of early twentieth-century American Foursquare homes with Colonial Revival, Craftsman, and Prairie style influences.	8
Columbus Park	500 South Central Avenue, Chicago	National Historic Landmark	Listed under A and C for association with social and recreational history, and as the masterpiece of Jens Jensen, reflecting the mature expression of his Prairie style philosophies in landscape architecture and programming components. Also meets NHL Criteria 4 as an exceptionally important work of design.	9

Table 3-23. NRHP-Listed and Previously Determined NRHP-Eligible Historic Properties in the APE (continued)

Name	Address	NRHP Status	NRHP Criteria[1]	Map Set Sheet No.[2]
Garfield Park	100 North Central Park Avenue, Chicago	Listed	Listed under A and C for association as one of three original parks of the West Park Commission that continually accommodated changing recreational and cultural needs of community, and for its significant landscape design and architectural history by William Le Baron Jenney, Oscar F. Dubuis, and Jens Jensen.	12
The Chicago Park Boulevard System Historic District	Approximately 26 miles of parks and boulevards from the southeast part of Chicago at Dr. Martin Luther King, Jr. Drive, west, north, and back east, to the eastern end of Logan Boulevard. The system consists of eight parks, 19 boulevards, and six squares, Chicago.	Pending Official Designation	Eligible under A and C for association with community planning and development as the first major comprehensive designed system in the country and creation of Chicago's neighborhoods in the late nineteenth century. Also for its examples of high quality late nineteenth and early twentieth-century architecture along the boulevards and associated parks.	12
Tri-Taylor Historic District	Roughly and irregularly bounded by Oakley, Harrison, and Claremont streets on the north and Taylor and Oakley streets on the southeast, Chicago	Listed	Listed under A and C for association with immigrant-developed neighborhoods on the Near West Side after the 1871 Chicago Fire, and its late nineteenth- and early twentieth-century residential urban architecture.	14

Table 3-23. NRHP-Listed and Previously Determined NRHP-Eligible Historic Properties in the APE (continued)

Name	Address	NRHP Status	NRHP Criteria[1]	Map Set Sheet No.[2]
Cook County Hospital Administration Building	1835 West Harrison Street, Chicago	Listed	Listed under A and C as a Beaux Arts-style hospital administration building associated with the history of medicine, medical education, and public health in Chicago and nationwide.	15

[1] The NRHP Criteria for Evaluation are used to evaluate a property's historic significance. Properties may be NRHP-eligible under Criterion A for association with events that have made a significant contribution to the broad patterns of our history; under Criterion B for association with the lives of persons significant in our past; under Criterion C for embodying the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or under Criterion D for having yielded, or being likely to yield, information important in prehistory or history.

[2] Refer to Section 3.0 Map Set for property locations.

[3] In a letter dated December 6, 2013 from the SHPO to the Village of Oak Park, the Hulbert Historic District was found to be eligible for listing in the NRHP by the SHPO. The SHPO's review of the district's eligibility was requested to support local historic district designation efforts of the district in Oak Park. On October 19, 2015, the Oak Park Village Board of Trustees rejected a proposal to designate the Hulbert Historic District as a local historic district and not to list the district in the NRHP.

As a result of the identification and evaluation efforts, 14 additional historic properties and no historic districts within the APE were determined eligible for inclusion in the NRHP. Table 3-24 provides a list of the NRHP-eligible properties within the APE. These findings were provided to the SHPO/IHPA and Section 106 consulting parties for review and comment. The SHPO/IHPA concurred with these findings in letters dated May 27, 2016 and September 22, 2016. See Appendix E for SHPO/IHPA correspondence and consulting parties' comments.

Table 3-24. NRHP-Eligible Historic Properties in the APE

Name	Address	NRHP Status	NRHP Criteria	Map Set Sheet No.[1]
Synagogue for Congregation B'Nai Israel of Proviso	10216 Kitchner Street, Westchester	Eligible	Eligible under C and Criteria Consideration A as a locally significant example of an Exaggerated Modern parabolic-shaped synagogue.	3
St. Eulalia Church	1851 South 9th Avenue, Maywood	Eligible	Eligible under C and Criteria Consideration A as an excellent example of Neo-Formalism applied to a religious building.	5

Table 3-24. NRHP-Eligible Historic Properties in the APE (continued)

Name	Address	NRHP Status	NRHP Criteria	Map Set Sheet No.[1]
Park District of Forest Park	7441 Harrison Street, Forest Park	Eligible	Eligible under A and C for association with Works Progress Administration and recreation in Forest Park, and its original design form, features, and buildings.	6, 7
841 South Oak Park Avenue	841 South Oak Park Avenue, Oak Park	Eligible	Eligible under C as example of early twentieth-century Beaux Arts-style commercial building in Oak Park.	8
Suburban Trust and Savings Bank Building	840 South Oak Park Avenue, Oak Park	Eligible	Eligible under C as example of early twentieth-century Neoclassical-style bank building in Oak Park.	8
T.A. Holm Building	905 South Oak Park Avenue, Oak Park	Eligible	Eligible under A, B, and C for association with local success of T.A. Holm & Co. Realtors, productive life of T.A. Holm, and as example of early twentieth-century Classical and Art Deco-style, terra cotta-clad commercial building in Oak Park.	8
Maze Branch Library	845 Gunderson Avenue, Oak Park	Eligible	Eligible under A, B, and C for association with post-Depression and New Deal era neighborhood branch libraries construction, association with local librarian Adele H. Maze, and example of Revivalist library architecture by local architect Elmer C. Roberts in Oak Park.	8
Assumption Greek Orthodox Church	601 South Central Avenue, Chicago	Eligible	Eligible under C and Criteria Consideration A as a locally significant example of a Byzantine-style church with Romanesque style elements by local master architect Peter E. Camburas.	9
First Church of the Brethren	425 South Central Park Boulevard, Chicago	Eligible	Eligible under C and Criteria Consideration A as an excellent example of an expert interpretation of Tudor Revival architectural forms and ornament integrated into a religious building.	12

Table 3-24. NRHP-Eligible Historic Properties in the APE (continued)

Name	Address	NRHP Status	NRHP Criteria	Map Set Sheet No.[1]
Altgeld Park Fieldhouse	515 South Washtenaw Avenue, Chicago	Eligible	Eligible under A and C for association with innovative early twentieth century trends in recreation and as example of Classical Revival-style public building constructed for neighborhood park in Chicago.	13
Precious Blood Roman Catholic Church	2401 West Congress Parkway, Chicago	Eligible	Eligible under C and Criteria Considerations A and B as a remarkable and significant example of a purpose-built religious institution intended for worship and education. Collectively, two buildings convey significant design merit.	14
Crane Technical High School	2301 West Jackson Boulevard, Chicago	Eligible	Eligible under A and C for association with trend toward vocational schools in the early twentieth century in Chicago and as an example of Neoclassical-style school architecture.	14
Louis Pasteur Memorial	1800 West Harrison Street, Chicago	Eligible	Eligible under C and Criteria Considerations B and F as a locally significant and only known example of a freestanding Art Deco-style monument designed by prominent sculptor Leon Hermant in Chicago.	15
Chicago & Regional Midwest Joint Board Building	333 South Ashland Avenue, Chicago	Eligible	Eligible under A and C for association with critical growth of unions in 1920s Chicago and as example of Art Deco-style architecture designed by local architect Walter W. Ahlschlager in Chicago.	15

[1] Refer to Section 3.0 Map Set for property locations.

3.2.2.3 *Identification of Archaeological Resources*

The Illinois State Archaeological Survey (ISAS) completed a Phase I Survey Report and identified no previously recorded archaeological sites listed in the NRHP or that have been determined eligible for the NRHP in the proposed project limits of disturbance. No other potentially NRHP-eligible sites have been identified warranting further investigation. Therefore, no archaeological resources are considered present in the proposed project limits of disturbance. In a letter dated May 28, 2015, the SHPO concurred with the "No Archaeological Properties Affected" determination made by IDOT-BDE cultural resources staff. See Appendix E for SHPO and IDOT-BDE correspondence.

3.2.3 Environmental Consequences

3.2.3.1 *Assessing Effects to Historic Properties*

A comprehensive assessment is underway of the project's potential effects to historic properties. After the distribution of the DEIS, the recommended effects findings for individual historic properties and the overall project will be submitted in a report to the SHPO/IHPA and the Section 106 consulting parties for review and comment. A consulting parties meeting will also be held to discuss the effects findings and provide an opportunity for the consulting parties to comment. These effects findings and additional consultation will be summarized and included in the combined FEIS/ROD.

Effects assessments are based on the criteria of adverse effect as defined in 36 CFR 800.5, "Assessment of adverse effects." According to this portion of the Section 106 regulations, an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NHRP in a manner that would diminish the integrity of the property's location, design, materials, workmanship, feeling, or association. Examples of adverse effects include physical destruction of or damage to all or part of the property, alteration of a property not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR 68), change of the property's use or of the physical features within the property's setting that contribute to its historic significance, and introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.

To determine if any historic properties would be affected by the project, project plans and documentation will be reviewed for all NRHP-listed and eligible properties within the APE. Using the criteria of adverse effect established in 36 CFR 800.5(a)(1) and guidance found in *How to Apply the National Register Criteria for Evaluation* (US Department of the Interior, National Park Service, 1997), each historic property will be evaluated to determine if implementation of the project would alter any historically significant characteristics or features of each historic property by diminishing relevant aspects of that property's historic integrity.

For each historic property, a finding will be made regarding the project's potential to affect its aspect of integrity. The findings will correspond to the guidelines set forth in 36

CFR 800 and supported by information on integrity in the National Register Bulletin *How to Apply the National Register Criteria for Evaluation*. If no aspect of integrity for an individual historic property is altered, the finding indicates that the historic property is not affected by the undertaking. If implementation of the project would alter one or more aspects of integrity for an individual historic property, but the effect would not alter a characteristic that qualifies that property for inclusion in the NRHP, then the finding for the property is "No Adverse Effect." If implementation of the project would alter a characteristic that qualifies a property for inclusion in the NRHP in a manner that diminishes the significant aspect(s) of integrity, then the finding for the property would be "Adverse Effect." Indirect and cumulative effects to historic properties will also be considered; such effects may include reasonably foreseeable land use changes.

Effects

No Build Alternative

No effects to historic properties are anticipated with the No Build Alternative, as this alternative would not include modifications to existing infrastructure in the Project Corridor.

Build Alternatives

Due to the similarity of the four build alternatives, with no differences in right-of-way requirements, potential effects to historic properties are anticipated to generally be the same. No direct physical impacts to historic properties are anticipated with any of the build alternatives since the improvements generally fit within existing right-of-way. New right-of-way is only required in smaller amounts and in areas further away from historic properties. Potential effects are anticipated to be minor and generally limited to indirect impacts, which may include traffic noise and changes to historic properties' visual settings.

3.2.3.2 Impacts to Archaeological Resources

There are no archaeological sites located in the proposed project limits of disturbance; therefore, there are no effects to archaeological resources.

3.2.4 Measures to Minimize Harm and Mitigation

FHWA has been and will continue to consult with the SHPO and other consulting parties to develop measures and responsibilities to avoid, minimize, and/or mitigate potential adverse effects to historic properties. Efforts have been made during preliminary design to avoid property impacts and relocations in general. As a result, there are no physical impacts to historic properties.

3.3 Air Quality

The air quality analysis evaluates the potential air quality impacts of the proposed project. This includes an analysis of the proposed project's regional air quality levels; the project's impact on greenhouse gases (GHGs); the mobile source air toxic (MSAT) emissions of the project; whether the project will cause or contribute to a new localized exceedance of carbon monoxide (CO) ambient air quality standards or increase the frequency or severity of any existing exceedance; and the construction emissions associated with the project.

According to this analysis, the build alternatives would have minimal effects on regional criteria pollutant burdens, with changes of less than one percent, as compared to the No Build Alternative. The HOV 2+ Lane Alternative (HOV 2+), HOT 3+ Lane Alternative (HOT 3+) and HOT 3+ Lane and Toll Alternative (HOT 3+ & TOLL) show a slight decrease in all regional criteria pollutants, while the General Purpose Lane Alternative (GP Lane) has a mixed effect on regional criteria pollutants, as compared to the No Build Alternative. The build alternatives also would have minimal effects on GHG emission burdens, with changes of less than a quarter of one percent, as compared to the No Build Alternative. The GP Lane and HOV 2+ show slight increases in GHG emissions, whereas the HOT 3+ and HOT 3+ & TOLL show slight decreases in GHG emissions, as compared to the No Build Alternative. The build alternatives also would have minimal effects on MSAT, with changes of one percent or less, as compared to the No Build Alternative. The build alternatives show a slight decrease in most MSAT except for benzene and diesel PM, as compared to the No Build Alternative. The proposed project is not predicted to cause or exacerbate a violation of the applicable National Ambient Air Quality Standards (NAAQS) with regards to CO.

In 2012, USEPA strengthened the annual fine particle standard to 12 micrograms per cubic meter (μg/m3). Due to insufficient quality assured monitoring data to assess compliance with the 2012 annual fine particle standard, the USEPA designated the entire State of Illinois (including Cook County where the project is located) as unclassifiable for the 2012 annual $PM_{2.5}$ NAAQS.[30] The unclassified designation requires additional monitoring data, resulting in a deferred designation. A microscale $PM_{2.5}$ analysis for the project only is performed if it is located in a designated non-attainment or maintenance area. Although Cook County was designated a maintenance area for the 1997 annual $PM_{2.5}$ NAAQS, that standard was revoked effective October 24, 2016[31]. As such, after the effective date of the revocation, areas that have been redesignated to attainment for the 1997 annual $PM_{2.5}$ NAAQS (i.e., maintenance areas for the 1997 annual $PM_{2.5}$ NAAQS such as Cook County) will not be required to make transportation conformity determinations for the 1997 annual $PM_{2.5}$ NAAQS.

[30] https://www.epa.gov/particle-pollution-designations

[31] https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf

Construction related air quality impacts would be temporary in nature, and would be mitigated in accordance with the Illinois Department of Transportation's provisions on dust control.

3.3.1 Affected Environment

"Air Pollution" is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, and/or reducing human or animal health. Air quality is a term used to describe the amount of air pollution the public is exposed to in the environment.

3.3.1.1 US Environmental Protection Agency

The US Environmental Protection Agency (USEPA) is responsible for establishing the NAAQS and enforcing the Clean Air Act (CAA), and regulates emission sources, such as aircraft, ships, and certain types of locomotives, under the exclusive authority of the Federal government. The USEPA also has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards. For additional information about the USEPA, the reader can contact its general internet address found at http://www.epa.gov. Additional information on the activities of USEPA regarding Transportation and Air Quality can be found at http://www.epa.gov/otaq/index.htm.

3.3.1.2 Clean Air Act Amendments of 1990

The Clean Air Act Amendments of 1990 (CAAA) direct the USEPA to implement environmental policies and regulations that will ensure acceptable levels of air quality. Under the CAAA, a project cannot:

- Cause or contribute to any new violation of any NAAQS in any area;
- Increase the frequency or severity of any existing violation of any NAAQS in any area; or
- Delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in any area.

3.3.1.3 National Ambient Air Quality Standards

As required by the CAA, NAAQS have been established for six major air pollutants. These pollutants are: carbon monoxide, nitrogen dioxide, ozone, particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide, and lead. These standards are summarized in Table 3-25. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation and other aspects of the general welfare. The State of Illinois has adopted these standards as the state standards.

Table 3-25. National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 μg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb (2)	Annual Mean
Ozone (O_3)		primary and secondary	8-hour	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Matter	$PM_{2.5}$	primary	Annual	12 μg/m^3	annual mean, averaged over 3 years
		secondary	Annual	15 μg/m^3	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 μg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 μg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: USEPA Office of Air and Radiation, https://www.epa.gov/criteria-air-pollutants/naaqs-table
(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 μg/m^3 as a calendar quarter average) also remain in effect.
(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.
(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)), A SIP call is a USEPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS.

3.3.1.4 Ambient Air Quality Data

Local Meteorology

The proposed project is located in Cook County and extends approximately thirteen miles centered along I-290 from the I-88 and I-290 split on the west to Racine Avenue on the east. The corridor passes through eight communities: Chicago, Bellwood, Broadview, Forest Park, Hillside, Maywood, Oak Park, and Westchester.

The climate is predominantly continental, ranging from relatively warm in the summer to relatively cold in the winter. However, the continental location is partially modified by Lake Michigan and to a lesser extent by the other Great Lakes.

In late autumn and winter, air masses that are initially very cold often reach the region only after being tempered by passage over one or more of the Great Lakes. Similarly, in late spring and summer, air masses reaching the city from the north, northeast, or east are cooler because of movement over the Great Lakes. Very low winter temperatures most often occur in the air that flows southward to the west of Lake Superior before reaching the area. In summer, the higher temperatures are with south or southwest flow and are therefore not influenced by the lakes. Temperatures of 96 degrees Fahrenheit or higher occur in about half of the summers, while about half of the winters have a minimum of as low as -15 degrees Fahrenheit.

Precipitation falls mostly from air that has passed over the Gulf of Mexico. But in winter there can be snowfall, with Lake Michigan as the principal moisture source. The effect of Lake Michigan, both on winter temperatures and lake-produced snowfall, is enhanced by non-freezing of much of the lake during the winter. Summer thunderstorms are often locally heavy and variable. Longer periods of continuous precipitation are mostly in autumn, winter, and spring. About one-half of the precipitation in the winter, and about ten percent of the annual total precipitation, falls as snow. Snowfall from month to month and year to year is greatly variable.

Local Monitored Air Quality

The monitored information for the monitoring stations near the proposed project is presented in Table 3-26. This table presents the last three years of available monitor data (2013-2015) at each of these stations in order to illustrate the Study Area's general air quality trends. Additional air quality information for the Study Area for Illinois can be found at http://www.idot.illinois.gov/transportation-system/environment/index.

Table 3-26. Summary of Air Quality Monitored Near Study Area

Air Pollutant	Standard/ Exceedance	CTA Building 321 South Franklin (Chicago, IL)			Cook County Trailer 1820 South 51st Avenue (O_3, NO_2) (Cicero, IL) -- Northbrook Water Plant 750 Dundee Road (CO, SO_2, PM, Pb) (Northbrook, IL)			Village Hall 50th Street & Glencoe (PM) (McCook, IL) -- Cermak Pump Station 735 West Harrison (Pb) (Chicago, IL)			Liberty School 13th Street & 50th Avenue ($PM_{2.5}$) (Cicero, IL) -- Cook County Court Complex 1500 Maybrook Drive (Pb) (Maywood, IL)		
		2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Carbon Monoxide (CO)	Max. 1-hour Concentration (ppm)	NM	NM	NM	1.4	1.5	1.3	NM	NM	NM	NM	NM	NM
	Max. 8-hour Concentration (ppm)	NM	NM	NM	0.7	0.9	0.8	NM	NM	NM	NM	NM	NM
	# Days>Federal 1-hour Std. of >35 ppm	NM	NM	NM	0	0	0	NM	NM	NM	NM	NM	NM
	# Days>Federal 8-hour Std. of >9 ppm	NM	NM	NM	0	0	0	NM	NM	NM	NM	NM	NM
Ozone (O_3)	Max. 1-hour Concentration (ppm)	NM	NM	NM	0.076	0.078	0.090	NM	NM	NM	NM	NM	NM
	Max. 8-hour Concentration (ppm)	NM	NM	NM	0.068	0.073	0.077	NM	NM	NM	NM	NM	NM
	# Days>Federal 8-hour Std. Of >0.070 ppm	NM	NM	NM	0	0	1	NM	NM	NM	NM	NM	NM
Nitrogen Dioxide (NO_2)	Max. 1-hour Concentration (ppb)	82	67	84	82	91	75	NM	NM	NM	NM	NM	NM
	Annual Mean (ppb)	20.6	20.6	16.9	18.5	17.3	16.7	NM	NM	NM	NM	NM	NM
Sulfur Dioxide (SO_2)	Max. 1-hour Concentration (ppb)	NM	NM	NM	10.4	27.1	15.6	NM	NM	NM	NM	NM	NM
	# Days>Federal 1-hour Std. of >75 ppb	NM	NM	NM	0	0	0	NM	NM	NM	NM	NM	NM

Table 3-26. Summary of Air Quality Monitored Near Study Area (continued)

Air Pollutant	Standard/ Exceedance	CTA Building 321 South Franklin (Chicago, IL)			Cook County Trailer 1820 South 51st Avenue (O_3, NO_2) (Cicero, IL) -- Northbrook Water Plant 750 Dundee Road (CO, SO_2, PM, Pb) (Northbrook, IL)			Village Hall 50th Street & Glencoe (PM) (McCook, IL) -- Cermak Pump Station 735 West Harrison (Pb) (Chicago, IL)			Liberty School 13th Street & 50th Avenue ($PM_{2.5}$) (Cicero, IL) -- Cook County Court Complex 1500 Maybrook Drive (Pb) (Maywood, IL)		
		2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Suspended Particulates (PM_{10})	Max. 24-hour Concentration (μg/m^3)	NM	NM	NM	30	38	95	71	98	146	NM	NM	NM
	#Days>Fed. 24-hour Std. of>150 μg/m^3	NM	NM	NM	0	0	0	0	0	0	NM	NM	NM
Suspended Particulates ($PM_{2.5}$)	Max. 24-hour Concentration (μg/m^3)	NM	NM	NM	NM	27.2	68.2	NM	28.5	70.3	NM	22.2	117.8
	98th Percentile (μg/m^3)	NM	NM	NM	NM	27	22	NM	25	24	NM	22	30
	Annual Mean (μg/m^3)	NM	NM	NM	NM	10.4*	9.1*	NM	12.1*	11.6*	NM	10.1*	12.5*
Lead	Maximum 24-Hour Concentration (μg/m^3)	NM	NM	NM	0.009	0.013	0.035	0.025	NM	NM	0.042	NM	NM

Source: USEPA. AirData, 2016 (https://www.epa.gov/outdoor-air-quality-data)

*Indicates that the annual mean does not satisfy USEPA's minimum data completeness criteria.

NM = Not measured

3.3.1.5 *Attainment Status*

Section 107 of the 1977 Clean Air Act Amendment requires that the USEPA publish a list of all geographic areas in compliance with the NAAQS, plus those not attaining the NAAQS. Areas not in NAAQS compliance are deemed non-attainment areas. Areas that have insufficient data to make a determination are deemed unclassified, and are treated as being attainment areas until proven otherwise. Maintenance areas are areas that were previously designated as nonattainment for a particular pollutant, but have since demonstrated compliance with the NAAQS for that pollutant. An area's designation is based on the data collected by the state monitoring network on a pollutant-by-pollutant basis.

The proposed project is located in Cook County in Illinois. Table 3-27 shows the current attainment status for the portion of Cook County in which the proposed project is located. As shown in the table, the USEPA has classified the portion of Cook County in which the proposed project is located as a nonattainment area for O_3 and has designated the entire state as unclassifiable for the 2012 annual $PM_{2.5}$ NAAQS.[32] The unclassifiable designation is due to monitoring data validity issues, resulting in deferred designation.

Table 3-27. Project Area Attainment Status

Pollutant	Status
Ozone (O_3)	Nonattainment
Nitrogen Dioxide (NO_2)	Attainment
Carbon Monoxide (CO)	Attainment
Particulate Matter (PM_{10})	Attainment
2012 Particulate Matter ($PM_{2.5}$) Annual/2006 24-Hour	Unclassifiable/ Attainment
Lead (Pb)	Attainment

Source: USEPA, 2016: https://www.epa.gov/green-book

3.3.1.6 *Air Quality Index*

The Air Quality Index (AQI) is the current national standard method for reporting air pollution levels to the general public. The AQI is based on the short-term Federal NAAQS, the Federal episode criteria, and the Federal Significant Harm levels for five of the "criteria pollutants," namely, ground-level Ozone (O_3), Sulfur Dioxide (SO_2), Carbon Monoxide (CO), Particulate Matter (PM), and Nitrogen Dioxide (NO_2). The AQI levels have been divided into six categories: Good (0-50), Moderate (51-100), Unhealthy for Sensitive Groups (101-150), Unhealthy (151-200), Very Unhealthy (201-300), and Hazardous (301-500).

The AQI classification of "Unhealthy for Sensitive Groups" occurs on occasion in Illinois under the eight-hour ozone and $PM_{2.5}$ standards. AQI classifications of Unhealthy are

[32] https://www.epa.gov/particle-pollution-designations

uncommon and classifications of Very Unhealthy are rare in the State. To date, no classifications of Hazardous air quality have occurred in Illinois.

3.3.1.7 Transportation Conformity Rule, State Implementation Plan and Transportation Improvement Program Status

Under the Clean Air Act Amendments of 1990, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and subsequent reauthorizations, proposed transportation projects must be derived from a metropolitan transportation plan (MTP) that conforms with the state air quality plans as outlined in the state implementation plan (SIP). The SIP sets forth the state's strategies for achieving air quality standards. USEPA's Transportation Conformity Rule requires federal agencies to conduct a conformity determination for a proposed transportation plan, program, or project in a nonattainment or maintenance area before it can be approved, accepted, funded, or adopted. A conformity determination is a formal regulatory process by which the agency evaluates, analyzes, and determines whether the proposed federal action would comply with the air quality standards under the CAA. Specifically, transportation plans, programs, or projects may not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions towards attainment.

The conformity rule also establishes the process by which the FHWA, the Federal Transit Administration (FTA), and local metropolitan planning organizations (MPOs) determine conformance of MTPs and transportation improvement programs (TIPs), and federally-funded highway and transit projects. As part of this process, local MPOs are required under regulations promulgated in the CAA of 1990 to determine conformance of MTPs and TIPs before they are adopted, approved, or accepted. TIPs are a subset of staged, multi-year, inter modal programs of transportation projects covering metropolitan planning areas that are consistent with MTPs. The TIPs include a list of financially constrained roadway, transit, and non-motorized transportation projects for implementation by cities, counties, transit agencies, and other local jurisdictions. Projects to be completed in the near term are included in the region's TIP. The Statewide Transportation Improvement Program (STIP) includes the TIP projects for the entire state.

The purpose of the air quality analysis is to develop MTPs and TIPs that conform to state or federal air quality implementation plans. FHWA and FTA must make conformity determinations on federally-funded projects before they are adopted, accepted, approved, or funded.

The NAAQS, established by the USEPA, set maximum allowable concentration limits for six criteria air pollutants. Areas in which air pollution levels persistently exceed the NAAQS may be designated as "nonattainment." States where a nonattainment area is located must develop and implement a SIP containing policies and regulations that will bring about attainment of the NAAQS.

Areas that had been designated as nonattainment, but that have attained the NAAQS for the criteria pollutant(s) associated with the nonattainment designation, will be designated as maintenance areas.

All areas of Illinois currently are in attainment of the standards for four of the six criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead.

For the eight-hour ozone standards, Cook, DuPage, Kane, Lake, McHenry, and Will counties, as well as Aux Sable and Goose Lake townships in Grundy County and Oswego Township in Kendall County, have been designated as nonattainment areas for ozone. Jersey, Madison, Monroe, and St. Clair counties in the St. Louis area also have been designated as moderate nonattainment areas for the eight-hour ozone standard. The Lake Calumet area and Lyons Township in Cook County have been designated as a maintenance area for the particulate matter (PM_{10}) standard. In addition, Oglesby and several adjacent townships in LaSalle County and Granite City Township and Nameoki Township in Madison County have been designated as maintenance areas for the PM_{10} standard. All other areas of Illinois currently are in attainment for the ozone and PM_{10} standards. The entire state is designated unclassifiable for $PM_{2.5}$.

This project is totally located within an area designated as nonattainment for the ozone standard and unclassifiable for the $PM_{2.5}$ standard of the NAAQS.

This project is included in the FY 2014 – 2019 TIP and MTP endorsed by the Metropolitan Planning Organization (MPO) Policy Committee. Projects in the TIP are considered to be consistent with the MTP. The project is within the fiscally constrained portion of the MTP.

Following the October 2016 approval by the MPO Policy Committee, FHWA and FTA determined that the 2040 regional transportation plan and TIP conforms with the SIP and the transportation-related requirements of the 1990 Clean Air Act Amendments. These findings were in accordance with 40 CFR Part 93, "Determining Conformity of Federal Actions to State or Federal Implementation Plans." The project's design concept and scope are consistent with the project information used for the TIP conformity analysis. Therefore, this project conforms to the existing State Implementation Plan and the transportation-related requirements of the 1990 Clean Air Act Amendments.

The TIP number for this project is ID # 04-00-0023[33].

3.3.1.8 Relevant Pollutants for Analysis

Pollutants that can be traced principally to motor vehicles are relevant to the evaluation of the proposed project's impacts. These pollutants include CO, hydrocarbons (HC), NOx, O_3, PM_{10}, $PM_{2.5}$, and MSAT. Transportation sources account for a small percentage of regional emissions of SOx and Pb; thus, a detailed analysis of these pollutants is not required.

[33] http://tip.cmap.illinois.gov/tip/ProjectPrint.aspx?base=1&display=1&projectId=04-00-0023

HC (aka, volatile organic chemicals or VOCs) and nitrogen oxides (NOx) emissions from automotive sources are a concern primarily because they are precursors in the formation of ozone and particulate matter. Ozone is formed through a series of reactions that occur in the atmosphere in the presence of sunlight. Since the reactions are slow and occur as the pollutants are diffusing downwind, elevated ozone levels often are found many miles from the sources of the precursor pollutants. Therefore, the effects of HC and NOx emissions generally are examined on a regional or "mesoscale" basis.

PM_{10} and $PM_{2.5}$ impacts are both regional and local. A large portion of particulate matter, especially PM_{10}, comes from disturbed vacant land, construction activity, and paved road dust. $PM_{2.5}$ also comes from these sources. Motor vehicle exhaust, particularly from diesel vehicles, also is a source of PM_{10} and $PM_{2.5}$. PM_{10}, and especially $PM_{2.5}$, also can be created by secondary formation from precursor elements such as SO_2, NO_X, VOCs and ammonia (NH_3). Secondary formation occurs because of chemical reaction in the atmosphere generally downwind some distance from the original emission source. Thus it is appropriate to predict concentrations of PM_{10} and $PM_{2.5}$.

CO impacts are generally localized. Even under the worst meteorological conditions and most congested traffic conditions, high concentrations are limited to a relatively short distance (300 to 600 feet) of heavily traveled roadways. Vehicle emissions are the major sources of CO. A screening analysis will be performed to determine if the project's traffic patterns warrant a microscale CO analysis.

Greenhouse gases (GHGs), which contribute to climate change, are both a national and global concern. While the earth has gone through many natural climate variations in its history, there is general agreement that the earth's climate is currently changing at an accelerated rate and will continue to do so for the foreseeable future. Anthropogenic (human-caused) GHG emissions contribute to this rapid change. Carbon dioxide (CO_2) makes up the largest component of these GHG emissions. Other prominent transportation GHGs include methane (CH_4) and nitrous oxide (N_2O).

MSAT impacts are both regional and local. Through the issuance of USEPA's Final Rule (FR) regarding emission control of Hazardous Air Pollutants from Mobile Sources [66 FR 17229], it was determined that many existing and newly promulgated mobile source emission control programs would result in a reduction of MSATs. The USEPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline program, its national low emission vehicle standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel requirements. Future emissions likely would be lower than present levels as a result of the USEPA's national control programs that are projected to reduce MSAT emission by 83 percent from 2010 to 2050, even if VMT increases by 102 percent.

3.3.2 Environmental Consequences

3.3.2.1 Emission Burden Analysis

A regional, or mesoscale, analysis of a project determines a project's overall impact on regional air quality levels. A regional analysis was performed for the proposed project using the version of USEPA's MOVES emissions program, MOVES2014. MOVES2014 incorporates project-generated VMT as well as specific MOVES input factors, such as inspection and maintenance programs, fleet mix, and speed profiles, for the traffic network being analyzed. MOVES input factors were obtained from CMAP.

The emission burden analysis of the proposed project determines the annual "pollutant burden" levels for each of the build alternatives, as well as the No Build Alternative, in order to provide a basis of comparison for regional emissions of each of the criteria pollutants under the different alternatives. The 2040 VMT and emission burdens (in tons) for each of the build alternatives, as well as the No Build Alternative, are presented in Table 3-28.

The GP Lane shows a slight increase in all regional criteria pollutants except for PM_{10}, for which it shows a slight decrease, when compared to the No Build Alternative. The HOV 2+, HOT 3+ and HOT 3+ & TOLL show a slight decrease in all regional criteria pollutants, as compared to the No Build Alternative. All changes in regional pollutant burdens are minimal, with all pollutants showing less than a one percent change, when comparing the build alternatives to the No Build Alternative in 2040.

3.3.2.2 GHG Analysis

A GHG analysis also was performed for the proposed project using the version of USEPA's MOVES air emissions program, MOVES2014. The GHG analysis of the proposed project determines the annual GHG emission burdens for each of the build alternatives, as well as the No Build Alternative, to provide a basis of comparison for emissions of GHGs under the different alternatives.

The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different GHGs. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period, relative to the emissions of 1 ton of carbon dioxide (CO_2). The larger the GWP, the more that a given gas warms the earth compared to CO_2 over that period. The period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases (e.g., to compile a national GHG inventory), and allows policymakers to compare emissions reduction opportunities across sectors and gases. CO_2, by definition, has a GWP of 1; Methane (CH_4) has a GWP of 25; and Nitrous Oxide (N_2O) has a GWP of 298.

The potential effects of GHGs are reported in CO_2 Equivalents (CO_2e), which is a combined measure of GHG emissions weighted according to the GWP of each gas, relative to CO_2. The 2040 VMT and GHG emission burdens (in tons of CO_2e) for each of the build alternatives, as well as the No Build Alternative, are presented in Table 3-29.

Table 3-28. 2040 Regional Emission Burdens (Annual)

Pollutant/Parameter	Alternative								
	No Build (Tons)	GP Lane		HOV 2+		HOT 3+		HOT 3+ & TOLL	
		Burden (Tons)	% Change from NB	Burden (Tons)	% Change from NB	Burden (Tons)	% Change from NB	Burden (Tons)	% Change from NB
Vehicle Miles Traveled (VMT)	*23,050,339,305*	*23,163,434,586*	*0.49%*	*23,122,549,956*	*0.31%*	*23,129,013,516*	*0.34%*	*23,170,665,414*	*0.52%*
Hydrocarbons (HC)	1,270	1,271	0.10%	1,269	-0.01%	1,268	-0.14%	1,269	-0.02%
Nitrogen Oxides (NOx)	2,776	2,782	0.21%	2,772	-0.12%	2,774	-0.07%	2,759	-0.60%
Carbon Monoxide (CO)	23,708	23,881	0.73%	23,588	-0.51%	23,627	-0.34%	23,626	-0.35%
Particulate Matter (PM_{10})	1,813	1,812	-0.06%	1,812	-0.03%	1,807	-0.31%	1,805	-0.43%
Particulate Matter ($PM_{2.5}$)	326	327	0.09%	326	-0.13%	325	-0.30%	325	-0.50%

Source: WSP Parsons Brinckerhoff, 2016

Table 3-29. 2040 GHG Emission Burdens (Annual)

Pollutant/Parameter	Alternative								
		GP Lane		HOV 2+		HOT 3+		HOT 3+ & TOLL	
	No Build (Tons)	Burden (Tons)	% Change from NB	Burden (Tons)	% Change from NB	Burden (Tons)	% Change from NB	Burden (Tons)	% Change from NB
Vehicle Miles Traveled (VMT)	*23,050,339,305*	*23,163,434,586*	*0.49%*	*23,122,549,956*	*0.31%*	*23,129,013,516*	*0.34%*	*23,170,665,414*	*0.52%*
Carbon Dioxide Equivalents (CO_2e)*	10,517,329	10,542,562	0.24%	10,520,087	0.03%	10,516,608	-0.01%	10,506,772	-0.10%

Source: WSP Parsons Brinckerhoff, 2016

*Note: GHG emissions were adjusted by a factor of 1.27, as recommended by FHWA, to account for fuel cycle emissions

The GP Lane and HOV 2+ show slight increases in GHG emissions, whereas the HOT 3+ and HOT 3+ & TOLL show slight decreases in GHG emissions, as compared to the No Build Alternative. All changes in GHG emissions are minimal, with less than a quarter of one percent change, when comparing the build alternatives to the No Build Alternative in 2040.

Both the State of Illinois and the City of Chicago have GHG emission reduction targets in place. The State of Illinois aims to reduce GHG emissions to 1990 levels by the year 2020, and to 60 percent below 1990 levels by the year 2050[34]. The City of Chicago aims to reduce GHG emissions to 25 percent below 1990 levels by 2020, and to 80 percent below 1990 levels by 2050[35]. Both the HOT 3+ and HOT 3+ & TOLL would be consistent with the State and City GHG reduction targets, as they both show slight decreases in GHG emissions, as compared to the No Build Alternative in 2040.

The GHG emissions from construction of the project were calculated using FHWA's Infrastructure Carbon Estimator (ICE), a spreadsheet tool that estimates GHG emissions from the construction of transportation facilities. ICE was used to analyze the GHG emissions from the construction of the I-290 mainline over a four-year timeframe. This was based upon specific project inputs, including average daily traffic (ADT) of the facility, lane-miles of roadway widening and construction, and lane-miles of bridge widening and construction. The tool also estimates annual GHG emissions from the construction impacts on vehicle operations, which cause vehicle delay. The results are presented in Table 3-30. The total annual construction emissions represent approximately 0.04% of the annual GHG emissions presented in Table 3-29.

Table 3-30. Construction GHG Emissions (Annual)*

Construction Element	CO_2e (Tons)
Materials	2,499
Construction Equipment	1,194
Routine Maintenance	85
Operational Element	**CO_2e (Tons)**
Construction Impacts to Vehicle Delay	508
Annual Total	*4,268*

Source: WSP Parsons Brinckerhoff, 2016
*Construction emissions are presented annually, based on 4 years of mainline construction

[34] http://www.epa.state.il.us/air/climatechange/documents/iccag-summary.pdf
[35] http://www.chicagoclimateaction.org/pages/climate_change_101/25.php

3.3.2.3 *MSAT Analysis*

USEPA also regulates air toxics. Mobile source air toxics (MSATs) are a subset of the 188 air toxics defined by the CAA. The MSATs are compounds emitted from highway vehicles and non-road 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 Update on Mobile Source Air Toxics Analyses in NEPA (December, 2012)[36] suggests a tiered approach for addressing MSAT in NEPA documents.

A quantitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, between the alternatives. The quantitative assessment presented is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives* (FHWA 2006). The FHWA's Interim Guidance groups projects into the following tier categories:

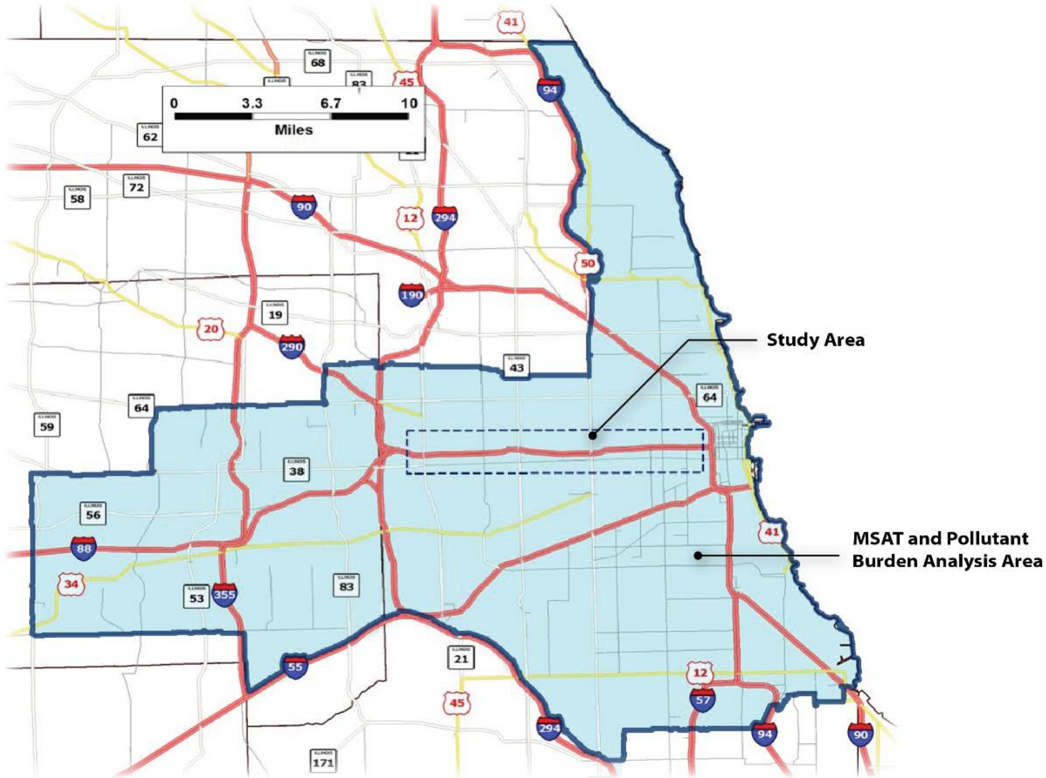
- Tier 1 - No analysis for projects without potential for meaningful MSAT effects;
- Tier 2 - Qualitative analysis for projects with low potential MSAT effects; and
- Tier 3 - Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Based on FHWA's recommended tiering approach, the proposed project falls within the Tier 3 approach (i.e., for projects with a high potential for MSAT effects). In accordance with FHWA's recommendation, USEPA's MOVES2014 was used to calculate annual MSAT pollutant burdens for the build alternatives and the No Build Alternative.

The MSAT Analysis Area was refined to focus on the roadway links that are substantially impacted by the proposed project. Comparisons between the No Build Alternative and build alternatives were therefore made for links for an analysis area (Figure 3-53) where daily traffic volumes differ by five percent or more, or a change of 500 vehicles (ADT) or more per day.

[36] Available at
http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/aqintguidmem.cfm

Figure 3-53. MSAT Analysis Area



Source: WSP Parsons Brinckerhoff, 2015

The results of the MSAT analysis are presented in Table 3-31. As shown in the table, the GP Lane shows a slight decrease in most MSAT except for benzene and diesel PM, which show a slight increase, as compared to the No Build Alternative. The HOV 2+ Alternative and HOT 3+ Alternative show a slight decrease in all MSAT, as compared to the No Build Alternative. The HOT 3+ & TOLL Alternative shows a slight decrease in all MSAT except for benzene, for which it shows a slight increase, as compared to the No Build Alternative. Overall, changes in MSAT are minimal, with differences of one percent or less, when comparing the build alternatives to the No Build Alternative.

In summary, it is projected that there would be changes in MSAT emissions in the immediate area of the proposed project under the build alternatives, regardless of which one is chosen, relative to the No Build Alternative, as a result of the VMT changes associated with the project. The MSAT levels could be higher in some locations than others, such as adjacent to the proposed project, but current tools and science are not adequate to quantify them. Regardless, on a regional basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be substantially lower than today.

Table 3-31. 2040 MSAT Emission Burdens (Annual)

Pollutant/Parameter	Alternative								
	No Build (Tons)	GP Lane		HOV 2+		HOT 3+		HOT 3+ & TOLL	
		Burden (Tons)	% Change from NB	Burden (Tons)	% Change from NB	Burden (Tons)	% Change from NB	Burden (Tons)	% Change from NB
Vehicle Miles Traveled (VMT)	*23,050,339,305*	*23,163,434,586*	*0.49%*	*23,122,549,956*	*0.31%*	*23,129,013,516*	*0.34%*	*23,170,665,414*	*0.52%*
Acrolein	1.17	1.17	-0.08%	1.17	-0.07%	1.17	-0.17%	1.16	-0.62%
Benzene	16.55	16.59	0.30%	16.54	-0.04%	16.53	-0.08%	16.55	0.05%
1,3 Butadiene	0.07	0.07	-0.20%	0.07	-0.08%	0.07	-0.20%	0.07	-0.83%
Diesel PM	50.24	50.29	0.10%	50.17	-0.13%	50.16	-0.16%	49.68	-1.11%
Formaldehyde	25.90	25.89	-0.07%	25.89	-0.07%	25.86	-0.17%	25.75	-0.60%
Naphthalene	2.19	2.19	-0.02%	2.18	-0.06%	2.18	-0.16%	2.17	-0.53%

Source: WSP Parsons Brinckerhoff, 2016

*POM emissions are not calculated by MOVES, but the trend would be similar to that for naphthalene.

This document has provided a quantitative analysis of MSAT emissions relative to the proposed project and has acknowledged that the build alternatives could increase exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain. Available technical tools do not enable prediction of the project-specific health impacts of the emission changes associated with the alternatives. Because of these limitations, the following discussion is included in accordance with the President's Council on Environmental Quality regulations (40 CFR, Section 1502.22[b]) regarding incomplete or unavailable information.

Information that is Unavailable or Incomplete

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The USEPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the CAA and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The USEPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (USEPA, http://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures, with uncertainty spanning perhaps an order of magnitude.

Other organizations also are active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts with each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The USEPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There also is the lack of a national consensus on an acceptable level of risk. The current context is the process used by the USEPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires USEPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than one in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than one in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the US Court of Appeals for the District of Columbia Circuit upheld USEPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

3.3.2.4 Microscale CO Analysis

In accordance with the Illinois Carbon Monoxide Screen for Intersection Modeling (COSIM) Air Quality Manual Version 4.0, the proposed project is exempt from a project-level carbon monoxide analysis because the highest design-year approach volume on the busiest leg of each of the intersections analyzed is less than 5,000 vehicles per hour.

3.3.2.5 Microscale $PM_{2.5}$ Analysis

At the September 3, 2015 meeting of the Tier II Consultation Team, updated project information was presented (alternatives, traffic, etc.). Based on updated truck traffic information for the project, the Tier II Consultation Team said that the project is likely not to be considered a "Project of Air Quality Concern", because the project does not add a substantial amount of diesel truck traffic. Additionally, USEPA announced that due to insufficient quality assured monitoring data to assess compliance with the 2012 annual fine particle standard, the USEPA was designating the entire state of Illinois (including Cook County where the project is located) as unclassifiable for the 2012 annual $PM_{2.5}$ NAAQS. Furthermore, Cook County's designation as a maintenance area for the 1997 annual $PM_{2.5}$ NAAQS is no longer valid as of October 24, 2016, when the 1997 annual $PM_{2.5}$ NAAQS is revoked. As such, a transportation conformity determination for the 1997 annual $PM_{2.5}$ NAAQS is not required. A microscale $PM_{2.5}$ analysis was not performed for the above reasons.

3.3.3 Measures to Minimize Harm and Mitigation

3.3.3.1 Operational

The build alternatives show minor changes (less than one percent) in regional pollutants, GHGs and MSAT, and no local impacts are currently identified. As such, no mitigation is proposed for operational impacts.

3.3.3.2 Construction

Demolition and construction activities can result in short-term increases in fugitive dust and equipment-related particulate emissions in and around the project area. (Equipment-related particulate emissions can be minimized if the equipment is well maintained). The potential air quality impacts will be short-term, occurring only while demolition and construction work is in progress and local conditions are appropriate.

The potential for fugitive dust emissions typically is associated with building demolition, ground clearing, site preparation, grading, stockpiling of materials, on-site movement of equipment, and transportation of materials. The potential is greatest during dry periods, periods of intense construction activity, and during high wind conditions.

The Department's Standard Specifications for Road and Bridge Construction include provisions on dust control. Under these provisions, dust and airborne dirt generated by construction activities will be controlled through dust control procedures or a specific dust control plan, when warranted. The contractor and the Department will meet to review the nature and extent of dust-generating activities and will cooperatively develop specific types of control techniques appropriate to the specific situation. Techniques that may warrant consideration include measures such as minimizing track-out of soil onto nearby publicly-traveled roads, reducing speed on unpaved roads, covering haul vehicles, and applying chemical dust suppressants or water to exposed surfaces, particularly those on which construction vehicles travel. With the application of appropriate measures to limit dust emissions during construction, the proposed project will not cause any significant, short-term particulate matter air quality impacts.

Construction activity also may generate a temporary increase in MSAT emissions. Project-level assessments that render a decision to pursue construction emission mitigation will benefit from a number of technologies and operational practices that should help lower short-term MSAT. In addition, 23 USC 149, as amended by the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (Public Law 109-59, August 10, 2005), places emphasis on a host of diesel retrofit technologies – technologies that are designed to lessen a number of MSAT.

Construction mitigation includes strategies that reduce engine activity or reduce emissions per unit of operating time (e.g., reducing the numbers of trips, extended idling). Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits when sites are near populated areas. For example, agreements that stress work activity outside normal hours of an adjacent school campus would be operations-oriented mitigation. Verified emissions control technology retrofits or fleet modernization of engines for construction equipment could be appropriate mitigation strategies. Technology retrofits could include particulate matter traps, oxidation catalysts, and other devices that provide an after-treatment of exhaust emissions. Implementing maintenance programs per manufacturers' specifications to ensure engines perform at USEPA certification levels, as applicable, and to ensure retrofit technologies perform at verified standards also could be deemed appropriate. The use of clean fuels (e.g., ultra-low sulfur diesel, biodiesel, natural gas) can be a very cost-beneficial strategy. Cleaner diesel fuel and idling restrictions are contained in Article 107.41 of the Standard Specifications for Road and Bridge Construction.

3.4 Traffic Noise

Federal regulations for traffic noise assessment are in Title 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. The Illinois Department of Transportation (IDOT) developed traffic noise analysis procedures that are consistent with the federal regulations, and are contained in its *Highway Traffic Noise Assessment Manual* (IDOT, 2011). These set forth procedures for traffic noise analyses, identification of noise impacts, and consideration of noise abatement where feasible and reasonable.

Noise is unwanted sound that can affect activities. Highway traffic noise is influenced by four main factors: traffic volumes, traffic speeds, truck volumes, and distance and topography between the highway and the location where the noise is heard. This section describes the noise environment along the Project Corridor, identifies traffic noise receptors, and predicts the existing, future No Build, and future build condition noise levels. An overview of noise abatement procedures is provided in this section. Noise abatement analysis is deferred to Section 5.0, Comparison of Alternatives (discussion provided in Section 3.4.3).

3.4.1 Affected Environment

The Noise Study Area is the traffic noise analysis area, and typically includes all areas within 500 feet of the edge of proposed improvements. This section describes FHWA and IDOT noise policies used to assess noise in the Noise Study Area, noise receptors identified for the Noise Study Area, procedures for the traffic noise impact analysis, traffic noise monitoring, and a description of the existing I-290 noise environment.

3.4.1.1 Traffic Noise Analysis Process

Federal policies for traffic noise assessment are in Title 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. IDOT traffic noise analysis procedures are listed in its *Highway Traffic Noise Assessment Manual* (IDOT, 2011).

The highway traffic noise analysis process consists of the steps listed below.

1. *Identify Places with Similar Noise Characteristics.* Common Noise Environments (CNEs) are areas with similar land use (by Activity Category, as listed in Table 3-32), noise exposure, topography, and traffic characteristics.

    a. Activity Categories B and C include land uses such as residences, schools, parks, and places of worship, and are the most noise-sensitive land uses[37] in the Project Corridor.

    b. Activity Category E includes land uses such as offices, hotels, and restaurants that also are studied for noise impacts.

[37] There are no land uses in the Project Corridor that qualify as Activity Category A or D uses.

2. *Select Noise Receptors*. Noise receptors are outdoor activity areas of frequent human use at noise sensitive land uses (Activity Categories A –C, and E).[38] Only receptors that are typically located within 500 feet of the edge of the proposed roadway improvements are considered, as this is where noise impacts typically occur. There is one representative (worst-case) receptor per CNE.

3. *Monitor Existing Noise Levels at Selected Noise Receptors*. Existing noise levels are measured at selected locations. Noise monitoring is used to ensure the noise model is accurate and to collect ambient noise levels in locations where roadway noise is currently not the major noise source. Noise monitoring does not define impacts.

4. *Model Noise Conditions*: Existing, future No Build, and future build conditions for the roadway, receptors, and topography are modeled using the FHWA Traffic Noise Model 2.5 (TNM).

    a. For the I-290 traffic noise analysis, the four build alternatives were separately modeled for build conditions.

    b. For all models, expressway traffic was modeled at posted speeds of 55 miles per hour (mph) for free-flow conditions (regardless of any capacity constraints that could slow traffic). This method represents worst-case traffic noise conditions.

5. *Determination of Noise Impacts*: The predicted build condition noise levels are compared to the existing noise levels and to the FHWA Noise Abatement Criteria (NAC) to determine noise impacts. Table 3-32 summarizes the NAC noise levels for each type of land use in the Noise Study Area.

    a. Noise impacts are identified where future build noise levels approach, meet, or exceed the noise levels (by Activity Category) as identified in Table 3-32. The IDOT noise policy defines “approach” to be noise levels within 1 decibel [dB(A)] of the NAC (a noise level approaching the NAC of 67 dB(A) would be 66 dB(A)).

    b. In addition to using the NAC, noise impacts are identified for receptors where the future build condition noise is greater than 14 dB(A) compared to existing conditions.

Table 3-32. Noise Abatement Criteria

Activity Category[39]	$L_{eq}(h)$	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and

[38] Activity Category D is the only category for which interior noise is studied, and only if no exterior areas of frequent human use exist. As shown in Table 3-32, Activity Category D includes uses such as recording studios, and does not include residences.
[39] Based on 23 Code of Federal Regulations Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (adopted 2010).

Activity Category[39]	L_{eq}(h)	Evaluation Location	Activity Description
			where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential.
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

6 *Noise Abatement Analysis for Impacted Receptors*. Noise abatement is assessed where noise impacts are predicted. The noise abatement analysis identifies abatement measures that are considered feasible to construct and reasonable with respect to cost and noise reduction effectiveness. Viewpoints are solicited from receptors that would be benefitted by the barrier occurs when barriers are considered feasible, cost effective, and effective at reducing noise. Receptors that would be benefitted by the barrier are asked to vote if they support the barrier's construction. If more than 50 percent of received votes are in support of the barrier, the barrier would be recommended for construction.

3.4.1.2 Noise Receptor Identification

Receptor locations are selected at appropriate locations to evaluate changes in traffic noise levels as a result of changes in traffic volumes, speed, composition (trucks and cars), roadway alignment (horizontal and vertical), number of lanes, shielding, and ground cover. Distance to I-290 from the receptor was the primary factor used to select receptors for this analysis and was limited to receptors within 500 feet of the proposed improvements (Noise Study Area), in accordance with the IDOT traffic noise policy.

Noise receptors were located using aerial photography and field investigations to determine exterior areas of frequent human use, such as balconies, benches, or other gathering places, in accordance with the IDOT traffic noise policy. Receptors were studied on each floor of multi-story buildings where outdoor areas of frequent human use existed (such as balconies on every story of a multi-story apartment building) in order to determine which floor of the building constituted the worst-case noise level for the building. Noise level results, shown in Table 3-2 in Section 3.4.2, identify the worst-case results for the representative noise receptor.

The traffic noise analysis evaluates the Noise Study Area using CNEs. Within each of the CNEs, the receptor with the worst-case traffic noise condition (typically the closest receptor to I-290) was selected to represent the CNE. The represented receptors within the CNEs would have similar traffic noise levels as the selected receptor.

Two hundred and eighty-eight (288) representative receptors and CNEs were identified in the Noise Study Area. These receptors are shown on the Section 3.0 Map Set.

3.4.1.3 Traffic Noise Monitoring

Field measurements and other data collected during noise monitoring are used to validate the traffic noise models used for analysis of the build alternatives, ensuring the models can accurately predict each area's noise environment. Noise monitoring for I-290 was conducted at 49 receptor locations representing the variety of land uses and noise environments present in the Project Corridor. These 49 locations were reviewed and approved by IDOT and FHWA.

Noise monitoring is typically conducted during the period representing the worst hourly noise level. This may or may not be during the peak hour traffic volumes, as traffic may be stop-and-go or at a reduced travel speed during the peak hour. Monitoring for I-290 typically occurred during the midday off peak travel period, when free-flow conditions were present on I-290 (generally 10 AM to 2 PM). Noise monitoring was conducted on April 9, 22, and 30, May 7, 14, 21, and 22; and October 30, 2014.

To validate the noise model, the noise monitoring results were compared to existing conditions noise modeling results using observed traffic volumes and conditions. The difference between modeled and monitored noise levels provides an indication of noise model representativeness. Monitored noise levels for the 49 monitored receptors ranged from 63 dB(A) to 78 dB(A).[40] For this analysis, all monitored noise levels are within 3 dB(A) of the modeled noise levels, which validates the noise model per the IDOT traffic noise policy.

3.4.1.4 Existing I-290 Noise Environment

The Project Corridor is a high-volume urban expressway, with rail transit service (CTA Blue Line) included in the highway corridor from beyond the east project terminus to Des Plaines Avenue. The predominant sources of existing noise are the expressway and the CTA transit service.

[40] The Traffic Noise Analysis Report, Volume 1 (Appendix F), provides a full listing of monitoring results compared to modeled results for the 49 monitored receptors.

The western end of the Project Corridor contains several existing traffic noise barriers that were constructed during the reconstruction of the I-290/I-88/I-294 interchange. Physical characteristics of the noise barriers were inventoried via aerial photography (location of the barrier) and field review (height of the barrier). Six noise barriers (11 to 13 feet tall) exist in the Hillside portion of the Project Corridor (Butterfield Road to Mannheim Road). Two noise barriers (12 to 16 feet tall) exist in the Westchester portion of the Project Corridor (between Mannheim Road and Bristol Avenue). Finally, two existing noise barriers (16 to 18 feet tall) exist in the Bellwood portion of the Project Corridor, from Bellwood Avenue to 30th Avenue.

Additionally, one traffic noise barrier is planned to be constructed within the Project Corridor as part of the Jane Byrne Interchange (formerly the Circle Interchange) project. The traffic noise analysis for the Jane Byrne Interchange found that a 23-foot tall noise barrier between Throop Street and Racine Avenue was reasonable, feasible, and supported by those who would benefit from the barrier. The reconstruction of the Jane Byrne interchange is currently in progress and the planned noise barrier was included in the I-290 traffic noise models for the 2040 No Build and 2040 Build conditions, but was not included in existing conditions.

Existing modeled noise levels range from 57 dB(A) at R256 to 78 dB(A) at R100, R119, R172, R198, and R206. The projected No Build 2040 traffic noise levels range from 57 dB(A) at R256 to 79 dB(A) at R119 and R172. Receptor noise levels either remain the same or increase up to 3 dB(A) from the existing condition to the 2040 No Build condition; the majority of receptors have no change or a 1 dB(A) increase in noise from existing to 2040 No Build.

Existing and 2040 No Build noise levels were compared to the NAC for reference purposes.[41] Noise levels approached, met, or exceeded the NAC at 220 representative receptors for the existing condition and at 227 representative receptors for the 2040 No Build condition. Existing and 2040 No Build noise levels are highest where receptors are closest to I-290 and have an unimpeded line of sight from the receptor to the roadway; these receptors are located throughout the Project Corridor. For a full listing of Existing and 2040 No Build noise levels, refer to Table 3-33.

[41] Per IDOT policy, traffic noise impacts are identified only for the future build condition, not for the existing or future No Build condition. Comparisons of the existing and future No Build noise levels to the NAC are for comparison purposes only.

Table 3-33. Noise Level Summary

Receptor Number	Activity Category / NAC (dB(A))	Existing 2014 Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Map Set Sheet No. [1]
R1	E / 72	68	68	69	69	69	69	1
R2	C / 67	66	66	**66**	**66**	**66**	**66**	1
R3	B / 67	64	64	64	64	64	64	1
R4	B / 67	72	72	**72**	**72**	**72**	**72**	1
R5	B / 67	65	65	65	65	65	65	1
R6	B / 67	65	65	**66**	**66**	**66**	**66**	1
R7	B / 67	66	66	**67**	**67**	**67**	**66**	1
R8	B / 67	69	70	**70**	**70**	**70**	**70**	1
R9	C / 67	65	65	65	65	65	65	2
R10	E / 72	74	74	**76**	**75**	**75**	**75**	2
R11	C / 67	73	73	**74**	**73**	**73**	**73**	2
R12	E / 72	64	64	65	65	65	65	2
R13	B / 67	65	66	**67**	**66**	**66**	**66**	2
R14	E / 72	66	66	67	67	67	67	2
R15	B / 67	70	70	**72**	**71**	**71**	**71**	2
R16	B / 67	64	64	64	65	65	65	3
R17	B / 67	62	63	64	63	64	63	3
R18	C / 67	59	60	61	61	61	60	3
R19	B / 67	68	68	**68**	**68**	**68**	**68**	3
R20	B / 67	69	69	**70**	**69**	**70**	**69**	3
R21	B / 67	60	60	60	60	60	60	3
R22	C / 67	67	67	**67**	**67**	**67**	**67**	3
R23	E / 72	66	66	67	67	67	67	3
R24	B / 67	66	66	**67**	**67**	**67**	**66**	3
R25	B / 67	64	65	**67**	**66**	**66**	**66**	3
R26	B / 67	63	64	65	64	64	64	3
R27	B / 67	63	64	65	64	64	64	3
R28	B / 67	62	63	64	63	64	63	3
R29	B / 67	64	65	**66**	**66**	**66**	65	3
R30	B / 67	73	75	**74**	**74**	**74**	**73**	3
R31	C / 67	61	62	64	63	63	63	3
R32	C / 67	68	69	**69**	**69**	**69**	**68**	3
R33	C / 67	70	70	**70**	**69**	**70**	**69**	4
R34	E / 72	71	74	66	66	67	66	4
R35	B / 67	69	69	**68**	**66**	**68**	**67**	4
R36	B / 67	64	65	64	64	65	64	4

[1] Refer to Section 3.0 Map Set for receptor locations

Table 3-33. Noise Level Summary (continued)

Receptor Number	Activity Category / NAC (dB(A))	Existing 2014 Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Map Set Sheet No. [1]
R37	B / 67	75	76	**78**	**77**	**78**	**77**	4
R38	B / 67	73	74	**75**	**75**	**75**	**74**	4
R38A	C / 67	61	61	63	62	62	62	4
R39	B / 67	73	74	**76**	**75**	**75**	**74**	4
R40	B / 67	71	72	**74**	**74**	**74**	**74**	4
R41	B / 67	74	75	**76**	**75**	**75**	**75**	4
R42	C / 67	72	73	**75**	**74**	**74**	**74**	4
R43	B / 67	77	77	**78**	**78**	**78**	**77**	4
R44	B / 67	77	77	**79**	**78**	**78**	**78**	4
R45	C / 67	73	73	**74**	**74**	**74**	**74**	5
R46	E / 72	75	75	**76**	**76**	**76**	**75**	5
R47	B / 67	74	75	**76**	**75**	**75**	**75**	5
R48	C / 67	65	66	**66**	**66**	**66**	65	5
R49	B / 67	75	75	**76**	**76**	**76**	**76**	5
R50	C / 67	63	63	64	64	64	63	5
R51	B / 67	69	69	**70**	**69**	**70**	**69**	5
R52	C / 67	67	67	**67**	**67**	**67**	**67**	5
R52A	C / 67	64	65	65	65	65	64	5
R53	C / 67	67	68	**68**	**68**	**68**	**67**	5
R54	B / 67	76	76	**78**	**77**	**78**	**77**	5
R55	B / 67	76	76	**76**	**76**	**76**	**76**	5
R56	C / 67	73	74	**75**	**74**	**74**	**74**	5
R57	C / 67	64	64	65	64	65	64	5
R58	B / 67	75	77	**77**	**77**	**77**	**76**	5
R59	B / 67	75	76	**77**	**76**	**76**	**76**	5
R60	E / 72	74	74	**75**	**74**	**74**	**74**	5
R61	E / 72	74	75	**72**	**72**	**72**	**72**	5
R62	C / 67	73	73	**74**	**73**	**73**	**73**	5
R63	C / 67	75	75	**76**	**76**	**76**	**76**	6
R64	C / 67	75	75	**77**	**77**	**77**	**76**	6
R65	C / 67	73	73	**74**	**73**	**73**	**73**	6
R66	C / 67	70	71	**71**	**71**	**71**	**70**	6
R67	C / 67	73	74	**75**	**73**	**74**	**73**	6
R68	B / 67	69	69	**70**	**69**	**70**	**69**	6
R69	C / 67	76	76	**77**	**76**	**76**	**76**	7
R70	B / 67	75	75	**76**	**76**	**76**	**75**	7
R71	E / 72	69	69	69	69	69	69	7

[1] Refer to Section 3.0 Map Set for receptor locations

Table 3-33. Noise Level Summary (continued)

Receptor Number	Activity Category / NAC (dB(A))	Existing 2014 Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Map Set Sheet No. [1]
R72	C / 67	71	71	**71**	**71**	**71**	**71**	7
R73	C / 67	76	77	**77**	**77**	**77**	**76**	7
R74	B / 67	69	70	**70**	**70**	**70**	**70**	7
R75	C / 67	69	70	**71**	**70**	**70**	**70**	7
R76	B / 67	73	75	**72**	**72**	**72**	**71**	7
R76A	C / 67	72	74	**74**	**73**	**73**	**73**	7
R77	C / 67	69	70	**72**	**72**	**72**	**71**	7
R78	C / 67	72	73	**74**	**73**	**73**	**73**	7
R79	C / 67	75	76	**76**	**75**	**75**	**74**	7
R79A	B / 67	75	76	**77**	**77**	**77**	**76**	7
R80	C / 67	72	73	**74**	**73**	**73**	**73**	7
R81	C / 67	72	73	**74**	**73**	**73**	**73**	7
R82	B / 67	75	75	**77**	**76**	**76**	**76**	7
R83	B / 67	76	76	**77**	**76**	**77**	**76**	8
R84	B / 67	76	76	**77**	**77**	**77**	**76**	8
R85	B / 67	76	76	**77**	**77**	**77**	**76**	8
R86	B / 67	77	77	**78**	**78**	**78**	**77**	8
R87	E / 72	70	71	**71**	70	**71**	70	8
R88	B / 67	67	68	**67**	**67**	**67**	**67**	8
R89	E / 72	77	78	**78**	**77**	**78**	**77**	8
R90	E / 72	69	70	69	69	69	70	8
R91	B / 67	67	68	**67**	**67**	**67**	**68**	8
R92	B / 67	75	75	**76**	**76**	**76**	**75**	8
R93	C / 67	75	76	**77**	**76**	**76**	**76**	8
R94	B / 67	77	77	**78**	**77**	**77**	**77**	8
R95	C / 67	63	63	65	65	64	64	8
R96	C / 67	69	69	**70**	**69**	**70**	**69**	8
R96A	C / 67	74	74	**75**	**74**	**75**	**74**	8
R97	B / 67	63	64	65	64	64	63	8
R98	C / 67	75	75	**76**	**76**	**76**	**75**	8
R99	B / 67	75	75	**76**	**76**	**76**	**75**	8
R100	B / 67	78	78	**79**	**78**	**78**	**78**	8
R101	C / 67	77	78	**79**	**78**	**78**	**78**	8
R102	B / 67	72	73	**73**	**73**	**73**	**73**	8
R103	C / 67	69	69	**70**	**69**	**70**	**70**	8
R104	B / 67	73	73	**77**	**76**	**76**	**76**	8
R105	B / 67	67	67	**68**	**67**	**67**	**68**	8

[1] Refer to Section 3.0 Map Set for receptor locations

Table 3-33. Noise Level Summary (continued)

Receptor Number	Activity Category / NAC (dB(A))	Existing 2014 Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Map Set Sheet No. [1]
R107	C / 67	66	66	**67**	**67**	**67**	**67**	8
R108	C / 67	62	62	64	63	63	63	8
R109	E / 72	60	61	62	61	61	61	8
R110	E / 72	59	60	61	60	60	60	8
R111	B / 67	75	75	**76**	**75**	**76**	**75**	8
R112	E / 72	62	62	63	63	63	62	8
R113	B / 67	66	66	**66**	**66**	**66**	**66**	8
R114	C / 67	61	62	62	62	62	62	8
R115	B / 67	66	67	**67**	**67**	**67**	**67**	8
R116	E / 72	65	65	65	65	65	65	8
R117	C / 67	75	75	**76**	**76**	**76**	**76**	8
R118	C / 67	62	62	63	63	63	62	8
R119	B / 67	78	79	**79**	**78**	**79**	**78**	8
R120	C / 67	68	68	**69**	**69**	**69**	**68**	9
R121	C / 67	61	62	62	62	62	61	9
R122	B / 67	73	73	**73**	**72**	**73**	**72**	9
R123	C / 67	59	60	59	58	58	58	9
R124	C / 67	71	72	**72**	**72**	**72**	**72**	9
R125	B / 67	74	74	**75**	**74**	**74**	**74**	9
R126	C / 67	72	73	**72**	**71**	**71**	**71**	9
R127	C / 67	73	74	**75**	**74**	**75**	**74**	9
R127A	C / 67	70	71	**71**	**71**	**71**	**71**	9
R127B	C / 67	63	64	64	64	64	64	9
R128	B / 67	65	66	**66**	**66**	**66**	**66**	9
R129	B / 67	77	78	**78**	**77**	**78**	**78**	10
R129A	C / 67	66	67	**68**	**67**	**67**	**67**	10
R130	C / 67	66	67	**68**	**67**	**67**	**67**	10
R131	B / 67	67	67	**68**	**68**	**68**	**67**	10
R132	C / 67	68	68	**69**	**69**	**69**	**68**	10
R133	B / 67	68	69	**70**	**69**	**69**	**69**	10
R134	C / 67	76	76	**77**	**76**	**76**	**76**	10
R136	B / 67	68	68	**70**	**69**	**69**	**69**	10
R137	C / 67	68	68	**70**	**69**	**70**	**69**	10
R138	B / 67	71	71	**73**	**72**	**72**	**72**	10
R139	C / 67	62	63	63	63	63	62	10
R140	B / 67	72	73	**74**	**73**	**73**	**73**	10
R141	B / 67	66	66	**66**	**66**	**66**	**66**	10

[1] Refer to Section 3.0 Map Set for receptor locations

Table 3-33. Noise Level Summary (continued)

Receptor Number	Activity Category / NAC (dB(A))	Existing 2014 Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Map Set Sheet No. [1]
R142	E / 72	64	64	65	64	64	64	10
R143	C / 67	74	75	**76**	**75**	**75**	**75**	10
R143A	C / 67	62	63	64	63	64	63	10
R144	C / 67	62	62	63	62	62	62	10
R145	C / 67	60	61	62	61	61	60	10
R146	B / 67	72	73	**74**	**74**	**74**	**73**	10
R147	B / 67	64	64	65	64	64	64	10
R148	C / 67	71	71	**71**	**71**	**71**	**70**	10
R149	B / 67	76	76	**77**	**77**	**77**	**76**	10
R150	B / 67	70	70	**71**	**71**	**71**	**70**	10
R151	B / 67	74	75	**77**	**76**	**76**	**76**	10
R152	B / 67	68	69	**68**	**68**	**68**	**67**	10
R153	C / 67	66	67	**67**	**66**	**66**	65	11
R154	B / 67	71	71	**73**	**72**	**72**	**72**	11
R155	B / 67	69	70	**70**	**70**	**70**	**69**	11
R156	B / 67	77	77	**77**	**77**	**77**	**76**	11
R157	C / 67	65	66	**66**	**66**	**66**	65	11
R158	B / 67	66	66	**66**	**66**	**66**	65	11
R159	B / 67	73	74	**74**	**74**	**74**	**74**	11
R160	C / 67	71	72	**72**	**71**	**72**	**71**	11
R161	C / 67	75	75	**76**	**75**	**75**	**75**	11
R162	B / 67	72	73	**73**	**73**	**73**	**72**	11
R163	B / 67	77	77	**77**	**77**	**77**	**76**	11
R164	B / 67	75	76	**76**	**75**	**76**	**75**	11
R165	B / 67	77	77	**78**	**77**	**77**	**77**	11
R166	B / 67	77	78	**79**	**78**	**78**	**78**	11
R167	C / 67	68	68	**68**	**68**	**68**	**67**	11
R168	C / 67	73	74	**74**	**74**	**74**	**73**	11
R169	C / 67	72	72	**73**	**72**	**73**	**72**	11
R170	B / 67	76	76	**76**	**76**	**76**	**75**	11
R171	C / 67	77	77	**77**	**77**	**77**	**77**	11
R172	B / 67	78	79	**79**	**79**	**79**	**79**	11
R173	B / 67	76	76	**76**	**76**	**76**	**75**	11
R174	C / 67	73	73	**74**	**73**	**74**	**73**	11
R175	C / 67	77	77	**78**	**77**	**77**	**77**	11
R176	B / 67	76	77	**77**	**77**	**77**	**77**	11
R177	B / 67	75	76	**76**	**76**	**76**	**75**	12

[1] Refer to Section 3.0 Map Set for receptor locations

Table 3-33. Noise Level Summary (continued)

Receptor Number	Activity Category / NAC (dB(A))	Existing 2014 Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Map Set Sheet No. [1]
R178	E / 72	73	73	**74**	**73**	**74**	**72**	12
R179	C / 67	69	71	**71**	**71**	**71**	**70**	12
R180	B / 67	76	77	**77**	**77**	**77**	**76**	12
R181	B / 67	75	76	**76**	**76**	**76**	**75**	12
R182	B / 67	76	77	**77**	**77**	**77**	**76**	12
R183	C / 67	76	77	**78**	**77**	**77**	**77**	12
R184	B / 67	75	76	**76**	**76**	**76**	**75**	12
R185	B / 67	76	77	**77**	**77**	**77**	**77**	12
R186	E / 72	75	76	**76**	**75**	**76**	**75**	12
R187	B / 67	71	72	**72**	**72**	**72**	**71**	12
R188	C / 67	66	66	**66**	**66**	**66**	65	12
R189	B / 67	76	76	**76**	**76**	**76**	**75**	12
R190	E / 72	66	66	67	66	66	66	12
R191	B / 67	67	68	**69**	**68**	**68**	**68**	12
R192	B / 67	69	69	**70**	**69**	**69**	**69**	12
R193	B / 67	76	77	**78**	**77**	**77**	**77**	12
R194	C / 67	65	65	**66**	65	65	64	12
R195	B / 67	73	73	**74**	**73**	**73**	**73**	12
R196	E / 72	73	74	**74**	**74**	**74**	**74**	12
R197	B / 67	75	75	**76**	**75**	**75**	**75**	12
R198	C / 67	78	78	**79**	**78**	**78**	**78**	12
R199	B / 67	74	75	**75**	**74**	**75**	**74**	12
R200	B / 67	76	77	**77**	**77**	**77**	**76**	12
R201	C / 67	61	61	62	61	62	61	12
R202	C / 67	75	76	**76**	**75**	**76**	**75**	12
R203	C / 67	58	58	59	58	58	58	12
R204	B / 67	77	77	**77**	**77**	**77**	**76**	12
R205	C / 67	67	67	**67**	**67**	**67**	**67**	12
R206	B / 67	78	78	**79**	**78**	**78**	**78**	12
R207	C / 67	59	59	60	59	59	59	13
R208	E / 72	74	75	**75**	**75**	**75**	**74**	12
R209	C / 67	74	74	**75**	**74**	**74**	**74**	13
R210	B / 67	75	76	**76**	**75**	**76**	**75**	13
R211	C / 67	66	66	**67**	**66**	**67**	**66**	13
R212	B / 67	72	72	**73**	**72**	**73**	**72**	13
R213	E / 72	72	72	**72**	**72**	**72**	**72**	13
R214	B / 67	58	58	58	58	58	58	13

[1] Refer to Section 3.0 Map Set for receptor locations

Table 3-33. Noise Level Summary (continued)

Receptor Number	Activity Category / NAC (dB(A))	Existing 2014 Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Map Set Sheet No. [1]
R216	B / 67	64	64	65	64	64	64	13
R217	B / 67	72	73	**73**	**73**	**73**	**73**	13
R218	C / 67	75	76	**76**	**76**	**76**	**75**	13
R219	B / 67	73	74	**74**	**74**	**74**	**73**	13
R220	C / 67	71	72	**72**	**72**	**72**	**71**	13
R221	B / 67	68	69	**69**	**69**	**69**	**68**	13
R222	E / 72	67	67	67	67	67	67	13
R223	B / 67	71	72	**72**	**72**	**72**	**71**	13
R224	E / 72	75	76	**76**	**76**	**76**	**75**	13
R225	C / 67	65	66	**66**	**66**	**66**	65	13
R226	C / 67	70	71	**71**	**71**	**71**	**70**	13
R227	B / 67	73	74	**75**	**74**	**74**	**74**	13
R228	B / 67	75	77	**77**	**76**	**77**	**76**	13
R229	C / 67	63	64	65	64	64	64	13
R230	B / 67	76	76	**76**	**76**	**76**	**75**	13
R231	E / 72	64	65	65	65	65	64	13
R232	B / 67	65	66	**66**	**66**	**66**	65	13
R233	C / 67	66	67	**68**	**68**	**67**	**67**	13
R234	E / 72	75	76	**76**	**76**	**76**	**75**	13
R235	B / 67	73	74	**74**	**74**	**74**	**74**	13
R236	C / 67	74	75	**76**	**76**	**75**	**76**	13
R237	C / 67	69	70	**71**	**71**	**70**	**71**	13
R238	B / 67	77	77	**77**	**77**	**77**	**76**	13
R239	C / 67	76	77	**78**	**77**	**77**	**77**	13
R240	B / 67	76	78	**78**	**77**	**78**	**77**	13
R241	C / 67	76	76	**76**	**76**	**76**	**76**	14
R241A	C / 67	68	69	**69**	**68**	**69**	**68**	13
R242	B / 67	76	77	**77**	**77**	**77**	**77**	14
R243	B / 67	76	76	**76**	**76**	**76**	**75**	14
R244	B / 67	75	75	**76**	**75**	**75**	**75**	14
R245	B / 67	71	71	**71**	**71**	**71**	**71**	14
R246	C / 67	75	76	**76**	**75**	**76**	**75**	14
R247	B / 67	76	77	**77**	**77**	**77**	**76**	14
R248	B / 67	76	76	**76**	**76**	**76**	**76**	14
R248A	C / 67	66	66	**67**	**66**	**67**	**66**	14
R249	B / 67	75	76	**76**	**76**	**76**	**75**	14
R250	C / 67	70	71	**71**	**71**	**71**	**70**	14

[1] Refer to Section 3.0 Map Set for receptor locations

Table 3-33. Noise Level Summary (continued)

Receptor Number	Activity Category / NAC (dB(A))	Existing 2014 Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Map Set Sheet No. [1]
R251	C / 67	66	67	**67**	**66**	**67**	**66**	14
R252	E / 72	62	62	63	62	63	62	15
R253	C / 67	74	74	**74**	**74**	**74**	**74**	15
R254	B / 67	75	77	**77**	**77**	**77**	**76**	15
R255	C / 67	76	77	**77**	**77**	**77**	**76**	15
R256	E / 72	57	57	58	57	57	57	15
R257	C / 67	74	75	**75**	**75**	**75**	**74**	15
R258	B / 67	72	73	**73**	**73**	**73**	**72**	15
R259	C / 67	70	70	**71**	**70**	**71**	**70**	15
R260	C / 67	75	76	**76**	**76**	**76**	**75**	15
R261	B / 67	73	74	**75**	**74**	**74**	**74**	15
R262	C / 67	73	74	**74**	**74**	**74**	**73**	15
R263	C / 67	62	62	62	62	62	62	15
R264	C / 67	75	76	**77**	**76**	**76**	**76**	15
R265	C / 67	71	71	**72**	**71**	**72**	**71**	15
R266	E / 72	75	76	**77**	**76**	**76**	**76**	15
R267	E / 72	72	72	**73**	**72**	**73**	**72**	15
R268	E / 72	62	62	62	62	62	62	15
R269	B / 67	66	67	**67**	**67**	**67**	**67**	15
R270	B / 67	74	76	**76**	**76**	**76**	**76**	15
R271	C / 67	70	71	**71**	**71**	**71**	**70**	15
R272	B / 67	74	76	**76**	**76**	**76**	**76**	15
R273	C / 67	72	73	**73**	**73**	**73**	**73**	15
R273A	C / 67	62	63	63	63	63	63	15
R274	B / 67	63	64	64	64	64	64	16
R275	B / 67	75	77	**77**	**76**	**76**	**76**	16
R276	E / 72	63	64	64	64	64	64	16
R277	C / 67	64	65	65	65	65	65	16
R278	B / 67	69	71	**71**	**71**	**71**	**71**	16
R279	B / 67	67	68	**68**	**68**	**68**	**68**	16

Note: Noise impacts identified in **BOLD** text. The IDOT noise policy defines approach to be noise levels within 1 dB(A) of the NAC.

[1] Refer to Section 3.0 Map Set for receptor locations

3.4.2 Environmental Consequences

This section describes traffic noise impacts that would be associated with the four build alternatives.

The I-290 mainline geometry and traffic volumes are the primary traffic noise influences in the Project Corridor. The build alternatives' average 2040 projected corridor traffic volumes (all vehicles) include, from smallest to largest:

- HOT 3+ and Toll Alternative [2040 corridor average annual average daily traffic (AADT) of 187,853 vehicles per day (vpd)];
- Existing Condition (corridor average AADT of 191,020 vpd);
- No Build Alternative (2040 corridor average AADT of 204,227 vpd);
- HOV 2+ Alternative (2040 corridor average AADT of 211,247 vpd);
- HOT 3+ Alternative (2040 corridor average AADT of 214,760 vpd); and
- GP Lane Alternative (2040 corridor average AADT of 222,507).

Traffic noise was assessed at the 288 representative noise receptors identified in the Project Corridor. The four build alternatives share the same design, but have different traffic volumes due to the effects of the different managed lanes and tolling scenarios. The differences in traffic volumes influenced the slight differences in sound levels among the build alternatives. The collective Build 2040 traffic noise levels range from 57 dB(A) at R256 to 79 dB(A) at R44, R100, R101, and R119. Typically, the four build alternatives carried forward have similar noise levels to the 2040 No Build condition, with several receptors experiencing noise increases as much as 2 dB(A) from the 2040 No Build condition.

Table 3-34 summarizes the number of representative receptors for each build alternative that approach, meet, or exceed the NAC. Of the four build alternatives, the HOT 3+ and Toll Alternative has the fewest receptors that approach, meet, or exceed the NAC (220 receptors, or 76 percent of all studied receptors), while the GP Lane Alternative has the greatest number (230 receptors, or 80 percent of all studied receptors are impacted). The existing condition also would have 220 receptors that would exceed the NAC.[42] The findings for the No Build Alternative and the four build alternatives are similar, ranging from 227 representative receptors exceeding the NAC (No Build) to 230 (GP Lane Alternative).

[42] Per IDOT policy, traffic noise impacts are identified only for the future build condition, not for the existing or future No Build condition. Comparisons of the existing and future No Build noise levels to the NAC are for comparison purposes only.

Table 3-34. Traffic Noise Impacts Summary by Build Alternative

	GP Lane (2040) Alternative	HOV 2+ (2040) Alternative	HOT 3+ (2040) Alternative	HOT 3+ Toll (2040) Alternative
Receptors with Traffic Noise Impacts	230	228	229	220

The GP Lane Alternative had the greatest amount of traffic noise impacts among the four build alternatives, followed by the HOT 3+ Alternative and the HOV 2+ Alternative. The slight difference in traffic noise impacts among the build alternatives correlates to their traffic volume differences.

- The HOT 3+ and Toll Alternative was found to have the least amount of traffic noise impacts among the build alternatives, and this alternative also has the lowest projected traffic volumes of the four build alternatives.

- Conversely, the GP Lane Alternative was found to have the highest amount of traffic noise impacts, and this alternative also has the highest projected traffic volumes of the four build alternatives.

However, the mainline volume differences do not account for all of the variation among the noise level findings. Although the existing condition has slightly higher traffic volumes than the 2040 HOT 3+ and Toll Alternative, the existing condition model results are the same or lower than the HOT 3+ and Toll Alternative. This is due to the influence of arterial street traffic volume growth that is assumed to occur in the future year.

Individual findings that do not directly correlate to the above-noted I-290 mainline traffic volume trends or changes in arterial street volumes include:

- At R34, the proposed interchange geometry change at 25th Avenue (from a partial cloverleaf interchange to a single point urban interchange (SPUI)) is reflected in the noise results. In the existing and 2040 No Build conditions, Harrison Street west of 25th Avenue (north of I-290) carries local traffic and traffic for the 25th Avenue interchange westbound on ramp. In the build condition, the westbound on ramp traffic is rerouted from Harrison Street to the new SPUI interchange ramp. As a result, there is less traffic on the frontage road resulting in 2040 Build traffic noise levels that are as much as 8 decibels lower that of the 2040 No Build (R34). R35, R32, and R33 also are influenced by the proposed 25th Avenue interchange design.

- At R76 and R76A (representative receptors in the northwest quadrant of the IL 43/Harlem Avenue interchange), the existing and 2040 No Build traffic noise levels would be the same or greater than those of the 2040 Build Alternatives. The 2040 build noise levels decrease due to the addition of vertical retaining walls needed to support the proposed Harlem interchange ramps. These walls reduce the noise level of the mainline noise (the greatest noise source) that reaches the representative receptors.

- Due to the proposed lower I-290 mainline elevation through Oak Park in combination with the proposed Harlem Avenue and Austin Boulevard interchange designs, additional shielding will be provided to receptors along the north side of I-290 through Oak Park, such as R79 (Wenonah Tot Lot, Oak Park, north side of I-290).

None of the Noise Study Area receptors are considered impacted due to a substantial increase (greater than 14 dB(A) increase) in traffic noise levels. For the four build alternatives, most of the Project Corridor representative receptor locations approach or exceed the FHWA NAC, and therefore warrant a noise abatement analysis.

3.4.3 Mitigation

Due to the similarity of the noise impacts among the alternatives and the density of the receptors in the Project Corridor, each of the four build alternatives would study the same locations for noise barrier analysis. These locations are shown as "noise barrier study areas" in the Section 3.0 Map Set. Barriers were studied throughout the Project Corridor. All areas with existing noise barriers (Hillside, Bellwood, Westchester, and Chicago) were found to have noise impacts, and the existing noise barriers were assessed for potential height increases or length extensions associated with the alternative identified as the Preferred Alternative. Based on the noise impact findings for the four build alternatives, the majority of the remaining corridor and nearly all areas with noise sensitive uses (identified by Common Noise Environments; Section 3.0 Map Set) were studied for noise abatement. All residential areas directly adjacent to the corridor were found to have noise impacts with the Preferred Alternative, and were studied for noise abatement.

A full noise abatement analysis was completed for the Preferred Alternative (Section 5.0, Comparison of Alternatives and Appendix F). However, the similarity of the four build alternatives, paired with the characteristics of the Project Corridor, support that the four build alternatives, regardless of the alternative selected as the Preferred Alternative, would have very similar feasible and reasonable barrier design characteristics, as a result of:

- The four build alternatives share the same roadway geometry.

- Traffic predictions vary for the four build alternatives, but at the peak hour level of analysis, traffic varies slightly among the four alternatives, and typically not to a degree that causes wide differences in noise impacts. All traffic conditions studied (existing, future no build, and the four build alternatives) would result in traffic noise levels that approach, meet, or exceed the NAC. Noise levels varied by condition studied, but the variation was slight. Seventy-six to eighty percent of receptors studied approached, met, or exceeded the NAC (hereafter described as "exceeded the NAC"), and as traffic volumes increased with the future conditions, the percentage of receptors exceeding the NAC increased only slightly.

- Generally, there is a high density of receptors in the areas where I-290 noise barriers were studied. For this project, if a receptor was impacted by one build alternative and not another, there was another impacted receptor in the same area behind the same studied barrier.

As part of the full noise abatement analysis completed for the Preferred Alternative, 92 wall locations were studied to mitigate the noise impacts, including the extension of three existing barriers and the potential height increase of ten existing barriers. Of these 92 barrier locations, 63 were found to be reasonable and feasible. The 63 feasible and reasonable noise barriers were presented in November 2015 and August 2016 to the public to be voted upon through the viewpoint solicitation process. Of the 63 feasible and reasonable noise barriers, the benefitted receptors voted in favor of 46 noise barriers. These 46 barriers would benefit 4,027 receptors.

3.5 Energy

Construction of the proposed I-290 Eisenhower Expressway improvement would require indirect consumption of energy for processing material, construction activities, and maintenance for the lane miles to be added within the project limits. Energy consumption by vehicles in the area may increase during construction due to possible traffic delays.

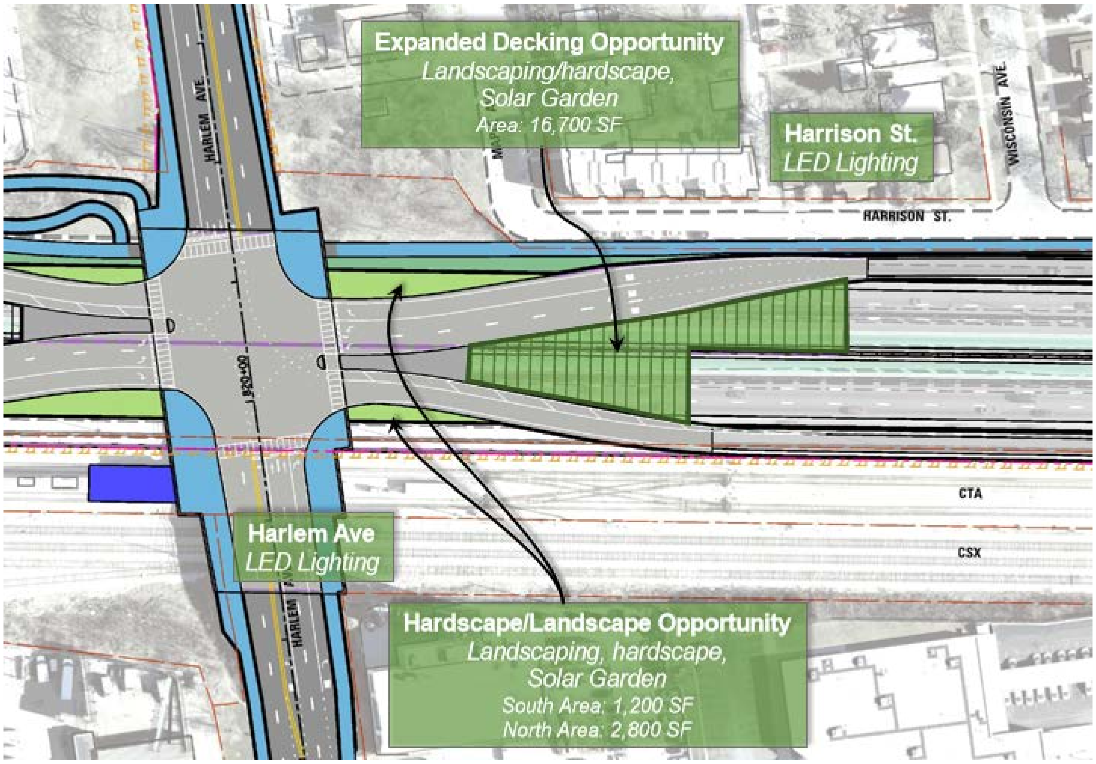
Construction of the proposed improvement would reduce traffic congestion and turning conflicts along the route and thereby reduce vehicular stopping and slowing conditions. Additional benefits would be realized from increased capacity and smoother riding surfaces. This would result in less direct and indirect vehicular operational energy consumption for the build alternatives than for the No Build Alternative. Thus, in the long-term, post-construction operational energy requirements should offset construction and maintenance energy requirements and result in a net saving in energy usage.

The proposed project includes provisions for improved bicycling and walking conditions; thereby encouraging travel by these non-motorized and non-energy consuming modes of transportation.

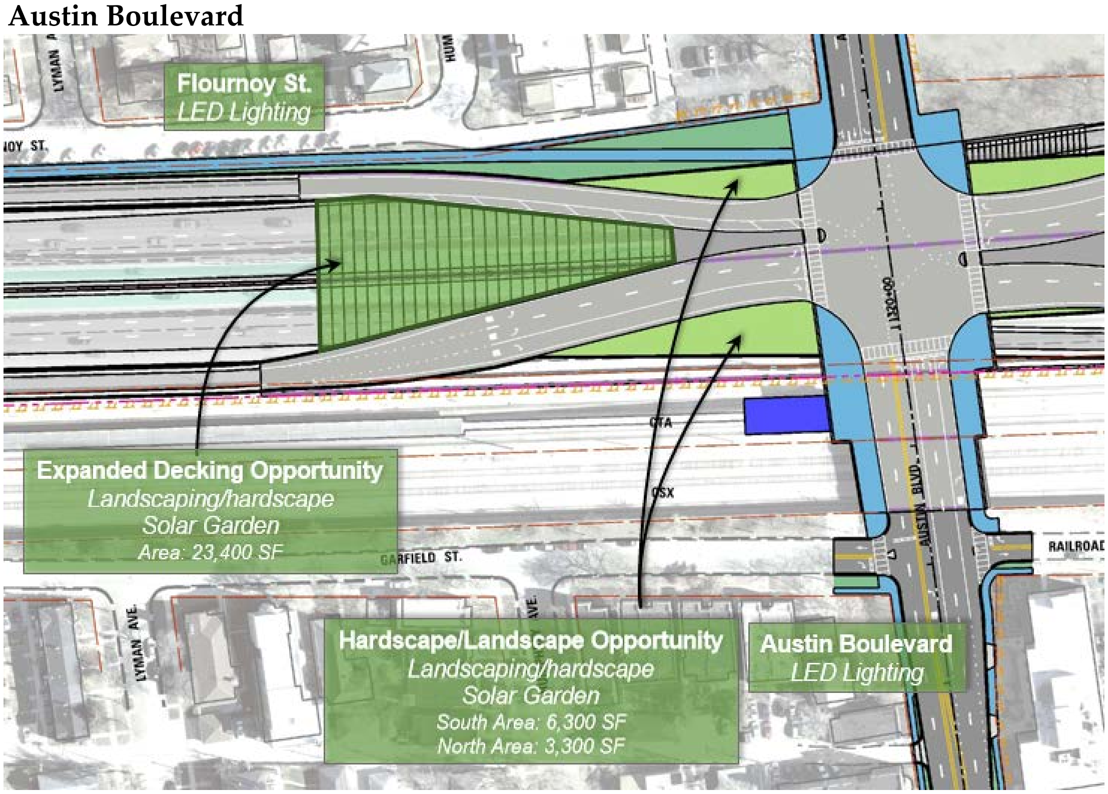
The Village of Oak Park also is exploring the opportunity to install solar gardens in conjunction with the proposed project. The Village is considering applying solar panel technology to noise walls where proposed and/or where space may be available as part of the proposed project. Two such opportunity areas occur where expanded bridge decking is proposed over the expressway at Harlem Avenue and Austin Boulevard (Figure 3-54). IDOT will work with the Village to accommodate these features as these opportunities are further refined. Non-standard features and/or incremental cost difference over standard features will require Village cost participation and maintenance responsibility.

Figure 3-54. Potential Solar Garden Areas – Village of Oak Park

Harlem Avenue



Austin Boulevard



3.6 Natural Resources

The natural resources within the Project Corridor are limited in extent and quality, but generally consist of common/adaptable species. This section addresses vegetation, wildlife, and threatened and endangered species.

3.6.1 Affected Environment

3.6.1.1 Vegetation and Cover Types

Table 3-35 summarizes the land cover within the Project Corridor based on information from the Chicago Metropolitan Agency for Planning *2005 Land-use Inventory (Version 1.0)*.

Table 3-35. Land Cover within the Project Corridor

Cover Type	Acres	Percent of Total Land Cover within Project Corridor
Transportation	530	66
Residential	106	13
Industrial	81	10
Commercial	38	5
Open Space/Vacant/Under Construction	27	3
Institutional	19	2
Water	<1	<1
Total	**800**	**100**

Source: CMAP, 2005.
Note: Land use acreages are from CMAP and may vary from data provided by other sources found in other tables within this document. Numbers in table have been rounded. Percentages may not total 100.

The Project Corridor is approximately 800 acres (1.25 square miles) in size. Approximately 97 percent of the total cover is urban and built-up land. In high density areas, nearly all the land surface is covered with built structures, such as buildings, roads, parking lots, and driveways. The high percentage of impervious surface provides limited cover, foraging, and resting areas for wildlife. In areas of low/medium density, up to half of the land surface is covered with built structures. The remaining surface area is intermixed with urban landscaping, open space, or forested cover, which provide 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 3-35, the most important for wildlife are open space/vacant lands and surface water, which comprise less than four percent of the Project Corridor. Within the Project Corridor, there are no large contiguous wooded areas. Open space and surface waters provide important habitat for many species of plants and wildlife. Section 3.7, Water Resources and Aquatic Habitats, and Section 3.10, 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 cemeteries located north and south of I-290 along the Des Plaines River. The Thomas Jefferson Woods and Miller Meadows Forest Preserves of Cook County are located outside the Project Corridor north and south of the cemeteries, respectively. The only other large open areas are located within the I-290/US Route 45 interchange. The cemeteries consist of mowed turf and scattered trees. There are no high quality natural areas located within the Project Corridor.

Trees

A survey to identify tree resources within impacted areas of the Project Corridor was conducted in November of 2016 (Huff & Huff, Inc., 2016). The tree survey was completed according to IDOT Departmental Policies (D&E – 18) *Preservation and Replacement of Trees.* Trees with a diameter at breast height (dbh) of 6 inches or greater, as well as trees with a dbh less than 6 inches when such have been intentionally planted for landscaping, environmental mitigation, or habitat preservation/enhancement purposes, were identified within impacted areas of the Project Corridor. Overall tree health and structure were also assessed for identified trees. Trees were inventoried using the Direct Counting Method.

No forested areas greater than 20 acres are located within the Project Corridor. The majority of the Project Corridor contains scattered trees within the roadway rights-of-way as well as landscaped trees within adjacent residential and commercial land. Limited tree resources are located within floodplains and riparian areas. A total of 3,660 trees are located within impacted areas of the Project Corridor (Huff & Huff, Inc., 2016). Sixty-nine (69) species of trees were identified in impacted areas of the Project Corridor. The most common species identified include honey locust (*Gleditsia triacanthos*, 12 percent) and green ash (*Fraxinus pennsylvanica*, eight percent). Approximately 60 percent are considered landscaped and 40 percent are considered volunteer (a plant that grows on its own). Table 3-36 summarizes the total number of landscaped and volunteer trees present within each municipality of impacted areas of the Project Corridor. It should be noted that many of the green ash trees within impacted areas of the Project Corridor appeared to be infected with the Emerald Ash borer. Regardless of the proposed project, many if not all of the ash trees would need to be removed in the future due to the Emerald Ash borer.

Table 3-36. Tree Data by Municipality

Municipality	Total Trees	Percent of Total*
Bellwood	444	5
Broadview	164	2
Chicago	4,094	50
Forest Park	636	8
Hillside	1,587	20
Maywood	689	9
Oak Park	3339	4
Westchester	199	2
Total	**8,152**	**100**

Source: Huff & Huff, Inc., 2016
*Total may not equal 100 percent due to rounding.

3.6.1.2 Wildlife

The Project Corridor contains limited areas of wildlife habitat. Roughly 97 percent of the Project Corridor is urban and built-up land (see Table 3-35). Development in the Project Corridor has limited the distribution of sensitive wildlife species to protected lands, such as forest preserves. There are no forest preserves within the Project Corridor; however, there are forest preserves north and south of the Project Corridor along the Des Plaines River. Overall, urban development and habitat fragmentation limits wildlife movement throughout much of the Project Corridor.

The developed parts of the Project Corridor provide minimal wildlife habitat. Wildlife species in urban/suburban areas tend to be tolerant of disturbance and human activities. Some would 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 Section 3.7. A wildlife survey was not conducted as part of the study; instead, national and state databases were searched for wildlife information.

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 US Department of Agriculture (USDA)-Natural Resources Conservation Service (NRCS) *Noxious Weeds List for Illinois* includes invasive plant species that have been recorded within Cook County, such as Canada thistle (*Cirsium arvense*), common ragweed (*Ambrosia artemisiifolia*), and giant ragweed (*Ambrosia trifida*).

Additional invasive plant species dominate many of the upland habitats in the Project Corridor, such as common buckthorn *(Rhamnus cathartica)*, garlic mustard (*Alliaria petiolata*), Tartarian honeysuckle (*Lonicera tatarica*), and teasel (*Dipsacus* sp.).

Invasive species also include aquatic nuisance species and injurious wildlife species that can potentially harm an ecosystem. Examples of aquatic nuisance species and injurious wildlife that have been recorded from the Project Corridor include the common carp (*Cyprinus carpio*).

3.6.1.3 Threatened and Endangered Species

Threatened and endangered species assessments were conducted using published databases and field review of available habitat. Threatened and endangered species clearances were provided for the project on April 10, 2014 and December 13, 2014 (Appendix G-1).

Federal-Listed Species

A review of the US Fish and Wildlife Service (USFWS) list for threatened and endangered species was conducted in November 2016. The list is made accessible and provided by the USFWS as part of the initial Section 7 Consultation process. Table 3-37 summarizes the USFWS list for threatened and endangered species known to occur within Cook County, Illinois.

On January 14, 2016 the USFWS issued the Endangered and Threatened Wildlife and Plants; 4(d) Rule for the Northern Long-Eared Bat (50 CFR Part 17, 2016; Appendix G-2). There are no known hibernacula within the Project Corridor. No buildings would be removed as part of this project. Although existing bridges would be demolished and replaced, the lack of habitat and connectivity to habitat to these bridges limits the use of these structures by bats. In addition, there are not known maternity roost trees within the Project Corridor or within 150 feet of the Project Corridor (Appendix G-2). The absence of the northern long-eared bat was determined during the Section 7 consultation conducted by FHWA on December 13, 2013 given the urban environment, proximity to downtown Chicago and lack of trees adjacent to an existing multi-lane expressway. Therefore, the proposed project will *not affect* the northern long-eared bat and potential suitable roosting habitat was not assessed. The proposed project will meet the Final 4(d) Rule (50 CFR Part 17, 2016).

Table 3-37. Federally Listed Threatened and Endangered Species within Cook County

Species	Status	Habitat	Habitat Present in Project Corridor?
Piping Plover (*Charadius melodus*)	Endangered	Lakeshore Beaches	No
Hine's emerald dragonfly (*Somatochlora hineana*)	Endangered	Spring fed wetlands, wet meadows and marshes	No
Leafy prairie clover (*Dalea foliosa*)	Endangered	Prairie remnants on thin soil over limestone	No
Rusty patched bumblebee	Proposed as Endangered	Grasslands with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter.	No
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests and woods and human structures such as buildings and bridges.	No
Eastern prairie fringed orchid (*Platanthera leucophaea*)	Threatened	Moderate to high quality wetlands, sedge meadow, marsh, and mesic to wet prairie	No
Mead's milkweed (*Asclepias meadii*)	Threatened	Late successional tallgrass prairie, tallgrass prairie converted to hay meadow, and glades or barrens with thin soil	No
Prairie bush clover (*Lespedeza leptostachya*)	Threatened	Dry to mesic prairies with gravelly soil	No
Eastern massasauga rattlesnake (*Sistrurus catenatus*)	Threatened	Graminoid dominated plant communities (fens, sedge meadows, peatlands, wet prairies, open woodlands, and shrublands)	No
Rattlesnake master borer moth (*Papaipema eryngii*)	Candidate	Undisturbed prairie and woodland openings that contain their only food plant, rattlesnake-master (*Eryngium yuccifolium*).	No
Rufa red knot (*Calidris canutus rufa*)	Threatened	Along coastal areas or large wetland complexes during migratory window of May 1 - September 30	No

Source: USFWS, 2016.

In summary, the proposed project will not affect the species listed in 3.

State-Listed Species

Based on information provided by the IDNR and Illinois Natural Heritage Database, 117 species are state-listed threatened or endangered species within Cook County (Table 3-38).

Table 3-38. State Listed Threatened and Endangered Species within Cook County

Type of Species	Number of Species Listed
Plant	91
Bird	13
Fish	4
Insect	3
Reptile	3
Amphibian	1
Small Mammal	1
Mussel	1

Source: Illinois Endangered Species Protection Board, 2014

The Ecological Compliance Assessment Tool (EcoCAT) reviewed on November 4, 2014 indicated, the banded killifish (*Fundulus diaph*anus), as potentially within the Project Corridor. A review of the Natural Heritage Database (2016) found no record of the banded killifish in the Project Corridor.

3.6.2 Environmental Consequences

3.6.2.1 Habitat Loss and Fragmentation

The build alternatives are located predominantly in developed areas associated with existing roadways. All of the four build alternatives would result in the same impacts to habitat. A total of 10 acres of existing non-paved surface area would be converted to paved roadway surface.

The build alternatives would not fragment any contiguous forested parcels or wooded riparian corridors larger than 20 acres. The density of trees within impacted areas of the Project Corridor is highly varied with the highest density of trees located within right-of-way areas that are not actively mowed. The build alternatives may potentially impact a total of 3,884 trees. Fifty-seven (57) species of trees were identified within the potentially impacted areas. The most common species identified that are potentially impacted include honey locust (12 percent) and Siberian elm (*Ulmus pumila*, nine percent). Table 3-39 summarizes the total number of potentially impacted landscaped and volunteer trees present within each municipality.

Table 3-39. Potentially Impacted Trees by Origin and Municipality

Municipality	Landscaped Trees	Volunteer Trees	Total	Percent of Total*
Bellwood	305	139	444	11
Broadview	27	137	164	4
Chicago	706	224	930	24
Forest Park	122	514	636	16
Hillside	534	49	583	15
Maywood	112	567	679	17
Oak Park	229	78	307	8
Westchester	87	54	141	4
Total	2,122	1,762	3,884	99

*Total may not equal 100 percent due to rounding. Source: Huff & Huff, Inc., 2016

3.6.2.2 Wildlife

Developed areas associated with existing roadways provide poor wildlife habitat. Wildlife that use the available habitat tend to be tolerant of disturbance and human activities. Urban-tolerant wildlife species are generally common adaptable species and include limited numbers of birds, mammals, reptiles, and amphibians.

Habitat for the peregrine falcon (*Falco peregrinus*), since delisted as a state threatened species and now protected by the Migratory Bird Act, is present within the Project Corridor. No peregrine falcons or avian nests were identified within the Project Corridor during the tree survey (Huff & Huff, Inc., 2016), however, known peregrine falcon occurrences and occurrence buffer areas were determined to be located a sufficient distance away from the Project Corridor to not be impacted by the proposed project (Appendix G-1).

Overall, project-related impacts to wildlife associated with the build alternatives would be minimal Construction (e.g., grading and equipment operation) could also result in wildlife impacts, as can traffic and construction noise. Many mobile wildlife species would avoid harm due to construction operations, but some mortality is expected, especially to small mammals, amphibians, and reptiles that might be present in construction areas.

Direct conversion of approximately 10 acres from non-paved cover to paved areas would result in the loss of wildlife habitat for breeding, foraging, and resting. Impacts to wildlife could involve limited population reductions of species or displacement associated with the habitat within the construction limits of the proposed project. The Project Corridor contains limited areas of wildlife habitat, and it is expected that the overall effect on wildlife using those areas would be minimal. Of the land cover types listed in Table 3-35, the most important type in the Project Corridor for wildlife is open space and surface waters. A small amount of urbanized open space would be converted to paved areas per the Chicago Metropolitan Agency for Planning's (CMAP) *2005 Land-*

use Inventory (Version 1.0). Aerial photography indicates additional open space (pervious surfaces) located within land defined by CMAP as transportation use (typically roadway rights-of-way). The majority of the 10 acres that would be converted from non-paved cover to paved areas would occur within the existing transportation right-of-way between Mannheim Road and Harlem Avenue. Limited wildlife habitat is present within this area is degraded due to the adjacent expressway, rail transit, and freight rail, as well as surrounding residential land, existing access restriction fence and noise walls, and a limited riparian corridor associated with Addison Creek.

No impacts to forest preserves or state designated lands are proposed. Because the proposed project consists primarily of improvements to existing roads and land already dedicated to transportation infrastructure close to developed land, impacts to wildlife habitat are minimal.

Habitat fragmentation divides larger continuous habitat into smaller habitat patches, reducing habitat function and value. The build alternatives would result in very little fragmentation because the area is within existing transportation corridors. Edge habitat is the boundary between habitat types and are often associated with urbanized areas. Some species identified near the Project Corridor, such as the American robin (*Turdus migratorius*), prefer edge habitat. Most land impacted by the build alternatives are urbanized and include edge habitat. Minimal disruption of the habitat edge is anticipated from the build alternatives, as most improvements are within existing rights-of-way.

3.6.2.3 Barriers to Wildlife Movement

Development of the build alternatives considered avoidance, minimization, and mitigation of natural resource impacts. The build alternatives primarily include improvements to existing roadways or addition of a new travel lane. These roadways are already barriers to wildlife movement. Existing roadside barriers, such as fences and jersey walls, are expected to remain in place or be replaced if impacted; fences and jersey walls may restrict wildlife from entering roadways. They can also trap wildlife on the roadway, allowing no means of escape. Short barrier walls that would be implemented as necessary near creek crossings typically restricts the movement of small animals (including reptiles, amphibians, and smaller mammals) from entering the roadway corridor. The walls, however, would not limit the movement of larger mammals to prevent them from being trapped within the roadway.

3.6.2.4 Operational Mortality

Operational mortality would most likely result from vehicle/wildlife collisions along the proposed facility. The Project Corridor is located in an urban setting, and the land use tends to limit the extent and frequency of wildlife use compared to rural areas and large protected open space. The majority of potential vehicle/wildlife collisions would be with common animal species near existing greenways crossed by the build alternatives [e.g., Addison Creek (Figure 3-55), Des Plaines River (Figure 3-56)]. It is expected that minimal to no species loss would occur from either the No Build or build alternatives, given the heavily urbanized area.

Figure 3-55. Addison Creek, north of I-290

Source: Field Photo (Huff & Huff), 2014

Figure 3-56. Des Plaines River, north of I-290

Source: Field Photo (Huff & Huff), 2014

3.6.3 Measures to Minimize Harm and Mitigation

Avoidance and minimization of impacts to natural resources (including upland plant communities and wildlife resources) was an important component in the development and evaluation of the build alternatives.

3.6.3.1 Upland Plant Communities

The build alternatives have been designed to utilize existing roadways and rights-of-way to the extent practicable, which would minimize disturbances to undeveloped open space and commercially developed areas. No roadway alignments go through large tracts of undisturbed open space or wooded land and disturbances would be limited primarily to edge impacts associated with widening and improving existing roadways and rights-of-way.

In the future design phase and during construction, IDOT will investigate and implement measures to minimize impacts to tree resources.

These measures include:

- Implementation of proper soil erosion and sediment control measures to minimize sediment deposition and indirect adverse impacts in wooded wetland and riparian zones; and
- Construction fencing and exclusion zones to reduce compaction of roots and soil.

Adverse impacts to trees will be reduced and minimized by implementing a tree protection and preservation plan that may include guidance regarding root pruning in critical root zones close to site grading, tree trunk and/or dripline protection measures, and establishment of exclusion zones to protect wooded land outside the proposed construction limits.

Mitigation of tree resources will comply with guidelines established by IDOT for tree replacement. Tree and vegetation replacement will be guided by IDOT's *Preservation and Replacement of Trees* (IDOT, 2002) policy and Chapter 59 ("Landscape Design") of the *BDE Manual* (IDOT, 2014).

Guidelines for replacement of trees and vegetation include the following:

- Replace impacted woodland areas, including woody riparian corridors, and trees that provide screening with tree plantings intended to provide comparable functional values within the right-of-way, to the extent practicable. When this cannot be achieved, plantings outside the right-of-way will be considered;
- Plant replacement trees in suitable locations as close as practical to the removal site;
- Plant no ash trees of any variety within the Project Corridor, to help control the spread of the emerald ash borer;
- Restore disturbed areas with vegetation as appropriate, with emphasis on native species;
- Encourage contractors to use locally produced (within 200 miles) materials; and
- Plant vegetation that has low maintenance requirements.

Disturbance of streamside/riparian vegetation will be kept to a minimum. Areas that are disturbed will be stabilized in accordance with National Pollutant Discharge Elimination System and Clean Water Act Section 404 permit requirements. Erosion controls, stormwater quality/quantity best management practices (e.g., compensatory floodplain storage, bioswales, etc.), trees, shrubs, and other appropriate vegetation will be installed near streams to mitigate for riparian impacts.

A landscaping plan will be developed during the design phase that will identify areas where trees, shrubs, and grasses will be planted on highway side slopes, on back slopes, and in the median, except where clear vision needs to be maintained at highway entrances and exits, intersections, and median openings. Landscape trees and shrubs will be planted along post-construction parkways adjacent to existing commercial and residential developments to replace aesthetic woodland functions and values, as necessary.

3.7 Water Resources and Aquatic Habitats

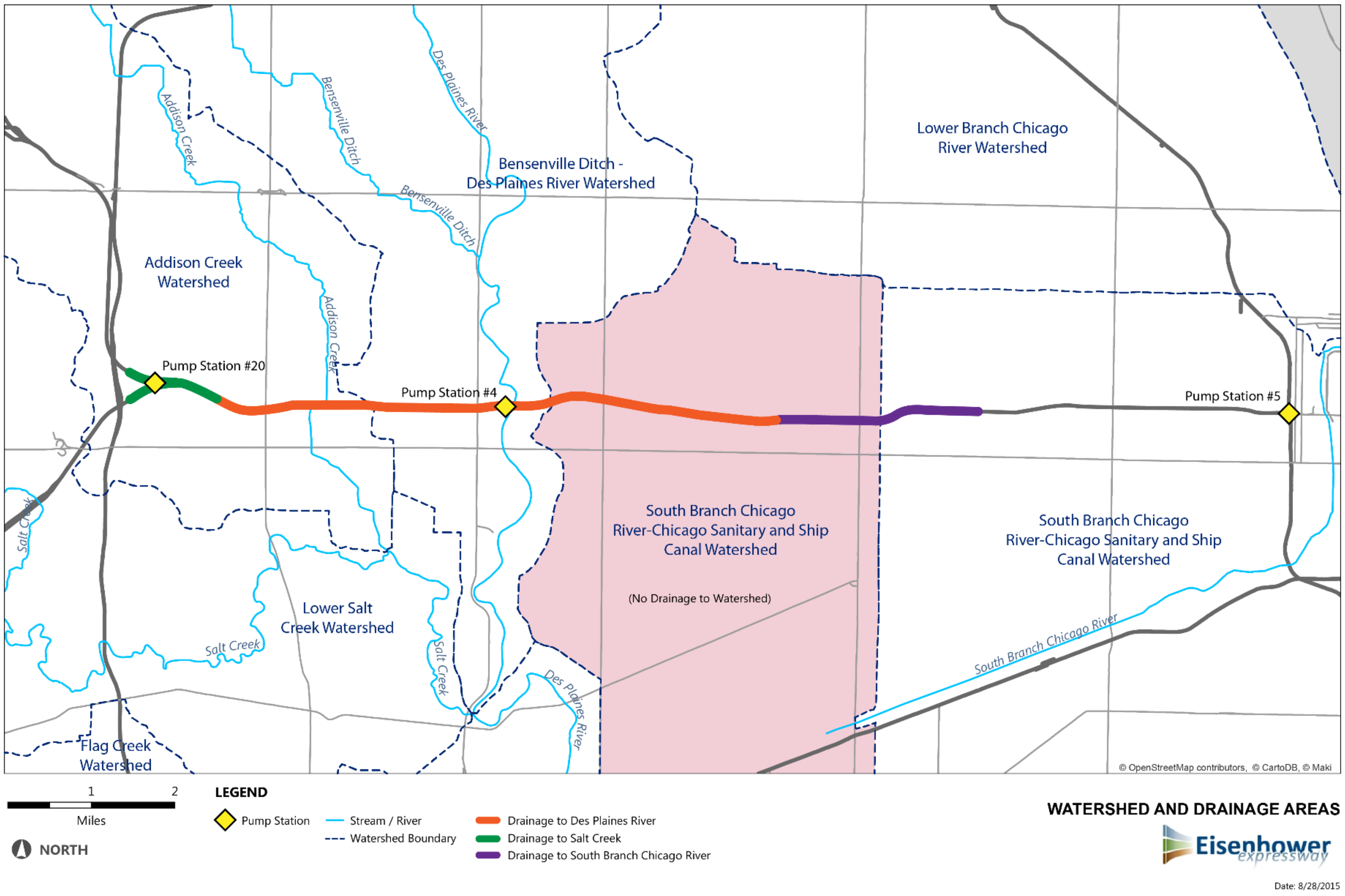
This section describes the physical, biological, and chemical characteristics of surface waters in the Project Corridor, including their associated aquatic habitats. An evaluation of these characteristics can provide an indication of water quality and a baseline from which potential water quality impacts can be assessed. Wetland resources are discussed in Section 3.10.

This section also discusses impacts to surface water resources that would be associated with the construction, operation, and maintenance of the alternatives, including the pollutants that could be deposited into receiving waters, potential impacts to water quality, and direct impacts through construction and the placement of fill material. Pollutants, such as sediments, solids, heavy metals (e.g., lead, zinc, and copper), oil and grease, deicing chemicals, and fertilizers/nutrients, may be released into the environment during construction or may accumulate on roadway surfaces and adjoining rights-of-way as a result of motor vehicle operations and maintenance. These pollutants were evaluated for potential impacts upon water quality. Measures to minimize and mitigate these impacts are also described.

3.7.1 Affected Environment

The Project Corridor is within the Des Plaines River drainage basin, Hydrologic Unit Code (HUC) 07120004, and the Chicago River drainage basin, HUC 07120003, as catalogued by the US Geological Survey (USGS). The Des Plaines River and the Chicago River drainage basins have been divided into several sub-watersheds near the Project Corridor, including Salt Creek, Addison Creek, Upper Des Plaines River, Lower Des Plaines River (main stem), and South Branch of the Chicago River (Figure 3-57). The Project Corridor crosses Addison Creek and the Des Plaines River main stem. All stormwater collected within the Project Corridor is currently directed into a storm sewer system. In the western section of the project, Mannheim Road to I-294, the storm sewer system drains to Pump Station 20 and ultimately discharges to Salt Creek. Stormwater runoff from Mannheim Road to Central Avenue drains to Pump Station 4 and discharges to the Des Plaines River. In the eastern portion of the project, roadway runoff drains to Pump Station 5 and eventually discharges to the South Branch of the Chicago River. None of the I-290 existing roadway runoff drains to Addison Creek (Figure 3-57). Land uses for these watersheds are described in Appendix H.

Figure 3-57. Watersheds in the Project Corridor



3.7.1.1 Watershed Planning Groups

The proposed project crosses four watersheds represented by watershed groups: The Lower Des Plaines Ecosystem Partnership (LDPEP), The Upper Des Plaines River Ecosystem Partnership (UPDREP), DuPage River Salt Creek Workgroup (DRSCW), and Salt Creek Watershed Network (SCWN). Figure 3-57 depicts the watershed boundaries for the area streams.

The Lower Des Plaines River Ecosystem Partnership (LDPEP, 2004) is an active watershed group consisting of local communities, forest preserve districts, and environmental organizations that work together to identify stressors to the aquatic environment (through stream monitoring), and to develop and implement recommendations and actions to improve water quality and stream health in the watershed[43]. The LDPEP is an Ecosystem Partnerships associated with the IDNR Conservation 2000 (C2000) Program.[44] This partnership provides watershed resources, assist stakeholders with developing strong grant proposals for watershed improvements, and provide input on the C2000 grant selection process.

The UPDREP was formed to "preserve, protect, and enhance the Upper Des Plaines River Watershed through stakeholder education, collaboration, and technical assistance" (Upper Des Plaines River Ecosystem Partnership, 2015). The UPDREP is no longer an active watershed group; however, the information collected by the group is also provided by the LDPEP. UPDREP also identified water quality and habitat improvements made by the group in the Watershed Restoration Action Strategy for the Upper Des Plaines River Report. For additional information refer to: http://lowerdesplaines.org/upper_resources.htm.

The DRSCW is an active watershed group consisting of local communities, publicly owned treatment works (POTW), and environmental organizations that work together to identify stressors to the aquatic environment (through stream monitoring) and develop/implement recommendations and actions to improve water quality and stream health. The DRSCW has also identified projects with a high potential to restore beneficial uses to stream segments in the DuPage River-Salt Creek Watersheds. Projects include dam removal, habitat restoration, stormwater management, chloride reduction, and a study of the impact of deicers (Midwest Biodiversity Institute, 2008). For additional information refer to http://drscw.org/.

The SCWN is an organization that promotes awareness of issues affecting Salt Creek and investigates opportunities to restore the creek to be an enjoyable public resource. The SCWN conducts public education and outreach throughout the watershed and promotes

[43] For additional information refer to: http://www.upperdesplainesriver.org/and http://www.lowerdesplaines.org/index.htm.

[44] The C2000 Program (renamed Partners for Conservation in 2008) is a comprehensive, long-term approach to natural resource protection and management in Illinois. The Partners for Conservation program provides funding and technical assistance for habitat restoration, land acquisition, planning, research, and outreach. Partners for Conservation is joint funded by the IDNR, IDOA, and IEPA.

the use of best management practices to improve water quality and recreation (http://www.saltcreekwatershed.org/).

3.7.1.2 Water Resources

Water resources receiving stormwater flow in the Project Corridor are limited to three streams: Salt Creek, Des Plaines River, and the South Branch of Chicago River. The Des Plaines River and Addison Creek are both crossed by the Project Corridor; however, stormwater does not discharge directly into Addison Creek. Seven stormwater management facilities were also identified in the existing Project Corridor[45].

The physical, biological, and chemical characteristics of the Project Corridor surface bodies of water are described in the following subsections.

3.7.1.3 Physical and Biological Description of Surface Water Bodies

A stream's physical characteristics (such as substrate and flow rate) may affect the aquatic biota. In rivers, habitat is usually closely linked to biological diversity. This subsection describes the physical and biological characteristics of streams crossed by the Project Corridor. The information summarized is primarily based on fieldwork completed as part of the wetland and Waters of the United States (WOUS) delineation conducted for the project (Huff & Huff, 2014) and available data through the Illinois Natural History Survey (INHS), Illinois Department of Natural Resources (IDNR), and USEPA STORET databases. No stream sampling was conducted as part of this project. Key physical characteristics of the streams are listed in Appendix H.

Flow Characteristics

Salt Creek, Addison Creek, the Des Plaines River, and the South Branch of the Chicago River are streams with flow. In general, a perennial stream usually maintains constant flow throughout the year and is capable of supporting fish and aquatic life. All four streams are perennial (Parsons Brinckerhoff, 2014; CBBEL, 2014).

Stream Substrate

A streambed may be composed of sand, gravel, cobble, detritus, silt, clay, or bedrock. Within the Project Corridor, the substrate of Salt Creek consists of silt and gravel. Addison Creek consists of silt, while the substrate of the Des Plaines River consists of silt, loam, and gravel. The substrate of the South Branch of the Chicago River is composed of silt and muck.

Stream Width and Depth

The Project Corridor streams range in width from approximately 50 feet to 165 feet and water depth ranges from approximately one foot to approximately 26 feet.

[45] Section 404 (Clean Water Act) waters are defined at and determined in accordance with 33 CFR §§328-329 and 40 CFR §230.3. Final jurisdictional determination is completed by the USACE.

Riparian Vegetation

Riparian habitat includes the vegetated portion of the floodplain adjacent to rivers, streams, and creeks. Riparian habitat functions may include erosion control, streambank stabilization, water quality benefits, treatment of contaminated stormwater runoff, habitat for plants and animals, a source of organic and nutrient input, moderation of stream temperatures (keep streams cool), and recreational or aesthetic value.

The discharge into Salt Creek occurs adjacent to and on the south side of I-88. There are trees and shrubs located along a narrow riparian corridor in this portion of Salt Creek which is located in an area of office buildings.

Addison Creek and the Des Plaines River have trees or shrubs located within a relatively narrow riparian corridor. Addison Creek is channelized within the Project Corridor and for the most part, the beneficial buffer functions of the riparian habitat within the Project Corridor are limited (CBBEL, 2014). Within the Project Corridor, Addison Creek is located immediately adjacent and parallel to the north side of I-290 west of 25th Avenue. The creek banks are stabilized with concrete and vegetation, dominated by box elder (*Acer negundo*), silver maple (*Acer saccharinum*), American elm (*Ulmus americana*), and catalpa (*Catalpa speciosa*), riverbank grape (*Vitis riparia*) and mowed turf (Huff & Huff, 2014).

Extensive wooded areas are located adjacent to the Des Plaines River north and south of the Project Corridor. Throughout the Project Corridor, the Des Plaines River has a bed of silty, loamy soil (Parsons Brinckerhoff, 2014). The channel banks are fairly steep and vegetated with grass and trees through most of the reach (Parsons Brinckerhoff, 2014). The upstream natural channel is in fairly good condition in the vicinity of the FAI-290 Bridge; however, the downstream channel banks, especially the east bank of the channel, are very steep and significantly eroded (Parsons Brinckerhoff, 2014).

The South Branch of the Chicago River has man-made concrete retaining walls and flows through a heavily urbanized area, and therefore has limited riparian vegetation (Pescitelli and Rung, 2009).

Mean Habitat Score

A habitat assessment was not completed for Addison Creek, the Des Plaines River, or the South Branch of the Chicago River. A habitat assessment was completed for Salt Creek by the DuPage River Salt Creek Workgroup in the "Stream Dissolved Oxygen Improvement Feasibility Study for Salt Creek" (HDR, September 2009).

The Illinois EPA Qualitative Stream Habitat Assessment Procedure (SHAP) was utilized to describe Salt Creek based on the observations collected during the reconnaissance. The SHAP index includes factors for bottom substrate, deposition, substrate stability, canopy cover, pool substrate characterization, pool quality, pool variability, canopy cover, bank vegetation, top of bank land use, flow-related refugia, channel alteration, channel sinuosity, width/depth ratio, and hydrologic diversity. Based on the subjective evaluation for the aforementioned factors, a SHAP score is determined. SHAP scores can range from 15 to 208, with scores above 142 considered excellent, between 100 and 142 considered good, between 59 and 100 considered fair, and lower than 59 considered poor.

A reconnaissance of Salt Creek was completed on October 13, 2005, during a period of low-flow conditions from I-88 to Cermak Road. In this section, Salt Creek is 2.6 feet (0.8 meter) deep with a mud bottom 2 to 5.9 feet (0.6 to 1.8 meters) deep with gravel substrates.

The SHAP for this segment was 55 of 208, indicating poor habitat quality. The section had poor habitat diversity, scattered canopy and was mostly deep pools.

Upstream Drainage Area and Watershed Characteristics

Assessing the upstream drainage area and characteristics of a watershed can provide information relative to stream health and potential causes of impairment. The upstream drainage areas range from approximately 17.1 square miles (Addison Creek) to approximately 480 square miles (Des Plaines River). Salt Creek drainage area is approximately 102.8 square miles and South Branch of Chicago River (in natural state) is 226 square miles (Horton, 1914). The majority of the land use in the Project Corridor watersheds includes developed land that likely has contributed to stream degradation.

Highly Erodible Soils

Highly erodible soils have been identified to have slopes of four percent or greater. These soils are usually associated with changes in topography and can occur along streams. When cleared of vegetation, these soils can become a source of sediment for adjacent waters. Based on the Cook County soils map, approximately two acres of highly erodible soils were identified in the Project Corridor, primarily within residential areas at the western terminus of the Project Corridor. Even though soil types have been mapped by the Natural Resources Conservation Service (NRCS), most of the Project Corridor soils have been extensively altered by past grading activity associated with the existing roadway network and adjoining development; therefore, the mapped characteristics actually may not be present.

Biological Stream Ratings

In 2008, the IDNR released biological stream ratings for Illinois streams (IDNR-Office of Resource Conservation [ORC], 2008).[46] These ratings can be used to identify aquatic resource quality, including biologically diverse streams and those with a high degree of biological integrity. 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.

The segment of Salt Creek (GL-09) receiving runoff has not been assessed for biological significance, biological integrity, or diversity; however, the segment immediately south (GL-01) has been assessed. Salt Creek segment GL-01 was not considered biologically

[46] Based on information from IDNR, the new stream ratings replace the Biological Stream Characterization (BSC) and BSS developed in 1984 and 1992, respectively.

significant, received a diversity rating of B, and received a biological integrity rating of D (IDNR, 2008).

Within the Project Corridor, Addison Creek received an E rating for both biological diversity and integrity (IDNR, 2008). The segment of the Des Plaines River within the Project Corridor has not been assessed by IDNR. The segment of the Des Plaines River downstream of the Project Corridor received a B for diversity and a C rating for integrity (IDNR, 2008).

The South Branch of the Chicago River was assessed as D (poor) for biological integrity and diversity which indicates a limited aquatic resource with almost exclusively tolerant species present (IDNR, 2008).

Fish

Biological data for Salt Creek, Addison Creek, Des Plaines River, and South Branch Chicago River were obtained from various studies. Appendix H contains a summary of their biological characteristics. Salt Creek data were obtained from the DuPage River/Salt Creek Workgroup (DRSCW) studies, about 3.3 to 5 miles downstream of the Project Corridor (DRSCW, 2007 & 2010). No intolerant species were identified; commonly occurring species include bluntnose minnow (*Pimephales notatus*), white sucker (*catostomus commersoni*), gizzard shad (*dorosoma cepedianum*), bluegill (*lepomis macrochirus*), orange spotted sunfish (*lepomis humilis*), and green sunfish (*lepomis cyanellus*).

In 2010, the INHS conducted sampling of Addison Creek, approximately seven miles upstream of the Project Corridor (Wetzel et al., 2010). The studies indicated that Addison Creek had five fish species present; none of these were intolerant species. Fathead minnows (*Pimephales promelas)* were 87 percent of the species collected.

The INHS fish collection database for Cook County contains records of 56 species of fish within the Project Corridor streams (INHS, 2014). Pollution intolerant fish species, threatened or endangered species, or "Species in Greatest Need of Conservation for Illinois"[47] have been collected within the Des Plaines River in Cook County. The bigmouth shiner (*Luxilus cornutus*) is the only Species in Greatest Need of Conservation that has been identified within the Des Plaines River in Cook County in the last 15 years).

The Des Plaines River may be used for recreational fishing, but does not support commercial fisheries. Game fish, such as largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), sunfish (*Lepomis* spp.), bullhead (*Ameiurus* spp.), and black crappie (*Pomoxis nigromaculatus*) are known to occur within the Des Plaines River in Cook County (INHS, 2014). Largemouth bass are widespread in Illinois and found in habitats of all types and quality.

[47] Based on Appendix I of Illinois Wildlife Action Plan (IDNR, 2005).

A study published in 2009 *Fish Surveys in the Lake Michigan Basin 1996-2006: Chicago and Calumet River Sub-basins* by Stephen Pescitelli and Robert Rung contained biological data for the South Branch of the Chicago River near Van Buren Street, approximately 0.1 miles upstream from I-290. A total of 11 different species of fish were identified. The most common, in order, were gizzard shad (*dorosoma cepedianum*), bluegill (*lepomis macrochirus*), and spottail shiner (*notropis hudsonius*).

<u>*Aquatic Macroinvertebrates*</u>

Aquatic macroinvertebrates can be used as indicators of water quality conditions. Available aquatic macroinvertebrates were used to describe area streams and can provide information on water quality. One metric that is commonly used to assess water quality based upon the presence of macroinvertebrates is Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies) (EPT) taxa richness which assesses the species richness present. A score of 0-6 is considered poor, 7-13 fair, 14-20 good-fair, 20-27 good, and greater than 27 is excellent. The Project Corridor streams support aquatic macroinvertebrate communities that are typical of polluted, urban streams and no listed threatened or endangered species occur within the Project Corridor.

DuPage River Salt Creek Workgroup (DRSCW) collected macroinvertebrates in Salt Creek, about 3.3 to 5 miles downstream of the Project Corridor. The most commonly occurring macroinvertebrates collected were the non-biting midge (*Polypedilum (P.) illinoense*) and aquatic worms (*Oligochaeta*) (DRSCW, 2007 & 2010). The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) also conducted macroinvertebrate surveys approximately 13 miles upstream, near Devon Avenue, in 2010 using two different collection methodologies. The most commonly occurring macroinvertebrates were segmented worms (*Oligochaeta*), flatworms (*Turbellaria*), caddisflies (*Cheumatopsyche*) and midges (*Tanytarsus*). EPT taxa richness was also provided for both the results of the Hester-Dendy sampling method and Petite Ponar sampling method. Both methods had an EPT taxa richness score of 3, which is considered poor (MWRDGC, 2012).

Based on the results of an unrelated study, a section of Addison Creek, seven miles upstream of the Project Corridor had relatively tolerant macroinvertebrate communities, with scores associated with impaired water quality (Midwest Biodiversity Institute, 2008). A 2010 study conducted at the same Addison Creek location also showed a high incidence of tolerant macroinvertebrates and had a low EPT taxa richness score of 0, which is considered poor (Wetzel, et. al, 2010).

The MWRDGC collected macroinvertebrates in the Des Plaines River approximately six miles downstream of the Project Corridor near Ogden Avenue. The most commonly occurring macroinvertebrates were segmented worms (*Oligochaeta*), non-biting fly (*Polypedilum scalaenum grp)*, non-biting midge (*Polypedilum flavum*), caddisflies (*Cheumatopsyche*), and midges (*Cricotopus bicinctus grp*) in the Des Plaines River. Two sampling methods were used, Hester-Dendy and Petite Ponar, and different EPT scores were provided for each method. The EPT taxa richness score was 6 for the Hester-Dendy method and 3 for the Petite Ponar method, both are considered poor (MWRDGC, 2012).

The South Branch of Chicago River was also sampled by the MWRDGC in 2010 approximately 0.26 miles upstream of Project Corridor near Madison Street. The most commonly occurring macroinvertebrates were segmented worms (*Oligochaeta*) and sow bugs (*Caecidotea*). Two sampling methods were used and EPT taxa richness scores were provided for each sampling method. The EPT taxa richness score for both the Hester-Dendy and Petite Ponar method was 0, which is considered poor (MWRDGC, 2012).

Mussels and Clams

Available databases were searched for mussel and clam information associated with the Project Corridor streams. Based on available data, 16 species of mussels were collected from Addison Creek and the Des Plaines River in Cook County (INHS, 2014). Most of these mussel species are widespread or common and locally abundant species. Only two species, the flutedshell (*Lasmigona costata*) and ellipse (*Venustaconcha ellipsiformis*), identified within the Des Plaines River in Cook County are considered pollution intolerant. The flutedshell record is from 2009 and the ellipse record is from 1957.

Mussel data for Salt Creek were obtained from the INHS (1997-2009) studies. Based on studies, three species of mussels were collected from Salt Creek near I-88; including Asiatic clam *(Corbicula fluminea)*, which is an introduced species. Additionally, the paper pondshell *(Utterbackia imbecillis)* and the lilliput (*Toxolasma parvum)* were collected, and are both common and widespread species in Illinois. In 2006, a relic shell of the state endangered rainbow mussel *(Villosa iris)* was collected from Salt Creek (near the Cook County border) but no live shell was collected in Cook County.

No mussel surveys were available for the South Branch of the Chicago River.

3.7.1.4 Water Quality

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, 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, requiring total maximum daily loads (TMDLs). TMDLs establish pollution reduction goals to improve the quality of impaired waters.

As of July 1, 2015, the South Branch of the Chicago River, as part of the Chicago Area Waterway System, has newly approved water quality standards (Title 35 Illinois Administrative Code, Part 302, Subpart D - Illinois Environmental Protection regulation). The secondary contact stream use has been replaced with "Indigenous Aquatic Life Use A" standards. The Chicago River has specific dissolved oxygen and chloride water quality standards. From July 1, 2015 to July 1, 2018, the following applies:

- Chloride: 500 milligrams per liter (mg/L) (May 1 thru November 30);
- Total Dissolved Solids: 1,500 mg/L (December 1 thru April 30); and

- Dissolved Oxygen: minimum of 5.0 mg/L (March thru July); 4.0 mg/L daily minimum average over seven days; and 3.5 mg/L at any time (August thru February).

After July 1, 2018, the water quality standard in effect for chlorides would be 500 mg/L.

The Chicago Area Waterway System Chloride Reduction Initiative Workgroup (CAWS) Chloride Reduction Initiative (which includes the IDOT) has requested a five year variance from the chloride water quality standard for the South Branch of the Chicago River. This variance would not affect the water quality standards for the Des Plaines River, Addison Creek, or Salt Creek.

TMDLs have been prepared for waters in the Salt Creek Watershed[48], including Addison Creek (CH2M HILL, 2004). Addison Creek has an approved TMDL for Ammonia-N, biochemical oxygen demand (CBOD), Chloride, dissolved oxygen, total dissolved solids, and total suspended solids. Table 3-40 summarizes the uses, impairment, and causes of impairment for Salt Creek, Addison Creek, the Des Plaines River, and the South Branch of the Chicago River.

Urban streams, such as those crossed by the Project Corridor, often show signs of degradation. The water quality of streams in developed watersheds typically reflects the point and nonpoint source pollutant discharges from surrounding urban areas.

Salt Creek, Addison Creek, the Des Plaines River, and the South Branch of the Chicago River waters do not support aquatic life (i.e., have an aquatic life use impairment), have been channelized or modified, and are surrounded by development (with forest preserve areas generally being an exception). The sources of impairment include combined sewer overflow and urban runoff (IEPA, 2016). Table 3-40 lists all causes and sources of impairments.

The recreational use of Salt Creek, Addison Creek or the Des Plaines River within the Project Corridor is limited by their degraded nature and water quality impairments (Table 3-40).

Wastewater Treatment Plant Discharges

Effluent from wastewater treatment plants (WWTP) [e.g., municipal point source discharges (MSPD)] can dominate the flow of urban streams, especially during the summer base flow period between July and October (Midwest Biodiversity Institute, 2008). Wastewater effluents entering streams may increase pollutant loads, particularly during low-flow conditions. These loads may affect water quality downstream of their outflows.

[48] The Salt Creek TMDLs address segments of the following project corridor creeks: Salt Creek, Addison Creek, Spring Brook, and Meacham Creek (CH2M HILL, 2004a).

Table 3-40. Use Support and Impairment Summary for Project Corridor Water Bodies

Water Body [a]	Designated Use [b]	Causes of Impairment	Sources of Impairment	Impaired Waters [c]
Salt Creek (AUID: GL_09)	Not supporting: AL, FC, PC, Fully supporting AQ, Not assessed: SC	Aldrin, Methoxychlor, Sedimentation/Siltation, Total Suspended Solid (TSS), pH, Phosphorus (Total), Mercury, Polychlorinated biphenyls, Fecal Coliform, Chlorides, Dissolved Oxygen	Urban runoff/storm sewers, combined sewer overflow, contaminated sediments, private and municipal point source discharge, source unknown, impacts from hydrostructure flow modification/regulation, dam impoundment, upstream impoundment, atmospheric deposition-toxic	Yes
Addison Creek (AUID: GLA_02)	Not supporting: AL, PC, AQ Not assessed: FC, SC	Aldrin, alteration in stream-side or littoral vegetative covers, chloride, chromium (total), DDT, hexachlorobenzene, nickel, other flow regime alterations, phosphorous (total),changes in stream depth and velocity patterns, fecal coliform, debris/floatables/trash	Contaminated sediments, channelization, loss of riparian habitat, combined sewer overflows, municipal point source discharges (MPSD), urban runoff/storm sewers, upstream impoundment, dam or impoundment, municipal (urbanized high density area)	Yes
Des Plaines River (AUID: G_32)	Not supporting: AL, FC Not assessed: SC, AQ	Chloride, phosphorus (total), mercury, polychlorinated biphenyls, fecal coliform	Combined sewer overflows, highway/road/bridge runoff (non-construction related), municipal point source discharges (MPSD), urban runoff/storm sewers, atmospheric depositions – toxics, source unknown	Yes
South Branch of the Chicago River (AUID: HC-01)	Not supporting: Indigenous AL, FC Not assessed: SC, AQ	PCBs, Dissolved Oxygen, Total Dissolved Solids	Combined sewer overflows, urban runoff/storm sewers, unknown sources	Yes

Source: IEPA, 2016.

[a] Information is provided for water body segment Assessment Unit Identifications (AUID) associated with the Project Corridor. Designated uses and impairments may vary per AUID.

[b] Abbreviations: AL: Aquatic Life; AQ: Aesthetic Quality; FC: Fish Consumption; PC: Primary Contact; SC: Secondary Contact. No specific assessment guidelines have been developed to assess SC use for Illinois streams and inland lakes.

[c] Impairment status is based on the IEPA Illinois Integrated Water Quality Report and Section 303(d) List (IEPA, 2016).

There are no wastewater treatment plants within two miles of the discharge into Salt Creek (which is at River Mile 14.3) upstream of the Project Corridor. The closest is the Elmhurst WWTP at River Mile 17.8 which is 3.5 miles upstream of the discharge. There are several wastewater treatment plants with outfalls to Addison Creek upstream of the Project Corridor. According to the Final TMDL for Salt Creek there is one point source on Addison Creek upstream of the Project Corridor (Bensenville South STP). Also, there is a combined sewer overflow (CSO) outfall on Addison Creek, which is near the project area: Bellwood CSO. The South Branch of the Chicago River receives combined sewer overflows and urban runoff; however, no wastewater treatment plants discharge to the South Branch of the Chicago River. There are no wastewater treatment plants on the Des Plaines River within two miles of the Project Corridor.

Water Quality Sampling Data

Appendix H contains available water quality monitoring data for Salt Creek, Addison Creek, the Des Plaines River, and the South Branch of the Chicago River. These data were collected from sampling reports of STORET, DuPage River Salt Creek Workgroup, and the Metropolitan Water Reclamation District of Greater Chicago. The values in Appendix H represent the range of sampling events conducted by the Illinois Environmental Protection Agency (IEPA) between 2003 and 2011.

The concentrations of copper, lead, and zinc achieved the acute General Use Water Quality standards in segments of Salt Creek, Addison Creek, Des Plaines River, and the South Branch of the Chicago River. The minimum dissolved oxygen values in the three streams achieved the General Use Water Quality Standards.

Based on chloride data from the STORET and MWRDGC database, chloride concentrations in sampled segments of Salt Creek, Addison Creek (GLA_2), and the Des Plaines River (G_39) within the Project Corridor exceeded the 500 milligram per liter (mg/L) water quality standard for periods of certain winters (IEPA, 2012). IEPA lists chloride as an impairment cause for the segment of the Des Plaines River within the Project Corridor (IEPA, 2016).

The October 2004 *Total Maximum Daily Loads for Salt Creek, Illinois* study for the Illinois Environmental Protection Agency (IEPA) found that there was one exceedance, out of about 46 sample dates, of the chloride standard of 500 mg/L. The exceedance was 867 mg/L on March 11, 1999. The samples were taken at the Salt Creek station (USGS 05531500) which is about six miles downstream of this project’s discharge point into Salt Creek.

Additional information on chloride concentrations in Salt Creek were obtained from the Elgin-O’Hare – West Bypass Study: Tier Two Draft Environmental Impact Statement (2012), which contained a summary of chloride data provided by the DuPage River Salt Creek Workgroup (DRSCW). The DRSCW was able to derive chloride concentrations based upon conductivity measurements. Three sites were sampled regularly in 2010 and values were presented for the winter months (January through March and November through December) and the remainder of the year (April through October). The nearest two locations were near JFK Boulevard in Addison, which is approximately 7.4 miles upstream and at Wolf Road in Westchester, which is approximately 5.8 miles downstream. The winter chloride average at JFK Boulevard was 503.4 mg/L, and the winter average for Wolf Road was 576.1 mg/L, exceeding the General Use Water Quality standard.

3.7.2 Environmental Consequences

This subsection discusses potential impacts to surface water resources that would be associated with the construction, operation, and maintenance of the four build alternatives, including the pollutants that could be deposited into receiving waters, potential impacts to water quality, and direct impacts to water resources through construction and the placement of fill material. Pollutants, such as sediments, solids, heavy metals (e.g., copper, lead, and zinc), oil and grease, deicing material, fertilizers and nutrients, may be released into the environment during construction or may accumulate on roadway surfaces and adjoining rights-of-way as a result of motor vehicle operations and facility maintenance. These pollutants can be transported to receiving waters via stormwater runoff.

3.7.2.1 Construction Impacts to Surface Waters

Each of the four build alternatives would cross two streams, Addison Creek and the Des Plaines River. The construction impacts would be the same for all four build alternatives. Direct impacts to surface waters would result from construction and the placement of fill to construct the proposed improvements. Typical construction activities associated with transportation projects include earthmoving practices (e.g., demolition, clearing and grubbing, grading, filling, excavation) that remove vegetative cover and expose soils. Such activities increase the potential for erosion and sedimentation by exposing disturbed soils to precipitation. The No Build Alternative would not have any construction impacts to the streams.

Increased impervious surface area due to construction and compaction of soils by heavy equipment may result in less stormwater infiltration and additional stormwater runoff. In-stream construction, placement of structures (e.g., abutments and piers), streambank disturbance, channel realignment, and temporary crossings could cause increases in turbidity and sedimentation and temporarily alter downstream hydraulics and substrate conditions. Downstream aquatic systems could be temporarily affected by the increases in turbidity and sedimentation. Increased sedimentation during construction has the potential to cover stream substrate, thereby affecting habitat for some species of fish and macroinvertebrates. The magnitude of impact varies based on several factors, such as proposed type of crossing, number of crossings, stream characteristics (substrate, depth, current velocity), soil type, construction method, and implementation of best management practices.[49]

[49] Best management practices are schedules of activities, prohibition of practices, maintenance procedures, and other management practices used to prevent or reduce negative impacts to water quality.

Highly erodible soils are mapped as being present within the Project Corridor; however, these soils do not occur near the Addison Creek or Des Plaines River crossings.

The placement of piers for stream crossings and additional lanes may also have an impact on surface waters. Table 3-41 summarizes the proposed improvements to piers and bridges at the stream crossings and incremental loss of stream bed due to these improvements. As such, surface water impacts are associated with the widening or lengthening of existing piers and ancillary areas to support stream crossing structures.

Table 3-41. Streams Crossed by the Proposed Project in the Existing and Build Condition

Stream [a]	Incremental Permanent Impacts to WOUS (ac)	Temporary Impacts to WOUS (ac)	Description of Existing Crossing and Stream Bed Loss	Description of Proposed Crossing and Stream Bed Loss
Addison Creek	0.22	0.31	Two piers, 2 feet and 6 inches wide by 128 feet, or 0.015 acre	Piers to be widened or replaced with two piers, 3 feet wide by 205 feet long, plus a rectangular area on each abutment 20 feet wide by 225 feet long, or 0.24 acre
Des Plaines River	0.18	0.25	One pier, 3 feet by 104 feet, located near the center of the channel, or 0.007 acre	Bridge would be widened. One existing pier in the center would be replaced with two piers, 4 feet wide by 135 feet long, plus a rectangular area on each abutment 20 feet wide by 175 feet long, on either side of the channel, or 0.19 acre.

[a] No stream crossings within the Salt Creek or South Branch of the Chicago River watersheds are proposed.

Within the Project Corridor, Addison Creek is channelized and located immediately adjacent and parallel to the north side of I-290 west of 25th Avenue. The bridge over Addison Creek would be widened to accommodate two additional lanes, approximately 25 to 30 feet (Table 3-41). To support the wider bridge, piers may be replaced or widened. The stream bank of Addison Creek would be reduced at this crossing.

The bridge over the Des Plaines River would also be widened to accommodate two additional lanes. To accommodate this widening, additional embankment would be required. No additional piers would be placed in Addison Creek or the Des Plaines River. No physical changes would occur in Salt Creek or South Branch of the Chicago River.

With the implementation of BMPs during construction, any proposed in-stream work and construction activities adjacent to the streams would not be expected to adversely impact the overall habitat quality of the stream. Construction-related impacts to the aquatic community are anticipated to be minor and temporary in nature.

3.7.2.2 *Operational Impacts to Surface Waters*

Operations include the use of the transportation system. Potential impacts associated with the operation of any of the build alternatives would result from pollutant accumulation on roadway surfaces, median areas, and adjacent rights-of-way. Pollutants accumulate through use of the transportation system, natural processes, and as a result of airborne deposition. Pollutant concentrations are highly variable and are affected by numerous factors, such as traffic characteristics (volume and speed), weather (precipitation and wind), maintenance practices, and adjacent land uses. Primary constituents of highway runoff associated with typical operations include total suspended solids (TSS) (from pavement wear, atmospheric deposition, dirt), lead (from tire wear), zinc (from tire wear, motor oil, grease), copper (from metal plating, moving engine parts, brake lining wear), and petroleum (from spills, leaks, gasoline, antifreeze, hydraulic fluids). Roadway runoff can transport pollutants that have accumulated on impervious surfaces of the roadway to adjacent streams.

Additional travel lanes and other impervious surfaces would be constructed under each build alternative. As the impervious area of a roadway increases, the volume of stormwater runoff increases and stormwater infiltration decreases. Use of the additional impervious surfaces would generate more pollutants. The section of the Project Corridor that is associated with the Salt Creek subwatershed is from the western project terminus near Butterfield Road to Mannheim Road. In the Salt Creek section of the Project Corridor, the build alternatives would result in a small increase in lane-miles when compared to the No Build Alternative due to an additional lane being added at the I-290/I-88 system interchange (eastbound I-88 to eastbound I-290); this change would represent less than one percent growth in lane miles. A slight shift in the mainline lanes is also proposed in the Salt Creek section for the build alternatives, but this would have minimal effect on lane-mile totals.

Stormwater runoff from the Project Corridor is managed through a series of pump stations. As a result, the watershed boundaries do not reflect the discharge points for the Project Corridor.

As shown in Table 3-42, the Des Plaines River is receiving over 63 percent of the stormwater runoff from the Project Corridor.

The Des Plaines River receives stormwater from two sections of the Project Corridor:

1. One section from Mannheim Road east to the Des Plaines River and

2. One Section from Central Avenue west to the Des Plaines River.

Table 3-42. Watersheds Receiving Project Corridor Stormwater

Watershed	Length of I-290 in Watershed, miles	Percent	Length of I-290 Runoff Reaching Stream, miles	Percent
Salt Creek	0	0%	1.5	14%
Addison Creek	3.4	32%	0	0%
Des Plaines River	2.1	20%	6.7	63%
Chicago Ship & Sanitary Canal	3.9	37%	0	0%
South Branch Chicago River	1.2	11%	2.4	23%
TOTAL:	10.6	100%	10.6	100%

These two sections of the build alternatives would each have an estimated 24 percent increase in mainline lane-miles compared to the No Build Alternative due to an added through lane in each direction. The Des Plaines River would also receive stormwater runoff from a proposed sewer system along the frontage roads from 25th Avenue to 1st Avenue, parallel to Harrison Street and Bataan Drive.

The section of the Project Corridor associated with the South Branch of the Chicago River subwatershed is from Central Avenue to the eastern project terminus at Racine Avenue. The build alternatives in this section of the Project Corridor would have no proposed changes to the mainline that would result in appreciable changes in lane-miles; however, the slope of this section of the mainline is being adjusted, which would have a slight effect upon the runoff volume.

Water impacts are site-specific and depend heavily on the characteristics of the highway and the receiving waters. The degree of pollutant loading is linked directly to the amount of roadway traffic. Research indicates few substantial impacts from highways with average daily traffic (ADT) that is less than 30,000 vehicles per day (Young et al., 1996; Dupuis et al., 1985). Under these conditions, potential impacts are generally short-term, localized, acute loadings from temporary water quality degradation, with few (if any) long-term or chronic effects.

All projected year 2040 ADTs (bidirectional) of the build alternatives exceed 30,000 vehicles per day. The projected bidirectional ADTs for the four build alternatives in the year 2040 ranges from 151,000 to 240,200 vehicles per day.

For Addison Creek and the South Branch of the Chicago River, no change in pollutant concentrations would occur. Addison Creek receives no runoff and the existing drainage to the South Branch of the Chicago River is unchanged from existing to the No Build and build condition.

Runoff from I-290 to Salt Creek would increase by less than one percent. The increase is associated with changes in ramp pavement. The resulting change in pollutant concentration in Salt Creek did not result in a measurable increase.

Pollutant concentrations in the Des Plaines River were evaluated using the Stochastic Empirical Loading and Dilution Model (SELDM) (Granato, 2013). This model was recently developed by the USGS to provide a planning level estimate of pollutant concentrations. SELDM performs a Monte Carlo analysis in which the precipitation, pre-storm flow, runoff coefficients, and concentrations of water quality constituents in highway runoff are varied randomly within defined probability distributions. SELDM was used to predict the potential effect of highway runoff on pollutant concentrations in the Des Plaines River.

The SELDM pollutant loading analysis evaluated the predicted once-in-three year water quality concentration of four common roadway pollutants and compared the values to the acute water quality standards. Detention basins planned at Mannheim Road and 25th Avenue also provide reduction of these pollutants in the build scenario. There were no predicted water quality exceedances for lead, copper, or zinc for the build alternatives. There is no water quality standard for suspended solids (TSS); however, reduction of TSS provides water quality benefits.

Appendix H contains the calculations for pollutant reductions based on the BMP concept applied. Section 3.7.3.2 describes the evaluation of BMPs.

The proposed detention basins, where constructed, would reduce pollutant loadings in the Des Plaines River, as that is the only stream where a detention basin could be constructed due to space constraints. Section 3.7.3 describes the evaluation of BMP measures within the site specific constraints of the Project Corridor. Based on the pollutant loading analysis, concentrations achieved the Illinois General Use Water Quality standards for all streams.

3.7.2.3 Maintenance Impacts to Surface Waters

Maintenance impacts associated with the build alternatives would include implementation of deicing practices during winter months and herbicide spraying for invasive/noxious vegetative species within the right-of-way. Herbicide applications would follow the manufacturer's guidelines to minimize drift and runoff into surface waters. A National Pollutant Discharge Elimination System (NPDES) permit for pesticide application point source discharges (including herbicide application) would be obtained, as necessary.

Seasonal deicing with salt (commonly sodium chloride), along with plowing and other alternative measures, are used to reduce snow and ice build-up on roads. Deicing assists with safe traffic movement by improving road conditions in winter, but application of road salt contributes chloride loads to surface waters. Road salt is highly soluble and moves through the environment in solution as runoff, splash, spray, and dust. The potential impact that stormwater containing chlorides may have on receiving waters is dependent on many factors, such as the concentration, size of the water body (water volume), precipitation, topography, soil type, and drainage patterns.

The General Use Water Quality Standard for chloride for Salt Creek and the Des Plaines River is 500 mg/L. For the South Branch of the Chicago River, a standard of 500 mg/L of chloride applies May 1st to November 30th.[50] From December 1 to April 30, a Total Dissolved Standard of 1,500 mg/L would apply from 2015 to July 1, 2018. After July 1, 2018, the water quality standard for chlorides would be 500 mg/L year-round.

Currently, IDOT is participating in the Chicago Area Waterway (CAWS) Chloride Reduction Initiative. This workgroup is preparing a variance to address these new standards considering reduction of salt usage in the CAWS using best management practices.

The primary methods of snow and ice removal in IDOT, District One are plowing and the application of road salt. During ten winter seasons (2000/2001 through 2010/2011), IDOT averaged 21.7 tons of salt per lane-mile (system wide).[51] Efforts are made to apply only the amount of material necessary to maintain motorist safety. The total quantity of road salt entering the environment varies based on the number of snow events per season and the number of times road salt is applied per storm.

Each build alternative would increase the number of lane-miles and pavement in the Project Corridor, thereby increasing the total salt loading over existing levels. Potential water quality impacts to the Project Corridor streams due to chlorides were evaluated for the build alternatives using the USGS methodology developed by Frost, Pollock, and Wakelee (1981) for both existing and build conditions (Table 3-43).

The incremental daily average chloride concentration contribution of the existing roadway to area streams ranges from 1.7 mg/L to 4.2 mg/L. With the proposed improvements and increased lanes, the average chloride concentration would incrementally increase to a range of 2.5 mg/L to 4.4 mg/L. The small incremental change in concentration is attributed the large drainage area and stream flow compared to the volume of I-290 runoff. No change (less than 0.1 percent) is estimated for Salt Creek as only 0.1 lane miles are being added in the build alternatives; the chloride loading to the South Branch of the Chicago River would also remain the same as roadway runoff volumes would not increase as a result of the project. Though there would be no change in chloride load, a slight increase in annual daily average concentration was predicted for the South Branch of the Chicago River due to the change in slope associated with the build alternative. The Des Plaines River is the primary stream where chloride loadings would increase by 59 percent, with increased annual daily average concentration from 1.7 mg/L to 2.5 mg/L.

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[50] Title 35 Illinois Administrative Code, Subtitle C, Chapter 1, Part 302.

[51] Salt application rates are based on information from IDOT.

Table 3-43. Incremental Chloride Contribution Analysis

Stream	Highway Lane-Miles			Annual Daily Average Chloride (mg/L)			Annual Daily Maximum Chloride (mg/L)		
	Existing/ No Build	Build	Percent Increase	Existing/ No Build	Build	Percent Increase	Existing/ No Build	Build	Percent Increase
Salt Creek[1]	12.3	12.4	0.9%	2.9	2.9	0.6%	30	30	>0.1%
Des Plaines River [2,3]	37.0	**57.6**	**55%**	1.7	**2.5**	**48%**	29	**30**	**5%**
South Branch of Chicago River [4]	44.7	44.7	0.0%	4.2	4.4	4%	33	33	0.0%

[1] Stormwater runoff drains from the western limits of the project (I-290) to station 70+00 (about even with the CarMax) drains to Pump Station 20, then into Salt Creek at I-88 near York Road.

[2] Stormwater runoff drains from station 70+00 to the east (drains into main trunk sewer that passes under Addison Creek draining into Pump Station 30 and then into Des Plaines River).

[3] Stormwater runoff drains from Central Avenue to the west of Des Plaines River drains to Pump Station 4 and discharges to the Des Plaines River.

[4] Stormwater runoff drains from Central Avenue to the eastern project limits flows into Pump Station 5, which then discharges into the South Branch Chicago River.

The annual daily maximum chloride concentration contribution ranges from 29 mg/L to 33 mg/L in the existing condition, while the build chloride contribution ranges from 30 mg/L to 33 mg/L. Annual daily maximum chloride concentrations in Salt Creek and the South Branch of the Chicago River would not increase as a result of this project. There would be an increase in chloride loading to the Des Plaines River associated with the build alternatives. Given the chloride impairment of the Des Plaines River, IDOT would use BMPs to offset the potential increase to the Des Plaines River as discussed in Section 3.7.3.

3.7.3 Measures to Minimize Harm and Mitigation

3.7.3.1 Construction Impacts

To reduce potential stream impacts, soil erosion and sediment control measures near streams would involve special consideration, such as minimization of soil disturbance, installation of applicable soil erosion and sediment controls prior to, during, and following construction. This may include installation of silt fence prior to construction activities, installation of temporary erosion control products if disturbed areas are to sit idle, and protection of side slopes with seed and rolled erosion control products (i.e., erosion control blanket) to assist with vegetation establishment.

In-stream construction may be required to replace or widen bridge piers, widen bridges, extend culverts, and install new culverts near the proposed detention basins. In-stream construction would follow standard practice (IDOT *Standard Specification for Road and Bridge Construction* [IDOT, 2012]), including isolating the work area, as necessary. All required permits and approvals (e.g., Section 404 CWA, Section 401 CWA water quality certification, and IDNR-OWR floodway construction permits) would be obtained prior to any in-stream construction. Mitigation for WOUS will be provided for a ratio of 1:1. Additional details regarding construction methodology would be provided during CWA and floodway construction permitting.

Flow would be maintained during construction in Addison Creek and the Des Plaines River by using dam and pumping, fluming, culverts, or other techniques. Cofferdams, if necessary, would be constructed of non-erodible materials; earthen embankments or dikes would not be used as cofferdams. If dewatering is required to perform "work in the dry" in perennial streams, the dewatering would be temporary in nature. All materials used for temporary construction activities would be moved to upland areas following completion of the construction activity. Temporarily disturbed areas would be restored to preconstruction conditions, including grading to original contours and installation of erosion control as soon as practicable in accordance with NPDES permit requirements. Erosion and sediment controls would be used to minimize downstream impacts. Further discussion of construction impacts related to water resources is discussed in Section 3.14, Construction Impacts.

3.7.3.2 Operational Impact Practices

Stormwater would be managed through a combination of stormwater runoff, drainage collection facilities, and post-construction best management practices. The three streams receiving stormwater discharges have impaired water quality due to various pollutants and conditions. The only pollutant identified as a cause of impairment and associated with roadway operations is chloride. For both Salt Creek and the Des Plaines River, chloride has been identified as a potential water quality concern. Section 3.7.2.3 describes maintenance impacts to surface waters.

The feasibility of BMPs for the build alternative was evaluated given the physical site constraints of the Project Corridor. Limited right-of-way space, low permeable soils, and drainage patterns all affected the potential options for stormwater treatment.

An existing detention basin is located near Pump Station 20, which currently treats two percent of stormwater runoff from the existing roadway prior to discharging into the Des Plaines River. Four additional detention basins are proposed in the Project Corridor along Mannheim Road and 25th Avenue. The proposed detention basins would treat an additional 11 percent of stormwater runoff from the Project Corridor prior to discharging into the Des Plaines River.

There are currently no existing detention basins to treat metals and total suspended solids in stormwater prior to discharging to Salt Creek or South Branch of the Chicago River. There are no proposed detention basins or other BMPs as there is no increase in stormwater directed to the South Branch of the Chicago River and an expected increase of only 0.1 percent to Salt Creek.

Several BMPs were evaluated for implementation. This included infiltration, permeable pavement, green side street features, and rain gardens. Permeable pavement on the shoulders was considered; however, maintenance of these shoulders on a high traffic volume corridor reduced their feasibility. Green side street features include rain gardens and native buffers. These features provide potential reduction of stormwater runoff along the frontage roads and adjacent side streets. Opportunities for including these features will continue to be evaluated; however, no reduction in runoff volume or quality was considered in determining potential water quality impacts. Three locations at First Avenue, Harlem Avenue, and Austin Avenue were evaluated for infiltration features. The soils in these areas had low permeability, which reduced the feasibility of potential implementation. Rain gardens were considered where excess land and drainage patterns provide an opportunity for construction.

3.7.3.3 Deicing

Even though chloride is dissolved in the stormwater runoff, the daily annual maximum chloride concentration may be reduced by using structural best management practices. BMPs, such as detention ponds, attenuate the peak concentration of stormwater flows by mixing chlorides with permanent pool volumes in existing wet ponds and/or by collecting the runoff and allowing it to mix with lower-concentration runoff. For the Des Plaines River, four detention basins are being constructed, which should have a beneficial effect upon the maximum chloride concentrations discharged to the river. In addition, non-structural BMPs (such as pre-wetting and monitoring salt application rates) are already used and will continue to be used to balance public safety and environmental impacts.

However, the amount of salt entering the environment depends on the number of snow storms per season and salting events per storm. There will be additional effort applied to identify ways for the proposed project to achieve lower chloride concentrations in receiving streams through the implementation of stormwater best management practices, promoting deicing material application best practices in the Project Corridor watersheds, reviewing the anticipated road-salt application rate for future operating conditions, and evaluating chloride reduction implementation plans for TMDLs developed within the watersheds affected by the project. IDOT recognizes that water quality is an important issue and will strive to meet chloride standards based on prudent and practicable stormwater and road salting best management practices to the extent that public safety is not compromised.

3.8 Groundwater

This section discusses the groundwater resources that are found within the Project Corridor. The potential impacts to these resources from each of the build alternatives are presented along with measures to minimize or mitigate potential impacts.

3.8.1 Affected Environment

Groundwater resources in the Project Corridor occur below surficial deposits of permeable bedrock, sand, gravel, silt, and/or clay. According to the Berg map, which assesses "potential for contamination of shallow aquifers from land burial of wastes" (Berg et al, 1984), the Project Corridor lies within Zones AX, A1, B1, C1, and E. Zone AX is described as alluvium containing a mixture of gravel, sand, silt, and clay along streams and variable in composition and thickness. Zone A1 is described as permeable bedrock at or within 20 feet of the surface with variable underlying materials. Zone B1 is described as sand and gravel less than 20 feet thick over relatively impermeable till or bedrock. Zone C1 is described as permeable within 20 to 50 feet of the surface overlain by till or other fine-grained material. Zone E is described as uniform, relatively impermeable silty or clayey till at least 50 feet thick with no evidence of interbedded sand and gravel. Zones AX, A1, and B1 represent a high potential for aquifer contamination.

The US Environmental Protection Agency (USEPA) regulates potential impacts to sole-source aquifers. According to the USEPA's list of designated sole-source aquifers, there are no sole-source aquifers as defined by Section 1424(E) of the Safe Drinking Water Act within the Project Corridor. In addition, there are no Karst formations in the Project Corridor.

The Project Corridor contains no Class III special resource groundwaters. Such groundwaters are determined by the Illinois Pollution Control Board to be demonstrably unique or irreplaceable sources of groundwater and are suitable for application of a water quality standard more stringent than Class I groundwater. Class III groundwaters are considered vital contributors for particularly sensitive ecological systems and/or dedicated nature preserves.

Drinking water in the Villages of Bellwood, Broadview, Forest Park, Hillside, Maywood, Oak Park, and Westchester, and the City of Chicago, is obtained from Lake Michigan. The Village of Bellwood operates three backup wells.

To help protect drinking water supplies, the Safe Drinking Water Act was amended in 1986 to require states to develop wellhead protection areas. Wellhead protection areas represent surface and subsurface areas surrounding a community water supply (CWS) well through which contaminants have the potential to move toward the well system. Typically, wellhead protection areas are assumed to extend 1,000 feet from the well; however, local geography may extend these areas if potential for contamination exists in a larger area. In addition to wellhead protection areas, individual wells have setback zones, typically 200 to 400 feet, which represent the area from which the well draws water. There are no CWS or Non-CWS setback zones within the Project Corridor.

Private water well information was obtained from the Illinois State Geological Survey (ISGS) water well database. Only one private well (API 120310277600) was identified in the ISGS database located within the Project Corridor. This well is located in the northwest quadrant of the 1st Avenue overpass bridge, north of the westbound I-290 mainline lanes. The private well was completed in 1947 and finished at a depth of 372 feet. During a field visit, this well could not be located. This well is located within the footprint of the existing expressway construction area and could not be located in the field. To date no further record has been found regarding this well, so it is assumed that it was removed during the construction of this section of the expressway, and is no longer in operation.

3.8.2 Environmental Consequences

No impacts to public water supplies are anticipated with implementation of any of the build alternatives. There are no sole source designated aquifers in the Project Corridor; therefore, there are no impacts to sole source aquifers. No measurable change to the available water supply is expected from the proposed improvements. The additional impervious area represents a small reduction in recharge area.

The potential for contamination of groundwater supply wells is determined by proximity to sources, well construction, geological conditions, and management of stormwater. The Illinois Groundwater Protection Act (Chapter 415 Illinois Compiled Statutes Section 55) establishes setback zones for the location of potential sources of pollution, such as underground storage tanks and stockpiles of deicing chemicals. Setback zones would be considered in the siting of maintenance facilities and in the operation of dry wells; however, no maintenance facilities are planned for the project. The maximum setback zone around a CWS well is 1,000 feet for protection of groundwater and 200 feet for private wells.

There are no CWS wells within 1,000 feet of the build alternatives. The aforementioned private well located within the Project Corridor at 1st Avenue would be impacted by all of the build alternatives. This private well is likely not currently utilized, as the Village of Maywood obtains drinking water from Lake Michigan; it is anticipated the well, if it exists and its location has been confirmed, would be plugged as part of any build alternative and would be closed following well closure procedures as outlined in Section 9 of the Illinois Water Well Construction Code Law (415 ILCS 30/9). It is not anticipated that the well would need to be replaced.

None of the build alternatives create any potential new “routes” for groundwater pollution movement or any new “sources,” as defined in the Illinois Environmental Protection Act (415 ILCS 5/3, et seq.). Groundwater quality is not expected to be measurably affected by any of the build alternatives.

3.8.3 Measures to Minimize Harm and Mitigation

To minimize potential changes in groundwater quality, post-construction best management practices, such as vegetated swales, native vegetation, filter strips, and stormwater management facilities, will be installed where practical and feasible to collect, detain, and filter stormwater runoff to minimize potential surface and groundwater degradation (see Section 3.7). The potential for groundwater infiltration is limited due to the clayey soils; therefore, it is expected that the potential for groundwater migration of contaminants will be minimal.

Detention areas will be created adjacent to the 25th Avenue interchange which will allow for groundwater infiltration. In addition, proposed retaining walls adjacent to the mainline are being used to create flat grassed areas at the frontage road level. These flat areas will reduce runoff rates and amounts by replacing sloped embankments.

3.9 Floodplains

3.9.1 Affected Environment

According to the National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRMs) produced by the Federal Emergency Management Agency (FEMA), the Project Corridor includes two base floodplains with regulatory floodways (Table 3-44). The Project Corridor is within Cook County. The two base floodplains with regulatory floodways are associated with Addison Creek and the Des Plaines River. The extent of floodway limits were identified from FIRM maps published by FEMA (2015). Bridge or culvert replacement in a designated floodway shall not result in an increase of upstream flood stages more than 0.1 foot over the existing conditions for all flood events up to and including the 100-year frequency flood event, if the existing bridge or culvert is not a source of flood damage.

Table 3-44. Designated 100-Year Floodplains within the Project Corridor

Waterway[a]	County	Floodplain Area in Project Corridor (acres)[b]	Floodway Identified	Map Set Sheet #
Addison Creek	Cook	64.14	Yes	Sheet 3 of 16
Des Plaines River	Cook	0.94	Yes	Sheet 6 of 16

Source: Federal Emergency Management Agency, digital version of Flood Insurance Rate Maps, https://msc.fema.gov/portal (FIRM 17031C04770, 17031CO388J, 17031C0476J, 17031C0389J, 17031C0369J, 17031C0418J, 17031C0506J, 17031C0415J, 17031C0505J, 17031C0395J, 17031C0485J)

[a] All streams and associated 100-year floodplains lie within the Des Plaines River drainage basin (HUC 07120004). This table lists FEMA-named streams and tributaries with mapped floodplain in the Project Corridor.

[b] Area is based on GIS calculation of digitized published FEMA floodplain data including right-of-way.

IDOT will follow IDNR-OWR Part 3708 rules for appropriate uses in the Addison Creek and Des Plaines River designated floodways.

3.9.1.1 Reservoirs

Reservoirs aid to control floods. The existing reservoirs in the Addison Creek watershed and Main Stem of the Lower Des Plaines River subwatershed are described below.

Five flood-control reservoirs exist in the Addison Creek watershed and within Cook County; however, all are located outside of the Project Corridor. The hydraulic effects of these reservoirs are included in the current Addison Creek hydraulic modeling (MWRDGC, 2011). The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) proposed a new 600 acre-foot reservoir in the Addison Creek watershed, approximately 0.75 miles upstream of the Project Corridor. The reservoir is planned to be located northwest of the intersection of Washington Boulevard and 25th Avenue. The proposed reservoir would be approximately 50 feet deep, accessed by a side-channel spillway, and would be dewatered by a proposed pump station. The reservoir is in the preliminary engineering phase and is expected to be completed in approximately five years (circa 2020).

The proposed reservoir (in conjunction with proposed Addison Creek channel conveyance improvements and proposed removal of three existing bridges over Addison Creek at 30th, 31st, and 32nd avenues) is expected to attenuate flow and reduce flood elevations in the downstream Villages of Bellwood and Westchester. The boundary between these two villages is the Project Corridor. At I-290 near 30th Avenue, the expected reduction in maximum water surface elevation (WSEL) is 0.5 foot. This future WSEL reduction would not significantly affect the design of the proposed I-290 roadway profile or bridge structure over Addison Creek, but has been accounted for.

There are no flood control reservoirs within the Mainstem Lower Des Plaines River subwatershed (MWRDGC, 2011).

3.9.1.2 Spillways and Pump Stations

In addition to the proposed future side-channel spillway and pump station associated with the MWRDGC Project, the following spillways and pump stations are associated with the proposed Project Corridor:

- Addison Creek bends to the west and then south in the area north of Harrison Street between Eastern Avenue and Cernan Drive in the Village of Bellwood. Near these bends, Addison Creek can exceed the capacity and flow into I-290 overflows southeasterly toward the 25th Avenue underpass south of Harrison Street. Runoff draining to the 25th Avenue I-290 underpass drains by gravity easterly to IDOT Pump Station 4 to the Des Plaines River.

- The far western portion of the proposed Project Corridor drains into IDOT Pump Station 20, which discharges via storm sewer which follows the Reagan Memorial Tollway (I-88) to Salt Creek.

- The portion of the proposed Project Corridor, east of Central Avenue in the City of Chicago, drains into IDOT Pump Station 5; which discharges into the South Branch of the Chicago River. This pump station is interconnected with IDOT Pump Station 26.

- IDOT Pump Station 26 also discharges into the South Branch of the Chicago River near Jackson Boulevard.

3.9.1.3 Natural and Beneficial Floodplain Values

Beneficial values of floodplains include, but are not limited to, the moderation of floods, water quality, groundwater recharge, fish and wildlife habitat, open space, and recreational value. Both of the floodplains for this project are located in urban areas. Des Plaines River floodplain areas near the Project Corridor are confined within the channel banks, while other floodplain areas upstream and downstream of the corridor spread out over open land, such as the Concordia and Forest Home cemeteries. The Addison Creek floodplain extends across developed residential areas both upstream and downstream of the Project Corridor. This floodplain contains homes, industrial buildings, and other structures that experience repeated flood damage.

3.9.1.4 Flood Buyout Properties

Although there are areas of chronic floodplain flooding within and surrounding the Project Corridor, there are currently no properties, communities, local agencies, or counties participating in the FEMA Hazard Mitigation or Flood Mitigation Assistance grant programs or flood-prone property buyout program.

3.9.2 Environmental Consequences

3.9.2.1 Floodplain Encroachments

The floodplain encroachment evaluation was conducted in accordance with Executive Order 11988 "Floodplain Management", "Environmental Documentation for Floodplain Encroachments" as contained in the IDOT *BDE Manual* (IDOT, 2010), "Floodplain Encroachments" as contained in the IDOT *Drainage Manual* (IDOT, 2011), and Illinois Administrative Code Part 3708 "Floodway Construction in Northeastern Illinois." Guidance from the MWRDGC and the various local municipalities was considered in determining floodplain impacts and compensatory storage requirements because the local floodplain ordinances are more restrictive than IDOT requirements.

IDNR requires a 1:1 ratio of compensatory storage volume to fill volume in designated regulatory floodways under the Part 3708 rules.

IDOT considers local floodplain ordinance requirements for compensatory storage after a floodplain encroachment evaluation. The local ordinance that would have jurisdiction for the Project Corridor is the MWRDGC *Watershed Management Ordinance* (WMO), as amended July 10, 2014. Compensatory storage for fill in the floodplain is not mandatory; however, floodway impacts must be mitigated.

The floodplain encroachment evaluation identified potential floodplain encroachments by overlaying proposed roadway locations onto FIRMs published by FEMA (2015). Normal, 10-year, and 100-year natural water surface elevations developed in Existing Conditions Hydraulic Reports were used in conjunction with the proposed roadway cross sections to calculate the amount of proposed roadway fill volume (acre-feet) in the floodplain.

Table 3-45 summarizes the proposed fill within the FEMA mapped floodplains in the Project Corridor. Based on the current design, there would be a small amount of proposed net fill in the Des Plaines River floodplain, while there would be a net cut in the Addison Creek floodplain. Cumulatively, the floodplains of Addison Creek and the Des Plaines River would have a net removal of 12.94 acre-feet of fill from the normal to the 100-year flood water surface elevations.

Table 3-46 summarizes floodplain encroachment type (e.g. longitudinal or transverse).

Table 3-45. Proposed 100-Year Floodplain Impact Summary

Waterway	Location and Description	Normal to 10 Years	10 to 100 Years
		Fill Volume (acre-feet)	Fill Volume (acre-feet)
Addison Creek	At I-290. Two 3-span bridges with piers to be widened or replaced.	-17.1	4.1
Des Plaines River	At I-290. Two 2-span composite bridges with center pier to be widened or replaced in kind.	0.04	0.02
Net Fill Volume		-17.06	4.12

Table 3-46. Proposed 100-Year Floodplain and Regulatory Floodway Encroachment Summary

Waterway	Crossing Location	Floodplain Encroachment	Floodway Encroachment
Addison Creek	At I-290	Transverse / Longitudinal	Transverse / Longitudinal
Des Plaines River	At I-290	Transverse	Transverse
Transverse Encroachment: Across the floodplain, such as a bridge. Perpendicular crossings are preferable over skewed crossings to minimize floodplain impacts. Longitudinal Encroachment: Along the floodplain, sometimes also called "latitudinal." A reasonable attempt should be made to avoid longitudinal encroachments.			

Transverse encroachments occur when the roadway is roughly perpendicular to the floodplain. Transverse encroachments would be unavoidable because the Project Corridor generally runs from east-west while Addison Creek and the Des Plaines River generally run from north to south. The potential transverse encroachments would be generally associated with proposed pavement widening that increases embankment fill in the floodplain and causes culvert extensions or bridge widening.

Longitudinal encroachments occur where the roadway would roughly run parallel to the floodplain. This occurs along I-290 and Harrison Avenue, where Addison Creek runs from east to west for several blocks, parallel to the roadway corridor. The addition of pavement and embankment slope would cause a longitudinal encroachment on Addison Creek in this area. The Addison Creek FEMA regulatory floodplain also extends along I-290 west to the Mannheim Road intersection and east past the 25th Avenue underpass.

The structures crossing floodplain areas are sized to allow a minimum of three feet of freeboard between the roadway edge of pavement and the 50-year headwater elevation, or a design exception would be obtained. Bridges are sized to have a minimum of two feet of clearance between the low beam elevation and the 50-year natural water surface elevation, and the low beam will be above the all-time high water level, or a design exception would be obtained.

The IDOT *BDE Manual* Section 26-7.05(C) was used to evaluate and document floodplain impacts. The Addison Creek crossing is both a transverse and a longitudinal encroachment of the floodplain, while the Des Plaines River crossing is a transverse encroachment.

- The longitudinal encroachment of Addison Creek cannot practicably be avoided, as the creek parallels I-290 for approximately 1,000 feet, and due to dense existing urban development and the existing freight rail bridge immediately west of 25th Avenue, the I-290 limits of construction cannot shift exclusively to the south of the existing I-290 in this area. Within the normal to 10-year floodplain, there will be a 17.1 acre-feet cut in floodplain fill; from the 10 to 100-year floodplain, there is a projected 4.1 acre-feet floodplain fill, resulting in a net cut in the floodplain at Addison Creek.

- The transverse encroachments of both Addison Creek and the Des Plaines River would not result in a significant interruption of emergency vehicle or evacuation access, as it is anticipated that portions of I-290 and detour routes will be available during construction. The proposed improvements will improve I-290 traffic flow, which in turn may improve emergency response and/or community evacuation times. The transverse encroachment will likely have no significant effect on natural and beneficial floodplain values, as the improvement is not anticipated to significantly impact fish or other aquatic species, or change how this floodplain is used for recreation, visual quality, or groundwater recharge. The transverse encroachment of Addison Creek is not anticipated to increase the risk of flooding, nor will it result in incompatible floodplain development. The proposed project, in combination with MWRDGC reservoir and channel projects, is anticipated to reduce flooding in the Addison Creek area.

In accordance with 23 CFR 650.111(e), it has been determined through the floodplain encroachment evaluation that there are no significant floodplain encroachments from the proposed build alternative, and there is no practicable alternative to the longitudinal floodplain encroachment at Addison Creek.

3.9.2.2 Floodway Encroachments

Regulatory floodway encroachments are anticipated at both stream crossings. Proposed structures will comply with the 17 Illinois Administrative Code Part 3708 Rules for Bridge and Culvert Reconstruction or Modification, determining the feasibility of reducing the created head to 0.1 foot over the natural elevation for floods up to and including the 100-year event, if the existing structure is a source of flood damage. If the structure is not a source of flood damage, the proposed structures would not increase the flood profile by more than 0.1 foot above existing conditions up to and including the 100-year storm event. On Addison Creek, there is significant overbank flooding resulting in flood damage both upstream and downstream of I-290. However, the existing I-290 bridge over Addison Creek is not the source of flood damage. On the Des Plaines River, there is minor overbank flooding. The existing I-290 bridge over the Des Plaines River is not a source of flood damage. Both existing bridges create a head of 0.1

foot or less over the natural elevation for floods up to and including the 100-year event. The proposed structures will not increase the created head more than 0.1 foot over the natural condition. An IDNR-OWR permit for Floodway Construction in Northeastern Illinois would be issued by IDOT prior to any work within the floodway.

Table 3-47 summarizes the floodway impacts with the proposed build alternative.

Table 3-47. Proposed 100-Year Floodway Impact Summary

Waterway	Location and Description	Normal to 10 Years		10 to 100 Years	
		Cut Volume (acre-feet)	Required Storage (acre-feet)	Cut Volume (acre-feet)	Required Storage (acre-feet)
Addison Creek	At I-290. Two 3-span bridges with piers to be widened or replaced.	0.15	0.000	0.19	0.00
Des Plaines River	At I-290. Two 2-span composite bridges with center pier to be widened or replaced in kind.	0.00	0.00	0.00	0.00

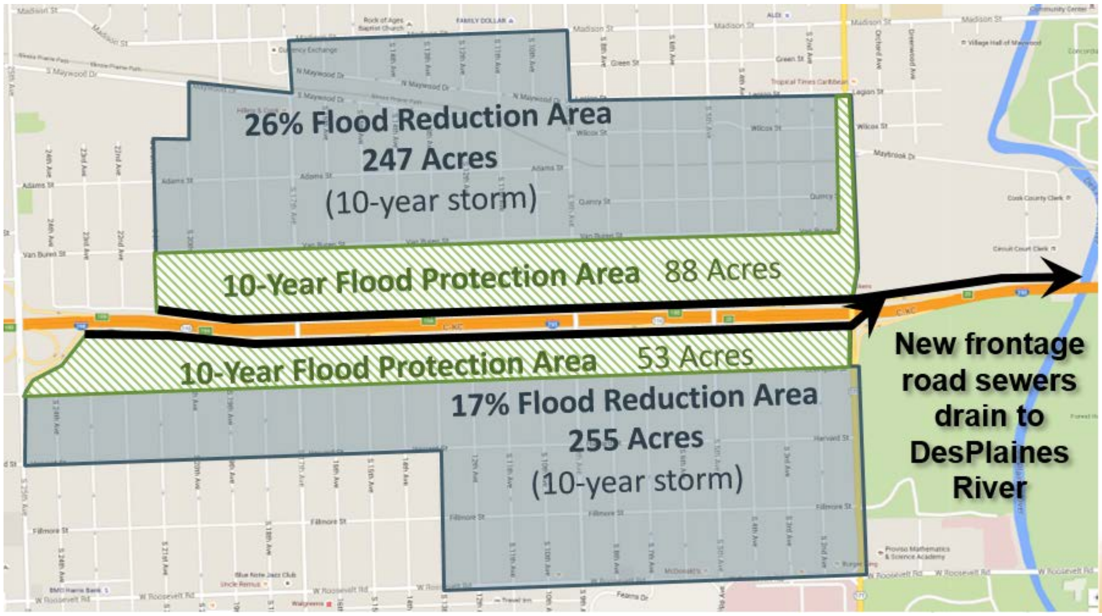
There are no floodway impacts anticipated at either Addison Creek or the Des Plaines River with the proposed build alternative.

3.9.2.3 Local Community Coordination

Coordination with local communities occurred to gain more knowledge of specific drainage issues occurring within the local communities. Maywood, Bellwood, and Broadview specifically experience localized chronic stormwater flooding. The existing drainage plan (EDP) was provided to all of the communities along the corridor.

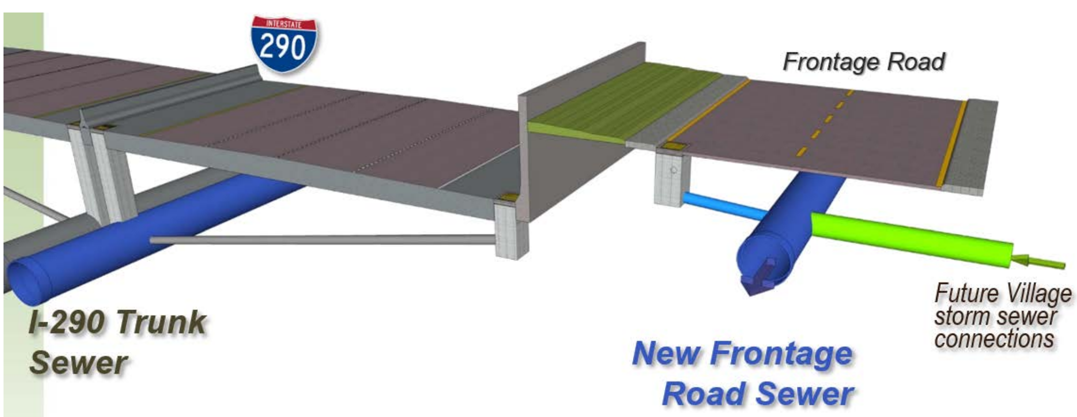
Individual meetings were held with three communities to identify and to address chronic local flooding issues. IDOT proposes constructing frontage road drainage systems from 25th to 1st Avenues, on both sides of I-290, which will help alleviate stormwater flooding in the villages. Figure 3-58 identifies the location of the proposed frontage road sewers, which will ultimately drain to the Des Plaines River. The proposed frontage road sewers would allow opportunities for future connections to local separated storm sewers, and could increase the level of flood protection to residential properties that occurs independently of the Project Corridor.

Figure 3-58. Proposed Frontage Road Storm Sewer Location



Specifically, in the Village of Maywood, coordination identified an opportunity to address local stormwater flooding issues by constructing a new storm sewer trunk line along the I-290 north and south frontage roads of Harrison Street and Bataan Drive. A model of a portion of the proposed frontage road and local drainage is shown in Figure 3-59. The sewers would also intercept overland flow from reaching the expressway as it has in the past during larger storm events. The storm sewer trunk lines would provide an improved outlet for storm sewers in conjunction with the future Village combined sewer separation project. The trunk line would outlet to the Des Plaines River in a single outlet location north of the I-290 bridge.

Figure 3-59. Proposed Frontage Road and Local Drainage Detail



3.9.3 Measures to Minimize Harm and Mitigation

Floodplain and floodway impacts will be avoided or mitigated to the extent feasible. However, some floodplain impacts are unavoidable based on roadway design constraints. Hydraulic design studies were completed to properly size proposed drainage structures, to provide acceptable freeboard and clearance for proposed roadway improvements and to limit floodway and floodplain impacts in accordance with state rules. Retaining walls are proposed in key locations near the floodplains to minimize impacts. Where fill within the floodplain is unavoidable, local ordinances for potential compensatory storage will be considered, when feasible and cost effective.

Compensatory storage volume mitigation is typically an excavated, hydrologically and hydraulically equivalent volume of storage created to offset the loss of existing flood storage. Per the Part 3708 Rules as applied by IDOT, compensatory regulatory floodway storage must be placed between the normal water elevation and the natural 100-year flood elevation. Compensatory storage must be similar to the impacted storage. All regulatory storage lost between normal to the natural 10-year flood elevation must be replaced below the 10-year flood elevation. All regulatory floodway storage lost between the natural 10-year and the natural 100-year flood elevation must be replaced above the 10-year flood elevation. There is no proposed fill in the Addison Creek and Des Plaines River floodways, so there is no requirement to provide mitigation for lost storage.

3.10 Wetlands

This section describes wetlands within the I-290 Project Corridor. Section 404 of the CWA defines wetlands as, "Those areas that are inundated or saturated by surface or ground water 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."

3.10.1 Affected Environment

A wetland and waters of the United States (WOUS) delineation was conducted using the methodology presented in the "*Regional Supplement to the COE Wetland Delineation Manual: Midwest Region (U.S. Army Corps of Engineers, 2010).*" After identifying wetland locations from the published National Wetland Inventory, a field reconnaissance was conducted to confirm whether wetlands are located within the Project Corridor. Wetland delineations were conducted in October 2014 within the entire Project Corridor. Based on the results of the field delineations, no wetlands were identified in the Project Corridor.

The Project Corridor is located within the Chicago River and the Des Plaines River watersheds. Generally, wetlands are associated with streams or localized depressional areas. Ponds and rivers within the Project Corridor are discussed in detail in Section 3.7, Water Resources. Within the Project Corridor, the relief is level/flat. The entire Study Area is urbanized and has been affected by development.

Two waterways were identified within the right-of-way of the build alternatives. These two features, the Des Plaines River and Addison Creek, flow perpendicular to the Project Corridor.

3.10.2 Environmental Consequences

Since there are no wetlands located within the No Build Alternative and the build alternatives, there would be no direct or indirect impacts to wetlands. Because there would be no wetland impacts, no measures to minimize harm or mitigation are proposed. Impacts to WOUS are discussed in Section 3.7, Water Resources.

3.11 Special Waste

This section discusses areas where current or past property uses may have resulted in contamination and the potential for the proposed project to be affected by, or cause impacts related to, special or hazardous waste. This section also outlines potential mitigation measures, including additional investigations that may be required to avoid or minimize involvement with known special or hazardous wastes.

Contaminated soils or groundwater could potentially be encountered during demolition, construction, or earthwork, resulting in the release of contamination into the air, soil, or water. Special waste sites affect construction projects because of high clean-up costs and safety hazards through exposure and material handling. Exposure to environmental contamination can adversely impact construction workers and public safety and lead to diminished quality of natural resources. Encountering such contamination without prior knowledge can also result in increased project costs and project delays to properly manage the resulting wastes. Therefore, identification, assessment, and investigation of contamination concerns in the corridor are an integral part of the project planning process. Sites with known or potential special or hazardous waste contamination were determined through review and interpretation of information contained within the regulatory agency databases, historical property use data, and visual inspections.

Results of the assessment process were provided in two Preliminary Environmental Site Assessments (PESAs) conducted by the Illinois State Geological Survey (ISGS) on behalf of the Illinois Department of Transportation (IDOT) (available upon request). ISGS PESA #1260V, dated July 11, 2012, evaluated the western and central portion of the corridor from east of I-294 to west of Kostner Avenue. ISGS PESA #1260B, dated July 25, 2014, evaluated the eastern portion of the corridor from west of Kostner Avenue to Halsted Street.

Based on the results of the analysis, recognized environmental conditions (RECs) may pose risks of varying degrees to the proposed project. Contamination can jeopardize the health and safety of workers and the public, and can create delays, expense, and liability, especially if contamination is exacerbated by construction. Special waste must therefore be properly investigated, managed, handled, and disposed, as discussed in Section 3.11.3.

REC sites are identified on one or more regulatory databases or are otherwise determined to be sites of potential concern based on historical property use data or visual inspections. Project Sites identified within the PESAs are sites that are within or are immediately adjacent to the project limits.

3.11.1 Affected Environment

3.11.1.1 Definitions

According to federal and State of Illinois statutes, the term "hazardous waste" means a solid waste, or combination of solid waste that, because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

- Cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or
- Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

The term "special waste" in Illinois refers to a broad category of wastes that may result in environmental problems when managed and disposed with municipal-type wastes. Illinois special wastes include any Resource Conservation and Recovery Act (RCRA) hazardous waste as well as any industrial process waste or pollution control waste which has not been declassified pursuant to Section 808.245 of the Illinois Administrative Code. Non-RCRA Special Wastes are those wastes determined pursuant to Section 808.245 of the Illinois Administrative Code to pose a low or moderate degree of hazard to the environment or the public health in the course of their transport, storage, treatment, or disposal.

Consistent with ASTM Standard Practice E1527-13, the term recognized environmental condition (REC) means the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. Examples of RECs identified in the PESA include current or former underground storage tanks (USTs) with a documented release, spills, evidence of chemical use or former chemical use, impacted or potentially impacted soil or groundwater, fill soil, drums, and other similar conditions.

De minimis conditions are not recognized environmental conditions. A *de minimis* condition is a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Examples of *de minimis* conditions include asbestos-containing materials (ACM) in building construction; normal use of lead-based paint (LBP) on buildings and structures; electrical transformers in normal use unless determined to be leaking or otherwise determined to pose a hazard; and agricultural use of pesticides and herbicides.

3.11.1.2 Assessment Methodology

ISGS conducted the PESAs in accordance with “A Manual for Conducting Preliminary Environmental Site Assessments for Illinois Department of Transportation Infrastructure Projects” (Erdmann, et al., 2012, 2014) (IDOT-ISGS PESA Manual). The assessments were prepared using historical and geological information including aerial photographs, US

Geological Survey topographic maps, plat maps, file information of the ISGS regulatory file information from federal, state, and other agencies, and various other sources of information. A site reconnaissance was completed. The specific methods used to conduct the assessments are contained in the IDOT-ISGS PESA Manual.

PESA sites are "sites" that are within or immediately adjacent to the project limits. Sites are primarily defined by on-site inspection, and may or may not coincide with actual parcel boundaries as defined by Property Identification Numbers (PINs). Sites may be combined with other adjoining sites if land use is similar and if no RECs exist for any site within the group; for example, all houses in a residential development along the project may be combined into a single site in the PESA report.

The Executive Summary section of the PESA reports summarizes, in tabular form, sites that have RECs (Table 1); sites that have *de minimis* conditions only (Table 2); sites that have neither RECs nor *de minimis* conditions (Table 3); and sites that are adjoining the proposed project that also appear on regulatory lists (Table 4).

3.11.1.3 Existing Conditions

Land use within the Project Corridor is a mix of commercial, industrial and residential uses. The nature of potential contaminant sources within the Project Corridor is as varied as the types of existing land uses. Spills or accidental releases can potentially occur through handling operations and leaks from storage tanks and containers. Commercial and industrial operations have the potential to release a broad range of hazardous substances such as petroleum and cleaning solvents into the soil and groundwater. Potential releases of hazardous substances from facilities that treat, store, transfer, or dispose of municipal, industrial, or construction wastes can also occur. Materials contained within the structures located throughout the Project Corridor have the potential to contain ACM and painted surfaces/components may contain LBP.

3.11.1.4 Environmental Regulatory Agency Databases

Sites with known or potential special/hazardous wastes are listed in numerous databases including those maintained by the US Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Illinois Emergency Management Agency (IEMA) and the Office of the Illinois State Fire Marshall (OSFM).

The regulatory database searches were conducted by ISGS in accordance with the PESA guidance manual to identify known or potential contamination from regulated substances within the Project Corridor. A description of the individual databases included in this analysis and the associated findings are summarized below.

<u>Federal</u>

- **Resource Conservation and Recovery Information System (RCRIS) Database** – RCRIS is a national computerized management information system that contains information related to compliance with, or violation of, the federal Resource Conservation and Recovery Act (RCRA). RCRA requires that generators, transporters, treaters, storers, and disposers of hazardous waste provide information concerning their activities to state environmental agencies. This database is used primarily to track handler permits or closure status, compliance with federal and state regulations, and cleanup activities. The database is maintained by the USEPA. There were 101 PESA Project Sites identified in the RCRA hazardous waste generator database.

- **Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) Database** – CERCLIS is a national information system that contains information related to the Comprehensive Environmental Response Compensation and Liability Act (CERCLA or Superfund). Under CERCLA, USEPA is charged with maintaining a National Priorities List (NPL), which identifies the nation's worst hazardous waste sites, and for informing the public about sites that warrant further investigation and pose the most significant risk to public health, welfare, and the environment. CERCLIS contains sites which are on the NPL as well as sites that are in the screening and assessment phase for possible inclusion on the NPL (referred to as "NPL-eligible"). As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned (NFRAP)" have been removed from CERCLIS. The NFRAP sites may be those where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. A NFRAP archive status indicates that to the best of the USEPA's knowledge, Superfund has completed its assessment of a site and has determined that no further steps will be taken to list that site on the NPL. The CERCLIS database is maintained by the USEPA. Since the time the PESAs were completed, the CERCLIS Public Access Database, which contained a selected set of publicly releasable Superfund program data, has been retired. The USEPA is transitioning to the Superfund Enterprise Management System, or SEMS, which includes the same data and content as CERCLIS. There were four PESA Project Sites identified in the CERCLIS database.

- **Toxic Release Inventory (TRI) Database** – Under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), the USEPA developed a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of US facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. The TRI provides information to the public on the release of toxic chemicals from manufacturing facilities in any given area. Industrial facilities provide information that includes: the location of the facility where the chemicals are manufactured, processed, or otherwise used; amounts of chemicals stored on-site; estimated quantities of chemicals released; on-site source reduction and recycling practices; and estimated amounts of chemicals transferred to treatment, recycling, or waste facilities. The TRI data for chemical releases to land are limited to releases within the boundary of a facility. Releases to land include: landfills; land treatment/application farming; and surface impoundments, such as topographic depressions, man-made excavations, or diked areas. The database is maintained by the USEPA. One PESA Project Site was identified in the TRI database.

- **USEPA Brownfield Database** – The term "brownfield site" means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Brownfield sites are generally industrial or commercial properties that are abandoned, inactive, or underutilized due to environmental contamination. The USEPA provides technical assistance and some funding for assessment and cleanup of designated sites. They can also provide tax incentives for cleanup that is not paid for outright; specifically, cleanup costs are fully tax-deductible in the year they are incurred. The database is maintained by the USEPA. No PESA Project Sites were identified in the USEPA Brownfield database.

- **ERNS Database** – The Emergency Response Notification System (ERNS) records and stores information on reported releases of oil and hazardous substances. The ERNS database is maintained by the USEPA. There were 13 PESA Project Sites identified in the ERNS database.

- **Transformer Databases** – The USEPA maintains two databases on transformer registration and quarterly activities regarding polychlorinated biphenyl (PCB)-containing transformers. There were two PESA Project Sites identified in the PCB databases.

<u>*Illinois*</u>

- **Illinois Voluntary Site Remediation Program (SRP) Database** – The SRP is an Illinois program for property owners to voluntarily clean up contaminated property. The intent of the program is to provide persons seeking to perform or performing investigative or remedial activities the opportunity to receive review and evaluation services, technical assistance, and No Further Remediation (NFR) determinations from the IEPA. Letters of NFR determinations are issued for sites that have successfully demonstrated, through proper investigation, and, where warranted, remedial action, that environmental conditions do not present a significant risk to human health or the environment. The database is managed by the IEPA. There were 45 PESA Project Sites identified in the SRP database.

- **Illinois Clean Construction and Demolition Debris (CCDD) Sites Database** – A CCDD facility is a current or former quarry, mine, or other excavation site accepting CCDD as fill material. CCDD means uncontaminated broken concrete without protruding metal bars, bricks, rock, stone, reclaimed or other asphalt pavement, or soil generated from construction/demolition activities. Potential environmental concerns exist with these sites since current operating facilities have operated without a regulatory definition of "uncontaminated." The database is maintained by the IEPA. No PESA Project Sites were identified in the CCDD database.

- **Illinois Brownfield Database** – This database is similar to the brownfield database maintained by USEPA; however, assistance is provided at the state level. The database is maintained by the IEPA. One PESA Project Site was identified in the IEPA Brownfield database.

- **Illinois Active Landfills Database** – Active permitted landfill facilities in the State of Illinois are listed in this database. The database is maintained by IEPA. No PESA Project Sites were identified in the Illinois Active Landfills database.

- **Coal Gasification Sites Database (FMGP)** – Historically, gas for lighting and heating was produced from coal by numerous power companies and municipalities. Byproducts of gas manufacturing included coal tar (containing polynuclear aromatic hydrocarbons, or PAHs) and benzene. Commonly these and other wastes associated with gas manufacturing were left on-site, both aboveground and underground, which may pose a significant threat to public health and the environment. One PESA Project Site was identified in the Coal Gasification Sites database.

- **Illinois Abandoned and Inactive Landfills Database** – IEPA maintains a list of Abandoned and Inactive Landfills in the State of Illinois. No PESA Project Sites were identified in the Illinois Abandoned and Inactive Landfills database.

- **Illinois Underground Storage Tank (UST) Sites** – A database of regulated USTs in Illinois that contain regulated substances including petroleum products or hazardous substances is maintained by the OSFM. There were 115 PESA Project Sites identified in the UST database.

- **Illinois Leaking Underground Storage Tank (LUST) Sites** – Regulated USTs in Illinois that have a suspected or confirmed leak are listed in this database. LUSTs contain regulated substances including petroleum products or hazardous substances, such as those typically found at gasoline stations, fleet fueling facilities, and industrial sites. The database is maintained by IEPA. There were 72 PESA Project Sites identified in the LUST database.

- **Illinois Bureau of Land (BOL) Open Dump Sites** – Abandoned piles of household garbage, bags of yard waste, appliances, old barrels, used tires, and demolition debris such as lumber, shingles, pipes and asbestos can threaten the health of humans, wildlife, and the environment. Known as open dumps, these sites can be found throughout Illinois - heaped at the bottom of ravines, in empty lots and pastures, and along roadsides. An open dump is an illegal waste disposal site and should not be confused with a permitted municipal solid waste landfill or a recycling facility. If allowed to remain, open dumps often grow larger, and may attract dumping of both solid and hazardous wastes. Open dumps pose the following health, safety, and environmental threats: fire and explosion, inhalation of toxic gases, injury to children playing on or around the dump site, disease carried by pests, contamination of waterways and lakes, contamination of soil and groundwater, contamination of drinking water, damage to plant and wildlife habitats, and decrease in the quality of life to nearby residents and the local community. This database in maintained by the IEPA Bureau of Land (BOL). There were 210 PESA Project Sites identified in the BOL database.

- **Illinois Spills Database** – The primary responsibility of the Illinois Emergency Management Agency (IEMA) is to better prepare the State of Illinois for natural, manmade or technological disasters, hazards, or acts of terrorism. IEMA coordinates the State's disaster mitigation, preparedness, response, and recovery programs and activities, functions as the State Emergency Response Commission, and maintains a 24-hour Communication Center and State Emergency Operations Center (SEOC). As part of their responsibility, the IEMA maintains a database of reported incidents involving the release of oil, hazardous materials, or other contaminants to the land, air, or waters of the state. There were 93 PESA Project Sites identified in the IEMA database.

- **Activity and Use Limitations (AUL) Database** – An Activity and Use Limitation (AUL) is a control with the intent to restrict or limit the use of, or access to, a site or facility. These restrictions, which may include institutional and/or engineering controls, are intended to prevent adverse impacts to individuals or populations that may be exposed to hazardous substances and petroleum products in the soil or groundwater on the property. There were 52 PESA Project Sites identified in the AUL database.

- **Highway Authority Agreement (HAA) Database** – A Highway Authority Agreement (HAA) is an institutional control agreement with a highway authority where the requirements of 35 Illinois Administrative Code (35 Ill. Adm. Code) 742.1020(b) and (c) are met and the IEPA has determined that no further remediation is required. There were 10 PESA Project Sites identified in the HAA database.

A total of 242 PESA sites were found in one or more regulatory databases. A summary of REC sites found in the above environmental regulatory databases is provided in Table 3-48.

3.11.1.5 Non-Regulatory Agency Listed Sites/Concerns

Sites with potential special/hazardous waste concerns not included on regulatory agency databases were identified in the PESA reports prepared by ISGS based on visual inspections or historical data information. In accordance with the PESA guidance protocol, these inspections were conducted for parcels within the build alternatives as well as those parcels along (intersecting, touching or bounding at any point) the proposed project. Observations were made for indications of contamination such as stained or discolored soil and/or pavement, stressed vegetation, debris or other uncontrolled dumping or waste disposal, drums and chemical containers, location of PCB-containing transformers, groundwater monitoring wells, and evidence of underground and above ground storage tanks. Standard historical research includes plat maps, Sanborn fire insurance maps, city directories, historical topographic maps, aerial photographs and imagery, and Illinois manufacturers' directories. Based on the completed visual inspections and historical data evaluations, 253 additional sites and/or additional concerns beyond the sites with database listings were identified in the PESA reports which could potentially impact the proposed project due to the presence of special or hazardous wastes.

Table 3-48. Summary of PESA Project Sites in Environmental Regulatory Databases

Database	Total
Federal Database Sites	
RCRA	101
CERCLIS	4
TRIS	1
US BROWNFIELD	0
ERNS	13
Transformers/PCBs	2
State Database Sites	
SRP	45
CCDD	0
IEPA Brownfields	1
Active Landfill	0
FMGP	1
Abandoned/Inactive Landfill	0
UST	115
LUST	72
BOL	210
IEMA	93
AUL	52
HAA	10

3.11.2 Environmental Consequences

The proposed project itself does not involve the use or handling of contaminating substances; however, construction activities (excavation or dewatering) have the potential of encountering hazardous or special waste (contaminated soil and/or groundwater). Potentially hazardous situations can be mitigated efficiently provided that stakeholders have prior knowledge and are prepared for the situation. Unexpected conditions can create delays, expense, and liability, especially if contamination or other conditions are exacerbated by construction, and can jeopardize the health and safety of workers and the public. Planned excavation may encounter contamination and require disposal permits, special material handling techniques, remediation, monitoring, or avoidance.

The ISGS PESA reports identified numerous REC sites, any of which have the potential for soil or groundwater contamination, and could potentially pose a risk to construction activities. These REC sites may require further evaluation including testing (preliminary site investigation (PSI)). The determination whether further assessment is necessary will be evaluated as the proposed project progresses and detailed design becomes available. The decision generally depends on the nature of the REC, its proximity to the planned construction activities, and its potential impact to the proposed project. Mitigation is discussed in Section 3.11.3.

Based on information from both PESAs, and considering overlapping duplicates between the two reports, a total of 495 unique sites were determined to be RECs, posing a potential concern to the proposed project. These REC sites are listed in Table 1 of the Executive Summary section of the PESA reports.

3.11.3 Measures to Minimize Harm and Mitigation

Accidental spills of hazardous materials and wastes during construction or operation of the transportation system require special response measures. Occurrences would be handled in accordance with local government response procedures.

Further environmental studies may be necessary if the proposed project requires work to be performed on or adjacent to a property identified with a REC. It is the responsibility of IDOT to determine if any of the sites with RECs, or right-of-way adjacent to the RECs, will be impacted with the proposed work. A PSI is required if a REC site identified in Table 1 of the PESA Executive Summary involves any of the following situations:

- New right-of-way or easement acquisition (temporary or permanent);
- Railroad right-of-way, other than single rail rural with no maintenance facilities;
- Building demolition / modification; or
- Excavation activities occurring on existing right-of-way adjoining an REC site.

In some cases, the affected portion of the property that involves the REC can be risk managed through avoidance and not require additional assessment. If the affected property containing the REC is fully taken, then the property is ineligible to be risk managed. If risk managing is not possible, a PSI is required to determine the nature and extent of potential contamination.

Right-of-way or easement acquisition is planned for several locations along the Project Corridor as described previously in Section 3.1.7. Based on the results of the PESA evaluation, 13 PESA sites appear to be either part of, or immediately adjacent to, the areas of planned acquisition. For those identified situations, the IDOT District Bureau of Land Acquisition shall coordinate the acquisition with IDOT Bureau of Design and Environment, Central Bureau of Land Acquisition, and the Chief Counsel’s Office to determine if an “All Appropriate Inquiries” (AAI) assessment (parcel-specific Phase I Environmental Site Assessment) is required prior to the acquisition process for additional liability protection under CERCLA.

Once the nature and extent of construction activities are fully known and the areas of contamination are delineated through PSI testing, quantities of impacted soil and water will be estimated. Contaminated material will be managed and disposed of in accordance with applicable federal and state laws and regulations and in a manner that would protect human health and the environment. Special waste issues that may arise in the construction phase will be managed in accordance with the "IDOT Standard Specifications for Road and Bridge Construction and Supplemental Specifications and Recurring Special Provisions." The specification and special provision addresses the transportation and proper disposal of contaminated soil and water, including requirements for sampling, monitoring, management, disposal, and reporting.

3.12 Special Lands

This section discusses special lands, including parks, recreational areas, and nature preserves found within the Project Corridor**.** In the Project Corridor there are 51 parks and recreation areas and a portion of the Illinois Prairie Path**.** Potential effects to these resources from the build alternatives are presented along with a discussion of certain improvements to Columbus Park in consultation with the Chicago Park District.

3.12.1 Affected Environment

The location of parks, recreation facilities, and forest preserves within or near the Project Corridor are illustrated in the Figure 3-60. Each facility within the footprint of the Project Corridor is described in the following sections in terms of its general purpose, whether it is public or private, and whether or not its development involved the use of lands purchased or improved with Section 6(f) Land and Water Conservation Act funds and/or Open Space Land Acquisition and Development funding from Illinois.

3.12.1.1 Federal and State Lands

There are no federal or state operated parks, recreation areas or natural areas in the Project Corridor.

3.12.1.2 Existing Parks and Recreational Areas

Within the one-mile-wide Project Corridor, there are 51 parks and recreation areas (Table 3-49). These range in size from small 0.1 acre tot lots to the 150-acre James Garfield Park located at 100 North Central Park Drive in the City of Chicago. All of the parks, with the exception of the Thomas Jefferson Woods and Millers Meadow Forest Preserve in Forest Park and the James Garfield and Union Park in Chicago, are located completely within the Project Corridor. Only 0.03 acres of Thomas Jefferson Woods (118.3 total acres), 1.57 acres of Millers Meadow (334.4 total acres), and 54.5 acres of James Garfield Park (184.7 total acres) are located outside of the Project Corridor. Several of the parks are immediately adjacent the I-290 right-of-way: Park District of Forest Park, Veterans Park and the Dog Park in Forest Park; Rehm Park, Barrie Park, and Wenonah Park in Oak Park; and Columbus Park, Park No. 422, and Horan Park in the City of Chicago.

Figure 3-60. Existing Parks and Recreation Facilities

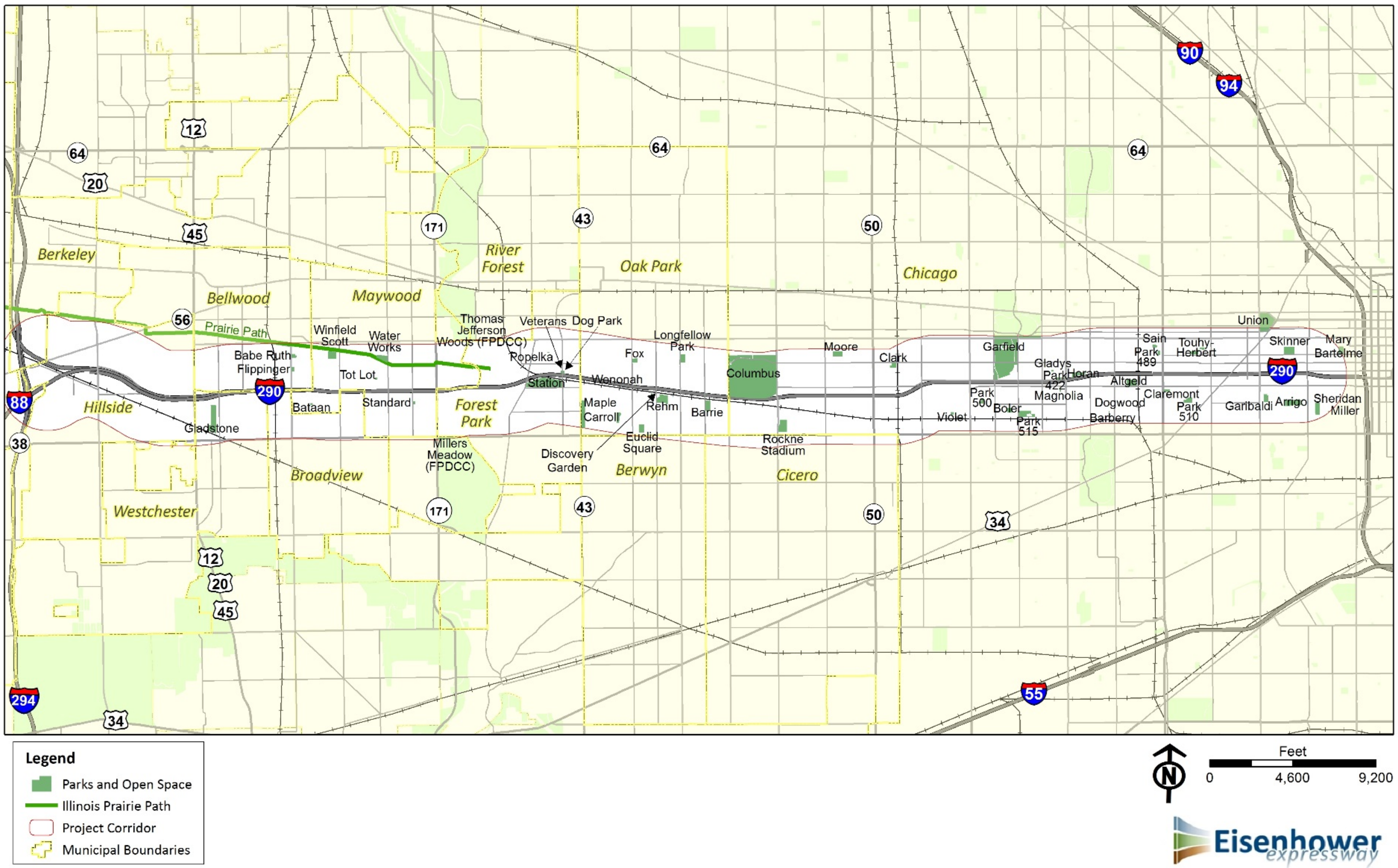


Table 3-49. Existing Parks in the I-290 Project Corridor

Park	Size (acres)	Amenities	Location	Owner
Gladstone Park	11.4	• Ball Diamonds (3-1 lighted) • Batting Cages • Playground Equipment • Drinking Fountains • Picnic Area • Soccer Field • Shelter • Tennis Court	850 Westchester Boulevard Westchester, IL	Westchester Park District
Flippinger Park	0.7	• Playground	1021 South 25th Avenue Bellwood, IL	Memorial Park District
Babe Ruth Park	1.2	• Softball Diamond	810 South 25th Avenue Bellwood, IL	Memorial Park District
Winfield Scott Park	4.4	• Ball Diamond • Basketball Court	19th Avenue and Maywood Drive Maywood, IL	Village of Maywood
Bataan Park	0.3	• Playground	22nd Avenue and Lexington Avenue Maywood, IL	Village of Maywood
Tot Lot	0.1	• Playground	S.10th Avenue and Van Buren Street Maywood, IL	Village of Maywood
Water Works Park	3.7	• Playground • Trails	9th Avenue and Maywood Drive Maywood, IL	Village of Maywood
Thomas Jefferson Woods (part of Thatcher Woods Complex)	118.3	• Trails • Nature Center	Madison Street Maywood, IL	Forest Preserve District of Cook County
Standard Park	0.5	• Playground	5th Avenue and Lexington Avenue Maywood, IL	Village of Maywood
Millers Meadow Forest Preserve	334.4	• Picnic Areas • Model Airplane Field • Recreation Fields	2199 South 1st Avenue Maywood, IL	Forest Preserve District of Cook County
Park District of Forest Park (Station Park)	19.3	• Ball Diamond • Recreation Field • Skateboard Park • Playground • Aquatic Center • Administration Building	7501 Harrison Street Forest Park, IL	Park District of Forest Park

Table 3-49. Existing Parks in the I-290 Project Corridor (continued)

Park	Size (acres)	Amenities	Location	Owner
Popelka Park	0.1	• Playground	Thomas Avenue and Adams Street Forest Park, IL	Village of Forest Park
Veterans Park	0.2	• Playground	Circle Avenue and Lehmer Street Forest Park, IL	Village of Forest Park
Forest Park Dog Park	0.3	• Dog Park	Circle Avenue and Lehmer Street Forest Park, IL	Village of Forest Park
Maple Park	6.4	• Ball Diamond • Athletic Field • Playground • Dog Park • Tennis Court • Walking Path	1105 South Maple Avenue Oak Park, IL	Park District of Oak Park
Carroll Park	2.5	• Ball Diamond • Athletic Field • Playground • Field House	1125 South Kenilworth Oak Park, IL	Park District of Oak Park
Euclid Square Park	2.8	• Ball Diamond • Athletic Field • Playground • Tennis Court • Walking Path	705 West Fillmore Street Oak Park, IL	Park District of Oak Park
Rehm Park	5.8	• Athletic Fields • Chess Tables • Playground • Pool • Tennis Court	515 Garfield Street Oak Park, IL	Park District of Oak Park
Wenonah Tot Lot	0.1	• Playground	Wenonah and Harrison Oak Park, IL	Park District of Oak Park
Fox Park	1.5	• Ball Diamond • Athletic Field • Playground • Splash Pad • Chess Tables • Field House	624 South Oak Park Avenue Oak Park, IL	Park District of Oak Park
Longfellow Park	2.8	• Ball Diamond • Athletic Field • Basketball Court • Outdoor Ice Rink • Playground • Splash Pad • Walking Path • Field House	610 South Ridgeland Avenue Oak Park, IL	Park District of Oak Park

Table 3-49. Existing Parks in the I-290 Project Corridor (continued)

Park	Size (acres)	Amenities	Location	Owner
Barrie Park	3.4	• Ball Diamond • Athletic Field • Playground • Multi-use Sports Courts • Walking Path • Field House • Sledding Hill	1011 South Lombard Avenue Oak Park, IL	Park District of Oak Park
Elsie Jacobsen Discovery Garden (at Oak Park Conservatory)	0.1	• Interactive Gardens	615 Garfield Street Oak Park, IL	Park District of Oak Park
Columbus Park	135.1	• Ball Diamonds • Basketball Court • Field House • Fishing Area • Gymnasium • Picnic Area • Tennis Court • Pool • Golf Course	500 South Central Avenue Chicago, IL	Chicago Park District
Rockne Stadium	6.9	• Athletic Field	1117 South Central Avenue Chicago, IL	Chicago Public Schools
Moore Park	3.2	• Ball Diamond • Basketball Court • Field House • Playground • Water Feature	5085 West Adams Street Chicago, IL	Chicago Park District
Clark (John) Park	1.9	• Ball Diamond • Basketball Court • Field House • Athletic Fields • Playground • Pool	4615 West Jackson Boulevard Chicago, IL	Chicago Park District
Violet Playlot Park	0.5	• Playground • Water Feature	4120 West Taylor Street Chicago, IL	Chicago Park District
Park No. 500	1.2	• Basketball Court • Picnic Area • Walking Path	730 South Springfield Avenue Chicago, IL	Chicago Park District
Boler (Leo Roscoe) Park	1.8	• Playground	3601 West Arthington Street Chicago, IL	Chicago Park District

Table 3-49. Existing Parks in the I-290 Project Corridor (continued)

Park	Size (acres)	Amenities	Location	Owner
Homan Square Park (Park No. 515)	5.1	• Athletic Field • Field House • Gymnasium • Picnic Area • Playground • Pool	3517 West Arthington Street Chicago, IL	Chicago Park District
James Garfield Park	184.7	• Ball Diamond • Basketball Court • Athletic Fields • Field House • Gymnasium • Fishing Area • Playground • Pool • Tennis Courts • Walking Paths	100 North Central Park Avenue Chicago, IL	Chicago Park District
Gladys Playlot Park	0.3	• Playground • Basketball Court	3301 West Gladys Avenue Chicago, IL	Chicago Park District
Playlot Park No. 422	0.9	• Playground • Water Feature	3232 West Congress Parkway Chicago, IL	Chicago Park District
Horan Park	3.0	• Ball Diamond • Basketball Courts • Field House • Water Feature	3035 West Van Buren Street Chicago, IL	Chicago Park District
Magnolia Playlot Park	0.3	• Playground • Water Feature	3224 West Flournoy Street Chicago, IL	Chicago Park District
Barberry Park	0.1	• Sandbox • Water Feature	2825 West Arthington Street Chicago, IL	Chicago Park District
Dogwood Playlot Park	0.2	• Playground • Water Feature	2732 West Polk Street Chicago, IL	Chicago Park District
Altgeld Park	4.3	• Ball Diamond • Basketball Court • Athletic Field • Field House • Gymnasium • Playground • Pool • Volleyball Courts	515 S. Washington Avenue Chicago, IL	Chicago Park District
Sain Park	0.9	• Basketball Court	2453 West Monroe Street Chicago, IL	Chicago Park District

Table 3-49. Existing Parks in the I-290 Project Corridor (continued)

Park	Size (acres)	Amenities	Location	Owner
Park No. 489	0.7	• Playground	2420 West Adams Street Chicago, IL	Chicago Park District
Claremont Playlot Park	1.0	• Playground • Community Garden	2334 West Flournoy Street Chicago, IL	Chicago Park District
Livingston Field Park (Park No. 510)	2.3	• Ball Diamonds	2139 West Lexington Street Chicago, IL	Chicago Park District
Touhy-Herbert Park	3.0	• Ball Diamond • Basketball Court • Field House • Playground • Water Feature	2106 West Adams Street Chicago, IL	Chicago Park District
Garibaldi Playground Park	2.5	• Playground	1520 West Polk Street Chicago, IL	Chicago Park District
Arrigo Park	6.5	• Ball Diamond	801 South Loomis Street Chicago, IL	Chicago Park District
Sheridan Park	3.9	• Ball Diamond • Athletic Field • Field House • Gymnasium • Playground • Pool	910 South Aberdeen Street Chicago, IL	Chicago Park District
Miller Playlot Park	0.1	• Playground	846 South Miller Street Chicago, IL	Chicago Park District
Union Park	13.5	• Ball Diamond • Basketball Court • Athletic Field • Field House • Gymnasium • Picnic Area • Playground • Tennis Court • Pool	1501 West Randolph Street Chicago, IL	Chicago Park District
Skinner Park	5.4	• Ball Diamond • Basketball Court • Athletic Field • Field House • Playground • Picnic Area • Community Garden • Water Feature	1331 West Monroe Street Chicago, IL	Chicago Park District

Table 3-49. Existing Parks in the I-290 Project Corridor (continued)

Park	Size (acres)	Amenities	Location	Owner
Mary Bartelme Park	2.3	• Playground • Dog Park	115 Sangamon Street Chicago, IL	Chicago Park District

Source: Westchester Park District: http://www.wpdparks.org/parks/17-gladstone-park
Memorial Park District: http://www.mempark.org/facilities-parks
Village of Maywood: http://www.maywood-il.org/Village-Services/Parks,-Recreation-Cultural-Services.aspx
Forest Preserve District of Cook County: http://fpdcc.com/
Village of Forest Park: http://www.forestpark.net/dfp/parks-recreation
Park District of Forest Park: http://www.pdofp.org/parks-and-facilities/
Park District of Oak Park: http://www.pdop.org/parks-and-facilities/
Chicago Park District: http://www.chicagoparkdistrict.com/parks/search/

In addition to the numerous parks in the Project Corridor, a portion of the Illinois Prairie Path is located along the northern edge of the corridor through Hillside, Bellwood, and Maywood. The Illinois Prairie Path is a multi-use nature trail for non-motorized public use. The trail spans approximately 61 miles through Cook, DuPage and Kane counties in northeastern Illinois along the former right-of-way of the old Chicago Aurora & Elgin electric railroad. Initiated in 1963, the Illinois Prairie Path is the first US rail-to-trail conversion in the nation. The eastern end of the trail starts at 1st Avenue and Maybrook Drive in the Village of Maywood, but also includes a discontinuous trail link to the east that was constructed in 2006, crossing the Des Plaines River between Maybrook Drive in Maywood and a parking area at the CTA Station in Forest Park. Maybrook Drive serves as a connection between the two trails. Currently, there are no funded projects to expand the path or create connections to the path. The Village of Maywood Comprehensive Plan (2008) calls for improved connections to the Prairie Path:

> *The Prairie Path should be extended east from its current terminus at First Avenue to the Des Plaines River and possibly to the Forest Park CTA Blue Line Station. The Path should be enhanced with lighting, benches and special landscaping along its entire length through Maywood.*

3.12.1.3 Nature Preserves

There are no nature preserves with the Project Corridor.

3.12.1.4 LWCF and OSLAD Sites

Section 6(f) of the Land and Water Conservation Fund Act of 1965 (LWCF) (Public Law 88-578, 16 USC 4601-8(f)(3)) states that properties purchased or improved with LWCF funds cannot, "without the approval of the Secretary [of the US Department of Interior], be converted to other than public outdoor recreation uses." The Open Space Land Acquisition and Development (OSLAD) program is an Illinois state-financed grant program that provides funding assistance to local government agencies for acquisition and/or development of land for public parks, open space, or conservation purposes. This program is similar to the LWCF program in Illinois in that both are managed by the Illinois Department of Natural Resources (DNR), have concurrent application due dates, equal grant maximums, and similar general rules (Illinois DNR, 2011b). The programs differ in their financing resources.

Properties purchased using LWCF funds (Section 6(f) lands) or properties purchased and/or developed using OSLAD grant program funds are protected and may also be a resource protected by Section 4(f) of the USDOT Act of 1966 (49 U.S.C. 303).

Two parks were awarded OSLAD funds, Maple Park in Oak Park and the Park District of Forest Park in Forest Park.

In 2014 the State of Illinois announced $16.5 million in grant awards for 46 local park projects across Illinois. Included in the grant announcement was the Park District of Oak Park for which $400,000 in OSLAD grant funds were identified for improvements to Maple Park, including renovation of existing ball fields, construction of a new playground, and creation of two new athletic fields.

In January 2015 the State of Illinois announced that 75 park and recreation agencies throughout the State of Illinois will receive a total of $26,072,000 in OSLAD grants for FY15. Within the Study Area, the Park District of Forest Park was identified to receive a $400,000 OSLAD grant. The Park District of Forest Park plans to use its portion of the grant funding for landscaping improvements and exterior construction on the property formerly known as the Roos Property. Landscape elements of this plan include walking trails, a pavilion, sensory gardens, open grass space, and bicycle parking.

3.12.1.5 Planned or Proposed Park and Recreational Facilities

As previously discussed, the Park District of Forest Park is planning expansion of their existing park on the property known as the Roos Property at 7358 West Harrison Street. The property was originally purchased in 2013 and dependent on the receipt of 2015 OSLAD funds, the Park District will further develop the site with walking trails, a pavilion, sensory gardens, open grass space, and bicycle parking.

Per the Park District of Oak Park *2014-2018 Capital Improvement Plan*, improvements and/or renovations are planned for several parks in the Project Corridor including Longfellow, Maple and Rehm (http://www.pdop.org/file.aspx?DocumentId=1691).

The *2015 Update to the 5-Year Capital Improvement Plan* for the Forest Preserve District of Cook County includes plans for the development of a new off-leash dog area, a disc golf course, walking trails and improved picnic groves at Miller Meadow[52].

[52] http://fpdcc.com/downloads/FPCC-2015-2019-DRAFT-Capital-Improvement-Plan_web.pdf and http://fpdcc.com/site-plans/

3.12.2 Environmental Consequences

Under the No Build Alternative, there would be no impacts to any existing parks or recreational resources. In addition, there would be no improvements to park access in the Project Corridor.

There would be no direct or temporary use of park or recreational resources associated with any of the build alternatives with three exceptions which are described below in the Village of Forest Park and at Columbus Park.

Implementation of a build alternative could have beneficial effects to the recreational facilities in the Project Corridor with improved connectivity and access, including the improvement of bicycle and pedestrian access across I-290 at existing bridge crossing locations and the creation of a multi-use trail proposed to connect DesPlaines Avenue with Austin Boulevard along the north side of I-290. Also, the build alternatives include reconstruction of the 1st Avenue/Maybrook Drive intersection to provide a protected crossing of 1st Avenue to help complete the Illinois Prairie Path trail connection to the east. See Section 3.1.1.5, Transportation Network for a discussion of various bicycle and pedestrian improvements throughout the Project Corridor.

3.12.2.1 Village of Forest Park Parklands

The proposed project would require small areas of new right-of-way from two parks in the Village of Forest Park to accommodate certain pedestrian and bicycle access improvements requested by the Village. The proposed improvements would occur as follows:

- Veterans Park (at 631 Circle Avenue): 1,160 sf (temporary)/790 sf (permanent) to provide for a wider, 12-foot sidewalk and a new on-street 6-foot bicycle lane along Circle Avenue, and a new sidewalk on the park's western boundary to connect the park with the proposed shared-use path (requested by Village); and

- The Dog Park (at 632 Circle Avenue): 840 sf (temporary)/575 sf (permanent) to provide for a wider, 10-foot sidewalk along Circle Avenue and a new on-street 6-foot bicycle lane (requested by Village).

- Park District of Forest Park (Recreation Center-Roos Property) (at 7358 West Harrison Street): 3,955 sf (temporary) to provide work space for sidewalk installation on the west side of Circle Avenue.

In evaluating the consequences of these proposed improvements, consideration was given to Section 4(f) of the US Department of Transportation (USDOT) Act of 1966. This act governs the use of land from publicly owned parks, recreation areas, wildlife or waterfowl refuges, and public or private historic and archaeological sites for Federal highway projects.

Section 4(f) Regulations

Section 4(f) of the USDOT Act of 1966 (49 U.S.C. Section 303 and 23 U.S.C. 138), was enacted to preserve publicly owned land used for recreation, wildlife, and waterfowl refuges. Section 4(f) resources also include public and private historic properties that are listed or eligible for inclusion in the National Register of Historic Place (NRHP) as well as archaeological sites that are listed or eligible for inclusion in the NRHP and warrant preservation in place.

Section 4(f) stipulates that the FHWA and other USDOT agencies cannot approve the use of land from publicly owned parks, recreation areas, wildlife and waterfowl refuge areas, or public and private historic sites unless the following conditions apply:

- There is no feasible and prudent alternative to the use of the land.

- The action includes all possible planning to minimize harm to the property resulting from use.

- The Secretary of Transportation determines, after public notice and opportunity for public review and comment, that the use of the property, including any measure(s) to minimize harm committed to by the applicant will have a *de minimis* impact as defined in 23 CFR 771.17. The officials with jurisdiction (OWJ) over the Section 4(f) property must concur in writing that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection.

Types of "uses" include:

- Permanent incorporation of land into a transportation facility (Direct Use).

- Temporary occupancy of land that is adverse in terms of the statute's preservation purpose, unless an exception is available according to 23 CFR 774.13(d)(2008) (Temporary Use).

- Constructive use, as determined by the criteria in 23 CFR 774.15, meaning the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected features, attributes, or activities that qualify the property for protection under Section 4(f) are substantially impaired (Constructive Use).

The evaluation that follows was undertaken with these potential uses evaluated at Veterans Park, the Dog Park and the Park District of Forest Park (Recreation Center - Roos Property).

<u>*Veterans Park*</u>

Planned project improvements at Veterans Park would include construction of a new sidewalk and widening of an existing sidewalk. As shown in Figure 3-61, a small amount of parkland would be needed along the park's western and eastern boundaries: 1) for a new sidewalk along the west boundary which would provide a connection to the shared-use path proposed to parallel I-290, and 2) to widen the existing sidewalk on the eastern boundary along Circle Avenue from 5 feet to 12 feet. New bike lanes, 6-feet in width, are proposed along both northbound and southbound Circle Avenue.

Permanent, Constructive or Temporary Parkland Use. Both permanent and temporary use of land within Veterans Park would occur. The permanent use would consist of 790 square feet to widen the existing sidewalk from 5 feet to 12 feet on the western side of Circle Avenue. This permanent use would require approximately 0.07 percent of the parkland along its perimeter with no effect to existing facilities. At the same time, approximately 770 square feet would also be temporarily occupied along Circle Avenue to accommodate a transition in grade from the wider sidewalk to the park, along with 390 square feet for the new sidewalk connecting to the proposed shared-use path along I-290, for a total of 1,160 square feet. The parkland temporarily used would be retained as part of Veterans Park once construction is complete.

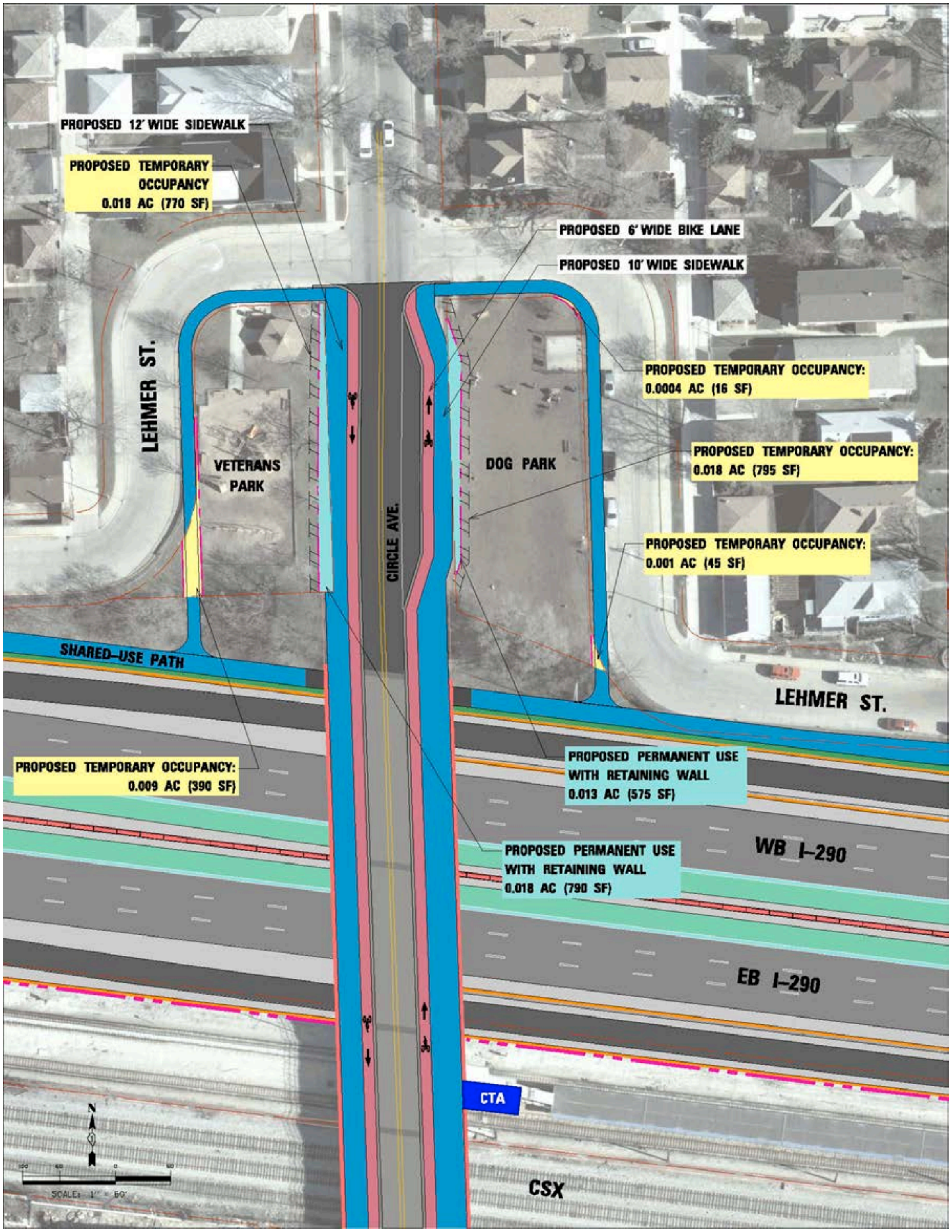
No constructive use at Veterans Park would occur as no impairment of the activities, features or attributes that qualify the property for protection under Section 4(f) would result from activities associated with the proposed project.

Avoidance and Minimization Options. None available along the western boundary, unless the connection to the shared-use path were eliminated which would not meet the purpose and need for this element of the project, nor the design intent to improve pedestrian safety and connectivity. Along Circle Avenue, the existing sidewalk width would need to be retained and the proposed bike lane eliminated to avoid both the permanent and temporary use to construct the wider sidewalk. Minimization measures developed at this location within the park include the use of a retaining wall to limit the extent of grade change into the park. Other considerations, such as narrowing the sidewalk width, were also evaluated. Given the intent to reconstruct project facilities to current standards, however, such a design would result in a substandard condition and is not recommended for that reason.

<u>Dog Park</u>

Planned project improvements at the Dog Park would be similar to those for Veterans Park, but the area of impact would be smaller. As shown in Figure 3-61, an incidental amount of parkland would be needed along the park’s western and eastern boundaries 1) for a new sidewalk connecting to the shared-use path and 2) to widen the existing sidewalk along Circle Avenue from 5 feet to 10 feet.

Figure 3-61. Veterans Park and the Dog Park – Proposed Access Improvements at Circle Avenue and I-290



Permanent, Constructive or Temporary Parkland Use. Both permanent and temporary use of land within the Dog Park would occur. The permanent use would consist of 575 square feet to widen the existing sidewalk from 5 feet to 10 feet on the east side of Circle Avenue. The permanent use would require approximately 0.04 percent of the parkland along its perimeter with no effect to existing activities at the park, although the perimeter fence would need to be relocated along Circle Avenue. Approximately 795 square feet would also be temporarily occupied along Circle Avenue to accommodate a transition in grade from the wider sidewalk to the park, while 45 square feet would be needed to complete the sidewalk connection to the proposed shared-use path, for a total of 840 square feet. The parkland temporarily used would be retained as part of the Dog Park once construction is complete.

No constructive use at the Dog Park would occur as no impairment of the activities, features or attributes that qualify the property for protection under Section 4(f) would result from activities associated with the proposed project.

Avoidance and Minimization Options. There are none available along the eastern boundary, unless the connection to the shared-use path was eliminated which would not meet the purpose and need for this element of the project, nor the design intent to improve pedestrian safety and connectivity. Along Circle Avenue, the existing sidewalk width would need to be retained and the proposed bike lane eliminated to avoid both the permanent and temporary use to widen the existing sidewalk. Measures to minimize impacts at this location include a retaining wall to limit the extent of grade change into the park. Other considerations, including a narrower sidewalk width, were also considered. However, such a design would result in a substandard condition and is not recommended for that reason, given the intent to reconstruct project facilities to current standards.

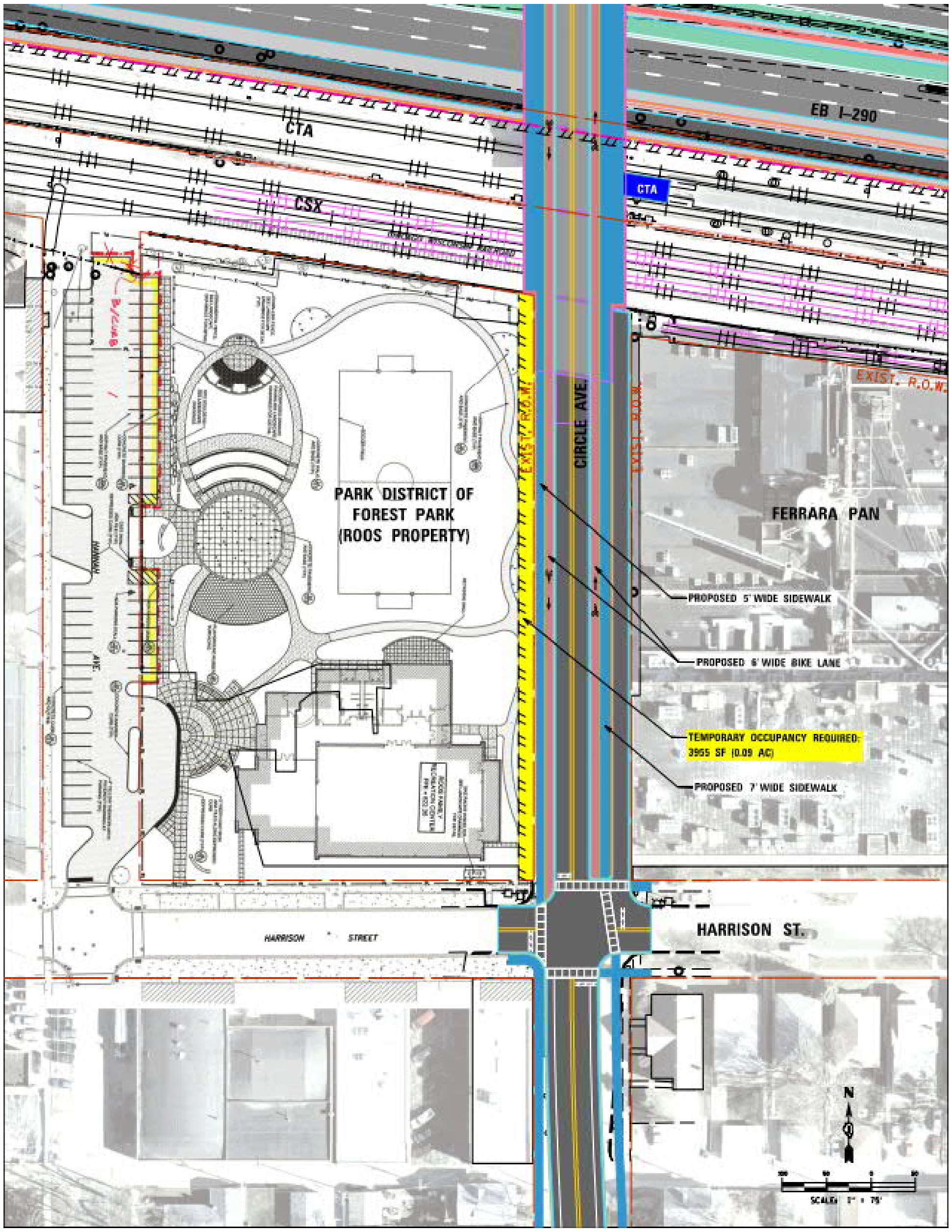
Park District of Forest Park – Recreation Center (Roos Property)

Permanent, Constructive or Temporary Parkland Use. Temporary use of land within the Park District of Forest Park, Recreation Center (Roos Property) would occur (Figure 3-62). The land temporarily occupied would consist of 3,995 square feet which would allow for construction of a new 5-foot wide sidewalk along the property's eastern boundary on the west side of Circle Avenue. The parkland temporarily used would be retained as part of the Recreation Center (Roos Property) once construction is complete.

No constructive use at the Recreation Center (Roos Property) would occur as no impairment of the activities, features or attributes that qualify the property for protection under Section 4(f) would result from activities associated with the proposed project.

Avoidance and Minimization Options. None available unless the sidewalk was eliminated which would not meet the purpose and need for this element of the project, nor the design intent to improve pedestrian safety and connectivity. Given the intent to reconstruct project facilities to current standards, however, such a design would result in a substandard condition and is not recommended for that reason.

Figure 3-62. Park District of Forest Park – Roos Property



Source: WSP | Parsons Brinckerhoff, 2016

A summary of the proposed project's involvement with the public parks in the Village of Forest Park is shown in Table 3-50 with several small areas along the perimeter of Veterans Park and the Dog Park required for both permanent and temporary use and a small area of temporary use along the eastern perimeter of the Recreation Center - Roos Property.

Table 3-50. Summary of Parkland Use – Village of Forest Park

Parkland Facility	Section 4(f) Involvement	Use		Comment
		Temporary	Permanent	
Veterans Park[1]	Yes	1,160 sf (0.027 ac)	790 sf (0.018 ac)	Two sidewalks; one each on the eastern and western perimeter
Dog Park[1]	Yes	840 sf (0.019 ac)	575 sf (0.013 ac)	Two sidewalks; one each on the eastern and western perimeter
Recreation Center - Roos Property[2]	Yes	3,955 sf (0.091 ac)	-	Work space for sidewalk installation, west side of Circle Avenue
Total	Yes	5,971 sf (0.137 ac)	1,365 sf (0.031 ac)	

[1]Estimates based on plans dated July 11, 2016.
[2]Estimate based on plans dated March 10, 2015.

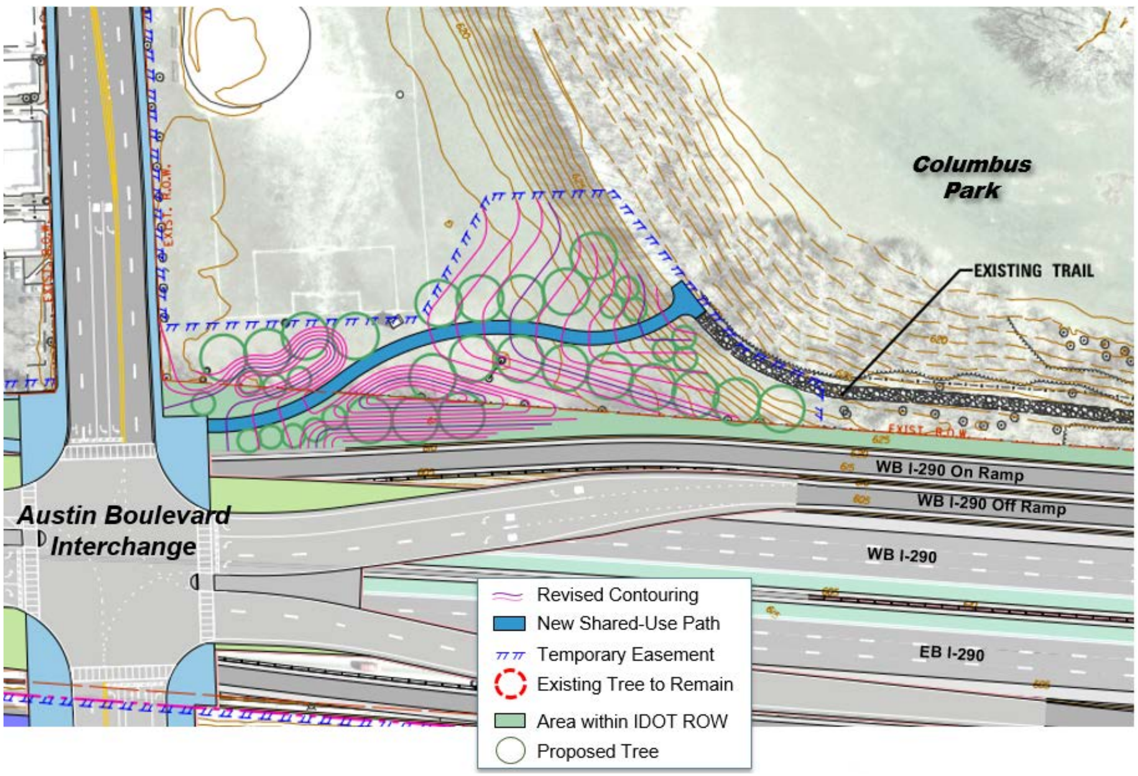
FHWA intends to make a *de minimis* impact determination for Veterans Park, the Dog Park and Recreation Center – Roos Property, based on the minimization measures described. The project would not adversely impact the long-term use, function, or development of either park. FHWA has informed the Village of Forest Park, the OWJ, of its intention to make a *de minimis* impact determination for the parks, and through publication of this DEIS is seeking public comment on this preliminary finding. Once all public comments on these items have been addressed, the FHWA will seek written concurrence from the OWJ that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection.

3.12.2.2 Columbus Park

The 136-acre Columbus Park sits immediately adjacent the north side of the I-290 right-of-way between Austin Boulevard and Central Avenue in the City of Chicago. In 1953, nine acres of the park's southern boundary were lost to make way for the Eisenhower Expressway. The park offers a wide array of amenities including a children's playground, baseball fields, athletic fields, basketball courts, a swimming pool, a nine-hole golf course, a fishing lagoon, and pathways. In addition, there is a field house which features a fitness center; two gymnasiums; three kitchens; meeting rooms; senior center and banquet room. Also located on the park's grounds is the "Refectory" building which is used frequently for weddings and special events. Columbus Park was designed by noted landscape architect Jens Jensen. It was listed on the National Register of Historic Places in 1991, and designated a National Historic Landmark in 2003 (Section 3.2, Cultural Resources).

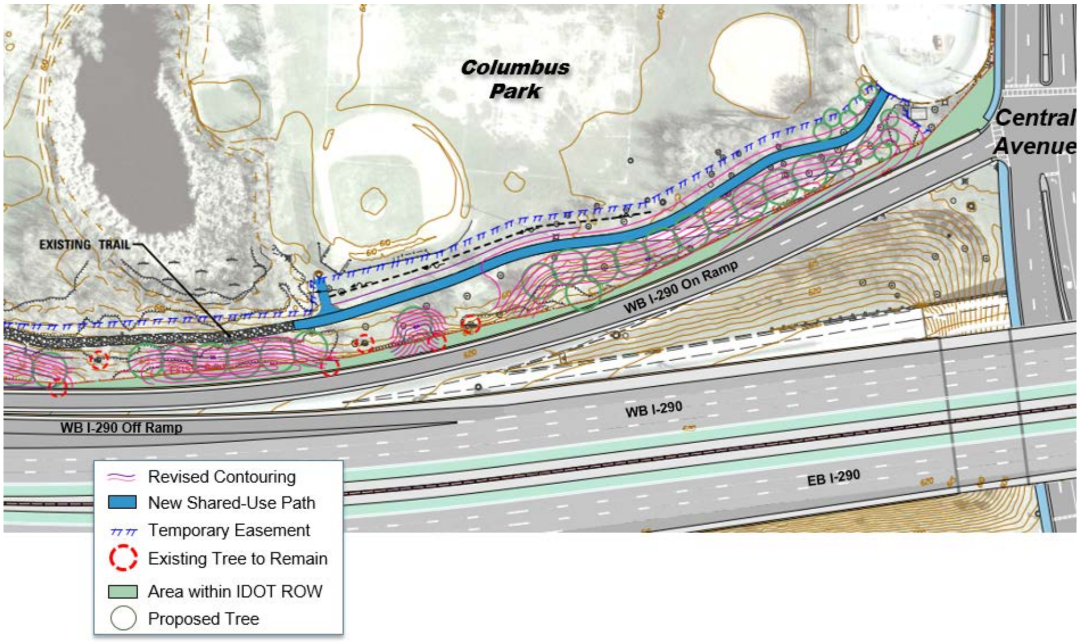
One objective of reconstructing the Eisenhower Expressway is to improve pedestrian access and circulation to address the need for improved modal connections and opportunities. A specific consideration is to enhance bicycle and pedestrian access along the southern boundary of Columbus Park between Austin Boulevard and Central Avenue north of I-290 where no connectivity exists presently. This access improvement would involve the temporary use of approximately 1.01 acres in the southwestern corner of the park to construct a 450-foot connection from the proposed shared-use path at Austin Boulevard to the park's existing trail, consequently providing continuous non-motorized access between the eastern terminus of the Illinois Prairie Path at DesPlaines Avenue to Central Avenue. For this reason, consultation with the Chicago Park District was initiated on August 19, 2015, focusing on construction of this short section of paved trail, earthen berms and tree plantings along the park's southern boundary along with a context-appropriate plaza treatment at the Austin Boulevard interchange adjoining the park's southwestern corner (Figure 3-63).

Figure 3-63. Columbus Park - West Side Trail Connection and Enhancements



At the east end, the Chicago Park District requested reconstruction of the existing trail with grading to address drainage issues, and to construct new berms for screening a portion of the expressway in the vicinity of the Central Avenue on-ramp (Figure 3-64). As discussed with the Chicago Park District, the east end improvements could be constructed independently, or in conjunction with the reconstruction of I-290.

Figure 3-64. Columbus Park – East Side Enhancements



As for the Village of Forest Park parkland evaluation relative to Section 4(f) "use", the following evaluation considered the permanent incorporation of land into a transportation facility, temporary occupancy of land, and constructive use of Columbus Park by the proposed project.

Permanent, Constructive or Temporary Parkland Use. Only temporary use of land within Columbus Park would occur. The 2.74 acres land temporarily occupied would allow for construction of a 450-foot shared-use path. As discussed previously, it would provide a connection from Austin Boulevard to the park's existing trail along the southern boundary of the park. In addition, landscape planting and earthen berms would be constructed in the vicinity of the shared-use path on the west side and along the east side as shown in Figure 3-63 and Figure 3-64. Once these enhancements are completed, the parkland temporarily used would be remain part of Columbus Park.

No constructive use at Columbus Park would occur as no impairment of the activities, features or attributes that qualify the property for protection under Section 4(f) property would result from activities associated with the proposed project.

Avoidance and Minimization Options. None available unless the shared-use path and landscape enhancements were eliminated which would not meet the purpose and need for this element of the project, nor the design intent to improve pedestrian connectivity.

Given the benefits of this enhancement, FHWA can determine that Section 4(f) does not apply if the use is temporary as defined in 23 CFR 774.13 (d). A temporary occupancy of land is so minimal as to not constitute a use within the meaning of Section 4(f) when conditions (1) through (5) are satisfied as follows:

1. Duration must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land;

2. Scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) resource are minimal;

3. There are not anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features or attributes of the property on either a temporary or full time basis;

4. The land being used must be fully restored, i.e., the resource must be returned to a condition which is at least as good as that which existed prior to the project; and

5. There must be documented agreement of the Officials with Jurisdiction over the Section 4(f) resource regarding the above conditions.

Based on correspondence received October 15, 2015 from the Chicago Park District (Appendix I) and informal consultation with the SHPO/IHPA, the Officials with Jurisdiction have concluded that the scope of the improvements proposed would not adversely impact the park and, in fact, would provide additional opportunities to enhance the historic integrity of the park, while providing additional benefits to park visitors.

In consideration of the Chicago Park District's and SHPO/IHPA's response with regard to the conditions of 23 CFR 774.13 (d) above, FHWA has made a preliminary determination that such improvements do not constitute a Section 4(f) use and, once completed, would complement and enhance the accessibility of Columbus Park for both pedestrians and bicyclists. Formal written concurrence will be required from Chicago Park District and SHPO/IHPA before FHWA can make a final determination.

3.12.3 Measures to Minimize Harm and Mitigation

IDOT will continue to coordinate with the Village of Forest Park in the pedestrian access enhancements proposed at Veterans Park, the Dog Park, and the Recreation Center – Roos Property, and with the Chicago Park District for pedestrian access and other enhancements at Columbus Park. As this consultation continues, all aspects of the final design will be approved and implemented under direction of the respective OWJs.

3.13 Visual Resources

This section describes the existing visual conditions of the Project Corridor and the visual consequences of the No Build and build alternatives. The Visual Resources narrative has been organized from the following perspectives: 1) as viewed by motorists using the I-290 facility and; 2) as viewed by occupants/users from adjacent land uses. The analysis has been further organized in five geographic sections as identified below using cross street locations to define each section:

- I-88/I-290 to 30th Avenue;
- 30th Avenue to 1st Avenue;
- 1st Avenue to DesPlaines Avenue;
- DesPlaines Avenue to South Central Park Avenue; and
- South Central Park Avenue to Racine Avenue.

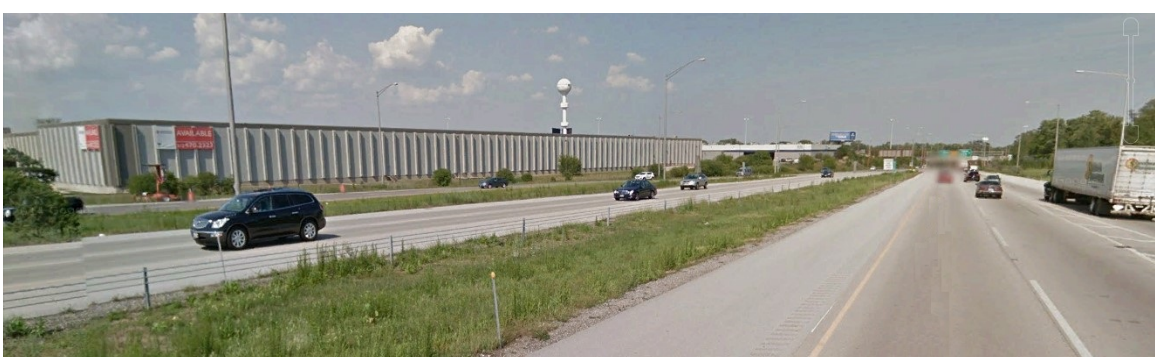
In addition to these geographic sections, Columbus Park, Corridor Landscape, Noise Barriers and Bridge Structures are described separately.

3.13.1 Existing Conditions Visual Analysis as viewed from the Mainline

3.13.1.1 I-88/I-290 to 30th Avenue

Land uses adjacent to the corridor at the western terminus (I-88/I-290 interchange) are largely suburban in character consisting of large scale commercial properties in distinct development districts. These include manufacturing, warehousing-distribution housed in large volume structures on single owner sites, as well as standalone retail shops and large scale strip center commercial developments (Figure 3-54). Commercial advertising billboards are common throughout the corridor and are a dominant element in the viewshed.

Figure 3-65. I-88 Terminus of Study Area



Commercial land uses are visible proximate to the I-88 terminus of the Study Area.

Equally dominant in this section of the corridor is the presence of residential land use which is comprised primarily of single family, single lot development.

In the western portion of the corridor from approximately the I-88/I-290 interchange east to 30th Avenue, the presence of concrete retaining and noise barriers screen the view of the residences from the corridor (Figure 3-66). Aside from the view to roof lines and mature canopy trees beyond the right-of-way, the existing noise barriers prevent the mainline traveler from viewing the residential communities that are located proximate to the Project Corridor. In areas that are comprised of commercial or industrial land uses, generally, the areas are visible from the freeway corridor (Figure 3-67).

Figure 3-66. Western Portion of Study Area

Existing noise barriers screen views to adjacent residential neighborhoods in the western portion of the Study Area.

Figure 3-67. Mainline Roadway Views

Example of location with open views from the mainline roadway to adjacent commercial land uses.

The profile grade of the mainline roadway undulates throughout this portion of the Project Corridor. In locations where the mainline underpasses a cross street, the mainline profile is depressed in a trough. In locations where the mainline overpasses a cross street, the mainline profile tends to be on fill. The variability of the mainline roadway profile is achieved either through the use of sloped earth embankment or vertical retaining walls.

This section of the Project Corridor includes intermittent areas of vegetated landscape, which occur within medians between the mainline and parallel to the shoulder of the freeway in many locations. The plant palette outside the mainline includes native and naturalized vegetation consisting of grasses, forbs, shrubs and deciduous trees, which are not actively maintained other than what appears to be a limited maintenance mowing along the shoulder line. Planting within the mainline medians is primarily turf grass and appears to receive regular mowing. In many locations, deciduous vines cover large portions of the noise barriers softening their warm season appearance (Figure 3-68). The Mannheim Road interchange includes large expanses of green space within the ramp areas that are a distinct landscape feature of this corridor section (Figure 3-69).

Figure 3-68. Mainline Roadway View – Retaining and Noise Barriers

The view from the mainline is generally limited to the Project Corridor due to the presence of the nearly continuous line of retaining walls and noise barriers. Climbing vines have been planted adjacent to walls which tend to soften their appearance.

Figure 3-69. View at Mannheim Road/I-290 Interchange

The view from the mainline of large landscape area at Mannheim Road/I-290 interchange.

The corridor is lighted at night through a combination of pole mounted cobra head light fixtures and large scale mast mounted fixtures. Concrete median barriers and metal beam guard rail shoulder barriers are common features in this portion of the Project Corridor.

3.13.1.2 30th Avenue to 1st Avenue

This portion of the Project Corridor is generally characterized by residential, religious, educational and recreational land uses. Proximate to the 25th Avenue interchange, some commercial and industrial land uses are visible but are set back from the corridor beyond the adjacent frontage roads. The 25th Avenue interchange includes large expanses of green space within the ramp areas that are a distinct landscape feature of this Project Corridor section (Figure 3-70).

Figure 3-70. View at 25th Avenue/I-290 Interchange

The view from the mainline of large landscape areas at 25th Avenue/I-290 interchange.

The dense vegetation largely parallel to and outside the mainline in this portion of the corridor effectively screens the view from the mainline to the adjacent land uses. Occasional breaks in the planting do allow limited view of the adjacent land uses, however, the general perception from the mainline is that the corridor right-of-way contains large areas of vegetation. The visual screening created by the right-of-way plantings is primarily perceived during the growing season as the majority of plantings are deciduous, not evergreen (Figure 3-71). The I-290 profile grade undulates from generally at grade for most of the section and then into a cut section proximate to locations where cross-street overpasses are located. The cut section results in some enclosure of the viewshed from the mainline. Pole mounted lighting, concrete center median barriers and shoulder barriers are common in this portion of the Project Corridor (Figure 3-72).

Figure 3-71. View Proximate to South 21st Avenue

Variability in the density of right-of-way planting allows occasional views to adjacent residential neighborhoods. View looking north to residences north of freeway proximate to South 21st Avenue.

Figure 3-72. Roadway View at 17th Avenue

View of roadway at cut section proximate to 17th Avenue illustrates slightly depressed roadway profile and use of concrete barriers.

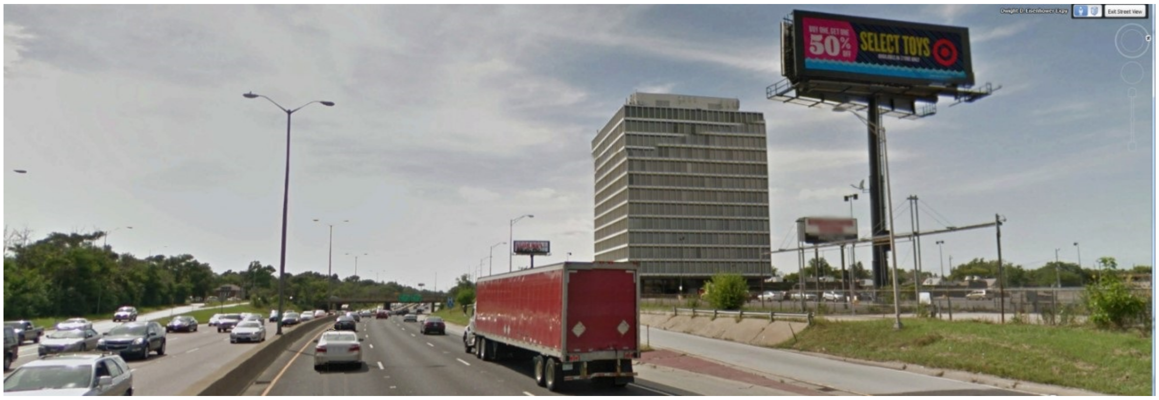
3.13.1.3 1st Avenue to DesPlaines Avenue

This section of the Project Corridor has distinctly more open space character, which is formed by the presence of large tract cemetery land uses, the heavily vegetated Des Plaines River corridor, and several large office buildings and industrial storage yard land uses. The visual screening created by the right-of-way plantings is primarily perceived during the growing season as the majority of plantings are deciduous, not evergreen. These elements are set back from the right-of-way and allow for open views beyond the Project Corridor (Figure 3-73 and Figure 3-74). The open view is accentuated as the mainline profile is at the natural grade for the majority of the length of this section. Pole mounted lighting, concrete median barriers and shoulder barriers are common in this portion of the corridor.

Figure 3-73. View Northeast of 1st Avenue

View beyond confines of the Project Corridor of industrial and cemetery land uses to the south and industrial storage yards to the northeast of 1st Avenue.

Figure 3-74. Mainline View Near I-290/1st Avenue Interchange



Open view to high rise office from the mainline proximate to the northeast quadrant of the I-290/1st Avenue interchange.

3.13.1.4 *DesPlaines Avenue to South Central Park Avenue*

At DesPlaines Avenue, the character of the Project Corridor exhibits a more urban context as the mainline profile grade returns to a cut section and is surrounded by high density residential, industrial and commercial properties. In addition, this section of the corridor includes heavy rail and CTA track beds, passenger ramps, platforms and head station facilities at numerous locations. The I-290 mainline profile and rail/transit facilities are in a common cut, which allows the perpendicular cross streets to pass over on structures. Portions of the I-290 mainline corridor section include planted medians that provide physical and visual separation of the east and west bound travel lanes. The distant viewshed from the mainline is contained on either side of the corridor by canopy vegetation in adjacent neighborhoods, high density residential, commercial, and or manufacturing facilities. The near viewshed at the profile grade level is generally contained by the presence of right-of-way vegetation, retaining walls, CSX track and CTA facilities (Figure 3-75, Figure 3-76, and Figure 3-77).

The visual screening created by the right-of-way plantings is primarily perceived during the growing season as the majority of plantings are deciduous, not evergreen. Pole mounted lighting, concrete median and shoulder barriers; right-of-way fencing are common elements in this portion of the Project Corridor.

Harlem Avenue and South Austin Boulevard

Of special note are the I-290 interchanges at Harlem Avenue and Austin Boulevard. These interchanges have a unique visual character due to the use of paired left-hand on /off ramps. The left handed configuration places the ramp pairs within the median between the east and west bound main line. This arrangement is achieved through the use of paired vertical concrete retaining walls that support fill and the ramp pavement. Vertical concrete barrier walls protect the ramp lanes and further add to the height of the retaining walls flanking the main line. The presence of paired ramps and vertical retaining walls at these locations is visually unique within the Project Corridor. The viewshed from the main line is very constricted by the paired ramps as they ascend in height to the profile grade of the cross-street interchange overpasses (Figure 3-76).

Figure 3-75. CTA Facilities near Circle Avenue

A common visual element, CTA facilities and CSX rail track, are visible south of the Project Corridor proximate to Circle Avenue.

Figure 3-76. I-290 View at Harlem Avenue

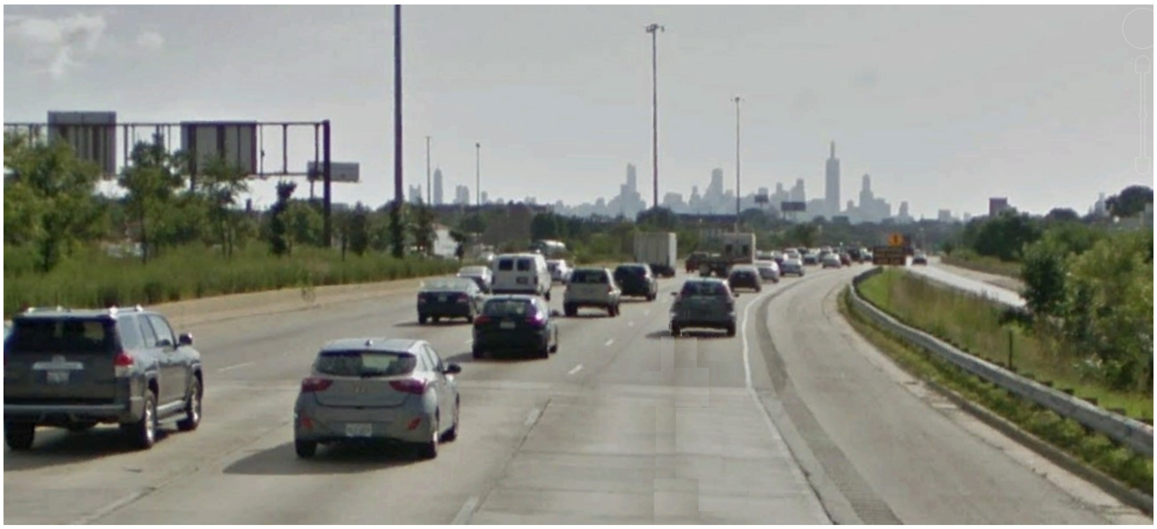
Center on/off ramp walls (left) and CTA facilities (right) frame view along east bound I-290 at Harlem Avenue.

Figure 3-77. Eastbound I-290 View east of South Oak Park Avenue

Retaining walls (left), CTA facilities and mid-rise adjacent housing structures (right) contain viewshed of the Project Corridor east of South Oak Park Avenue along the eastbound mainline.

East of Austin Boulevard, the mainline profile ascends from the cut section and becomes elevated over South Central Avenue. From this location the eastbound motorist has the first complete view of the Chicago skyline (Figure 3-78).

Figure 3-78. I-290 Eastbound east of South Central Avenue



The Chicago Skyline is visible east of the South Central Avenue overpass. Mainlines are separated by large vegetated median (left).

This contrasts with areas further west along the Project Corridor. The east and west bound mainline in this location is separated by a wide planted median, which provides a transitional zone between the higher profile grade of westbound lanes from the lower profile grade of the eastbound lanes and the CTA and CSX alignments. The viewshed is more open to the adjacent off right-of-way locations due in part to the adjacent Columbus Park and large scale industrial facilities set back from the right-of-way.

The visual screening created by the right-of-way plantings is primarily perceived during the growing season as the majority of plantings are deciduous not evergreen.

Between South Central Avenue and South Lockwood Avenue the CTA track bed passes under the eastbound lanes and emerge from a tunnel aligned with the center median. From just west of South Laramie Avenue to the east end of the Study Area, the CTA facilities occupy the center median of the I-290 mainline. In addition to physically separating the mainline, the CTA facilities (head stations, platforms, and elevated track at South Paulina Street), are a dominant visual element of this section. In this section, the viewshed of the Project Corridor is defined by low density urban environment as the buildings are in close proximity to one another but are of smaller scale and are set back from the Project Corridor. There are few exceptions to this proximate to South Kolmar Avenue and South Independence Boulevard, where large multi-story buildings are clearly visible from the corridor. The regular passing of a CTA train along the median further reinforces the urban character of the Project Corridor (Figure 3-79).

Figure 3-79. Viewshed with CTA Trains

Multi-story building east of South Independence Boulevard is a notable element in the viewshed. CTA trains travel along the central median on a frequent schedule during peak travel times.

Major vegetated strips of right-of-way separate the mainline from the frontage road and generally screen the foreground views to the land uses beyond. At cross street overpasses and at the on ramp/mainline junctures, there is less vegetation allowing for more open views to the adjacent urban fabric. The CSX track alignment also shifts south and away from the I-290 viewshed.

3.13.1.5 South Central Park Avenue to Racine Avenue

East of South Central Park Avenue the viewshed from the mainline is characterized by an increasing urban density as observed from the west to east. The section exhibits many urban land uses including light industrial, commericial, institutional, education, civic, medical, parks and open space and residential. The immediate viewshed of the corridor varies primarily as a result of the mix and scale of these land uses and the close proximity of CTA facilites co-located within the Project Corridor (Figure 3-80 and Figure 3-81). The distance viewsheds vary from open to contained and are reflective of the size composition and height of the developments immediately adjacent to the right-of-way (Figure 3-82 and Figure 3-83). The perimeter of the right-of-way parallel to the mainline is generally vegetated with deciduous trees, shrubs and turf which provide some screening and buffering of the adjacent land uses from the Project Corridor. The visual screening created by the right-of-way plantings is primarily perceived during the growing season as the majority of plantings are deciduous, not evergreen.

In several locations the landscape is formal and highly maintained as the result of a sponsored landscape program by various corporations and institutions. The urban character is most fully developed in the corridor section located east of Western Avenue, which includes large educational facilities, high density housing, office spaces and multiple mid and highrise structures that make up the Illinois Medical District (Figure 3-84).

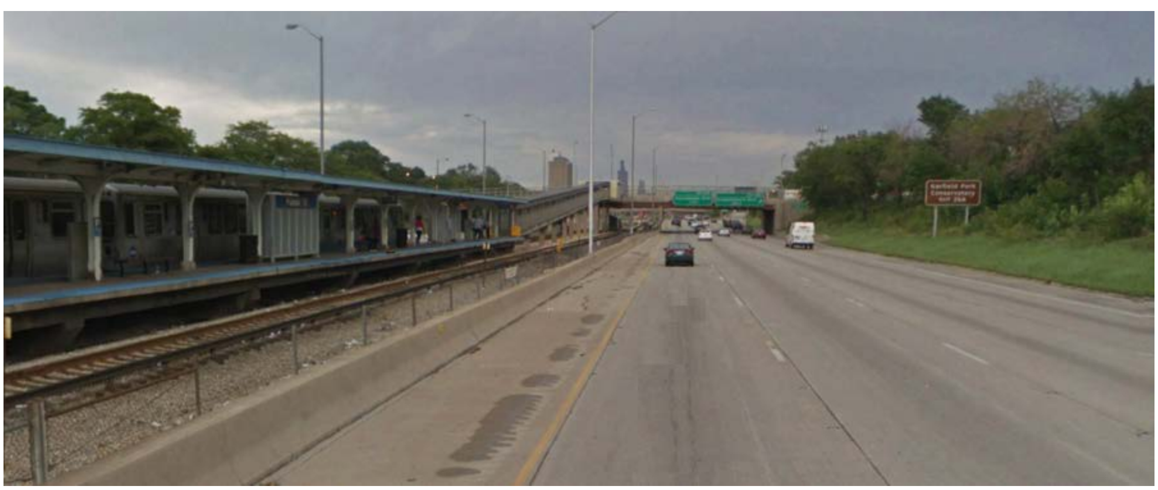
Figure 3-80. I-290 Eastbound near South Damen Avenue

Viewshed of corridor appears generally suburban in character with vegetation parallel to right-of-way. Occasional land uses with large buildings interrupt otherwise open distant viewshed. East bound mainline proximate to South Damen Avenue.

Figure 3-81. I-290 Mainline View east of South Central Park Boulevard

Viewshed of corridor becomes more urban in character east of South Central Park Boulevard. Frequent occurrence of large buildings interspersed with apartments and institutional land uses form the distant viewshed.

Figure 3-82. I-290 Eastbound west of South Pulaski Road

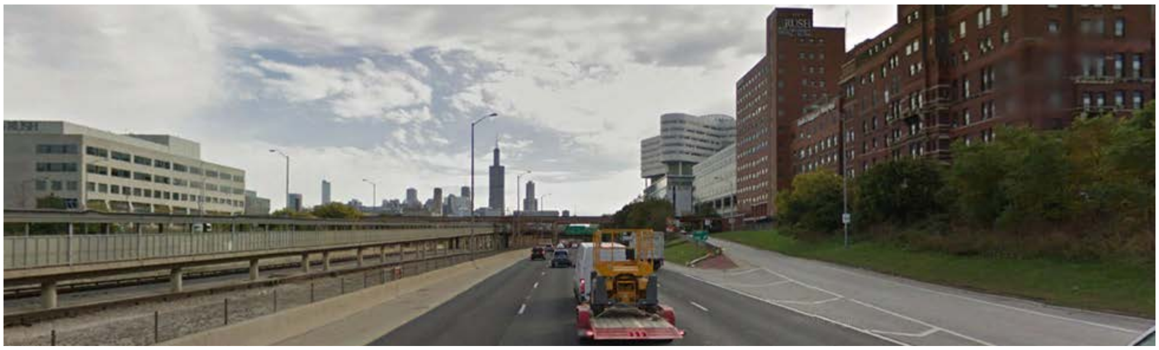


CTA facilities are a dominant visual element in the median separating the main lanes of the Project Corridor east of South Laramie Avenue.

Figure 3-83. Eastbound Mainline View West of South Paulina Street

CTA facilities are a dominant visual element overpassing the east bound mainline.

Figure 3-84. Eastbound I-290 Mainline View



High density urban character proximate to South Paulina Street is indicative of eastern end of the corridor. Viewshed is highly restricted.

3.13.2 Viewsheds of the Project Corridor from Adjacent Land Uses

3.13.2.1 I-88/I-290 Interchange to 30th Avenue

From the I-88/I-290 interchange east to 30th Avenue, the view from the adjacent residential land uses is screened due to the presence of noise barriers (Figure 3-85). Conversely the views to and from the commercial, institutional and industrial facilities are generally open and generally only limited by vegetation located adjacent to or on the right-of–way (Figure 3-86).

The existing noise barriers are generally located along right-of-way accompanied by landscape areas of varying widths. In some locations the planted space is on the side facing the I-290 mainline and in others it is located on the outside of the wall nearest the adjacent land use (Figure 3-87).

Figure 3-85. View at Hillside Avenue/Jackson Boulevard

View of freeway right-of-way and associated noise barrier at Hillside Avenue/Jackson Boulevard north of freeway.

Figure 3-86. View from Frontage Road east of Hillside Drive

Open south west view to frontage road and freeway beyond from Hotel Property located east of Hillside Drive along north frontage road.

Figure 3-87. Southwest View Proximate to Hillside Drive

View looking southwest of planted embankment and noise barrier along north frontage road proximate to Hillside Drive. Planting is between noise barrier and frontage road.

The extent and quantity of the landscape in these strips varies depending upon the available space. In larger spaces, large groupings of shrubs, trees and grasses are common. In narrower strips planting may include a single row of trees and turf or just turf. Vines have been planted along the base of the walls in many locations, which provides visual softening of the walls as viewed from outside the right-of-way (Figure 3-88).

Figure 3-88. View Looking East near Harrison Street

View looking east of wall with vines, low shrubs and turf along south frontage roadway near Harrison Street west of Orchard Street.

In commercial, industrial and similar land use locations, only right-of-way and off right-of-way landscapes separate the view of the corridor from these uses. In these locations the view of I-290 is variable, from completely open where no planting exists, to entirely screened where dense plantings have thrived (Figure 3-87). The dominant plant types are deciduous which provides a higher level of visual screening during the growing season of the year. In the dormant season, the views are more open allowing the walls and freeway (where walls do not exist) to be more visible from the adjacent land uses.

3.13.2.2 30th Avenue to 1st Avenue

In this portion of the Project Corridor, the right-of-way between the mainline and the adjacent frontage roadways is predominately vegetated. The density and quality of the vegetation varies but generally provides for semi-continuous screening of views from the frontage roads to the Project Corridor. The screening afforded by the plantings varies depending upon the season of the year, slope, width and density of the planting. The majority of the plantings tend to be deciduous and afford the majority of screening properties during the growing season of the year. The plantings vary from very dense and sight- proof to sparse with little screen value to only turf which allow open views to the freeway. The open view locations are largely in the vicinity of on and off ramp facilities. Other areas that have sparse or little vegetation include locations where the roadway facilities consume the majority of the right-of-way leaving less room for soil in which to support plantings and areas adjacent to commercial properties (Figure 3-89, Figure 3-90, Figure 3-91, and Figure 3-92). In the majority of locations views are possible from one side of the freeway corridor to the other most notably in locations where plantings are less dense and are comprised of primarily deciduous or warm season plant species.

Figure 3-89. I-290 Mainline near Cernan Drive

View of right-of-way with sparse planting proximate to Cernan Drive.

Figure 3-90. View along Harrison Street

Deciduous plantings screen views to the Project Corridor looking southeast along Harrison Street proximate to 2nd Street.

Figure 3-91. View of Bataan Drive near 23rd Avenue

Planting screen views from south frontage road to adjacent freeway common to many locations.

Figure 3-92. North Frontage Road along Harrison Street

Relatively open views to the Project Corridor from north frontage road at ramp facility along Harrison Street proximate to 19th Avenue.

3.13.2.3 1st Avenue to DesPlaines Avenue

In this portion of the Study Area the mainline profile is predominately at grade and is bounded by the surrounding land uses of institutional (cemetery), industrial services and mid/high rise offices. The views from these land uses vary from open to limited views in locations where dense right-of-way vegetation is located (Figure 3-93).

Figure 3-93. View Looking East near 1st Avenue

Open view to the Project Corridor looking east along north frontage road east of 1st Avenue.

3.13.2.4 DesPlaines Avenue to South Central Avenue

This section of the corridor is located in an excavated trough resulting in the surrounding land uses developed at a consistently higher elevation than the Project Corridor. The resulting viewshed from these adjacent land uses includes both the foreground (Project Corridor) but more notably the land uses located across the corridor. The character of the adjacent viewsheds varies from residential to mixed use reflecting the differing land uses located in this section of the corridor. In the majority of locations views are possible from one side of the freeway corridor to the other most notably in locations where plantings are less dense and are comprised of primarily deciduous or warm season plant species.

3.13.2.5 South Frontage DesPlaines Avenue to South Central Avenue

From DesPlaines Avenue to Home Avenue, recreational, industrial and commercial land uses border the Project Corridor and block direct view of the corridor from the adjacent frontage street and surrounding residential neighborhoods. The large recreational facilities that abut the Project Corridor are generally screened from viewing the Project Corridor due to grade separation, existing vegetation and screen fence/wall. The industrial and commercial properties have limited views of the Project Corridor as they tend to be sited to face the adjacent frontage street or cross streets. East of Home Avenue, along Garfield Street, views of the Project Corridor and across to the land uses beyond are generally open as little or no landscape plantings exist within the right-of-way in this portion of the Project Corridor.

3.13.2.6 Home Avenue to South Central Avenue

East of Home Avenue the balance of the Project Corridor along the south side of this section is comprised of residential, institutional, and recreational land uses with isolated commercial buildings located at the corners of major cross streets and the frontage road. The view to the Project Corridor from these land uses generally consists of one of the following two conditions. The first condition includes a turfed landscape strip with regularly spaced tree plantings bounded along the edge with a metal rail fence (Figure 3-94). The second condition consists of a concrete curb with metal barrier rail, which is located at the edge of the frontage road and has no planted space (Figure 3-95). The views of the Project Corridor east of South Menard Avenue to South Central Avenue are blocked by large industrial facilities. In the majority of locations views are possible from one side of the freeway corridor to the other most notably in locations where plantings are less dense and are comprised of primarily deciduous or warm season plant species.

Figure 3-94. View to I-290 from Garfield Street

View of the Project Corridor looking north through planted tree lawn adjacent to Garfield Street.

Figure 3-95. Northeast View to I-290 from Garfield Street

View of the Project Corridor looking north through vehicle barrier adjacent to Garfield Street.

3.13.2.7 DesPlaines Avenue to Austin Boulevard North Frontage

The character of the Project Corridor along the north frontage road generally consists of residential land uses separated from the I-290 by a vegetated strip of right-of-way. The strip varies in width and the density of the vegetation varies depending upon the location. Wider right-of-way strips are generally denser while narrower strips typically have less dense vegetation. The right-of-way is bounded by a nearly continuous chain link fence. The fence is located on grade except where a retaining wall abuts the frontage road where it is located on top of the wall. In several locations there is a wooden screen fence parallel to the chain link right-of-way fence (Figure 3-96, Figure 3-97, Figure 3-98, Figure 3-99, and Figure 3-100). The view from the adjacent land uses varies depending upon location. In some locations wide landscape areas provide nearly complete screening of the Project Corridor. In other locations wood fencing screens some of the views to the adjacent corridor. The height of this wood fence varies from location to location. In other locations the landscape strip is very narrow and a metal safety rail is used in place of the chain link fence permitting open views to the freeway. In the majority of locations, views are possible from one side of the freeway corridor to the other most notably in locations where plantings are less dense and are comprised of primarily deciduous or warm season plant species.

Figure 3-96. I-290 at Lehmer Street and Ferdinand Avenue

Vegetation in I-290 right-of-way at Lehmer Street and Ferdinand Avenue screens view of the Project Corridor.

Figure 3-97. View along Harrison Street near Kenilworth Avenue

Vegetation in I-290 right-of-way behind wood screen fence along Harrison Street frontage road near Kenilworth Avenue.

Figure 3-98. View Proximate to Home Avenue at Harrison Street

Open view from residential neighborhood to Freeway where narrow landscape strip is present proximate to Home Avenue at Harrison Street.

Figure 3-99. Views along Harrison Street

Open views to the Project Corridor along Harrison Street between Oak Park Avenue and South Euclid Avenue.

Figure 3-100. View along Flournoy Street

Open view of freeway along Flournoy Street West of South Humphrey Avenue with on-street parking.

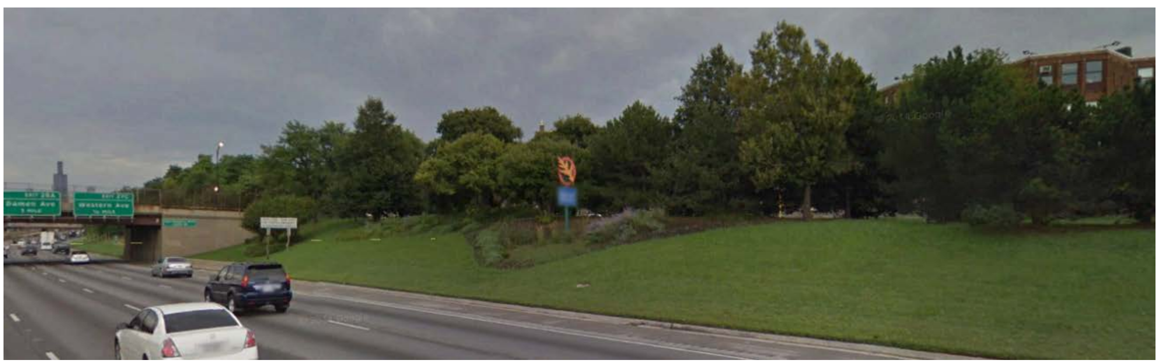
3.13.2.8 South Central Avenue to Racine Avenue

This section of the Project Corridor is highly urbanized containing a broad range of land uses. As a result, the views from the adjacent frontage roads are highly variable depending upon the adjacent land use and the condition of the right-of-way. The viewshed of the Project Corridor from the adjacent land uses generally includes a vegetated strip of right-of–way separating the frontage road from the ramps and mainline facilities. These vegetated strips vary in condition widely from native and naturalized in appearance comprised of grasses planted, volunteer tree plantings (receiving little or no regular maintenance), to pockets of formal plantings with masses of shrub and perennial planting in formal beds with groupings of trees that receive routine maintenance and have a manicured appearance. The formal manicured landscapes are the exception and tend to be sponsored by commercial entities, institutions or are part of a park property. These less frequent formal landscapes present a distinct character different than the majority of the Project Corridor. The majority of the Project Corridor consists of variable conditions largely determined by the density and height of the landscape planting within the right-of-way. As a general condition the right-of–way is separated from the adjacent frontage road with a chain link fence. The fencing varies in condition from very good to poor. This element also impacts the view character along this section of the Project Corridor (Figure 3-101, Figure 3-102, Figure 3-103, Figure 3-104, Figure 3-105, and Figure 3-106). In the majority of locations views are possible from one side of the freeway corridor to the other most notably in locations where plantings are less dense and are comprised of primarily deciduous or warm season plant species.

Figure 3-101. View along West Lexington Street

Manufacturing land use with sparse landscape in adjacent right-of-way along West Lexington Street proximate to South Lockwood Avenue.

Figure 3-102. I-290 View Proximate to South Kenneth Avenue



Example of formal maintained landscape along the Project Corridor adjacent to high density housing proximate to South Kenneth Avenue.

Figure 3-103. View of Westbound I-290 from West Flournoy Street

Right-of-way with turf planting only along west bound mainline at West Flournoy Street, west of South Lockwood Avenue.

Figure 3-104. View of West Harrison Street

Frontage Road with street tree planting along right-of-way with fencing, West Harrison Street east of South Kildare Avenue.

Figure 3-105. View along West Flournoy Street

Fencing and hedge row planting along right-of-way West Flournoy Street, East of South Laramie Avenue.

Figure 3-106. View from West Flournoy Street at Kilpatrick Avenue

Larger right-of-way landscape area separate frontage road from mainline West Flournoy Street at Kilpatrick Avenue.

3.13.3 Columbus Park

The Project Corridor abuts the City of Chicago's Columbus Park along the park's southern boundary. Views of the I-290 westbound off-ramp at Austin Boulevard are partially visible from the soccer field located in the southwest corner of the Columbus Park and from locations along the paved trail that borders the southern edge of the park east of the soccer fields (Figure 3-107). Mature vegetation along the south park boundary and within the right-of-way only partially obscure some of the view to the ascending retaining wall, traffic barrier, and vehicles of the west bound off-ramp at Austin Boulevard. The original Jens Jensen design incorporated berms and plantings at the park's perimeters as principal element in his Prairie style philosophy. These elements are still intact along the central portion of the southern park perimeter and provide notable visual separation from the existing expressway improvements as viewed from the existing shared-use path. The view of the freeway from the paved trail located along the south edge of the park parallel to the I-290 right-of-way varies from limited visibility just east of the soccer field to complete view proximate to the ball fields at the eastern end of the park (Figure 3-108, Figure 3-109, Figure 3-110, Figure 3-111, and Figure 3-112). The viewshed from the adjacent park land north of the trail has limited view of the traffic along the mainline. The views from the golf course to the Project Corridor are very limited due to the amount and density of the vegetation located both within the park and along the Project Corridor right-of-way (Figure 3-109). In addition, the park site is lower in elevation than the mainline profile grade, which further reduces views of the freeway from the golf course. As the trail approaches the center of the park, the grade between the adjacent mainline and the trail become more similar. The view of the mainline becomes more open and apparent from this location to the east end of the park. At the southeast corner of the park the softball fields and eastern end of the trail have generally open views to the freeway. The west bound on-ramp at South Central Avenue begins at park grade and ascends to meet the profile grade of the west bound mainline, which is higher in elevation than both the trail and the ball fields (Figure 3-110, Figure 3-111, and Figure 3-112). The existing planting along the park perimeter in this area is of insufficient density to screen the view to the freeway.

Figure 3-107. View at I-290 Off-Ramps at Austin Boulevard

Existing vegetation within the I-290 right-of-way partially obscures the view to I-290 off ramps at Austin Boulevard from soccer field (right) and trail (left) in the southwest corner of the park.

Figure 3-108. View at Columbus Park Trail

Existing vegetation along the Columbus Park trail at a lower grade than the adjacent freeway reduces visibility to the Project Corridor (left).

Figure 3-109. Columbus Park Trail on South Edge of Columbus Park

View west of the trail along the south edge of Columbus Park. Dense park vegetation reduces view from golf course (left) beyond fence and the Project Corridor (right) beyond vegetation.

Figure 3-110. Southeast Edge of Columbus Park with Trail

Limited perimeter planting along south east edge of Columbus Park allows open view to west-bound on ramp and freeway traffic (left) from trail (center) and ball fields (right).

Figure 3-111. Southeast Edge of Columbus Park

Limited perimeter planting along south east edge of Columbus Park allows open view to west-bound on ramp and freeway traffic from ball fields.

Figure 3-112. View from Ballfields at Southeast Edge of Columbus Park

Limited perimeter planting along south east edge of Columbus Park allows open view to west-bound on ramp and freeway traffic from ball fields.

3.13.4 Environmental Consequences

3.13.4.1 No Build Alternative

The visual character of the corridor with the No Build alternative would remain essentially unchanged as no additional facilities would be added to the Project Corridor. It is possible that maintenance related improvements would be undertaken to aged infrastructure, which would positively affect the visual character of corridor elements. This would likely include repair and replacement of retaining walls, bridge decks, barrier railings, right-of-way fencing and similar corridor elements. It is likely that some improvements may be made to pedestrian facilities on the cross street overpass bridges and CTA transit facilities, which also may have some minimal positive effect on the existing visual character of the Project Corridor.

The environmental consequences of the build alternatives from a visual perspective vary considerably along the Project Corridor. Table 3-51 identifies the various sections of the corridor and the types of improvements and anticipated visual impact the improvements would have on that portion of the Project Corridor. Those locations where visual character of the corridor would remain essentially as it is today have been identified as having no impact and no specific narrative is included concerning them.

Table 3-51. Impacts to Visual Resources within and from outside the Project Corridor

Location of Visual Resources	Impact to Viewshed anticipated
As Viewed from within the Project Corridor	
I-88/I-290 to 30th Avenue	Roadway, Bridge
30th Avenue to 1st Avenue	Roadway, Bridge and noise barrier
1st Avenue to DesPlaines Avenue	Roadway , Bridge
DesPlaines Avenue to South Central Park Avenue	Roadway , Bridge and noise barrier
South Central Park Avenue to Racine Avenue	Primarily due to noise barrier
As Viewed from outside the Project Corridor	
I-88/I-290 to 30th Avenue	No Impact
30th Avenue to 1st Avenue	Primarily due to noise barrier
1st Avenue to DesPlaines Avenue	Primarily due to noise barrier
DesPlaines Avenue to South Central Avenue	Primarily due to noise barrier
South Central Avenue to Racine Avenue	Primarily due to noise barrier

3.13.4.2 *Visual Consequences of Build Alternatives as viewed from within the Project Corridor*

<u>*General Corridor Description*</u>

While the proposed reconstruction of the Project Corridor varies as described below by location, in those sections that will be reconstructed, an effort will be made to create a consistent corridor aesthetic. While the final design is yet to be completed, the general appearance of walls, noise barriers, bridge piers and fencing is anticipated to include the textures and forms as illustrated in Figure 3-113 to Figure 3-116.

The magnitude of reconstruction varies within the Project Corridor. The images in Figure 3-113 to Figure 3-116 are representative of those portions of the corridor that will receive total reconstruction.

Figure 3-113. Simulation of Cross Street Overpass from I-290 Mainline

Reconstructed freeway with perimeter retaining walls and decorative fencing on overpass.

Figure 3-114. Simulation of Cross Street Overpass from I-290 Mainline with Noise Barriers

Reconstructed freeway with perimeter retaining walls, noise barriers, and overpass with decorative barrier and metal fencing.

Figure 3-115. Close-up Simulation of Cross Street Overpass from I-290 Mainline

View of distinctive fan shaped piers, decorative concrete bridge rail, decorative median barrier, textured retaining wall surface, decorative metal fencing on overpass and along top of wall.

Figure 3-116. Close-up Simulation of Cross Street Overpass Detail from I-290 Mainline

View of horizontal wall texture, embossed texture in concrete bridge rail embossed cross street name and decorative metal fencing on overpass and retaining wall.

<u>*Sub-area Descriptions*</u>

I-88/I-290 to 30th Avenue

The viewshed of the Project Corridor, from the motorist's perspective within this area, would be altered due to the addition of travel lanes and shoulders. At the I-88/I-290 interchange, the lane additions would be accomplished by removal of portions of the turf-covered center medians. Along the north edge of the right-of-way proximate to North Wolf Road, the widening of the pavement and bridges would be accomplished beyond the existing shoulder within the right-of-way. While the corridor would be modified to accommodate the added lanes, the impact on the viewshed would be minimal as the proposed improvements would appear similar to the existing conditions. Depending upon the method of lane management, there may be toll/tag monitoring facilities added to the Project Corridor that are not currently present. These facilities would alter the viewshed accordingly. The general location, height and character of retaining walls and noise barriers are anticipated to be similar and would mirror the existing condition when completed. As stated in Section 3.6, Natural Resources efforts would be made to preserve existing vegetation wherever possible. Where plantings must be removed, they would be replaced per IDOT policy.

Between Mannheim Road and Suffolk Avenue, the proposed improvements would occur within the existing right-of-way. The pavement would be widened along the outside edge of the existing facility. The existing noise barrier on the north and the existing retaining wall/noise barrier along the south perimeter would remain in place. The impact of the addition of travel lanes in this portion of the Project Corridor would be limited to the increase of pavement and the corresponding decrease in perimeter landscape area.

East of Suffolk Avenue and proximate to Addison Creek on the north, and between Suffolk Avenue and Bristol Avenue on the south, the noise barriers would be relocated within the right-of-way to allow for the widening of the freeway. The relocation of these walls would tend to open the viewshed and make this portion of the Project Corridor appear more similar to the adjacent westerly section. The loss of a portion of the existing plantings between the existing walls and the freeway would change the character of the viewshed in this part of the Project Corridor.

Along the north edge of the Project Corridor, the pavement would be expanded outside the existing retaining wall. Upon completion, the retaining walls, noise barriers and plantings would be restored per IDOT policy.

Along the south edge of the Project Corridor, no changes to the existing conditions are proposed and therefore the viewshed along the south perimeter would not change.

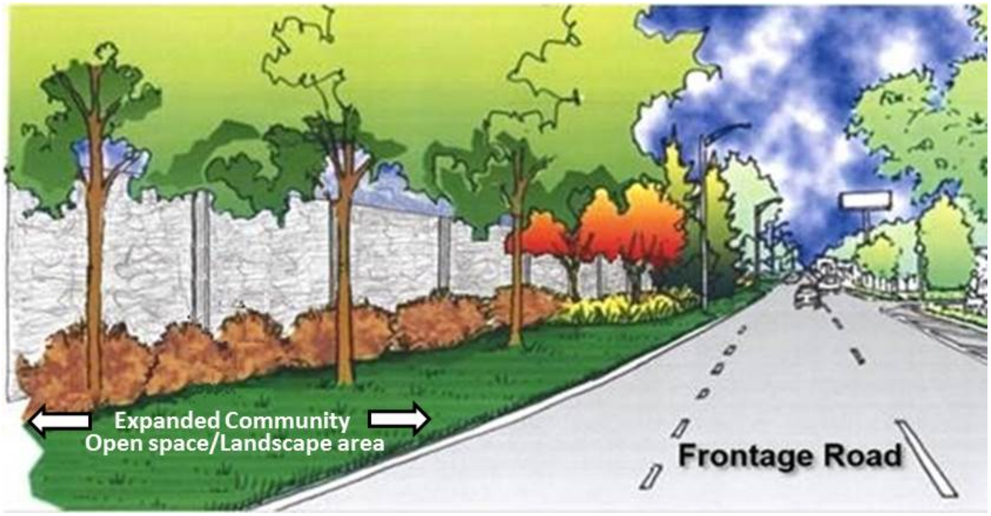
30th Avenue to 1st Avenue

The portion of the corridor would undergo a number of significant changes that would alter the visual character of the corridor. Realignment of sections of the frontage roads west of 25th Avenue would allow for the reconfiguration of the 25th Avenue interchange from a cloverleaf to a Single Point Urban Interchange (SPUI). This conversion would change the appearance of the corridor from the existing conditions. The changes would primarily result from removal of landscape areas parallel with the existing shoulder and replacement with on/off ramps. In addition, the 25th Avenue SPUI overpass bridge structure would be wider than the existing 25th Avenue bridge and the mainline traveler would pass under a significantly larger bridge deck.

The on-off ramps east of the interchange would be located parallel and adjacent to the mainline and existing landscaped right of way would be removed to facilitate these ramp placements. New retaining walls would be needed to accommodate the ramps in these locations and would further alter the viewshed east of the 25th Avenue interchange. The existing loop ramps would be removed and the areas currently occupied by the ramps would be open space.

Between the 25th Avenue and 1st Avenue interchanges, the character of the corridor would change as travel lanes are added to the center and shoulders and ramps will be reconfigured along the exterior. To accommodate the additional lanes, space for a future transit extension along the median, ramp reconfiguration, retaining walls would be constructed along the north and south sides of the expressway within the existing right-of-way. The retaining walls would replace the existing vegetated slopes, preserve the existing elevations of the frontage roads (Harrison Street and Bataan Drive) beyond, and add additional community level greenspace area between the frontage roads and retaining walls (Figure 3-117).

Figure 3-117. Frontage Road Community Level Space



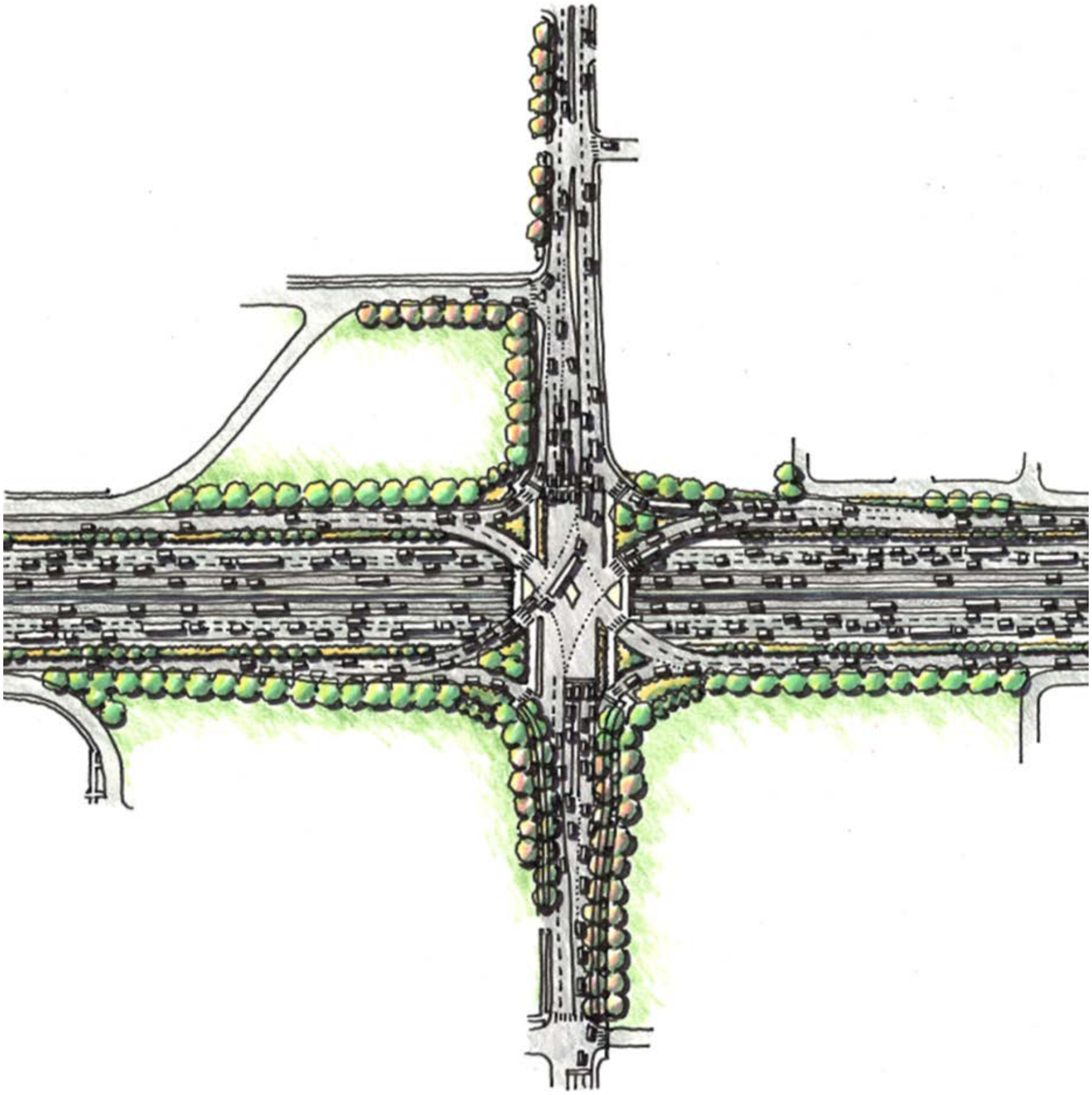
In addition, all the cross road bridges in this segment (17th, 9th, and 5th avenues) would be replaced with slightly wider bridges to accommodate improved sidewalk widths. These wider bridges would alter the visual character from the mainline traveler. The collective result of the above improvements would markedly alter the visual character from an aged suburban appearing facility to a more contemporary, urban one (Figure 3-118).

1st Avenue to DesPlaines Avenue

At 1st Avenue, a SPUI interchange is proposed. All of the same character issues described at 25th Avenue apply to this interchange. While the entire interchange would be reconfigured, the majority of the interchange reconfiguration can be accomplished within the right-of-way with a some required in the northeast quadrant to accommodate a relocation and improvement of the west bound I-290 to 1st Avenue off ramp. The southeast and southwest quadrants would include reconfiguration of ramps within the right of way with a reduction in landscape area over the existing condition. This would alter the visual character of the corridor proximate to the interchange due to a wider 1st Avenue bridge over I-290 as well as a wider expressway to accommodate the additional through lanes and the provision for future transit guideway along the median of I-290.

Between the east end of the 1st Avenue interchange and the DesPlaines Avenue interchange, the majority of the expansion would occur along the north side of the freeway. This edge of the corridor is characterized by gentle sloping terrain toward the freeway with dense brush and pole mounted commercial billboards at 500-plus foot intervals. The proposed improvements would result in the removal of a portion of the existing vegetation along the north right-of-way. While the number of travel lanes would increase, the general character of the viewshed area would remain similar to the existing condition. Proximate to the DesPlaines Avenue interchange, existing retaining walls would be reconstructed on both sides of the freeway to facilitate a widened bridge and the expanded travel lanes. While these walls would replace existing walls, the introduction of new walls and a new overpass structure at DesPlaines Avenue would alter the visual character of this part of the corridor.

Figure 3-118. 25th Avenue



Schematic Landscape plan of right-of-way plantings in 25th Avenue interchange. Final planting design to be determined with input from local community.

DesPlaines Avenue to South Central Boulevard

Between DesPlaines Avenue and Circle Drive, the improvements would occur within the confines of the existing right-of-way. The conversion of a large center median (partially paved and partially turf covered) provides space for the lane expansion. The balance of the improvement is facilitated by the insertion of retaining walls along the outside edges of the Project Corridor. This would require the removal of existing plantings along the near edge of the north right-of-way. The viewshed in this part of the corridor would be altered in that mainline traffic would now only be separated by a concrete median barrier and reduced landscaped space also would be apparent. The freight railroad overpass bridges and Circle

Avenue bridge also would be replaced, which would provide the opportunity for visual improvement of the corridor.

Harlem Avenue and Austin Boulevard

The proposed interchange improvements from left-hand ramp to right-hand ramp configuration at these two locations would transform the current visual character as viewed from the mainline (Figure 3-119 and Figure 3-120). Harlem Ave and Austin Boulevard would be converted to the modified SPUI style interchange and retain the existing ramp intersection over the center of the expressway. The modified SPUI interchange is possible by bridging over the mainline with series of regularly spaced support structures known as straddle bents. The use of straddle bents would be new to the Project Corridor and would be a noticeable change to the viewshed as observed from the mainline. Additionally, the on/off ramps depart from the mainline along the right-hand side of the Project Corridor and then curve over the top of the mainline, which would be a notable difference from existing structures in the viewshed.

Figure 3-119. Harlem Avenue Interchange

Aerial Perspective of proposed Harlem Avenue Interchange.

Figure 3-120. Austin Avenue Interchange

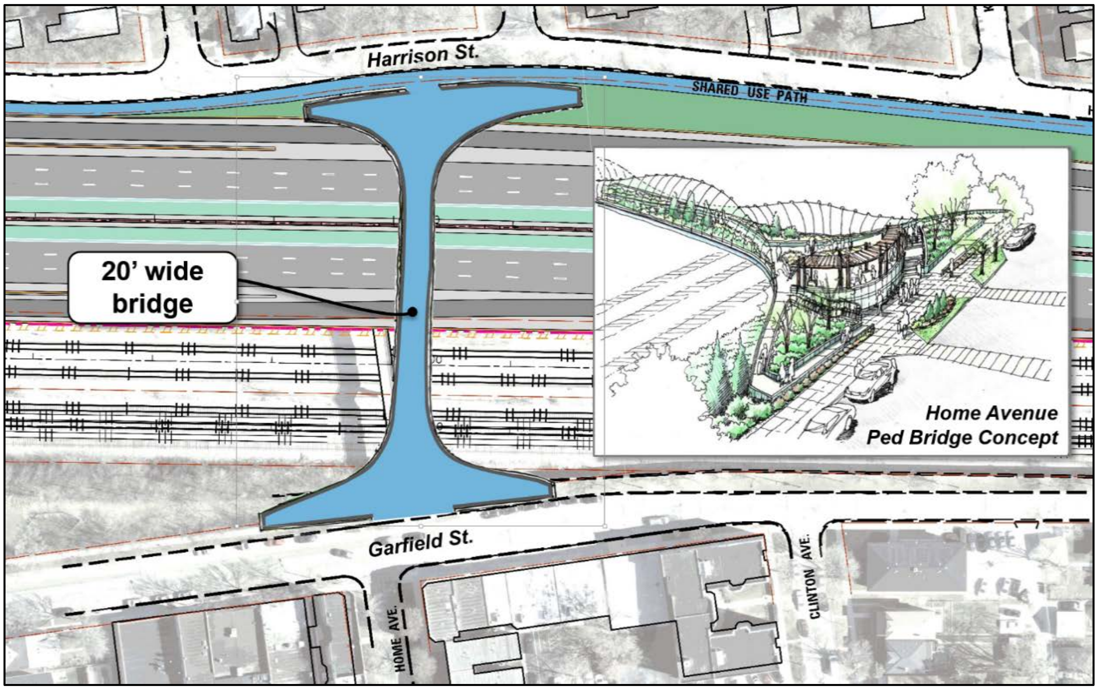
Aerial Perspective of proposed Austin Avenue Interchange.

The Village of Oak Park is planning to undertake aesthetic investments at Harlem Avenue and Austin Boulevard including decorative light poles, decorative fencing, planters, decorative arching gateway feature, and decorative paving or stone sidewalks.

Between Circle Drive and Austin Boulevard the Project Corridor would be altered through the replacement of all bridge structures. The balance of this portion of the Project Corridor would include the replacement of the following bridges: Home Avenue (Pedestrian Bridge), South Oak Park Avenue, South East Avenue, South Ridgeland Avenue and South Lombard Avenue. One noticeable visual difference is that the crossroad bridge decks would be wider than the existing structures. The additional width would be due to the construction of 12-foot wide sidewalks across both side of the bridges, except in front of CTA Blue Line Stations where sidewalk widths would be 16 feet wide.

The Village of Oak Park is planning to incorporate various levels of aesthetic improvements along the reconstructed cross-street bridges. The existing Home Avenue pedestrian bridge would be reconstructed as a 20-foot wide bridge along which the Village Oak Park intends to construct a linear park and trail over the expressway.

Figure 3-121. Home Avenue Pedestrian Bridge



At Oak Park Avenue, the Village also is planning to make an aesthetic investment as a signature bridge along their commercial district. Improvements being considered are decorative lighted arches, decorative light poles, decorative railings, and planters. A concept the Village cited as an example is shown in Figure 3-122.

Figure 3-122. Oak Park Signature Bridge Concept

The accommodation of additional expressway travel lanes would be accomplished by the reuse of existing center medians and space formerly occupied by the left-hand ramps with additional space created by the relocation of existing retaining walls primarily between the outside edge of the existing north shoulder and the north right-of-way line. The walls would vary in height and proximity to the west bound travels lanes. The final width and architectural character of the reconstruction of the overpass bridges also would affect the character of the viewshed.

The Village is planning to incorporate more modest aesthetic treatments along East Avenue, Ridgeland Avenue, and Lombard Avenue. Treatments under consideration include decorative lighting, painted or stone sidewalks, limited landscaping and planning at entry points, and potentially an arching feature at Ridgeland Avenue.

Between Austin Boulevard and approximately 1,000 feet east of South Central Boulevard, the proposed lane improvements would replace the existing wide vegetated center median.

South Central Boulevard to Racine Avenue

East of South Central Boulevard, the relocation of on/off ramps between South Laramie Avenue and South Cicero Avenue would alter the viewshed as some landscaped right-of-way would be replaced with pavement. The balance of the Project Corridor from just east of South Cicero Avenue interchange to Racine Avenue interchange would sustain visual impacts as noise barriers are proposed to be installed along significant portions of the right-of-way. Other improvements would be of less impact and are comprised of signing and pavement striping. There is the possibility that many of the existing bridge structures in the portion of the Project Corridor would be renovated and refurbished, which also would potentially affect the visual character of the Project Corridor as viewed from the mainline.

3.13.4.3 Visual Consequences of Build Alternatives as viewed from outside the Project Corridor

The quality and character of the existing viewsheds of the Project Corridor as viewed from the adjacent land uses is a result of the of the original I-290 construction. The former contiguous views along city streets were altered when the freeway was first constructed. Since that time where sufficient right-of-way permitted, vegetation has filled in these voids and provides varying levels of screening of portions of the I-290 corridor primarily during the growing season. While density and quality of vegetation vary widely, the existing vegetation does affect the ability to view one side of the corridor from the other where the right-of-way is wider and the vegetation is the densest. The primary visual consequence of the build scenarios as viewed from outside the corridor will be the loss of this vegetation and the placement of noise barriers. To mitigate for this loss, the retaining walls and other structures will be located such that the maximum amount of green space is created between the new retaining walls and the adjacent off-corridor land uses. Where space permits, landscape planting will be installed to restore the lost vegetation and to soften the appearance of the noise barriers. Section 3.13.5.2 describes such areas in more detail. A series of existing and post construction visualizations depicting the landscape and noise barriers may be found in Appendix J.

I-88/I-290 to 30th Avenue

The views to the Project Corridor would remain essentially as they are today as the vast majority of the improvements would be constructed behind the existing noise barriers. As a result, the viewers from behind the existing barriers would not observe any changes in viewshed. Those land uses that are not currently located behind a noise barrier would observe minor changes in the viewshed as travel lanes and other associated improvements may be altered from the existing conditions. These alterations are minor and would alter the viewsheds only slightly and would have no or little adverse impact.

30th Avenue to 1st Avenue

The view to the Project Corridor in this section would be altered in that noise barriers along the expressway that have been deemed reasonable and feasible, and subsequently voted on by those who will benefit from a wall are proposed to be installed. Exceptions included the northwest and southwest quadrants of the 25th Avenue interchange where noise barriers have been deemed to be not feasible. The viewshed in this area also would be altered as a result of the reconfiguration of the mainline and cross street bridges.

The noise barriers in this section of the corridor are anticipated to be 13 - 17 feet tall, which would block the view from and to adjacent land uses on the opposite side of Project Corridor (Figure 3-123). The mainline viewshed also would be impacted as these viewsheds would be contained by the presence of the noise barriers. As is often the case, visual preferences among stakeholders vary. Certain stakeholders may consider the proposed noise barriers as undesirable, while others prefer the noise barrier, the benefits of reduced noise levels, and the expanded landscape areas over the naturalized and existing unmaintained vegetation in the corridor. A viewpoint solicitation survey was conducted to determine which noise barriers would be implemented along the corridor. Noise barriers are discussed in Section 3.13.5. During the design phase, the noise wall viewpoint solicitation may be revised to respond to potential changes in stakeholder opinions and to accommodate any new acceptable noise wall materials, such as transparent (acrylic) applications.

In addition, views along cross street overpasses within this portion of the Project Corridor also would change as new bridge decks, railings, fencing, sidewalks and lighting would be constructed. These elements would tend to create positive visual impacts over the existing conditions.

Figure 3-123. Noise Barrier Visualization – Village of Westchester

Simulation of potential noise barrier as viewed from Wedgewood Bridge at Bristol Avenue, Village of Westchester.

1st Avenue to DesPlaines Avenue

The insertion of noise barriers in this portion of the Project Corridor has been deemed to be not cost effective and not reasonable and therefore no new visual impact would result to this section of the corridor as viewed from the surrounding land uses. In addition, views along cross street overpasses within this portion of the Project Corridor would change as new bridge decks, railings, fencing, sidewalks and lighting would be constructed. These elements would tend to create positive visual impact over the existing conditions.

It is possible that as new technologies are developed and additional research is completed that new design concepts for noise barriers could be employed in portions of the Project Corridor.

DesPlaines Avenue to South Central Boulevard

The viewshed to the Project Corridor in this section would be altered in that noise barriers have been deemed reasonable and feasible to parallel the travel lanes along nearly the entire north side of the corridor (except along Columbus Park). Similarly the majority of the south frontage road has been deemed reasonable and feasible for the addition of noise barriers (except between DesPlaines Avenue and Harlem Avenue). Wall heights along this portion of the Project Corridor are anticipated to be between 13 and 17 feet, which would essentially block the view from adjacent land uses to the Project Corridor and prevent views across the corridor (Figure 3-124). The mainline viewshed also would be affected, as these viewsheds would be contained by the presence of the noise barriers. Noise barriers are discussed further in Section 3.13.5.

In addition, views along cross street overpasses within this portion of the Project Corridor also would change as new bridge decks, railings, fencing, sidewalks and lighting would be constructed. These elements would tend to create positive visual impact over the existing conditions.

Figure 3-124. Noise Barrier Visualization – Village of Oak Park

Simulation of potential noise barrier as viewed from Harrison Street and Grove Avenue, Village of Oak Park.

<u>*South Central Boulevard to Racine Avenue*</u>

The viewshed to the Project Corridor in this section would be altered dramatically in that noise barriers have been deemed feasible to parallel the travel lanes along a majority of the corridor (exceptions include intermittent omission of noise barriers proximate to commercial and industrial land uses abutting both north and south right-of-ways. Noise barriers are anticipated to be between 13 and 17 feet in height, which would essentially block the view from adjacent land uses to the Project Corridor and prevent views across the corridor (Figure 3-125). The mainline viewshed also would be impacted as these viewsheds would be contained by the presence of the noise barriers. Noise barriers are discussed further in Section 3.13.5.

Figure 3-125. Noise Barrier Visualization – City of Chicago

Simulation of potential noise barrier as viewed from Congress Street and Keeler Avenue, City of Chicago.

Bridge Structures

All cross-street overpass bridges from 25th Street each to Austin Boulevard would be reconstructed as a part of this project. It is anticipated that the bridge replacements would be of standard IDOT design with a central structural support or bent located between the main travel lanes and intermediate bents within the rail portion of the corridor similar to the existing structures. The reconstruction would provide the opportunity for the new bridges to be constructed with a common aesthetic treatment providing a uniform visual character for the bridges in this section of the Project Corridor from the perspective of the expressway user. A uniform aesthetic treatment would be applied to the substructure and outward facing elements including abutment walls, parapets, and piers. In addition, the local communities have the opportunity to further enhance the bridge rails, fencing, and lighting of the cross street bridges within their jurisdiction, such as Oak Park is planning for the bridges within their community. These potential enhancements could further improve the visual character of the Project Corridor as viewed from the main lanes and cross street interchange locations.

Cross street bridge deck widths will vary between one another depending upon the number of required travel lanes, bicycle accommodations and sidewalk widths, and accessory streetscape improvements agreed upon by local communities at each cross street location. As shown in Figure 3-126 and Figure 3-127, the width of the structures and corresponding sidewalk also would be increased to provide improved access and circulation at CTA transit stations. The width of new bridge decks would be greater than the existing bridges and may be noticeable from the main travel lanes. The inclusion of dedicated bike lanes and wider walk widths would be readily apparent to the cross street bridge users. Expanded cross street bridge deck widths would provide a more consistent path of travel for pedestrians from one side of the expressway to the other, improving the physical and visual connection between the neighborhoods located on either side of the Project Corridor. These improvements would improve the visual character of the Project Corridor as compared to the existing condition.

Figure 3-126. Typical Cross Street Section View with CTA Station

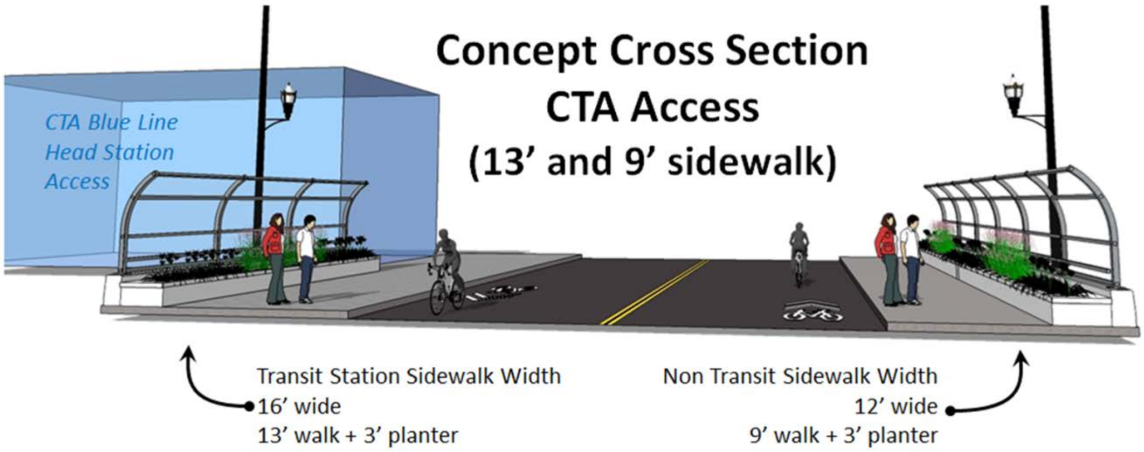
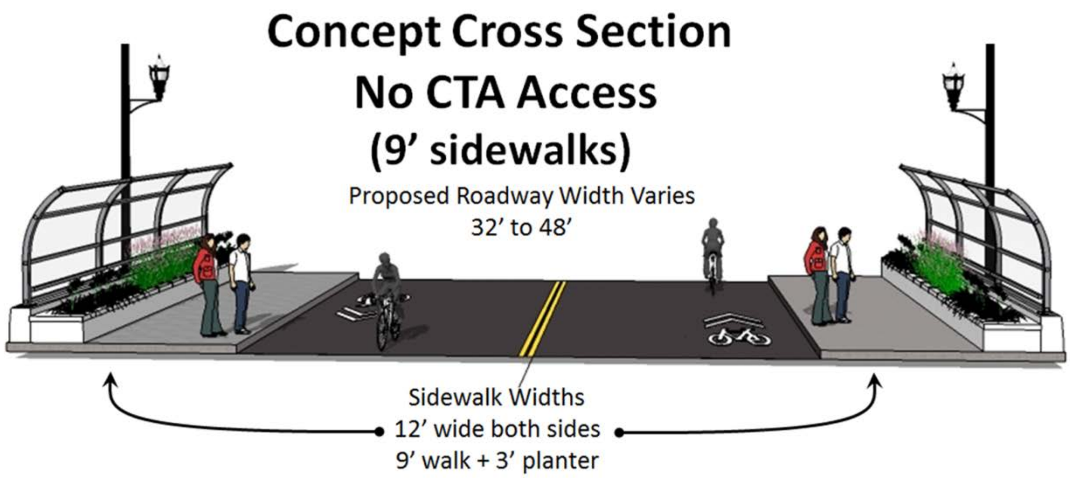


Figure 3-127. Typical Cross Street Section View without CTA Station



CTA also would be modernizing the Blue Line street-level head house stations along the cross roads, and the track level platforms. A street level head house concept proposed at Ogden Avenue follows. Similar concepts are likely to be considered at other locations along the Blue Line in the Project Corridor.

Figure 3-128. CTA Blue Line Head Station Concept

3.13.5 Mitigation

Mitigation of the visual consequences of the build alternatives can be accomplished by several approaches as described below.

3.13.5.1 Context Sensitive Design

This method of planning and facility design extends beyond the physical transportation design requirements using a more holistic approach to the design by understanding and identifying the key context and the visual character elements of the surrounding communities in which the improvements are made and applying these character elements to features of the new construction. Context Sensitive Design may include community inputs into physical planning as well as provide insight into relevant forms, textures, colors, public art, suitable for incorporation into surfaces of retaining walls, noise barriers, cross street overpass and ramp structures. When combined, these inputs can provide a visual continuity to the Project Corridor for the mainline traveler as well as unique identity at cross street overpasses for each affected community.

Additional attention can be given to the integration of the facility into the fabric of the adjacent communities at the neighborhood level. Emphasis of the context can be focused on a full multimodal approach to the cross street overpass structures by providing adequate space for pedestrians, street furnishings, bike share facilities, lighting, way-finding and landscape components. The incorporation of these contextually appropriate accommodations on cross street overpasses may require greater surface area than the functional space allocations customarily designed. The schematic layouts for new cross street overpasses in the Project Corridor have been designed to accommodate many of these elements, which will result in a visually pleasing and functionally appropriate solution.

IDOT is committed to working closely with local communities along the Project Corridor to identify key character elements for the communities, which can be incorporated into the facility planning and aesthetic treatment of the various infrastructure elements. This approach has the potential to improve the visual character and physical cross street connection of one side of the corridor to the other. In some locations financial participation by local communities may be required to achieve the level of visual enhancement requested by stakeholders.

3.13.5.2 Landscape Improvements

The use of landscape improvements can provide many benefits to the reconstruction of the Project Corridor. These include: visual enhancement through plant forms, seasonal bloom and foliage color, softening of rigid structural elements, visual framing and screening of portions of the corridor from another. The introduction of new I-290 landscape improvements will be undertaken in the following manner.

Replacement of Existing Landscape

IDOT is committed to including tree replacement as a part of the I-290 reconstruction and will do so consistent with IDOT policy for size and type of trees that are removed as a result of new construction. Refer to Section 3.6, Natural Resources for a detailed description of the tree inventory and replacement for the proposed project.

The existing landscaped portion of the Project Corridor along the north edge of the right-of-way would be altered in many locations to allow for the addition of travel lanes and improvements to ramp geometrics, retaining walls, trail facilities and noise barrier construction. While these landscape areas would be reduced in width, the insertion of a short barrier and or retaining walls in many locations would provide additional space for a future landscaped area atop the wall. In the process of constructing the ramps, retaining walls and noise barriers it is anticipated that most, if not all, of the existing landscape in the right-of-way in these locations would need to be removed and replaced. The removal of the semi-mature landscape and the reduction in landscape area would be noticeable to mainline travelers until such time as the landscape is replanted and attains substantial growth. Similarly, the removal of the existing landscape would alter the current viewsheds as viewed from the adjacent land uses.

Where feasible, narrow planting strips would be placed at the foot of the new retaining and or noise barriers in which vines may be planted. In time, the vines would cover the walls and provide softening and some visual character and seasonal interest similar in effect to the existing retaining/noise barriers at the western end of the Study Area. In some locations, new retaining walls would be intentionally located adjacent to the mainline. This would facilitate the placement of new landscape areas at-grade and adjacent to the frontage road. This would allow the landscape to provide visual screening of the freeway and noise barriers from the adjacent neighborhoods. This has the potential to positively impact the view of the Project Corridor from the adjacent land uses.

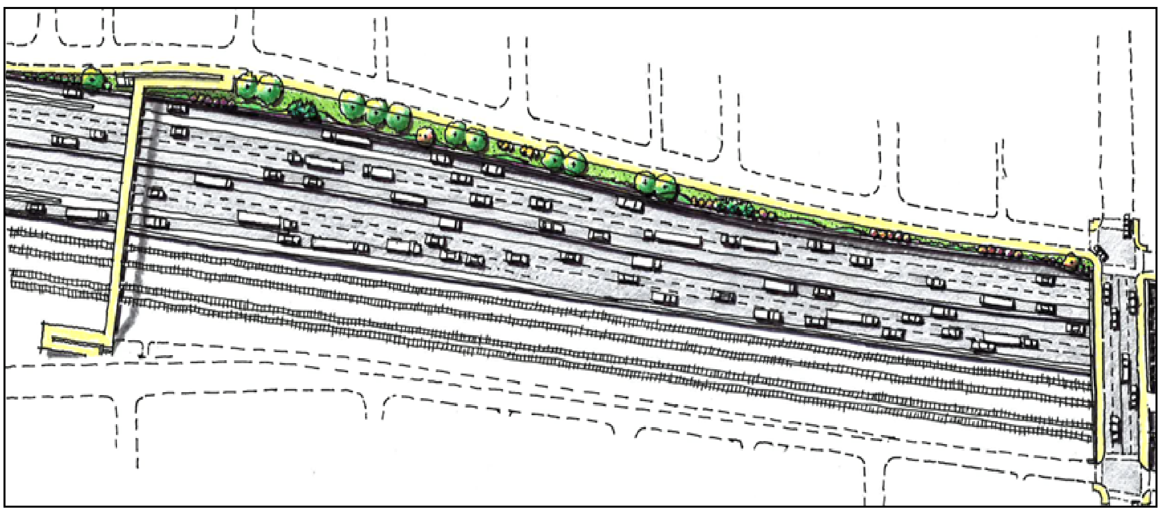
While the insertion of a shared use path along the north edge of the right-of-way from Austin Boulevard west to DesPlaines Avenue would reduce the existing vegetation within the north edge of the right-of-way, it would provide a beneficial non-motorized facility to the corridor. The trail alignment as planned, meanders along the north edge of the right-of-way such to preserve adequate space for a renovated landscape on one or both sides of the trail alignment. In a few locations, the trail would be located on or directly adjacent to the frontage road and no space would be available for new landscape.

Creation of new landscape areas

In larger areas within the right-of-way, the opportunity exists for large expanse of new landscape to be created. These spaces are available to both meet the required replacement of landscape plantings and to address special local community desires for landscape enhancement. Opportunities for such landscape areas are along the north right-of-way at Home Avenue Pedestrian Bridge (Figure 3-129 and Figure 3-130); and Ridgeland Avenue (Figure 3-131 and Figure 3-132). Plantings would be installed as part of the project with maintenance undertaken by local communities under an agreement with IDOT.

Widening bridge decks beyond functional requirements can allow for the addition of planter boxes, special lighting, seating and other amenities on bridges that will both enhance the comfort and safety of users and the visual character of the Project Corridor and the surrounding community.

Figure 3-129. Home Avenue Pedestrian Crossing



Schematic landscape plan of right-of-way plantings between north end of Home Avenue Pedestrian Bridge (left) and Oak Park Drive overpass (right). Plantings are to be placed at top of slope and readily visible from the adjacent neighborhood.

Figure 3-130. Home Avenue Pedestrian Bridge Concept

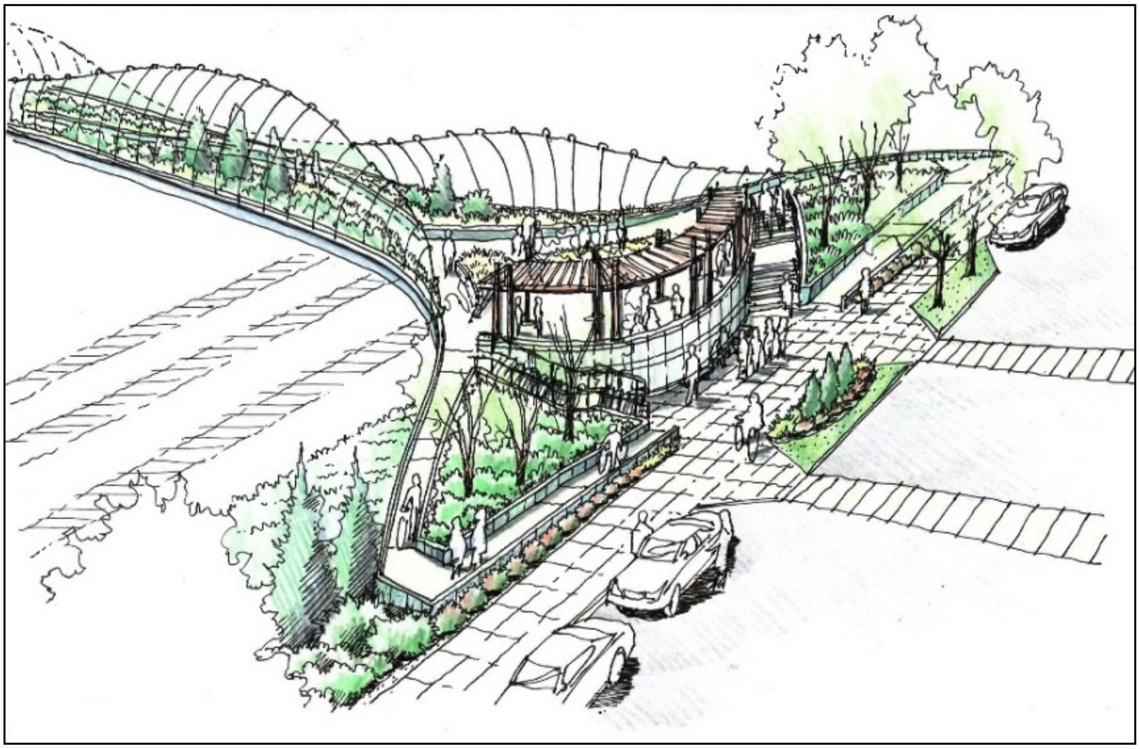
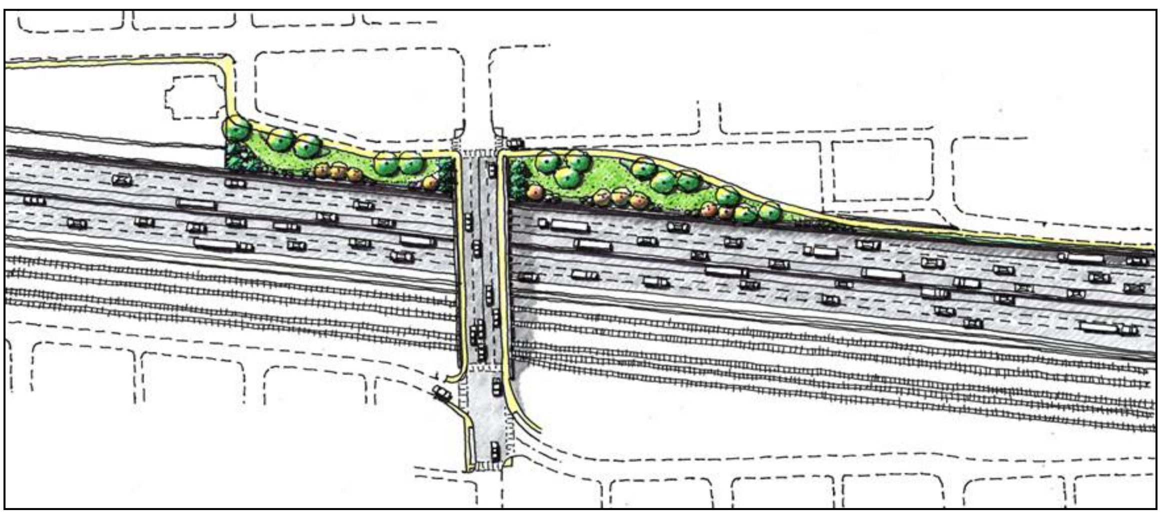


Figure 3-131. Ridgeland Avenue Schematic Landscape Plan



Schematic landscape plan of right-of-way plantings east and west of north end of Ridgeland Avenue overpass. Plantings are to be placed at top of slope and readily visible from the adjacent neighborhood.

Figure 3-132. Concept Design - Ridgeland Avenue Overpass

Image of cross street overpass (left) retaining wall, fencing and landscape (right) along north I-290 right-of-way at Ridgeland Avenue. Note: landscape is at frontage road height and readily visible from the adjacent neighborhood beyond.

<u>*Containerized Landscapes*</u>

In addition to large contiguous landscape plantings on right-of way, the opportunity exists for seasonal plantings to be included within planter boxes and containers located on the cross street overpass bridges (Figure 3-133). The preference to include plantings on overpass structures will be coordinated with the local units of government to ensure there is an agreement in place for the cost to plant and maintain these container landscapes.

Figure 3-133. Overpass Planter Boxes

Partial Image of cross-street overpass with shared bike lane, sidewalk, planter box, lighting and safety fencing.

3.13.5.3 Noise Barriers

As a part of the planning and design process, IDOT completed a traffic noise assessment of the Project Corridor to identify location where noise barriers may be warranted. The height and length and location of noise barriers were based upon the results of the traffic noise analyses completed, the identification of noise impacts, and consideration of noise abatement where feasible and reasonable. Section 3.4, Traffic Noise includes a more detailed description of the traffic noise assessment process and results.

IDOT recognizes that noise barriers would be a new built element in the Project Corridor, and considers them another potential opportunity to provide visual enhancement to both the mainline and adjacent land uses. As such, IDOT is open to the innovative use of both traditional and new materials for noise barrier construction and will work with local communities to select the most appropriate material(s), character, and finishes for barriers with the local context. To achieve the ultimate desired character and aesthetic requested by the stakeholders, local financial participation may be required.

Figure 3-134 depicts an illustration of base design character for the noise barriers to be added to the Project Corridor. See Appendix J for additional visualizations of noise barriers at specific locations along the Project Corridor.

Figure 3-134. Noise Barrier Visualization Base Design Character

Perspective view of opaque post and panel type noise barrier. Aesthetic surface treatment is one of many possible options and is shown for general illustration purposes.

In support of the viewpoint solicitation process for feasible and reasonable noise barriers, a series of visualizations have been prepared for 15 locations along the corridor. The visualizations represent the view from the adjacent land-use toward the I-290 corridor of the proposed noise barrier in the planned location and heights as determined by the noise analysis. An existing conditions image is provided for context and comparison along with a visualization of the proposed improvements. The aesthetic surface treatment on the noise barrier is exemplary of what is achievable within the standard IDOT design process.

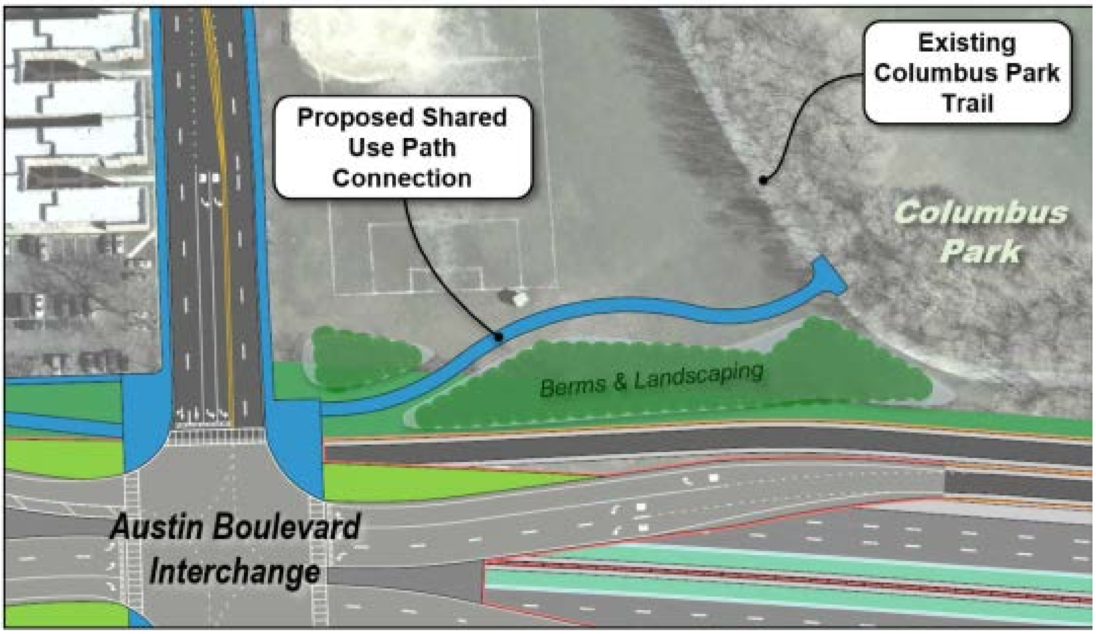
The use of solid opaque materials, as shown, is currently the most affordable and feasible option. However, in the future other less visually obtrusive solutions also may become cost effective both providing the necessary noise abatement, while limiting the visual impact to adjacent land uses along the Project Corridor. Transparent materials, such as acrylic, offer potential solutions to areas where preservation of existing viewsheds is preferred and noise reduction also is desired. IDOT intends to conduct additional discussion with local community stakeholders during the project's design phase to determine the aesthetic treatment that is most appropriate for each community. To achieve the ultimate desired character and aesthetic requested by the stakeholders, local financial participation may be required.

3.13.5.4 Columbus Park Trail Connection

IDOT has coordinated with the Chicago Park District to provide a shared-use path connection on the west end of Columbus Park in the vicinity of Austin Boulevard, at their request. Included as part of the expressway project, this path connection would be complemented by other visual enhancements along the south edge of the park at this location, including additional park-level green space, earthen berms, and tree plantings. Along the east side of the park, near Central Avenue, similar aesthetic improvements are also proposed including berms and new plantings. These enhancements, individually and together, would provide an improved viewshed to and from the park.

The concept design for the shared-use path connection incorporates earth berms between the path and the adjacent I-290 improvements and also between the open field area of the park and the path connection proposed to Austin Boulevard. The use of earth berms and tree plantings is consistent with the original Jens Jensen plan to create a sense of enclosure for the perimeter of the park, which is still intact along the adjacent west and portions of the south park perimeters. See Section 3.12, Special Lands for more detailed discussion of enhancements proposed to Columbus Park.

Figure 3-135. Columbus Park Trail Connection



3.14 Construction Impacts

Construction impacts generally would be of short duration and end shortly after project completion. The expected short-term impacts associated with the build alternatives are identified below.

3.14.1 Transportation

Construction of any of the build alternatives for I-290 would take place over several years, and during this time some traffic is anticipated to divert away from I-290 due to lane reductions and mainline construction activities. Because I-290 serves both regional and local traffic, both regional and local travel diversions would occur. At the regional level, some users who use I-290 as a connection between Chicago and points west are anticipated to divert to other regional expressways such as I-55 and I-90/I-94, or use alternate transportation provided by the regional commuter rail system (Metra). At the local level, some users of local expressway trips are anticipated to divert to the local parallel arterials or use alternate transportation provided by local bus and heavy rail transit services (Pace and CTA). Ample capacity is available on Metra and CTA rapid transit to accommodate diversions to the public transit system.

3.14.1.1 Advance Work

Potential advance work improvements were identified to facilitate local and regional travel during construction, accelerate mainline construction timeline, reduce the overall duration of mainline construction impacts, and assist in the general distribution of programming costs. Advance work elements were considered based on the following strategies:

- Off system improvements to regional interstates or major arterials that could be used as alternate routes during construction. Currently, improvements are planned along primary east-west routes including North Avenue (IL 64) and Cermak Road (Figure 3-136), as well as capacity improvements along I-55. Also, spot improvements may be implemented along Madison Street and Roosevelt Road.

- Improvements that would maintain existing I-290 mainline characteristics such as number of through lanes and existing vertical clearances. Advance work would maintain a minimum six lane mainline section, with temporary off peak/night time single lane closures.

- Projects that would help accelerate the overall project schedule in reducing the duration of mainline impacts by eliminating major constraints to mainline reconstruction.

- Projects that would provide specific limited improvements as part of the overall project, but would generally not be dependent on completion of other project elements.

Figure 3-136. Primary Off-System Improvements

Local Cross Road and Rail Bridge Reconstruction

Where feasible, identified local crossings of I-290 would be constructed and improved in advance of mainline construction. This is intended to deliver early community related project benefits and to reduce the impacts to local connectivity during the mainline construction phase. Also, the CTA, CSX and IHB railroad bridges, which require complex staging and construction techniques, will need to be constructed in advance of any mainline construction to minimize the overall duration of mainline construction. As part of the I-290 reconstruction, the existing CTA bridge over I-290 is planned to be relocated approximately 65 feet to the east to maintain rail traffic.

Existing cross road structures over I-290 that could feasibly be advanced ahead of the mainline reconstruction include: DesPlaines Avenue; Circle Avenue; Oak Park Avenue; East Avenue; Ridgeland Avenue; Lombard Avenue; Laramie Avenue; and Cicero Avenue. The feasibility is based on vertical clearance requirements, pier location, and maintaining the existing number of expressway lanes open during bridge reconstruction. The bridge improvements would require some localized mainline lane shifts during bridge reconstruction; however, the existing number of mainline lanes is expected to be maintained throughout.

The IHB railroad bridge over I-290 needs to be lengthened to accommodate the additional mainline lanes and the proposed 25th Avenue ramp improvements. This is a very heavily used railroad bridge; three out of the four tracks are required to remain in service at all times during construction, which results in an extended construction period. Constructing this bridge in advance of mainline construction is required, but would also expedite mainline reconstruction.

The CTA and CSX bridges over I-290 represent a primary constraint and challenge to mainline reconstruction. Due to the complexity of the structural framing and interface between the structures, these two bridges together hold the highest construction schedule risk. Because of the way these bridges interface with I-290 and the proposed improvements, the simultaneous reconstruction of these bridges prior to mainline construction would facilitate mainline reconstruction by minimizing complex mainline road construction staging. The design and construction sequencing of railroad structures would require final approval from CTA and CSX as appropriate.

Off-System Arterial Improvements

Off-system local arterial improvements are being evaluated to improve mobility along parallel routes adjacent to the Project Corridor both during construction and long term.. As the majority of the arterial corridors within the Study Area are already built-out and currently at or near capacity, opportunities for physical improvements are limited; therefore, appropriate strategies for improved mobility largely center on using the existing roadway network more efficiently with relatively low-cost investments in signal system and ITS technologies (smart technologies). Physical improvements such as resurfacing to address pavement smoothness and ADA ramps for accessibility will also be addressed on the off-system arterial roads. Primary east-west routes being evaluated for advance work are North Avenue and Cermak Road, with more limited improvements to be considered on Madison Street and Roosevelt Road.

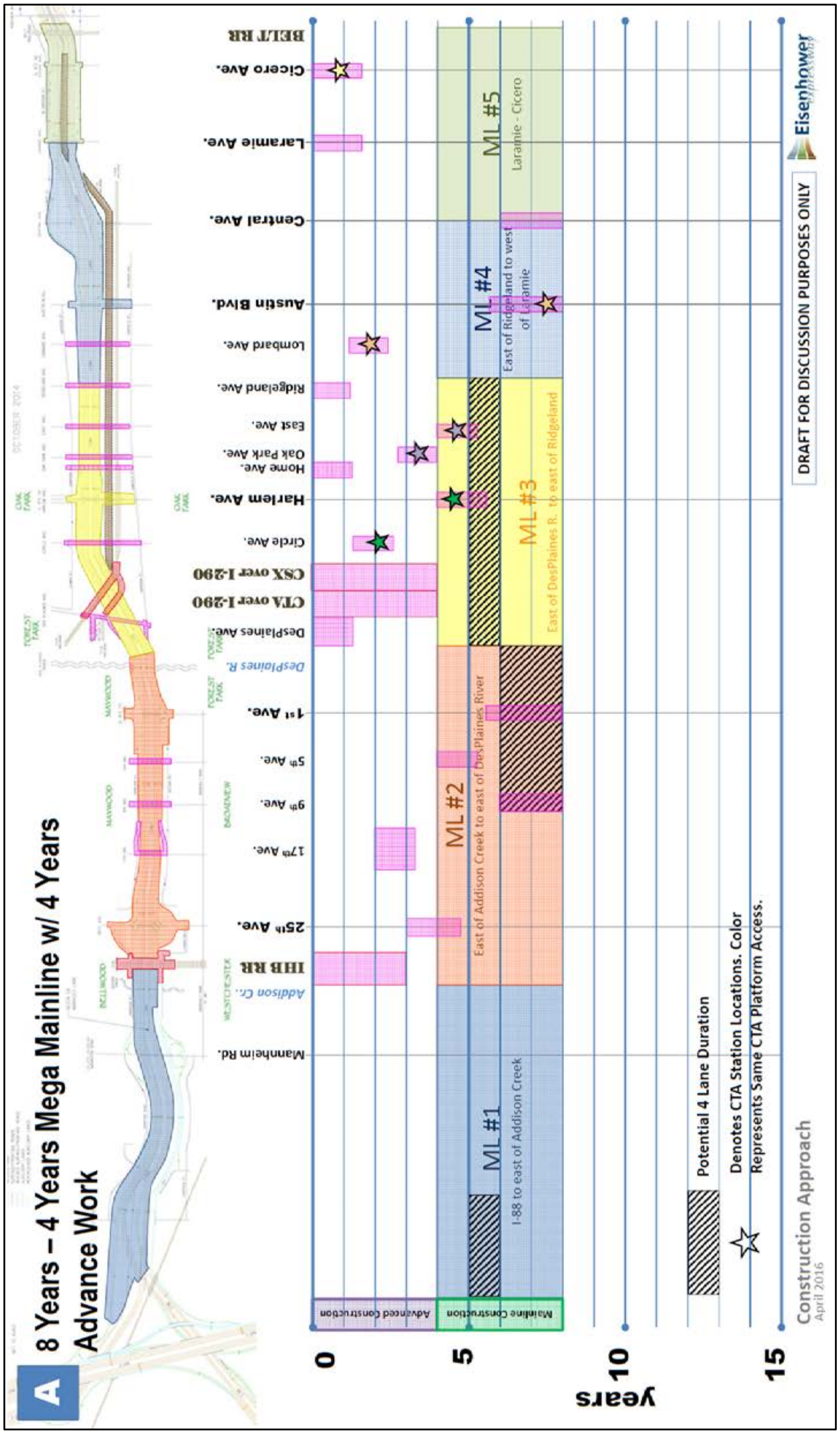
I-55 Express Toll Lanes

As part of a separate study completed in July 2016, IDOT is planning the addition of Express Toll Lanes (ETL) along I-55. To help address construction related mobility issues from a regional perspective, IDOT is looking to implement the I-55 proposed capacity improvements in advance of the I-290 mainline reconstruction, which would provide a regional alternative to I-290.

3.14.1.2 I-290 Construction Staging

This section outlines the approach and assumptions of the I-290 construction. The overall construction is anticipated to occur over eight years, with four years of advance work and four years of mainline construction (Figure 3-137). Construction staging would require periods of mainline lane reductions from three to two lanes in each direction. For planning purposes, the proposed mainline construction packaging is subdivided into five mainline contracts based on the potential to be constructed individually.

Figure 3-137. Construction Staging



Source: WSP | Parsons Brinckerhoff, 2015

Mainline Construction Assumptions

Current proposed mainline and cross road designs and available information regarding existing conditions were used in establishing the construction assumptions. The following advance work assumptions should be reviewed and discussed during future stakeholder and IDOT meetings, and further investigated during final design (Phase II).

- There would be discrete areas where the available work space would only allow two eastbound and two westbound mainline work zone travel lanes (i.e., a temporary 4-lane mainline section). Known areas requiring two lanes are: 1) at the I-290 WB/EB western split; 2) from 1st Avenue to the Des Plaines River bridge; and 3) between DesPlaines Avenue and Ridgeland Avenue bridges. Other sections of two lane traffic per direction may be needed as the design advances.

- Full mainline closures would be required for short durations (overnight or weekend) where safety warrants it, such as setting or removing girders over traffic.

- For extended sections of the corridor, contractors may utilize up to one additional work zone travel lane in each direction during evening/off peak hours using movable "zipper" barriers (maintaining a minimum of one lane in each direction with IDOT approval).

- The proposed maintenance of traffic design speed on I-290 would be reduced to 45 mph, which is 10 mph below posted speed.

- It is permissible to proceed with partial closures and/or detour routes at the west end of the corridor at the I-88/I-290 junction, including the reduction of the I-88 WB ramp from two lanes to one lane and fully detouring I-88 EB onto the collector-distributor road ramp.

- Temporary pavement, retaining walls, and bridge structures would be required for mainline construction. The temporary items are needed to ensure providing a minimum two lanes open in each direction on I-290 and providing contractor staging and working areas throughout the corridor.

- Closures of two consecutive interchange points, such as 25th Avenue-1st Avenue, 17th Avenue and 9th Avenue, Harlem Avenue-Austin Boulevard, and Central Avenue/Laramie and Cicero Avenue, will be avoided.

- Closures of two consecutive cross roads will be avoided.

- No full closures of Blue Line stations for mainline construction (leave at least one station access per platform open during construction).

Proposed structural improvements would utilize existing bridge substructure elements and retaining walls where existing elements are coincident or substantially coincident with proposed substructure elements. This assumption would be validated in the future with additional structural analysis and construction plans (Phase II), which are not yet completed for the project.

Access to properties along the arterial and local streets within the project limits would be maintained by staged construction phasing, temporary access roads, or other appropriate means. Local traffic may be stopped for short periods, temporarily inconveniencing motorists and businesses while construction equipment is moved.

Communication

During the project design phase, there would be a public involvement effort to discuss the sequence of work in each community, mitigation strategies to address construction effects, and the creation of a construction phase coordination/communication plan. This plan would include coordination with the local emergency services, schools, and other community services to identify and address any route and emergency vehicles access concerns during construction. The discussion of the roadways under local jurisdiction that could be utilized for construction access would continue during Phase II Design and Phase III construction.

During the construction phase, public involvement would continue with establishing a local point of contact and an IDOT contact in each community, weekly contractor meetings to discuss work to date and upcoming work, a project hotline, and project updates communicated via a project website, social media, and other means. Special signage may be required to alert the public of changes in access and other construction-related traffic pattern changes.

3.14.2 Water Resources

Construction typically associated with bridges, culverts, and roadway approaches would involve grading, filling, and excavation. These activities increase the erosion potential by the reduction in vegetative cover resulting from soil disturbance by heavy equipment. Placement of structures in streams may increase turbidity (suspended solids) and sedimentation and temporarily alter downstream hydraulics and substrate conditions.

Increased sedimentation during construction could cover natural substrate, thereby affecting habitat for some species of fish, mussels, and macroinvertebrates. The degree of impact would vary based on site-specific conditions, such as the type of crossing structure, stream substrate, stream depth, and stream velocity. To help reduce the release of sediment into the study area streams during construction, the IDOT BDE Manual, Chapter 59, Landscape Design and Erosion Control, would be implemented. Compliance with Section 280 of the IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2007, would also be met. Soil erosion and sediment control measures would be installed in areas of active construction, in particular, near stream crossings, wetlands/waters of the U.S., and drainage ways. Disturbance of streamside vegetation would be kept to a minimum. To minimize soil loss and subsequent sedimentation, an erosion and sediment control plan would be prepared as part of the contract documents. Areas of special concern, where erosion and sediment control would be needed, would be identified during subsequent studies.

The proposed project would be subject to the requirements of IEPA's NPDES permit for construction site stormwater discharges. NPDES permit coverage is required when a construction project disturbs one acre or more of total land area, or is part of a larger common plan of development that ultimately disturbs one or more acres of total land area. See Section 3.18, Permits and Approvals for further information.

As required by the NPDES permit, a stormwater pollution prevention plan (SWPPP) would be prepared that identifies soil erosion and sediment control practices to be used throughout the construction process to reduce the discharge of pollutants to receiving waters. Appropriate soil erosion and sediment controls would be implemented onsite and be modified to reflect the current phase of construction. All temporary erosion and sediment control measures would be inspected, maintained, and repaired/replaced, as necessary, to maintain NPDES compliance. The following is a list of BMPs that could be used to improve water quality, reduce soil erosion, and limit the amount of dust created in association with construction activities for the project:

- Storm drain inlet protection;
- Stone aprons at flared end sections;
- Stabilized construction entrances;
- Temporary stabilization (mulching, seeding);
- Rolled erosion control products (erosion control blankets or mats);
- Permanent seeding;
- Silt fence barrier;
- Temporary ditch checks;
- Sedimentation basins;
- Diversion dikes/channels; and
- Preservation of existing vegetation.

3.14.3 Air Quality

Demolition and construction can result in short-term increases in fugitive dust and equipment-related particulate emissions in and around the Study Area. Air quality impacts would be short-term, occurring only while demolition and construction are in progress and local conditions are appropriate. Fugitive dust emissions typically are associated with building demolition, ground clearing, site preparation, grading, stockpiling of materials, onsite movement of equipment, and transport of materials. The potential is greatest during dry periods, periods of intense construction activity, and high wind conditions. IDOT's Standard Specifications for Road and Bridge Construction, Article 107.36, includes provisions on dust control. Under these provisions, dust and airborne dirt generated by construction work would be controlled through dust control procedures or a specific dust control plan, when warranted. The contractor and IDOT would meet to review the nature and extent of dust-generating activities and would cooperatively develop specific types of control techniques appropriate to the specific situation. Techniques that may warrant consideration include minimizing track-out of soil onto nearby publicly traveled roads, reducing speed on unpaved roads, and covering haul vehicles.

During construction, blowing dust from areas cleared or excavated for access or construction purposes can be minimized by applying water to unpaved areas. The effectiveness of watering for fugitive dust control depends on the frequency of application. Street cleaning would also be used to control dust, as necessary. Paved areas that have soil on them from the construction site would be cleaned as needed, using a street sweeper or some alternative method. Other construction-related air quality control practices that could be used during construction include diesel emission reduction strategies, such as idling restrictions, diesel engine retrofits for construction equipment, and using clean fuels (ultra-low sulfur diesel, emulsified diesel, compressed natural gas). IDOT currently requires diesel emission reduction and clean fuel provisions for all construction contracts in Cook County[53]. Equipment-related particulate emissions could also be reduced if construction equipment is well-maintained. With the application of appropriate measures to limit emissions during construction, the project would not cause significant, short-term particulate matter air quality impacts.

3.14.4 Construction Noise and Vibration

Trucks and machinery used for construction produce noise that may affect some land uses and activities during the construction period. Individuals inhabiting the homes along the proposed improvements would, at some time, experience perceptible construction noise from implementation of the proposed project. To minimize or eliminate the effect of construction noise on receptors, mitigation measures have been incorporated into IDOT's Standard Specifications for Road and Bridge Construction, Article 107.35.32.

The construction of the proposed project could result in temporary noise and vibration increases within and adjacent to the Study Area. The noise and vibration would be generated primarily from trucks and heavy machinery used during construction and demolition. Any anticipated noise and vibration impacts likely would be confined to normal working hours, periods generally considered to be tolerant of noise and vibration. No adverse noise and vibration impacts are expected during construction, and construction methods that minimize the potential for noise and vibration impacts as well as monitoring of sensitive structures during construction will be specified as needed in subsequent project phases.

IDOT will implement an existing structure monitoring program that will begin prior to construction. Existing conditions of buildings adjacent to or near the expressway (as

[53] IDOT BDE Special Provision for Construction Air Quality – Diesel Retrofit; Section 107.41 (a) and (b) of IDOT Supplemental Specifications and Recurring Special Provisions

identified in coordination with the local communities) will be documented prior to any project-related construction activity. Monitoring will continue for a period after construction to document any damages potentially related to the construction activities. IDOT will work with the communities to develop a scope of work for the overall monitoring program.

3.14.5 Solid Waste

The contractor would dispose of grass, shrubs, trees, old pavement, miscellaneous debris, and other solid wastes generated during demolition and construction in accordance with state and federal regulations, as necessary. Waste disposal would follow IDOT's Standard Specifications for Road and Bridge Construction, Article 202.03. Nonhazardous and uncontaminated construction and demolition debris would be salvaged to the extent practical. Solid waste including trash, construction debris, and other items would be collected and disposed of offsite by the contractor. The contractor would be responsible for acquiring the permit required for such disposal. Onsite burning would not be permitted. No solid materials, including building materials, would be discharged to surface waters, except as authorized (e.g., IEPA). All waste would be collected and stored in approved receptacles. Liquid wastes would not be deposited into dumpsters or other containers that may leak. Receptacles with deficiencies would be replaced as soon as possible, and appropriate cleanup would take place if necessary. Construction debris would not be buried onsite. Waste disposal would comply with all local, state, and federal regulations. Proposed borrow areas, use areas (e.g., temporary access roads, staging/storage areas), and waste areas would follow IDOT's Standard Specifications for Road and Bridge Construction, Article 107.22.

Onsite special waste storage, including hazardous waste, would be minimized and would employ labeled, separate special/hazardous waste containers. Nonhazardous waste would be segregated and handled separately. Special and hazardous wastes would be disposed of in the manner specified by local, state, and federal regulations.

Concrete waste or washout would not be allowed to reach a stormwater drainage system or watercourse. Concrete washout would be contained and completed in a designated location. Washout containment facilities would be of sufficient volume to contain all liquid and concrete waste materials, including enough capacity for anticipated levels of rainwater.

3.14.6 Utility Services

Construction work would be coordinated with public utilities to avoid conflicts and minimize planned interruptions of service. When service interruptions are unavoidable, every effort would be made to limit their duration, and every effort would be made to give the public lengthy fair warning of any planned occurrence of service interruption.

3.14.7 Energy

Construction of the proposed improvement would require indirect consumption of energy for processing materials, construction activities and maintenance for the lane miles to be added within the project limits. Energy consumption by vehicles in the area may increase during construction due to possible traffic delays. The number of improvements and the time required to complete them would have a corresponding effect on the fossil fuels consumed. However, in the long term, post-construction operational energy requirements would offset construction and maintenance energy requirements and result in a net savings in energy usage.

3.14.8 Parks and Recreational Facilities

It is expected that access to all recreational facilities would remain throughout construction. For those facilities immediately adjacent to the construction area, there would likely be an increase in noise and vibration during the hours of construction activity. In addition, these facilities may experience a temporary increase in fugitive airborne dust and a temporary change to the existing visual setting in those areas immediately adjacent to the construction activity. Prior to and during construction, there would be coordination with the Officials with Jurisdiction of these facilities in order to minimize the extent of potential construction-related impacts.

3.15 Indirect and Cumulative Impacts

3.15.1 Approach

This section evaluates the potential for indirect and cumulative impacts. Potential indirect and cumulative impacts are defined as follows:

> Indirect effects are "caused by an action and are later in time or further removed in distance but are still reasonable foreseeable" (40 CFR 1508.8).
>
> Cumulative effects "result from the incremental consequences of an action when added to other past and reasonably foreseeable future actions" (40 CFR 1508.7).

The basis for this analysis is the recognition that while a project has various direct impacts on social and environmental resources, it may also have indirect and cumulative impacts. The analysis of indirect impacts considers the effects of the build alternatives, whereas, the analysis of cumulative impacts considers the effects of other past, present, and reasonably foreseeable future actions.

A review of the project-related impacts concluded that the resource analyses for indirect and cumulative impacts are similar to one another. The period for both analyses extends through 2040. The same resources are discussed for both indirect and cumulative impacts, including effects on regional growth, development patterns as well as water quality, wetlands, and biological resources. The geographic extent of these analyses varies with the resource. Socio-economic effects would be both local (Project Corridor) and regional. Water resources are evaluated in the context of the Study Area and relevant watersheds, and wetlands and biological resources are analyzed in terms of local and regional value.

Indirect and cumulative effects would not be expected to occur with the No Build Alternative, as the project would not be constructed.

3.15.2 Indirect Impacts

This section evaluates the potential for indirect effects to resources in the Study Area.

3.15.2.1 Socio-economic Effects

The indirect socio-economic effects were evaluated by developing year 2040 socio-economic forecasts as part of the I-290 Study. Socio-economic forecasts, including population and employment forecasts, are used as input to the I-290 travel forecasting model to estimate future highway and transit travel for use in design, environmental, and financial analyses. The year 2040 was selected as the planning horizon and design year for consistency with the metropolitan planning organization's metropolitan transportation plan. This portion of the metropolitan Chicago region has established stable residential areas and a solid employment base. It is expected that the Project Corridor would continue to maintain its competitive position and serve an important role in the larger Chicago economy, in terms of both housing and jobs.

The 2040 population and employment forecasts developed by CMAP staff for their GO TO 2040 Comprehensive Regional Plan were a departure from previous forecasting practices in the region. Prior to the GO TO 2040 Plan, the socio-economic forecasting practice in northeastern Illinois was based on municipal and county consultation, historic trends, local land use policies, local development proposals, available land for development, and regional and county level control totals in a "market-based" approach. This prior socio-economic and land use methodology and forecast was adopted as the planning baseline for the region and used for major project development and for the metropolitan transportation plan.

In reviewing the CMAP population and employment forecasts for use in the I-290 Study, IDOT concluded that the strict policy-based forecast developed by CMAP staff was not appropriate for evaluating specific transportation facilities because the forecasts:

- Are aspirational in nature, resulting in a "policy-based plan (dealing with the investments and high-level choices that shape our region) as opposed to a land use plan (dealing with specific types of development in specific locations)."[54]

- Do not directly address population and employment differences between No Build and build scenarios as CMAP staff's policy-based forecasts, which reflect the desired development for the region, would be the same regardless of which major transportation projects were included in the plan.

- Assume the recommended policies in the GO TO 2040 Comprehensive Regional Plan will be instituted by 2040 in order to achieve the policy-based forecast. CMAP recognizes that the implementation of its vision relies on a multitude of decisions made at different levels of local, state and federal government. CMAP does not have authority to implement land use plans. The authority over local land use resides with local governments.

IDOT determined that a refined market-based forecast, similar to the type of forecasts historically prepared by CMAP, was required in order to provide the most appropriate traffic forecasts for use in the design, environmental analysis, and potential toll revenue forecasting for transportation improvements for the I-290 Study Area. In addition, with the potential for tolling options for the project, any potential toll and revenue evaluations needed to finance a project will require investment-grade forecasts. Lenders and bonding agencies are typically reluctant to assume that goal-based, policy-driven recommendations will be entirely effective in the face of *laissez-faire* market economics. The Illinois Tollway has developed a similar market-based socio-economic forecast approach for use in their toll revenue studies.

CMAP staff anticipated the need for alternative socio-economic forecasts for project-specific studies and issued guidelines for preparing these alternative forecasts.[55] The I-290 project

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[54] CMAP GO TO 2040 Comprehensive Regional Plan, October 2010, page 26.

[55] "CMAP Forecast Principles for Data Users and Forecast Developers", Chicago Metropolitan Agency for Planning, April 2011.

team adhered to these CMAP staff guidelines and coordinated with them in developing the market-driven socio-economic forecasts used for this project.

The methodology employed to develop the I-290 No Build and Build socio-economic forecasts is described in Appendix B-2. This methodology recognizes the important interrelationships between transportation systems and urban development (i.e., accessibility influences locational decisions which, in turn, influence accessibility). In selecting a location for an activity (e.g. industrial plant, office building, residence) the decision-maker considers the accessibility of the various potential sites to concentrations of various activities (e.g. labor force, job concentrations, schools, recreational activities). This is general knowledge to market analysts, real estate brokers and developers; and is used in conducting their day-to-day business. It also is understood that improving the access of developable or redevelopable sites increases the development potential of those sites, attracting development (residential, commercial/industrial, institutional) that may have occurred elsewhere in the region.

The I-290 project team developed 2040 No Build market-driven socio-economic forecasts assuming no I-290 Eisenhower Expressway improvements (no additional lanes on I-290) and no high capacity transit extension to the west from the CTA Blue Line Forest Park station (no Blue Line Forest Park Branch extension). The 2040 No Build socio-economic forecasts do assume the implementation of other major capital transportation projects outside of the Study Area that are included in the approved, fiscally-constrained, metropolitan transportation plan and Transportation Improvement Program (TIP) for the region.

The 2040 Build socio-economic forecasts were also developed for use in testing the I-290 Round 3 DEIS build alternatives. The I-290 Build socio-economic forecasts assumed the implementation of an additional lane (in the form of a managed lane) on I-290, and a high capacity transit extension (such as a Blue Line extension to Mannheim Road from the CTA Blue Line Forest Park station), as well as the other major capital transportation projects currently in the fiscally constrained long range transportation plan and TIP.

Build and No Build Population and Employment Differences

The differences between the I-290 2040 Build and No Build population and employment forecasts are depicted in the following figures. The transportation improvements included in the I-290 build alternatives result in changes to accessibility of the region, which then affect population and employment forecasts. The improvement of access to developable or re-developable sites increases the development potential of those sites, attracting development (residential, commercial/industrial, institutional) that may have occurred elsewhere in the region. Because the I-290 build alternatives includes both highway and transit improvements, composite accessibility effects were used to measure changes in accessibility for the Build alternatives.

Figure 3-138 and Figure 3-139 show the impact of the Highway Component of the I-290 build alternatives on the redistribution of 2010-2040 population and employment growth, while Figure 3-140 and Figure 3-141 show the impact of the Transit Component of the I-290 build alternatives. These figures show that the Highway Component of the I-290 Build

Scenario has a greater impact on population and employment growth than the Transit Component of the Build Scenario due to the greater improvement in accessibility from the highway improvements.

Figure 3-138. Change in Population – Build vs. No Build Due to Highway Improvements

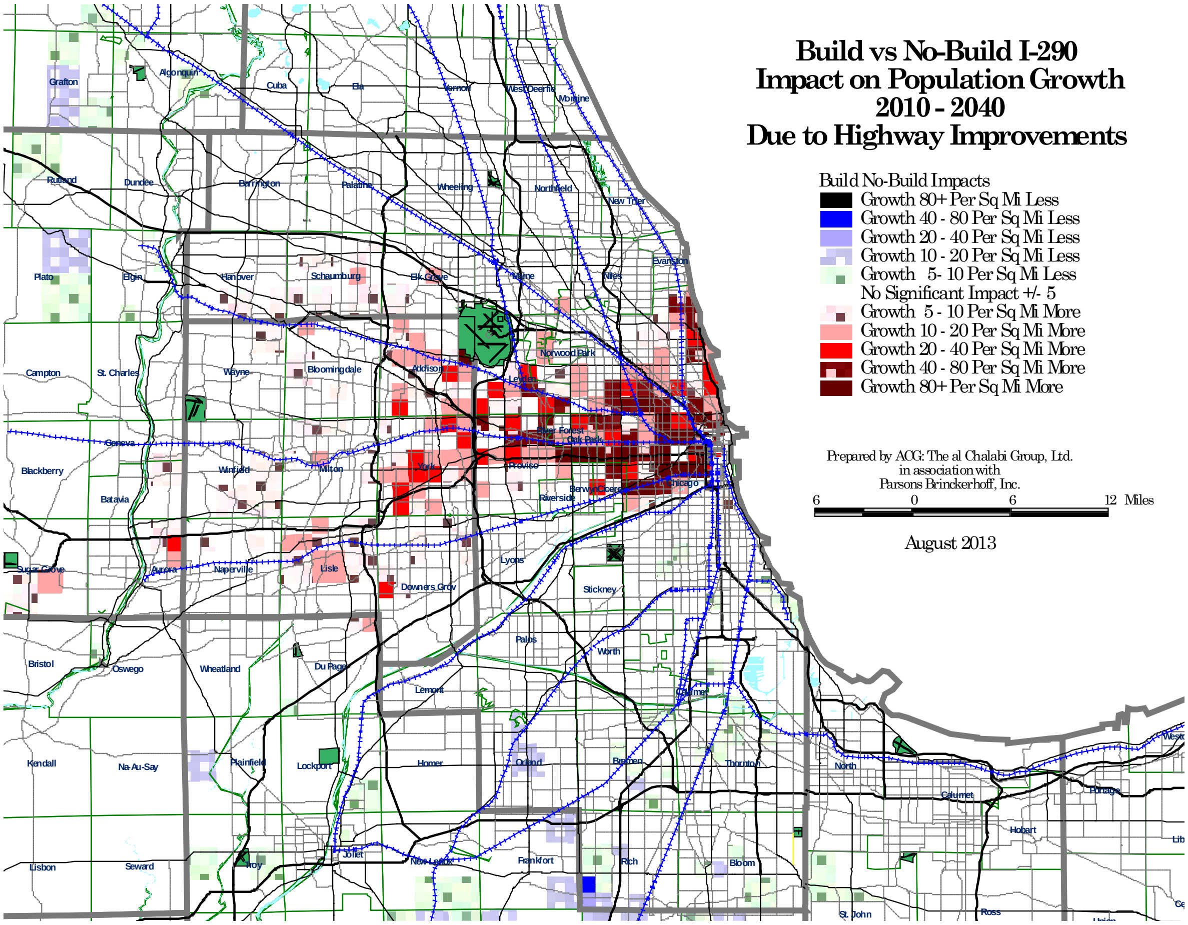


Figure 3-139. Change in Employment – Build vs. No Build Due to Highway Improvements

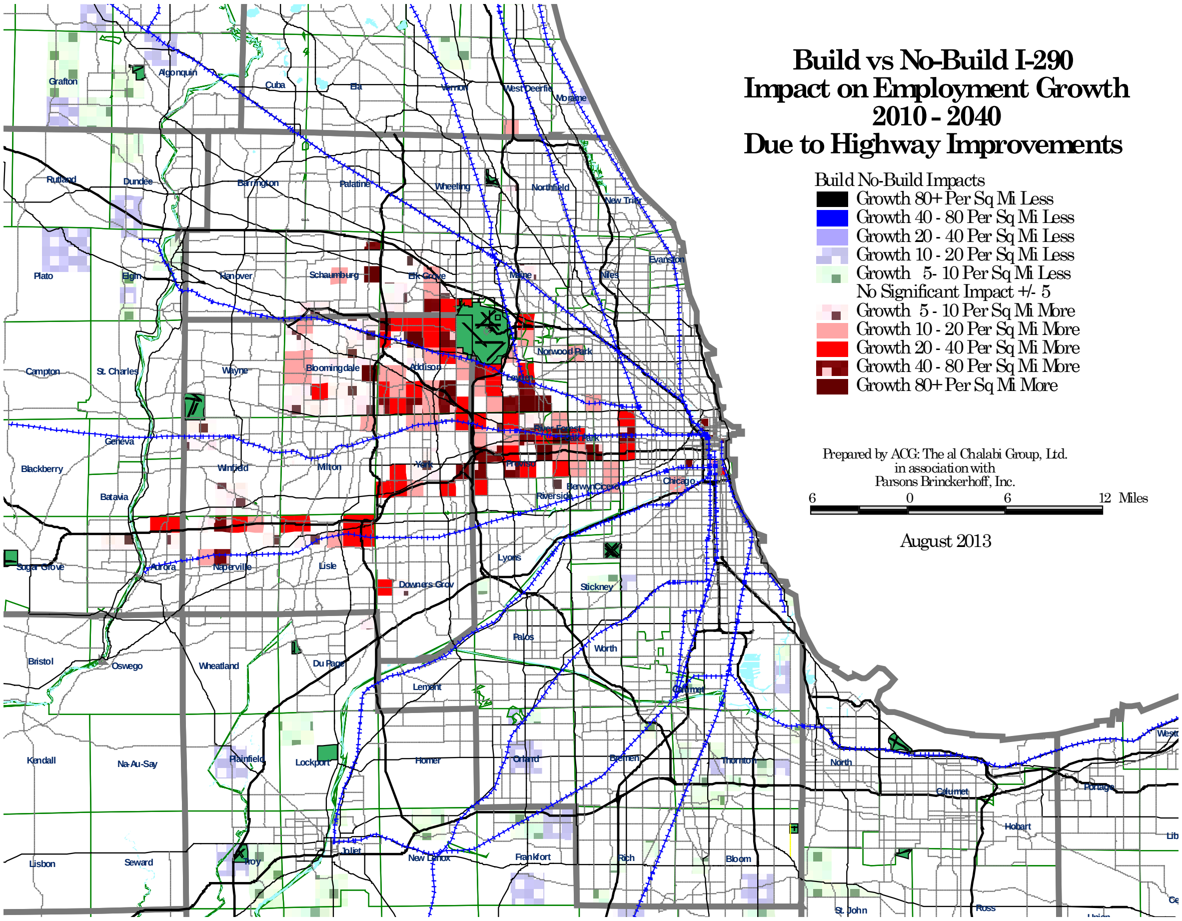


Figure 3-140. Change in Population – Build vs. No Build Due to Transit Improvements

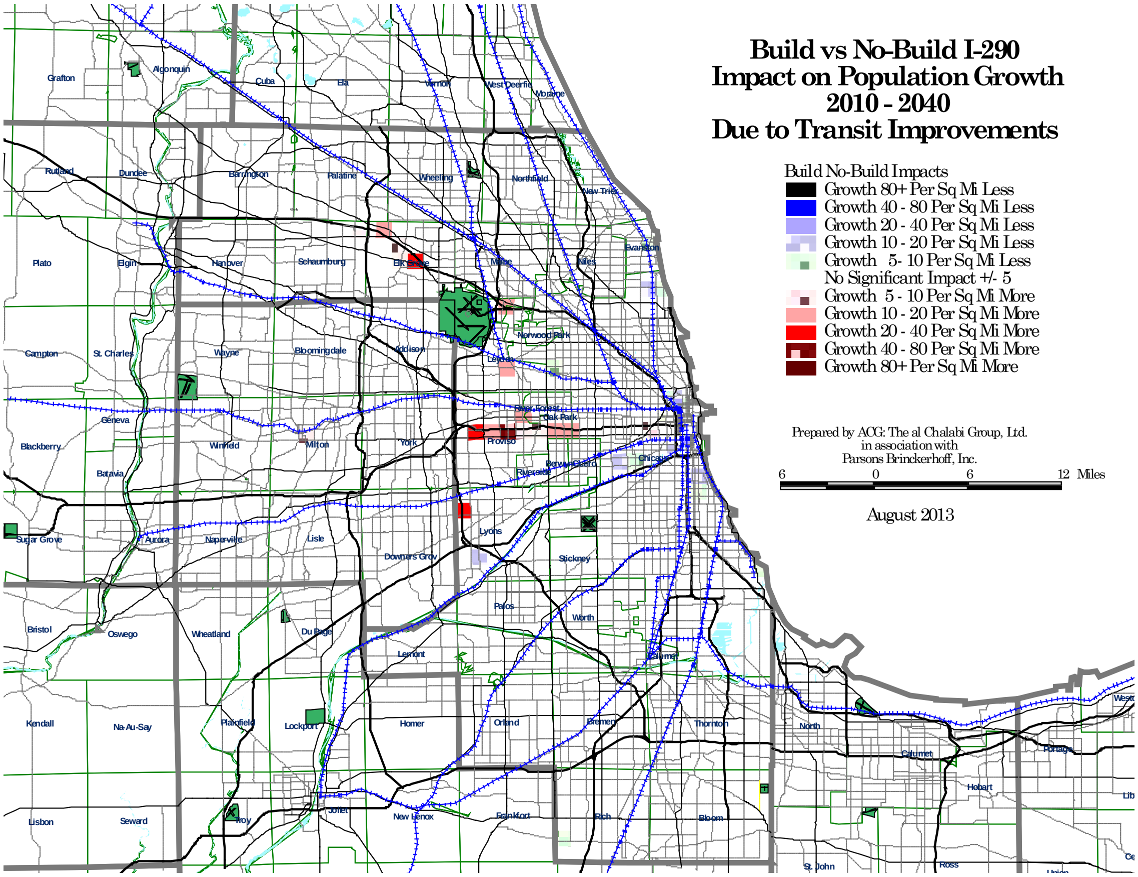
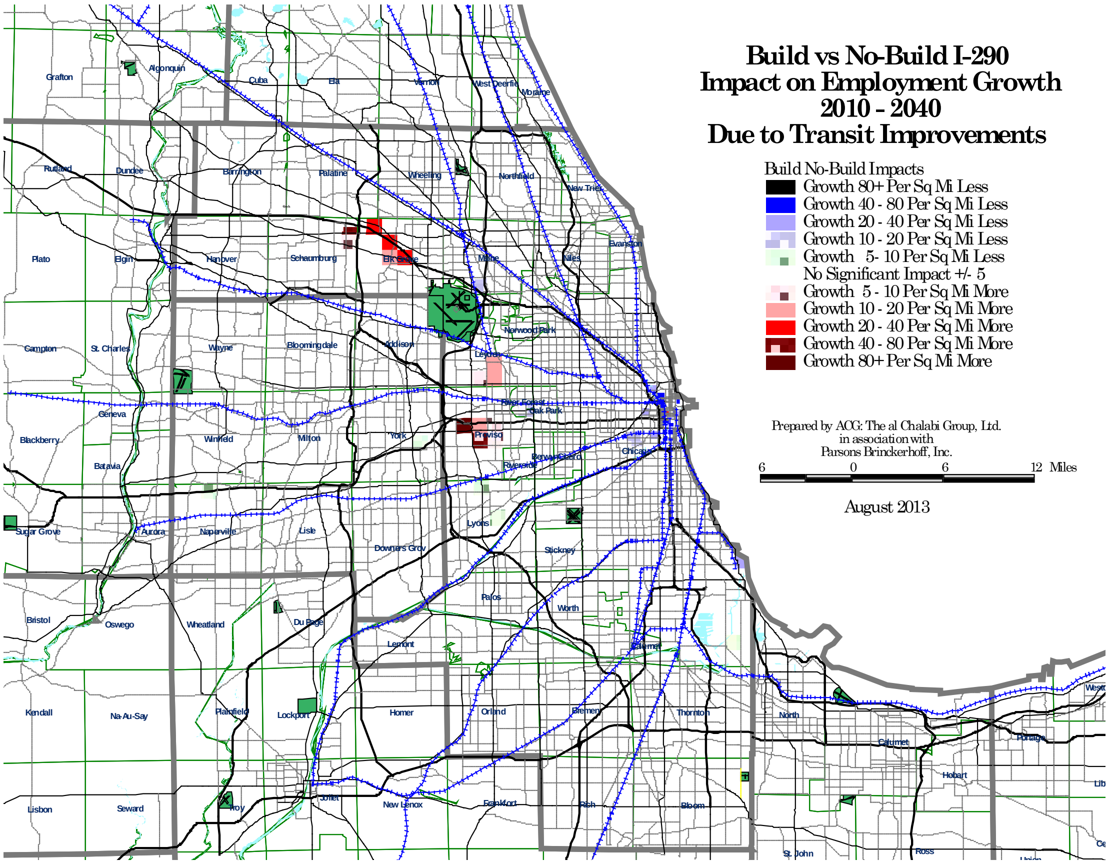


Figure 3-141. Change in Employment – Build vs. No Build Due to Transit Improvements



A comparison of the resulting I-290 Study Area 2040 population and employment forecasts is shown in Table 3-52. As seen in this table, the I-290 Study Area population and employment forecasts for the No Build versus build scenario indicate a less than one percent change. This is due to the existing built-out urban conditions in the Study Area and that the I-290 project reflects improvements to an existing facility that already provides accessibility to the Study Area.

Table 3-52. Comparison of I-290 Study Area 2040 No Build and Build Forecasts

Forecast	2040 No Build	2040 Build	Change
Population	649,215	651,912	0.4%
Employment	309,334	310,967	0.5%

Given the minor differences in population and employment forecasts between the No Build and build scenarios, it was determined that a single build scenario could be used in the I-290 travel forecasting model for the four DEIS build alternatives. Since the DEIS build alternatives include very similar physical transportation improvements, with the primary difference among them being operational (e.g. how the fourth lane is managed and if there is tolling), overall accessibility is expected to be similar between the build alternatives. The HOV 2+ Alternative was selected to develop the highway and transit travel times for use in determining the composite accessibility of the 2040 Build Scenario, because it represented a middle ground in operational control in terms of lane management strategies.

In addition to the analysis on population and employment described above, construction of the project would indirectly affect the area economy to the roadway construction sector by increasing demand for locally produced materials needed for construction, such as concrete, wholesale and retail trade items, rebar and other construction materials. This would affect suppliers of those products. Other sectors of the economy would be benefited by employees hired in the construction industry who may increase their expenditures in restaurants, grocery stores, etc.

The indirect impacts to Project Corridor communities, including environmental justice communities, are described in the Sections 3.15.2.2 to 3.15.2.13, below. Since a majority of the Study Area includes low-income or minority populations, the indirect impacts described in the following subsections would affect these groups.

3.15.2.2 Cultural Resources

Indirect effects on cultural resources would be largely those that may result from additional development within and beyond the Study Area. Development within the vicinity of the proposed project would continue under existing developmental review regulations of the Project Corridor communities, which would allow a continuation of status quo development of the area.

3.15.2.3 Air Quality

An air quality analysis was performed using projected traffic volumes that incorporate anticipated traffic generation from planned development in the Study Area for the future years under both the build and the No Build Alternatives. Therefore, the regional burden air quality analysis takes into account the indirect effects of the project and other traffic growth that would be associated with the proposed project.

A full air quality discussion is included in Section 3.3 and a short summary is listed below:

- The GP Lane shows a slight increase in all regional criteria pollutants except for PM_{10}, for which it shows a slight decrease, when compared to the No Build Alternative;
- The HOV 2+, HOT 3+ and HOT 3+ & TOLL alternatives show a slight decrease in all regional criteria pollutants, as compared to the No Build Alternative; and
- All changes in regional pollutant burdens are minimal, with all pollutants showing less than a one percent change, when comparing the build alternatives to the No Build Alternative in 2040.

3.15.2.4 Noise

Noise impacts are expected to be direct and not result in indirect impacts. See Section 3.4 for a full discussion on the direct noise impacts.

3.15.2.5 Energy

During the construction period, there would be an indirect consumption of energy for general construction activities and processing of materials. Potential traffic delays occurring during the construction period may result in increased energy consumption by vehicles experiencing those delays. The overall consumption of fossil fuels consumed during the construction process would correlate to the amount of construction activity, types of activity, and time needed to complete the activity.

3.15.2.6 Natural Resources

There are no identified indirect effects to natural resources. See Section 3.6, Natural Resources for a full discussion on direct impacts to natural resources.

3.15.2.7 Groundwater

Stormwater runoff from increased impervious surface could result in reduced groundwater recharge rates. Pollutants have the potential to adversely affect ground water sources of water supply, although groundwater wells are only used as a backup source since drinking water comes from Lake Michigan. See Section 3.8, Groundwater for a full discussion of potential direct impacts to groundwater.

3.15.2.8 Floodplains

There are no identified indirect effects to floodplains. See Section 3.9, Floodplains for a full discussion on direct impacts to floodplains. During coordination with the communities in the Study Area, an opportunity was identified to manage localized flooding in the Village of Maywood with a new storm sewer trunk line along the I-290 north frontage road. This trunk line would outlet to the Des Plaines River.

3.15.2.9 Water Resources

Increased traffic and impervious surfaces would result from transportation infrastructure completed over the next 20-year period. Based upon water quality modeling, this would result in additional pollutants being deposited on the roadway. During storms, these pollutants could be transported to receiving waters. Water quality standards will be maintained minimizing any potential indirect adverse effects.

3.15.2.10 Wetlands

The Study Area is a highly developed area with few wetlands which can generally be attributed to urban development. As noted in Section 3.10, no wetlands were identified in the Project Corridor and, therefore, there would be no indirect impacts to wetlands.

3.15.2.11 Special Waste

Indirect effects from hazardous waste and waste from normal operations of I-290 following construction of any of the build alternatives would primarily be associated with runoff of contaminants entrained in stormwater – including fuel, lubricants, heavy metal compounds from tires and brake pad dust, and automobile engine coolants such as ethylene glycol leaking from passing vehicles. Construction of the proposed project would improve traffic operations along the entire Project Corridor. This would ultimately help reduce the risk of accidents including those involving hazardous materials, and would thereby decrease the amount of harmful materials that might enter soil and water resources in the Study Area. Remediation of known or potentially contaminated hazardous materials sites for the proposed project would potentially be an indirect benefit of the build alternatives. Removing these materials from the Study Area eliminates the potential health hazards and liability risks from these materials remaining in the area.

3.15.2.12 Special Lands

Construction of any of the build alternatives could potentially improve access to existing or future parks, recreation facilities or special lands, but is unlikely to have other effects beyond temporary minor increases in noise levels during construction.

3.15.2.13 Visual Resources

No indirect effects associated with visual quality were identified. See Section 3.13, Visual Resources for a full discussion on direct impacts to visual resources in the Project Corridor.

3.15.3 Cumulative Impacts

This section describes the cumulative impacts associated with the proposed project. The analysis for the project considered the cumulative impacts on resources in the Study Area. This included the proposed project's direct and indirect impacts as well as the impacts of other major federal, state and private actions in the Study Area not related to the project. The projects considered to be "reasonably foreseeable actions" have typically received preliminary approvals, are included in local plans, or have already advanced in project development. The major federal and state transportation projects identified as other actions are described in full in CMAP's 2014 GO TO 2040 Comprehensive Regional Plan. The largest nearby project is the I-290 Jane Byrne (formerly Circle) Interchange Reconstruction Project, which is currently under construction, near the eastern limits of the Study Area that would improve circulation between I-290 and I-90/I-94.

3.15.3.1 Socio-economic Effects

Cumulative impacts to existing socio-economic resources in the Study Area is limited due to its urban, largely developed character. Roadway and transit improvements in the regional plan can foster beneficial community results, such as improving accessibility and mobility and supporting future growth and planning policies. Cumulatively, the I-290 project represents a small incremental impact on socio-economic conditions in the context of the other identified actions occurring in the area that have or will have an effect on socio-economic conditions. Improved travel times in the Project Corridor for all the build alternatives on I-290 may spur private redevelopment and industrial and commercial land uses may recognize the intrinsic value and competitive advantage of better local and regional transportation access. Therefore, underused or underdeveloped properties in the area would be candidates for reinvestment.

Construction of the proposed I-290 project and other area projects would increase jobs in the region for the highway industry. The proposed I-290 project would not result in any adverse cumulative impacts on the regional economy. Additionally, the cumulative effects of these other area projects are not expected to substantially affect land use in the Study Area since the land uses are well established and consistent with local, county, and regional plans.

3.15.3.2 Cultural Resources

Neither the build nor the No Build alternatives for the proposed project are likely to cause adverse effects on cultural resources either within or beyond the limits of the project. Therefore, as the cumulative effects on cultural resources are anticipated to be minimal and are not likely to be different under either the build or No Build alternatives, additional analysis is not warranted.

3.15.3.3 Air Quality

An air quality analysis was performed using projected traffic volumes that incorporate anticipated traffic generation from planned development in the Study Area for the future years under both the build and the No Build alternatives. Therefore, the air quality analysis as documented in Section 3.3, Air Quality takes into account the cumulative effects of the project and other traffic growth that would be associated with the proposed project. A short summary is listed below:

- The GP Lane shows a slight increase in all regional criteria pollutants except for PM_{10}, for which it shows a slight decrease, when compared to the No Build Alternative;

- The HOV 2+, HOT 3+ and HOT 3+ & TOLL alternatives show a slight decrease in all regional criteria pollutants, as compared to the No Build Alternative; and

- All changes in regional pollutant burdens are minimal, with all pollutants showing less than a one percent change, when comparing the build alternatives to the No Build Alternative in 2040.

3.15.3.4 Noise

The build alternatives would reduce noise adjacent to the roadway by constructing noise barriers at locations along the Project Corridor where they are reasonable and feasible to construct and where benefitted receptors vote in favor of their construction (Section 3.4 for full details). While the build alternatives are not expected to have a cumulative effect on regional noise levels, the proposed project would result in reduction of noise in the Study Area.

3.15.3.5 Energy

The construction and operation of the proposed project would consume energy. While consumptive energy losses would occur during construction of the proposed project, operation of the proposed project would not be measurably different from the No Build Alternative and thus would not materially contribute to the cumulative adverse effects to energy.

3.15.3.6 Natural Resources

Direct impacts to natural resources would be avoided or mitigated to the extent feasible, as described in Section 3.6, Natural Resources. Considered with the effects of past, present, and reasonable foreseeable future actions, the proposed project would have a negligible contribution to cumulative adverse effects on natural resources.

3.15.3.7 Groundwater

Direct groundwater impacts would be minimal and are described in Section 3.8, Groundwater. Considered with the effects of past, present, and reasonable foreseeable future actions, the proposed project would have a negligible contribution to cumulative adverse effects on groundwater.

3.15.3.8 Floodplain

Direct impacts to wetlands would be avoided or mitigated to the extent feasible. Considered with the effects of past, present, and reasonable foreseeable future actions, the proposed project would have a negligible contribution to cumulative adverse effects on floodplains.

3.15.3.9 Water Resources

Increased traffic and impervious surfaces would result from recently completed transportation infrastructure over the next 20-year period, which could result in additional pollutants being deposited on the roadway. Best management practices implemented consistent with federal, state and local regulation is anticipated to minimize adverse consequences to water resources in the Study Area.

3.15.3.10 Wetlands

As discussed in Section 3.10, Wetlands, no direct impacts to wetlands are associated with this proposed project. Therefore, as the cumulative effects on wetlands are not likely to be different under the build alternatives, additional analysis is not warranted.

3.15.3.11 Special Waste

The long-term cumulative effect of the build alternatives combined with the other projects in the Study Area represent a slight increase in the risk of accidental hazardous materials spills as a result of increased traffic volumes. These potential hazardous materials spills could lead to added stormwater pollution, in the event that such spills are not contained or materials not disposed in accordance with established procedures.

3.15.3.12 Special Lands

Neither the No Build nor the build alternatives for the proposed project are likely to cause effects on special lands, including parks and recreation resources, within or beyond the limits of the proposed project. Therefore, as cumulative effects on parks and recreation resources are anticipated to be minimal and are not likely to be different under the alternatives, additional analysis is not warranted.

3.15.3.13 Visual Resources

The build alternatives would contribute to the visual change associated with past, present, and reasonably foreseeable future actions. Construction and operation of the I-290 project would change the visual character by adding noise walls in many locations. Also, there may be areas where mature vegetation would be replaced with noise walls in the Project Corridor. The change in the design of the interchanges and ramps would also alter the visual character of the Project Corridor. The cumulative effects of such change are not expected to substantially alter the predominately urban character of the Study Area.

3.16 Short-Tem Use and Long-term Productivity

Short-term uses of the human and natural environment resulting from the proposed project would generally be those construction activities associated with the project. Construction of the proposed project would involve the short-term use of resources such as labor and land for construction staging and storage of materials. As with any major construction activity, temporary disturbances to both the human and natural environments are expected to occur. Such temporary disturbances would include construction noise, vibration, visual impacts, temporary disruption of local traffic, and disruption to business and residential access within construction areas, and disturbance of vegetation, water resources, and wildlife habitat.

The negative short-term effects described above are offset by the long-term positive effects of the proposed project. The long-term outcomes of the proposed project would include improved safety and improvements to existing I-290 facility deficiencies. The long-term benefits of the proposed project, which include improved mobility for regional and local travel, access to employment, and improved modal connections and opportunities in the I-290 Study Area, require a certain necessary amount of short-term resource use. The long-term benefits of the proposed project, however, outweigh the short-term negative aspects associated with construction.

The proposed project would contribute to the maintenance and enhancement of long-term productivity for the communities in the Study Area by providing improved local and regional accessibility and improved safety for all transportation modes in the Study Area.

3.17 Irreversible and Irretrievable Commitment of Resources

This section will discuss irreversible and irretrievable commitments of resources. A commitment of resources is irreversible when its primary or secondary impacts limit the future option for a resource. An irretrievable commitment refers to the use or consumption of resources that is neither renewable nor recoverable for later use by future generations.

Construction of the build alternatives along the Project Corridor would involve an irreversible commitment of many irretrievable resources. These resources include land, natural resources, resources used for construction materials and energy, and manpower.

Land used in the construction of the proposed project is considered an irretrievable resource along with everything below the surface. No areas of land within the proposed construction limits are currently open or in a natural state, so no impacts are expected.

Large amounts of other natural resources such as limestone, clay, asphalt (bitumens), gravel, sand, and iron ore would be required for use in construction materials. Fabrication of construction materials and operation of construction vehicles and machinery would require energy derived from fossil fuels, in addition to other potential energy sources such as solar and electricity. Similar to mineral resources, fossil fuels are an irretrievable resource, the extraction and use of which is unrecoverable and irreversible. However, it is unlikely that their limited use in this proposed project would adversely affect the future availability of these resources.

Additionally, large amounts of labor are used in the fabrication and preparation of construction materials. While the labor specifically dedicated to the proposed project would be irreversible and irretrievable for other uses, the existing labor pool or new labor sources would be likely available if there are willing individuals.

Resources in the Study Area that are in the category of irretrievable resources include sand, gravel, and limestone. These resources are generally viewed as income producing commodities. Extraction and use of these income producing resources is irreversible. While the land above the resources is used for a transportation project, such as the I-290 Eisenhower Expressway, or other secondary development, these resources would not be available for extraction and use, and would therefore be irretrievable.

While the state and federal funds and manpower that would be used to build the proposed project represent a monetary commitment, it is anticipated that the long-term economic benefits and traffic improvements that would result from the proposed project would outweigh this initial investment. Further analysis regarding the long-term economic benefit of the project is available in Section 3.1.

Overall, the use of these resources for the proposed project is warranted because the construction of any of the build alternatives would provide long-term benefits including improved local and regional mobility and connectivity and improved safety for all transportation modes within the Study Area. On-going planning and coordination with project stakeholders and resource agencies is helping guide the preliminary design of the transportation facility while minimizing impacts to local residents and natural resources. The implementation of the mitigation measures previously identified in the discussion of each resource topic presented in Section 3.0 will help offset unavoidable impacts to those resources, some of which are also protected by law, such as aquatic resources, wetlands, and historic resources.

3.18 Permits and Approvals

This section summarizes permits and certifications applicable to the proposed project. Submittal of permit applications to pertinent regulatory agencies will take place after development of final engineering plans. Avoidance and minimization strategies required to obtain permits would be evaluated as part of the development of these final engineering plans.

The expected permits for this project include:

- Section 404 of the Clean Water Act (regional permit)
- Section 401 of the Clean Water Act (automatic with regional permit program)
- SWCD Review of Erosion and Sedimentation Control Plans
- NPDES Construction Permit
- Floodway and Floodplain Construction Permits
- IWPA-Related Approval
- FHWA Section 129 Compliance and Approval
- FHWA Access Justification Report and Approval

3.19 Summary of Environmental Commitments and Mitigation

This section provides a brief description of the environmental commitments associated with the proposed project. This section also summarizes the mitigation measures to be provided in response to unavoidable adverse environmental impacts.

Table 3-53. Summary of Environmental Commitments

Impact	Mitigation Measure	Reference	Implementation Timing	Responsible Party*
Traffic Noise				
The build alternatives have only minor differences in traffic noise impacted receptors: GP Lane Alternative – 230 receptors; the HOT 3+ Alternative - 229 receptors; the HOV 2+ Alternative - 228 receptors; HOT 3+ & TOLL Alternative - 220 receptors; and the Preferred Alternative -228 receptors. It is noted that the No Build Alternative would have 227 noise impacted receptors.	The four build alternatives have very similar feasible and reasonable barrier design characteristics. The recommended locations of noise barriers associated with the Preferred Alternative are shown in the Section 3.0 Map Set. Of the 63 feasible and reasonable barriers, 46 walls were favored by benefitted receptors in 2015 and 2016. IDOT intends to conduct additional outreach with local stakeholders during the project's design phase to determine the aesthetic treatment most appropriate for each community. Such future coordination may result in re-opening the viewpoints solicitation process where warranted by changes in the number/location of benefited stakeholders, the benefited stakeholders' opinions, or noise wall technology.	DEIS Section 3.4.3 and Section 5.3.7	Design and Construction	IDOT

Table 3-53. Summary of Environmental Commitments (continued)

Impact	Mitigation Measure	Reference	Implementation Timing	Responsible Party*
Natural Resources				
Construction of any build alternative will result in impacts to upland communities.	Impacts to trees will be minimized with implementation of proper soil erosion and sediment control measures to minimize sediment deposition and with installation of construction fencing and exclusion zones to reduce compaction of roots and soil. Mitigation for trees removed will be guided by IDOT's Preservation and Replacement of Trees (IDOT, 2002) policy and Chapter 59 ("Landscape Design") of the BDE Manual (IDOT, 2014). A landscaping plan will be developed during the design phase that will identify areas where trees, shrubs, and grasses will be planted on highway side slopes, on back slopes, and in the median, except where clear vision needs to be maintained at highway entrances and exits, intersections, and median openings.	DEIS Section 3.6.3 IDOT's *Preservation and Replacement of Trees* (IDOT, 2002) policy Chapter 59 ("Landscape Design") of the *BDE Manual* (IDOT, 2014).	Design and Construction	IDOT/ Contractor
Construction of any build alternative will minimally impact wildlife species.	Locations of short barrier walls near creek crossings to restrict the movement of small animals (including reptiles, amphibians, and smaller mammals) from entering the roadway corridor will be coordinated in the design phase. Design walls to not limit the movement of larger mammals and prevent them from being trapped within the roadway.	DEIS Section 3.6.3	Design	IDOT

Table 3-53. Summary of Environmental Commitments (continued)

Impact	Mitigation Measure	Reference	Implementation Timing	Responsible Party*
Floodplains				
Regulatory floodplain encroachments are negligible at Des Plaines River (less than 0.1 acre-feet of fill for the normal to 100 year flood elevation). For Addison Creek, 17.1 acre-feet of floodplain cut volume will occur for the normal to 10 year flood elevation, and 4.1 acre-feet of floodplain fill volume will occur for the 10 to 100 year flood elevation. There will be a net cut volume for Addison Creek for the normal to 100 year flood elevation.	Retaining walls are proposed in key locations near the floodplains to minimize impacts. There is a net removal of floodplain fill at Addison Creek and Des Plaines River floodways; therefore, no mitigation is necessary.	DEIS Section 3.9.3	Design	IDOT
Visual Resources				
Construction of any build alternative will result in visual change at varying locations along the Project Corridor for both motorists and for those viewers outside the corridor.	Mitigation for visual impacts may include implementation of context sensitive design (that involves public input) and landscape improvements for the replacement of existing landscaping, creation of new landscape areas, public input in the use of alternative materials and design of noise barriers, and installation of containerized plantings located on the cross street overpass bridges. See also Traffic Noise mitigation above.	DEIS Section 3.13.5	Design	IDOT