Chapter 3.
Environmental Resources, Impacts, and Mitigation

This chapter discusses the social, economic, and environmental resources within the project vicinity and the project alternatives' potential impacts and benefits to those resources. The following sections address each general resource category and describe the current setting. The potential impacts and benefits of the project Build and No-Build Alternatives are then evaluated against these existing baseline conditions. The chapter concludes with a summary of the anticipated impacts of the Preferred Alternative and a summary of the environmental commitments to address those impacts.

Chapter 3 has been updated to reflect further development of the additional mitigation measures evaluated due to Environmental Justice concerns. In addition, updates were made to the air quality standards and reference to the Transportation Improvement Program (TIP), information was added to summarize the noise barrier viewpoint solicitation process, and minor corrections or updates were made to other sections. Consideration was also given to updating demographic data, most of which is from the 2010 Census or American Community Survey. Because conditions in the study area are not likely to have changed in a way that would affect decision-making for the project, it was determined that this effort was not needed. Changes and additions since the publication of the DEIS are shown in double underline.

3.1 Study Area

Throughout this document, the evaluations focus within defined geographic areas appropriate for the specific resources being addressed. For most resources discussed in this document, a project "study area" has been defined and is used throughout, except where specifically noted otherwise. See the box at right for the definition of the project "**study area**." A map of the project study area is shown in Figure 3.1-1 on the following page.

The term "**project vicinity**" is used in this document to refer to the general area of the project without reference to a defined boundary. Likewise, the term "**project corridor**" refers to the general linear area along the rail rights of way within the study area, but without inferring a precise boundary.

Where the effects of the project may extend beyond the standard 1,000-foot distance, such as for noise impacts, a larger study area is used for that specific analysis. For the socioeconomic analyses, where most available data are defined at the census tract level, a "**demographic study area**" has been defined. This area is made

Project "Study Area"

The 75th Street CIP "study area" is based on the linear project limits defined in the CREATE Program's Final Preliminary Screening Report (Amendment 1) . These limits were then extended along the railroad right-of-way to the next railroad signal beyond any anticipated track changes, to ensure that all possible track and signal modifications would be included within the project limits. The "study area" was then defined using a distance of 1,000 feet on either side of the centerline of the railroad right-of-way within those project limits.

Footnotes are listed at the end of this section

up of the census tracts that include the project study area. The demographic study area is shown in Figure 3.1-1, along with the project study area, to show how the two relate.

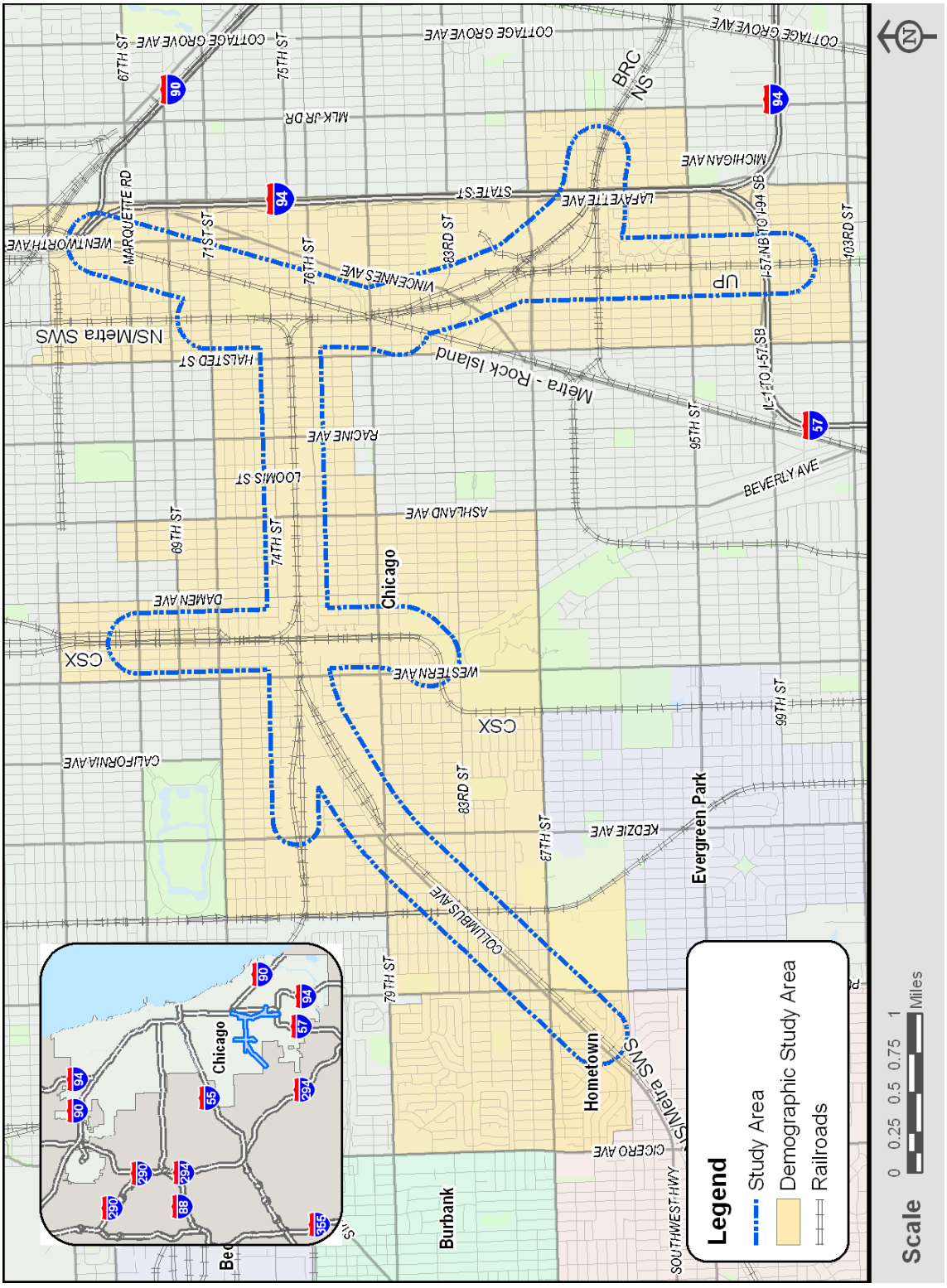


Figure 3.1-1: Project Study Area

3.2 Social/Economic Characteristics

The following section examines the existing social and economic conditions present within the study area and evaluates the potential impacts of the Build Alternative in order to understand how this project might affect the people living and working within the surrounding community. Socioeconomic indicators such as demographics, economic activity, neighborhoods, community character, public facilities and services, and local planning initiatives are described in this section.

The majority of the study area falls within the City of Chicago, with a small section of the southwestern portion extending into the City of Hometown. The study area for the various components of the socioeconomic analysis mirrors the 1,000 foot radius study area boundary identified in Section 3.1. However, for sections of the socioeconomic analysis which rely on U.S. Census Bureau demographic data, a ***demographic study area*** was defined using the census tract boundaries that most closely represent the study area boundary, as illustrated in Figure 3.2-1.[1]

A census tract is a geographic boundary defined by the U.S. Census for the purpose of data collection. Census tracts are small subdivisions of a county.

While a portion of the study area falls within census tract 8216, this area consists of St. Mary's Cemetery and does not contribute to the residential or employee population. As such, it was excluded from the demographic study area. The complete boundary of the City of Hometown is represented by census tract 8220.

3.2.1 Demographics

Demographic data for the demographic study area were examined using U.S. Census data from 1990, 2000, and 2010, as well as the American Community Survey (ACS) 2010 5-Year Estimate. Demographic data provided for the populations within the demographic study area census tracts include population growth, racial/ethnic composition, age, households, household income, household size, and poverty level. Housing characteristics include housing growth, housing units, occupancy rate, ownership rate, median housing value, and median monthly rent. Comparative data are provided for the City of Chicago, and Cook County.

3.2.1.1 Population

The total population within the demographic study area as identified by the U.S. Census 2010 was 138,838 people, as noted in Table 3.2-1. The demographic study area population represents approximately 2.7 percent of the total population of Cook County. Population has declined in the demographic study area over the last two decades. In comparison, the City of Chicago and Cook County experienced a population increase from 1990 to 2000 and in recent years experienced a population decline between 2000 and 2010. A combination of factors likely contributed to the population decline within the demographic study area such as loss of residents to the suburbs, the recent recession resulting in loss of jobs and increased foreclosure rates, and economic disinvestment in some neighborhoods.[2]

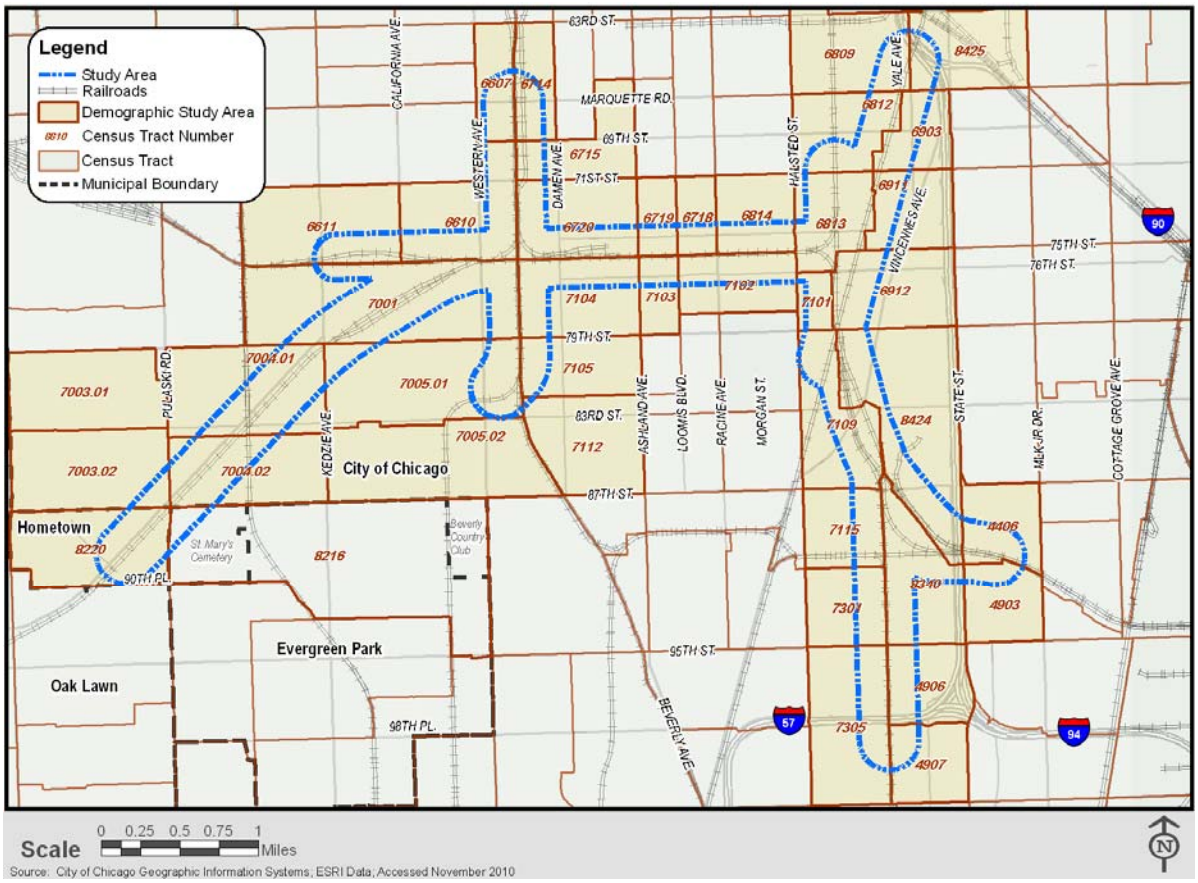


Figure 3.2-1: Demographic Study Area

Table 3.2-1: Population Trends

	U.S. Census 1990	U.S. Census 2000	U.S. Census 2010	% Change 1990 to 2000	% Change 2000 to 2010
Demographic Study Area	159,044	155,046	138,838	-2.5%	-10.5%
City of Chicago	2,783,726	2,896,016	2,695,598	+4.0%	-6.9%
Cook County	5,105,067	5,376,741	5,194,675	+5.3%	-3.4%

Source: U.S. Census 1990, 2000, 2010.

3.2.1.2 Racial and Ethnic Characteristics

Table 3.2-2 and Figure 3.2-2 compares the racial and ethnic characteristics for the 75th Street CIP demographic study area, the City of Chicago, and Cook County. The demographic study area exhibits a considerably greater African American population (80.9%) when compared with the City of Chicago (32.9%) and Cook County (24.8%). The demographic study area exhibited a lower Hispanic population (11.3%) when compared with the City of Chicago (28.9%) and Cook County (24.0%).

Table 3.2-2: Race/Ethnic Composition of Residential Population*

	Total Population	Caucasian %	African American %	Asian %	American Indian and Alaska Native %	Native Hawaiian and Other Pacific Islander alone %	Some Other Race %	Two or More Races %	Hispanic (of any race) %
Demographic Study Area	138,838	12.2%	80.9%	0.3%	0.3%	<0.1%	5.0%	1.4%	11.3%
City of Chicago	2,695,598	45.0%	32.9%	5.5%	0.5%	<0.1%	13.4%	2.7%	28.9%
Cook County	5,194,675	55.4%	24.8%	6.2%	0.4%	<0.1%	10.6%	2.5%	24.0%

*Source: U.S. Census 2010. *Race/Ethnic Composition as a percent of total population. Hispanic is considered to be an ethnic characteristic, rather than a racial characteristic, and can be of any race. Percentages may not add up to 100% due to rounding of figures.*

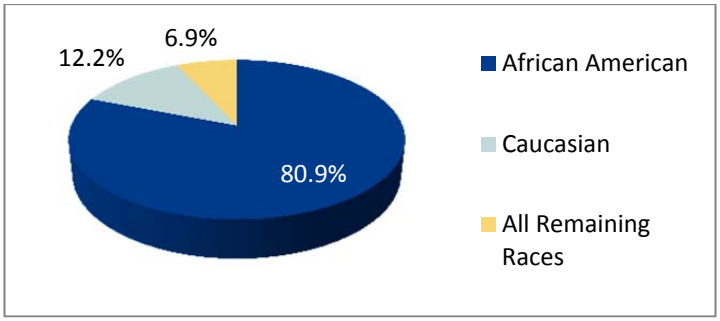


Figure 3.2-2: Demographic Study Area Race Composition

3.2.1.3 Age Characteristics

According to the U.S. Census 2010, the demographic study area generally exhibits a slightly greater percentage of the population under 20 years of age and over 65 years of age when compared with the City of Chicago and Cook County. The median age of the demographic study area of 34.5 is comparable to that of the City of Chicago and Cook County, as identified in Table 3.2-3.

Table 3.2-3: Age Distribution

	% of Population Under 20	% of Population 20 to 64	% of Population 65 and Over	Median Age
Demographic Study Area	31.1%	56.2%	12.7%	34.5
City of Chicago	25.9%	63.7%	10.3%	32.9
Cook County	26.5%	61.6%	11.9%	35.3

Source: U.S. Census 2010

3.2.1.4 Households and Income

Table 3.2-4 shows that there were approximately 46,605 households in the demographic study area, with an average household size of 3.0 persons. The average household income for the demographic

study area was $48,904, which is considerably lower than that of the City of Chicago at $68,646 or Cook County at $76,091 (refer to Figure 3.2-3).

Households: The U.S. Census Bureau defines a household as all the persons who occupy a housing unit. A **housing unit** is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied as separate living quarters. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements.

Table 3.2-4: Households and Income

	Households	Average Household Size
Demographic Study Area	46,605	3.0
City of Chicago	1,045,560	2.5
Cook County	1,966,356	2.6

Source: U.S. Census 2010.

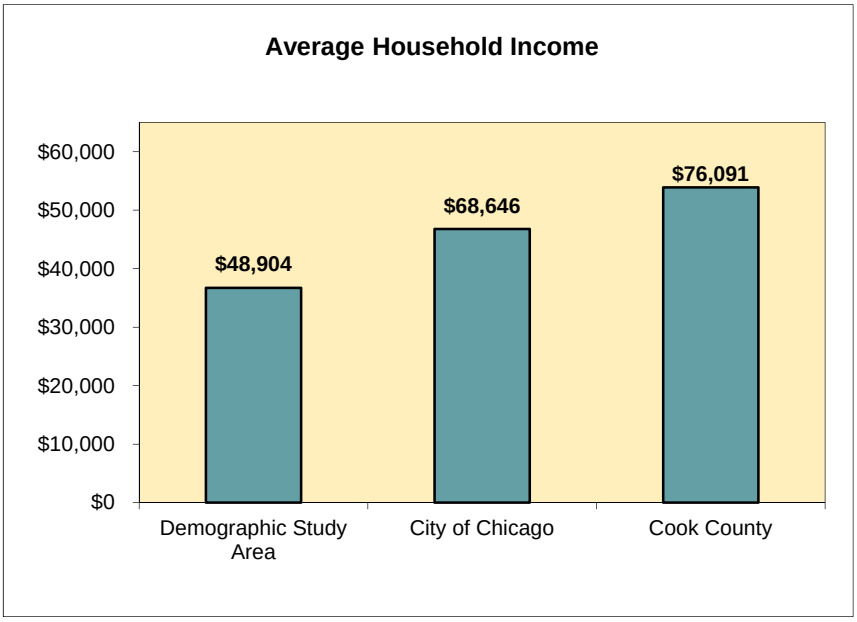


Figure 3.2-3: Mean Household Income (ACS 2010 5-Year Estimates)

3.2.1.5 Housing Characteristics

According to the US Census 2010 there were approximately 53,261 total housing units within the demographic study area, with an occupancy rate of 87.5 percent, as identified in Table 3.2-5. The occupancy rate for the demographic study area was comparable to the city and county levels. Approximately 59.4 percent of the occupied housing units were owner occupied, which is higher than the City of Chicago owner-occupied rate of 44.9 percent. The demographic study

The average median house value in the demographic study area is 40% lower than the median house value in the City of Chicago as a whole.

area's median house value of $160,473 was considerably lower than the City of Chicago and Cook County median household values of $269,200 and $265,800, respectively. Despite the lower house value, the median gross monthly rent for the demographic study area was consistent with the city and county rents.

Table 3.2-5: Housing Data

	Total Housing Units	Occupied Housing Units	Occupancy Rate	Owner Occupied	Median House Value (Owner Occupied) ACS	Median Gross Monthly Rent ACS
Demographic Study Area	53,261	46,605	87.5%	59.4%	$160,473,*	$865*
City of Chicago	1,194,337	1,045,560	87.5%	44.9%	$269,200	$885
Cook County	2,180,359	1,966,356	90.2%	58.2%	$265,800	$900

Source: U.S. Census 2010, ACS 2010 5-Year Estimates

**Value calculated by taking the average of the median value of census tracts within the demographic study area.*

The majority of housing in the study area is at least 50 years old. There has been some new development of single family homes in the early 2000s at the northeast and southeast ends of the study area. Despite the new development the demographic study area exhibited an overall decrease of housing units of 0.9 percent according to US Census data. The City of Chicago and Cook County exhibited a slight increase in housing units of 3.6 percent and 4.0 percent, respectively (see Table 3.2-6).

Table 3.2-6: Housing Growth

	Total Housing Units 2000	Total Housing Units 2010	Rate of Change 2000-2010
Demographic Study Area	53,754	53,261	-0.9%
City of Chicago	1,152,871	1,194,337	+3.6%
Cook County	2,096,121	2,180,359	+4.0%

Source: U.S. Census 2000, 2010.

3.2.1.6 Impacts to Demographic Characteristics

No-Build Alternative

Under the No-Build Alternative population and housing conditions would continue to change in accordance with the dynamics of existing economic and social forces in the region.

Build Alternative

The Build Alternative is not anticipated to result in substantial changes to population or housing. The acquisition of 15 occupied residential structures containing 26 occupied dwelling units would be required, displacing approximately 78 residents.[3] This represents less than 0.05 percent of the total

study area population that would be displaced. Due to the availability of housing within the study area, [4] it is likely that these residents could be relocated within the study area. The loss of 26 occupied dwelling units represents a loss of 0.05 percent in the study area's housing stock. Based on the supply of existing housing units and a review of available replacement properties, as referenced in Section 3.2.6.2, this loss of housing stock is not anticipated to have a major impact on availability or affordability of housing within the study area. Market data from residential multi-listing services indicated that a sufficient number of similar replacement residential properties in the same general areas and at similar values are available within the study area4.

The Build Alternative is anticipated to generate construction-related jobs. A discussion of construction employment is provided in Section 3.2.2.6.

3.2.2 Economics

The Chicago Metropolitan Area is the third most populous metropolitan area in the country and is a major hub for manufacturing and transportation. Key industries include manufacturing, printing, publishing, and food processing.[5] Chicago is the largest domestic rail gateway, and serves as a center of the nation's rail network and important intermodal center.[6] One fourth of the nation's rail shipments pass through Chicago and freight volumes are expected to increase 80 percent over the next 20 years. The entire CREATE Program designated corridors handle rail freight valued at approximately $350 billion annually. The effects of these trade flows are estimated to result in approximately 5 million jobs, $782 billion in output, and $217 billion in wages nationwide.[7] The railroads within the study corridor are important components of the region's passenger and freight railroad network. Six major railroads, including four freight and two passenger railroads, converge in the 75th Street corridor.

Prior to the recent economic downturn, the Chicago Metropolitan Area had sustained a period of strong economic expansion. Like many large metropolitan areas, however, local economic development is varied across the region with some older urban and suburban communities enduring pockets of disinvestment and decline. The study area is located within the southwest side of Chicago. Historically, the southwest side of Chicago has experienced relatively high unemployment and lower income levels compared with the broader region. The recent recession did little to change the situation as job losses were greater for lower income workers. Various economic development tools and programs are being implemented within the study area to stimulate economic activity and are discussed in more detail in Section 3.2.2.5. In addition, community groups and economic development agencies such as the Greater Auburn Gresham Development Corporation are working to promote economic investment and community revitalization within the study area.

Labor force **is the total number of people employed or seeking employment in a region.**

Per Capita Income **is the income earned per person in a population.**

3.2.2.1 Labor Force Characteristics

Table 3.2-7 and Figure 3.2-4 show that 17.0 percent of the civilian labor force in the demographic study area was unemployed, compared with 11.1 percent for the City of Chicago. The per capita income for the demographic study area at $17,250 is 36 percent lower than the per capita income for the City of Chicago. The recent economic recession (2007-2009) did nothing to reduce historical differences. Lower income workers tend to experience greater job loss and are more likely to withdraw from the labor force.

Table 3.2-7: Employment Characteristics of Residents

	Civilian Labor Force	Percent Unemployed	Per Capita Personal Income
Demographic Study Area			
1990	72,752	14.3%	$9,922
2000	62,318	14.6%	$14,110
2006-2010	65,041	17.0%	$17,250
City of Chicago			
1990	1,361,339	11.3%	$12,899
2000	1,357,461	10.1%	$20,175
2006-2010	1,409,571	11.1%	$27,148
Cook County			
1990	2,626,047	8.0%	$15,697
2000	2,618,774	7.5%	$23,227
2006-2010	2,706,670	9.9%	$29,335

Source: U.S. Census 1990, 2000, ACS 2010 5-Year Estimate.

Residents of the demographic study area have a higher unemployment rate and lower earnings than residents of the City as a whole.

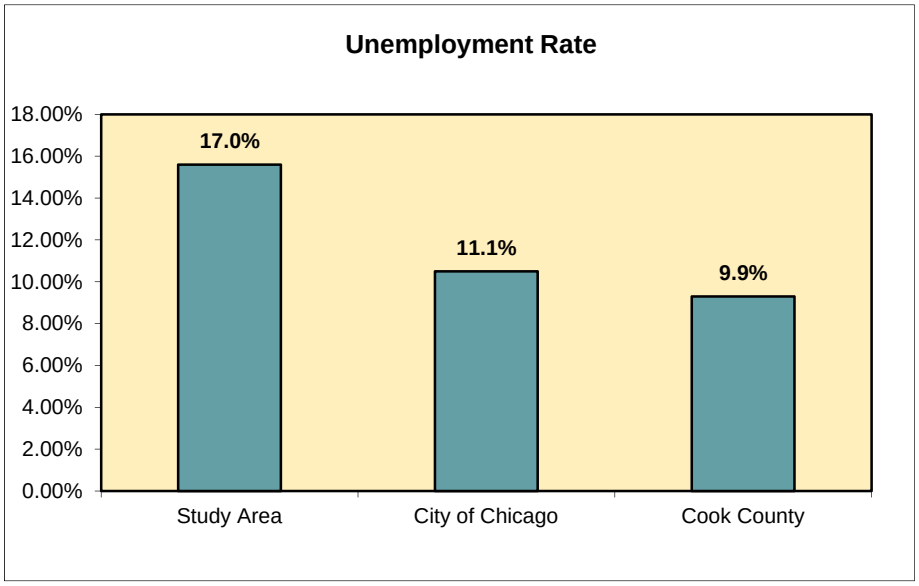


Figure 3.2-4: Unemployment Rate (ACS 2010 5-Year Estimate)

The leading occupation of residents within the demographic study area as identified in Table 3.2-8 was sales and office (e.g., retail sales, clerical and administrative support), followed by management, professional and related occupations (e.g. finance, architecture and engineering, community and social services), and service occupations (e.g., healthcare support, public safety service, food preparation, and personal care). The leading occupation of residents within the City of Chicago and Cook County was management and professional, followed by sales and office, and service occupations.

Table 3.2-8: Occupation of Residents

	Management, professional, and related occupations	Service occupations	Sales and office	Natural Resources, Construction, extraction, and maintenance	Production, transportation, and material moving
Demographic Study Area	26.2%	22.8%	28.2%	6.0%	16.8%
City of Chicago	36.3%	19.4%	24.2%	6.3%	13.8%
Cook County	36.8%	17.0%	25.7%	6.9%	13.6%

Source: U.S. Census Bureau, ACS 2010 5-Year Estimate.

3.2.2.2 Commuting to Work

Table 3.2-9 shows that 25.1 percent of the employed population in the study area use public transportation to get to work. This is slightly lower than for the City of Chicago as a whole but higher than the percentage for Cook County.

Table 3.2-9: Commuting to Work

	Automobile (drove alone)	Automobile (carpooled)	Public Transportation	Walked	Other	Worked from Home
Demographic Study Area	61.1%	9.6%	25.1%	1.1%	0.5%	2.6%
City of Chicago	50.9%	10.0%	26.6%	5.8%	2.6%	4.0%
Cook County	63.1%	9.5%	17.7%	4.0%	1.9%	3.7%

Source: U.S. Census Bureau, ACS 2010 5-Year Estimate.

3.2.2.3 Employment and Industry in the Study Area

Table 3.2-10 identifies the leading industries for the demographic study area; for a complete list of all industries refer to Appendix B: Socioeconomics and Environmental Justice. The greatest number of jobs was in the retail field, followed by health care and social assistance, and public administration. Manufacturing jobs declined by 40.5 percent from 2002 to 2010, while retail trade and health care and social assistance increased by 18.3 percent and almost 48.0

The demographic study area has a greater proportion of jobs in blue collar and lower-paying job sectors than the City of Chicago.

percent, respectively. The leading industries for the City of Chicago in 2008 were health care and social assistance; followed by professional, scientific, and technical services; and educational services.

Table 3.2-10: Leading Employment by Industry

Leading Industry	Employment Share		% Change
	2002	2010	2002-2010
Demographic Study Area			
1. Retail Trade	19.4%	19.3%	18.3%
2. Health Care and Social Assistance	14.0%	17.5%	47.9%
3. Public Administration	0.6%	15.2%	2,737.1%
City of Chicago			
1. Health Care and Social Assistance	11.9%	12.8%	9.1%
2. Professional, Scientific, and Technical Services	10.8%	10.9%	3.2%
3.Educational Services	7.4%	10.7%	46.4%

Source: US Census Bureau, LEHD OnTheMap Origin Destination Database (Beginning of Quarter Employment, 2nd Quarter 2002, 2010).

3.2.2.4 Business Establishments within Study Area

Many of the business establishments within the study area are located along the main arterial roadways and are in close proximity to the existing railroad rights-of-way. Business establishments range from light industrial and manufacturing facilities to big-box retail chains and fast food restaurants, as well as small retail shops, auto dealerships, and wholesalers. The majority of manufacturing and light industrial establishments are found along the railroad rights-of-way adjacent to Columbus Avenue as well as 74th Street. This section of the study area falls within the Greater Southwest Industrial Corridor, which is one of 24 industrial corridors established by City of Chicago as priority areas for business retention and development. Manufacturing, with an 11.7 percent employment share, is still one of the leading employment sectors in the study area; however, as noted above, the number of manufacturing jobs has declined over the last decade.

The largest employers within the demographic study area are St. Bernard Hospital with an estimated 750 employees, followed by Presidential Pavilion with 301 employees, and Jewel-Osco with 300 employees, as noted in Table 3.2-11.

Table 3.2-11: Largest Employers in the Demographic Study Area

Company	Location	Type of Business	Number of Employees
St. Bernard Hospital & Health	326 W 64th St	Hospitals	750
Presidential Pavilion	8001 S Western Ave	Nursing & Convalescent Homes	301
Jewel-Osco	87 W 87th St	Grocers-Retail	300
Assemblers Inc	2850 W Columbus Ave	Packaging Machinery-Manufacturers	200
Simeon Career Academy	8147 S Vincennes Ave	Schools	170

Company	Location	Type of Business	Number of Employees
Sunrise Transportation Inc	8500 S Vincennes Ave	Bus Lines	170
Lowe's Home Improvement	8411 S Holland Rd	Home Centers	150
Alden Princeton	255 W 69th St	Nursing & Convalescent Homes	137
Paul Robeson High School	6835 S Normal Blvd	Schools	130
Lsa United Inc	2310 W 78th St	Metal Stamping (Mfrs)	125

Source: Info USA

3.2.2.5 Economic Development Planning

The City of Chicago's Department of Housing and Economic Development (HED) oversees the city's economic development initiatives including financial assistance programs, business development, and community improvement. In addition, HED also directs the city's zoning, land use planning, sustainability and historic preservation initiatives. The City of Chicago utilizes various tools and programs to stimulate economic activity and community revitalization within the study area such as tax increment financing, enterprise zones, designated industrial corridors, special service areas, and zoning initiatives. For a detailed list of economic development programs refer to Appendix B: Socioeconomics and Environmental Justice.

Local community organizations play an important role within the study area to promote economic investment and community revitalization. These organizations work in cooperation with local and city government as well as other organizations to promote various initiatives such as job growth and retention, home ownership, and community marketing. The following is a list of local community organizations working within the study area:

- *Greater Auburn Gresham Development Corporation (GAGDC)* – The GAGDC works to promote revitalization of low to moderate income neighborhoods of Auburn Gresham, Englewood, Greater Grand Crossing, and West Chatham by implementing programs that focus on improving community economic vitality, increasing affordable housing options, enhancing delivery of social services, and providing informative and educational services.[8]
- *Greater Southwest Development Corporation (GSDC)* – The GSDC is a community development corporation that promotes residential, commercial, and industrial revitalization in Southwest Chicago. The GSDC works with investors, local organizations, and government entities to implement a variety of programs and services that promote local business investment and viability, improve housing opportunities and home ownership and increase economic opportunities for community residents. The GSDC also provides senior housing rental opportunities at two locations in the Chicago Lawn area.
- *St. Sabina Employment Resource Center (ERC)* – The St. Sabina ERC is a full service employment center operated by the Faith Community of St. Sabina. The center offers employment-related services to residents of Englewood, Auburn Gresham, and other south side communities. Services include job training, assessment and screening, and job matching.

Additional community organizations that promote economic development within the study area include the 17th Ward Community Redevelopment Advisory Council, the 17th Ward Economic Development Council, the Chatham Business Association, as well as numerous local block groups.

3.2.2.6 Impacts to Economic Characteristics

No-Build Alternative

The Chicago region is the busiest rail freight gateway in the United States and is a major hub for passenger rail service. Freight volumes and passenger rail volumes are anticipated to rise over the next 20 years. Under the No-Build Alternative, freight delays would continue to increase in the study area and the wider Chicago rail network. This would severely constrain shipper's ability to move goods through the area, forcing a shift away from rail use to trucks as well as a shift to other cities. If the CREATE Program system-wide rail capacity issues are not addressed, the loss in economic production nationwide is estimated between $1 billion to $7 billion annually from 2018 and 2040.[9] Under the No-Build Alternative, the regional and local economic benefits from construction spending would not occur.

Build Alternative

Regional Economic Benefits - The Build Alternative would improve freight rail access to businesses, multi-modal yards, and switching yards, thus improving the flow of freight into and through the Chicago area. As Chicago is a major hub for freight and passenger rail service, improvements as a result of the CREATE Program are estimated to have substantial, long-term national and regional economic benefits. As previously mentioned, the benefits of freight trade flows through the entire CREATE Program-designated corridors are estimated to result in approximately 5 million jobs, $782 billion in output, and $217 billion in annual wages nationwide. The CREATE Program would improve freight movement through the Chicago corridor resulting in potential benefits such as reduced transportation costs for shippers, which could reduce costs for businesses and consumers. Implementation of the CREATE Program would result in regional economic benefits estimated at approximately $3.9 billion over a 40-year period related to reduced travel times for rail passengers, reduced motorist delays, improved rail and highway safety, air quality improvements, and construction related-benefits.[10]

Construction Spending Impacts - The Build Alternative would have a beneficial economic effect on employment and income in the region during construction. The Build Alternative would generate temporary direct construction jobs. Direct construction jobs refer to jobs where the employees are directly working on the construction project. In addition to direct construction jobs, additional indirect and induced jobs would be created by firms that produce materials, equipment, and services needed for the construction project. The wages that these new workers receive are then funneled back into the economy when workers purchase goods and services, such as groceries, clothes, and housing, resulting in additional job creation.

Local Business and Employment Impacts - The Build Alternative would not require displacement or relocation of any businesses. Manufacturers and distribution firms within the 75th Street Corridor that rely on freight service could potentially benefit from improved mobility of goods. Benefits may include reduced transportation costs and improved market access.

Tax Base Impacts - The Build Alternative would require the full acquisition of 42 parcels and the partial acquisition of one parcel for new right-of-way. This acquisition would remove private property from the local tax base. Table 3.2-12 summarizes the assessed value of the properties to be acquired and shows the expected annual tax revenue lost by removing properties from the local tax base.[11] The Build Alternative would result in a tax loss of approximately $86,621 from the local tax base. This represents less than 0.01 percent of total tax levied in the affected jurisdictions. The Build Alternative would have a negligible impact on the local tax base within the study area.

Table 3.2-12: Tax Revenue Impacts (2011)

	Number of Parcels Acquired[i]	Total Assessed Value (2011)[ii]	Total Equalized Value (2011)[iii]	Total Tax Loss (% of Total Property Tax Levied)[iv]
Build Alternative	42	$497,600	$11,478,171	$86,621 (< 0.01%)

[i] *The entire parcel would be acquired*
[ii] *Value of property which serves as the basis of the tax bill. Does not include tax-exempt properties.*
[iii] *The assessed value of property is not comparable to, and is generally less than, its full market value. In order to ensure an equal assessment among all 102 counties in Illinois, an equalization rate is applied. The equalization rate for Cook County for the 2011 tax year was 2.9706.*
[iv] *The acquired properties fall within the jurisdictions of 10 taxing authorities with a combined 2011 tax levy of $4,753,807,080.*

3.2.3 Neighborhoods

3.2.3.1 General Development Patterns

The project study area, located in Cook County, Illinois, is primarily situated in the southwest quadrant of the City of Chicago with the project's western limit extending into the municipality of Hometown. Land uses surrounding the rail corridor are characterized as residential with a mixture of commercial, institutional, light industrial and service facilities, transportation, and open space. Notable rail transportation facilities within the study area include Rockwell Yard, Landers Yard, and the Ashburn and Wrightwood Metra commuter rail stations.

The majority of housing in the study area is at least 50 years old, with development beginning in the late 1800s along the length of the Rock Island Railroad and near what is now the CTA Green Line. Development gradually moved south and west, filling in the central portion of the 75th Street corridor through the 1920s. Development continued in the southern and western ends of the study area through the post-World War II housing boom in the 1950s and 1960s.

3.2.3.2 Community Areas

The City of Chicago is sub-divided into 77 community areas. These pre-defined geographic areas, developed by the University of Chicago and the Census Bureau in the 1920s, have static boundaries. The study area traverses approximately nine community areas as illustrated in Figure 3.2-5. These areas include: Ashburn, Chicago Lawn, West Englewood, Englewood, Greater Grand Crossing, Auburn Gresham, Chatham, Washington Heights, and Roseland.

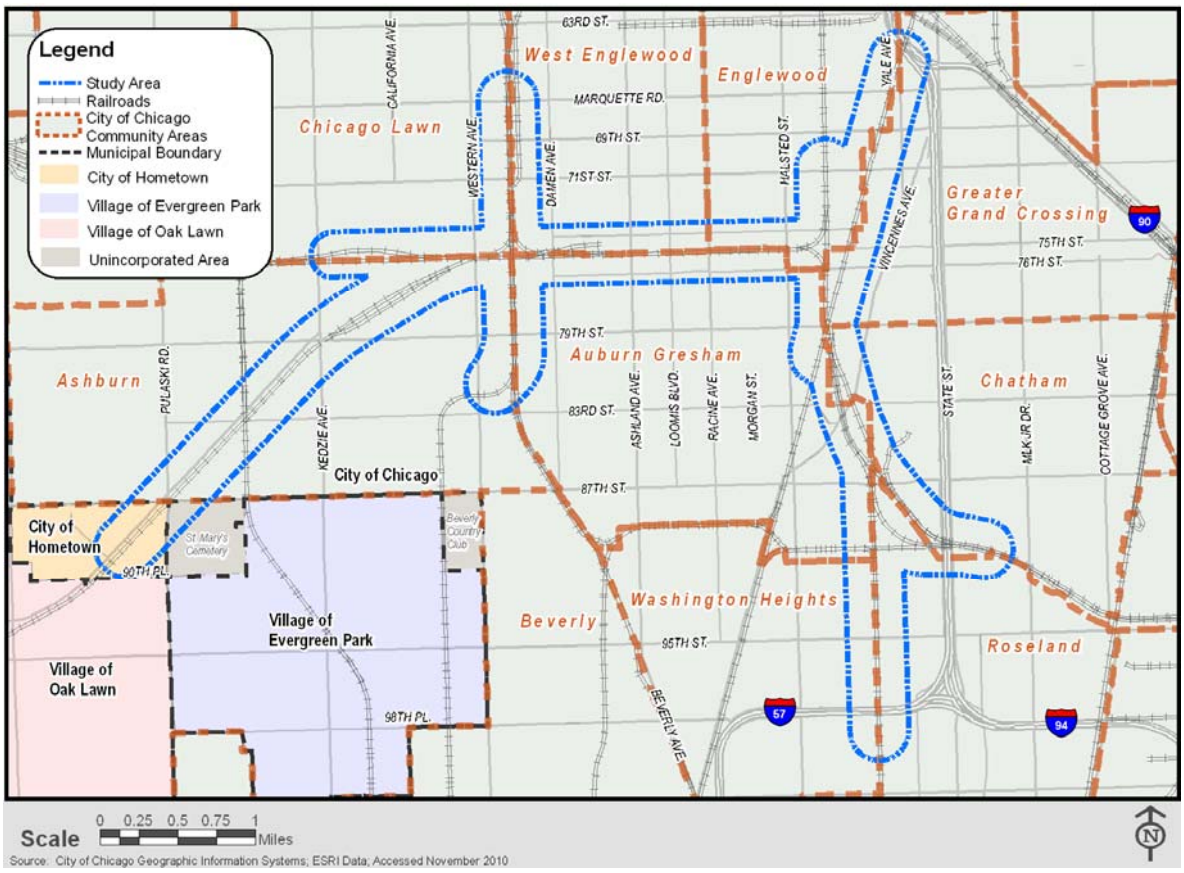


Figure 3.2-5: Community Areas

The railroad alignments that comprise the backbone of the study area generally function as the boundaries of these community areas. The established neighborhoods within the project limits have a long history of development associated with the railroads. Residential uses in these areas once housed workers who may have been employed in the industrial areas adjacent to the rail alignments. Refer to Appendix B: Socioeconomics and Environmental Justice for descriptions of the City of Hometown, as well as Chicago community areas located within the project study area.

3.2.3.3 Community Culture

A Community Context Audit, completed in the summer of 2011, was conducted in order to help identify study area characteristics, understand the relationship between the community and the railroads, and to identify project needs and improvements based on community goals and local plans.

Two Community Advisory Groups (CAGs), one west of Damen Avenue and one east of Damen Avenue, were formed to help learn about the neighborhoods in the study area and to gauge the opinions of neighborhood leaders and area residents about the project (see Section 4.1 Public Involvement). In addition to study area residents and business owners, the current membership also includes a number of community groups including representatives from block clubs, churches, schools, housing organizations, community development corporations, community resource centers, advocacy groups, police, fire department and the Chicago Park District.

Residents in the West CAG noted that affordable housing, demographic diversity, transportation access provided by two Metra stations, and diversity were draws to their community. Other positive assets mentioned by residents included a large number of civil servants living within the community and close relationships with the police. Stakeholders in the West CAG described their area as "beautiful," "wonderful," "stable," "committed," and "capable." Residents in the East CAG value neighborhood resources including SOS Children's Village and Auburn Park with its series of lagoons and historic bridges. Adjectives used by residents to describe the East CAG ranged from "empowered," "historic," and "promising" to "proud," "confident," and "revitalizing." Many residents perceived the neighborhood as settled and solid while others thought it was dynamic and changing. Members of both CAGs disliked train horns and train idling, vehicle delay at grade crossings and the general condition of the railroad viaducts. To date, five CAG meetings have been held. IDOT has also held three public meetings to engage the general public in the study process.

3.2.3.4 Impacts to Neighborhoods

No-Build Alternative

Under the No-Build Alternative, community conditions within the study area would not be immediately different from those identified as existing conditions. However, under the No-Build Alternative, freight rail traffic through the study area is expected to continue to grow until approximately 2024, when the existing rail system is anticipated to reach capacity (see Section 3.3.1.2 for a discussion of projected rail traffic). This increase in rail traffic in the coming years would have a negative effect within the study area. Increased rail delays, train idling, and vehicular traffic congestion would be anticipated to result in reduced accessibility within the community, reduced safety, and increased air pollution.

Build Alternative

This section examines the potential for community cohesion impacts associated with the Build Alternative. Typically, adverse impacts on community cohesion can include: dividing existing neighborhoods, isolating a portion of a neighborhood, separating residents from community facilities or public safety services, disrupting community bonds, or reducing a neighborhood's attractiveness.

The existing railroad alignments that extend through the study area commonly function as a neighborhood boundary between the community areas identified in Figure 3.2-5. These neighborhoods are well-established and their development and settlement patterns have been

influenced by the railroad. The majority of project improvements associated with the Build Alternative would be largely confined to existing railroad rights-of-way which extend through a fully developed study area. As a result, the proposed project would not create new physical barriers that would restrict the movement of people, goods, and services within and between communities, except at Union Avenue and 75th Street, where the existing viaduct would be permanently closed (see Section 3.3.2.2). The acquisition of two occupied parcels with a total of four dwelling units in the vicinity of the Union Avenue viaduct would also be required in order to accommodate a railroad-required access road as well as barriers. In addition, the implementation of the Build Alternative would not displace any local businesses or public safety providers. While the frequency of trains under the Build Alternative would increase throughout the day, the communities in the study area are well-established as are the rail facilities within these communities. Changes in community cohesion and the ability to move around the community are anticipated to be relatively minor throughout the majority of the study area. However, some improvements would require property acquisition, road closure, and result in visual changes to adjacent neighborhoods.

The proposed flyover for the Metra RID Connection would extend through the neighborhood located south of Hamilton Park. This neighborhood is generally bounded by 74th Street and Hamilton Park to the north, the Metra RID Line to the east, 76th Street to the south, and the NS Chicago and Western Indiana (CWI) railroad embankment to the west. The construction of the flyover would require the acquisition of 23 parcels consisting of a mix of occupied and unoccupied residential properties, one institutional facility (i.e., church), and vacant land. However, sufficient similar replacement housing and land currently exists within 0.5 miles of this area to accommodate the relocation of residents and the church, if they desire to remain in the area (see Section 3.2.6, Relocation and Right-of-Way Acquisition). Of the properties proposed for acquisition, three are parcels of property that would otherwise remain in close proximity to the rail line, but not in its direct path. The local Alderman expressed a desire to avoid isolating just one or two structures between an existing street and the proposed rail structure. This concern was augmented by similar comments from the community advisory groups and at public meetings. Residents were generally more concerned about the prospect of being left immediately adjacent to the proposed structure with the associated noise, vibration, and visual impacts than being forced to relocate.

Construction of the flyover for the Metra RID Connection would also introduce an elevated rail structure through the residential neighborhood. Unlike the existing embankments, which limit access and completely block views from one side of the embankment to the other, the elevated flyover would be constructed entirely on structure above street level (refer to Figure 3.2-6). The elevated height of the structure permits views to surrounding areas and also permits unimpeded access within the neighborhood. The elevation of the structure would allow pedestrians, motorists, and emergency vehicles to pass freely through this area.

In addition to the proposed flyover for the Metra RID Connection, several other project elements would affect the visual landscape of the study area. The Build Alternative would construct new rail

infrastructure within portions of the study area, including a new flyover at Forest Hill Junction, new tracks, railroad bridges, and retaining walls. These improvements would alter the view in parts of the study area including a portion of Hamilton Park, homes near the new flyovers, residences along the south half of the 75th Street Corridor, and residences near the east side of existing CSX railroad tracts. Other than the new Metra RID Connection flyover, the most substantial visual change would occur as a result of the new flyover structure in the vicinity of Forest Hill Junction.

Figure 3.2-6: Metra Rock Island District Connection Partial Rendering

A detailed discussion of the changes to the visual landscape of neighborhoods within the study area is provided in Section 3.14, *Visual Resources*. Trains traveling along the flyover would also be closer to adjacent residences, thereby increasing intermittent noise levels at these properties. A detailed discussion of noise impacts is provided in Section 3.7.1, *Noise.*

The proposed grade separation at Forest Hill Junction and 71st Street would be constructed in existing right-of-way owned by CSX and the City of Chicago. Since the new rail structure would be elevated over the street, it would be visible from properties north and south of the Forest Hill Junction that are near the right-of-way. The proposed grade separation would have a beneficial impact on the community by reducing motorist delay and eliminating existing vehicular-rail conflicts by raising the railroad over the street. Train horn noise and idling would be lessened while pedestrian and motorist safety and response times for life safety services would be improved. The proposed grade separation would generally not create a physical barrier that would reduce access to or infringe upon the surrounding community, although it would block the informal pedestrian trails that currently cross the railroad rights-of-way at 72nd and 73rd Streets. Since these unauthorized

pedestrian crossings of railroad property would be closed, pedestrians would be rerouted north to a safer route at 71st Street.

The Build Alternative would also include the closure of the Union Avenue viaduct and construction of cul-de-sacs on both sides of the rail corridor at 75th Street. The underpass would be filled in with embankment, so the closure of Union Avenue would make pedestrian access to Leland Giants Park somewhat more difficult for residents of the residential blocks immediately north of the 75th Street rail corridor. Once the viaduct is closed, in order to get to Leland Giants Park, it would be necessary for residents of that area to detour to Halsted Street, one full block (660 feet) to the west. From Halsted Street traffic would continue south before heading east on 76th Street to reach Leland Giants Park. This detour from north of the Union Avenue viaduct (in the vicinity of 7400 S. Union Avenue) to Leland Giants Park is approximately one-half mile in length.

As a result, residents north of the viaduct may be more inclined to use nearby alternatives such as Hamilton Park (1,100 feet away) and Lily Gardens Park (1,500 feet away) which offer similar or better amenities to those of Leland Giants Park (see Figure 3.3-10). Leland Giants Park contains outdoor basketball courts and playground equipment. By comparison, Hamilton Park is a 30-acre recreational resource offering outdoor basketball courts, athletic fields, two gymnasiums, a playground, tennis courts, a multi-purpose space, as well as after school and seasonal programming. Similarly, Lily Gardens Park offers a playground that was recently renovated under the Chicago Plays playground program, a five-year playground renovation project designed to upgrade aging playgrounds throughout the city.[12]

Extensive efforts have been made by the study team to both inform and engage the community in order to solicit their feedback on project issues and design alternatives including the Union Avenue viaduct closure. Particular interest was given to the two design options for Union Avenue at the 75th Street Corridor at the Range of Alternatives public meeting held in October 2011. Several tools were used to promote the meeting. Over 3,700 postcards advertising the meeting were mailed or distributed to stakeholders. Twenty-four posters were displayed in the 12 Metra SWS stations, advertising was placed in three weekly newspapers and one daily, email notices were sent three times to those who requested project information via email, and the meeting was publicized on the project website. Metra's newsletter for customers, *On the Bi-Level*, ran a mention of the meeting in its October issue, which Metra distributed on all trains and posted on its website. The study team also hired a local firm to hang invitations to the public meeting on doorknobs in areas where there is the most potential for impacts due to the project, and an email blast was sent to 77 people who had signed up to receive information electronically about the project.

Of the 232 residents who attended the public meeting in October 2011, 13 commented on the Union Avenue design options. The majority of those who commented on the Union Avenue design options supported the closure of the viaduct. Other stakeholders including local elected officials also supported the closure of the Union Avenue viaduct. There were no comments about effects on access to these parks during any of the public involvement activities. Additionally, local mobility

improvements at 36 viaduct locations are proposed as part of the Build Alternative in order to address the project's Purpose and Need and community concerns related to safety and physical condition. These conditions identified by the community range from poor lighting and drainage deficiencies to the neglected condition of local street surfaces and overall condition of the existing infrastructure. The local mobility improvements would be functional improvements that would help to alleviate a number of these issues which limit mobility for residents within the community.

3.2.4 Community Services and Facilities

Community facilities and services consist of public and privately-funded services such as schools, worship centers, cemeteries, hospitals, and health care facilities, as well as emergency services including fire and police protection. These important resources promote the health, safety, and general welfare of the communities within which they are located. The study area extends through portions of several wards or legislative districts including Wards 6, 9, 15, 17, 18, 20 and 21 (see Figure 3.2-7: Political Jurisdictions).

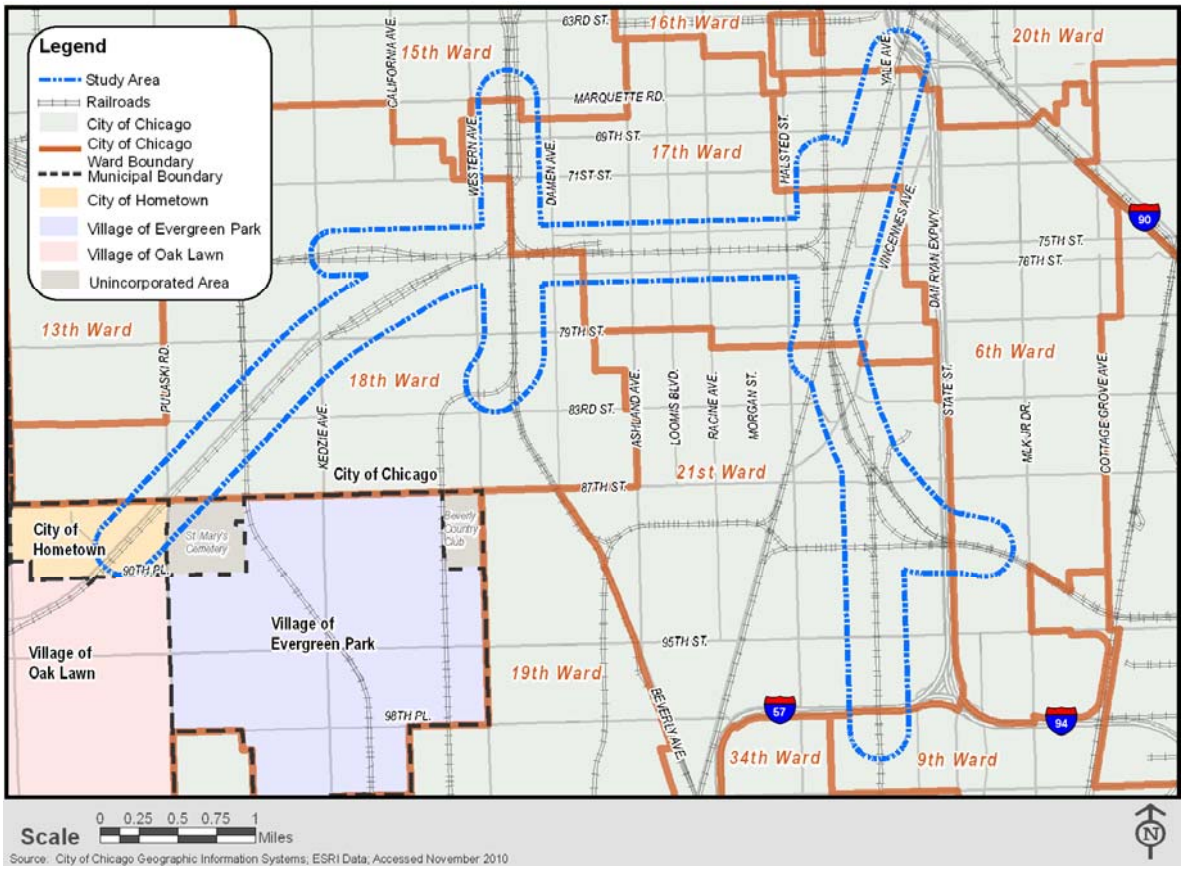


Figure 3.2-7: Political Jurisdictions

An inventory of community and public facilities within the study area is provided below. There are a total of 98 community institutions consisting of a combination of neighborhood and regional facilities within or immediately adjacent to the study area (i.e., within a 1,000-foot radius from the

rail alignments) that were examined for this analysis. Additionally, fire and police stations as well as hospitals located beyond the project study limits were included in this assessment as their respective service areas include portions of the study area. Figure 3.2-8, Community Facilities and Services, illustrates the location of these facilities.

3.2.4.1 Schools

Chicago Public Schools (CPS), officially designated as City of Chicago School District 299, is the third-largest school district in the country. Based on CPS Fiscal Year 2012-2013 data, the district included 681 schools with a total system-wide enrollment of over 404,000 students.[13] There are a total of 20 educational facilities within the study area. Of these, 19 educational facilities are located within the City of Chicago and consist of 14 public schools and 5 private institutions. Public institutions are comprised of 1 pre-school, 10 elementary schools, and 3 high schools, one of which is designated for a special education student population. Additionally, the Hometown School, a Kindergarten through 5th grade elementary school, is located in the City of Hometown at the southwest limit of the project corridor.[14] This school falls within the Oak Lawn-Hometown School District 123, a district which is includes a total of six schools in the municipalities of Hometown and Oak Lawn.[15]

There are a total of five private schools located within the study area, including two private elementary schools, two private high schools, and one lower school (Kindergarten through 1st grade). Schools within or immediately adjacent to the study area are shown in Figure 3.2-8. A complete inventory of schools is provided in Appendix B: Socioeconomics and Environmental Justice.

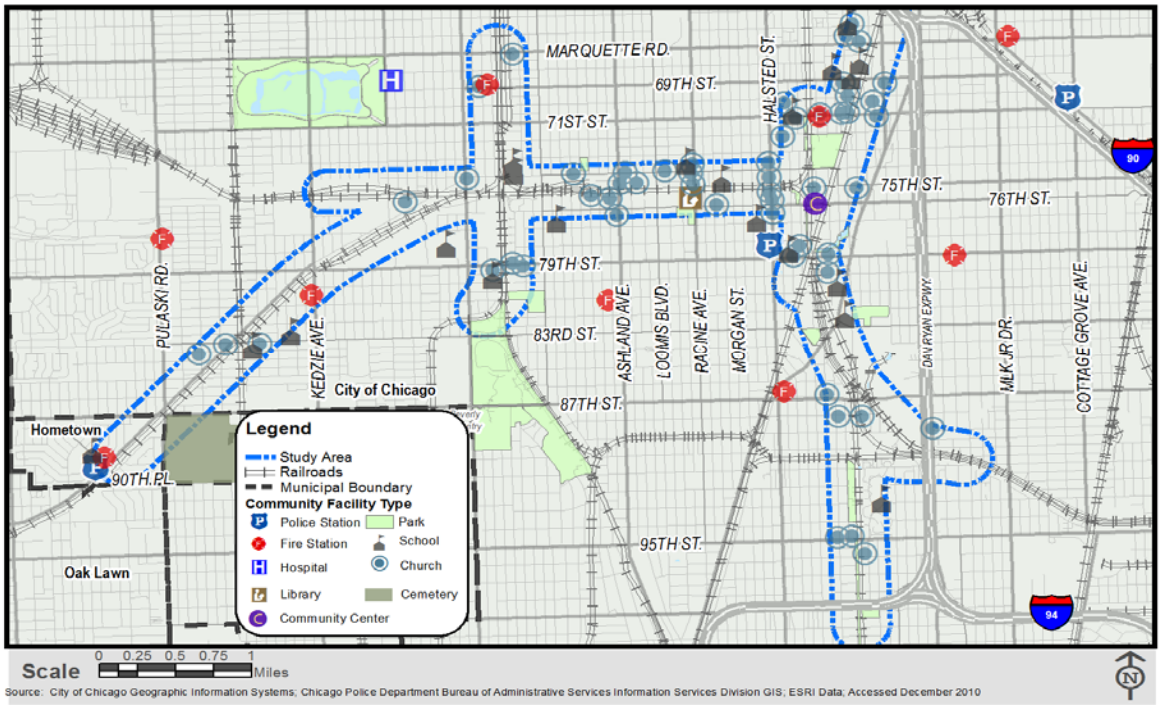


Figure 3.2-8: Community Facilities and Services

3.2.4.2 Community Centers

The Lavezzorio Community Center, located at 7600 S. Parnell Avenue, is operated by SOS Children's Villages, a non-profit organization that focuses on family-based, long-term care of abandoned or orphaned children (refer to Figure 3.2-8 and Figure 3.2-9).[16] The facility serves the SOS Children's Chicago Village, a nearby cluster of 16 residential homes constructed in 2004, as well as the surrounding community. This approximately 16,800 square foot community facility contains family counseling offices, after-school programming space, recreational space, daycare, a multi-use community room, and administrative offices. The community center provides family support services, job skills, and counseling to Chicago Village children, parents, and neighbors.[17]

Figure 3.2-9: Lavezzorio Community Center, view from South Parnell Avenue

The Faith Community of St. Sabina, at W. 78th Place and S. Racine Avenue, operates a number of community social services organizations. These include St. Sabina Catholic Charities Social Services, a community-based social services center; The ARK of St. Sabina community youth center; and Safe Homes, a program designed to keep siblings who are already in the foster care system together. Saint Sabina's also operates an 80-unit senior housing facility called the Elders Village.[18]

3.2.4.3 Libraries

The Thurgood Marshall Library, a branch of the Chicago Public Library system, is located near the intersection of 75th Street and S. Racine Avenue. The library is situated within the study area, adjacent to the east-west rail right-of-way. The facility features a reading garden, permanent artwork exhibits, and offers various programs for adults and children.[19] The second library in the study area is the Hometown Ladwig Library at 4331 Southwest Highway which provides library services to the residents of Hometown.

3.2.4.4 Worship Centers

There are approximately 54 religious institutions located within the study area. The majority of these facilities are located in the eastern portion of the study area, with concentrations in the vicinity of 75th Street and north of Hamilton Park (see Figure 3.2-8: Community Facilities and Services). Worship centers that fall within the study area are identified in Appendix B: Socioeconomics and Environmental Justice.

3.2.4.5 Cemeteries

A portion of St. Mary's Cemetery is situated in the southwestern extent of the study area. This facility is located in Evergreen Park, just south of 87th Street and Chicago's city limit (see Figure 3.2-8: Community Facilities and Services).

3.2.4.6 Parks and Open Space

There are a total of 16 public parks located within the study area. Of these, 14 are public parks under the jurisdiction of the Chicago Park District and Dan Ryan Woods is under the jurisdiction of the Cook County Forest Preserve District. All but three park properties are next to the rail right-of-way or a public street bordering the rail right-of-way. Additionally, Marquette Park was included in the open space inventory as it is the largest park on the southwest side of Chicago and functions as a neighborhood destination for residents of the study area even though it is located outside the study area proper. This notable resource is over 300 acres in size and is located just beyond the northwestern extent of the project limits. Patterson Park, located at S. Main Street and S. Pulaski Road in the City of Hometown, is also located in the study area and contains two baseball fields. More details on parks in the study area are included in Section 3.13, Special Lands, and a complete inventory of existing parkland and recreational resources situated within the study area is provided in Appendix B, Socioeconomics and Environmental Justice.

3.2.4.7 Hospitals

There are no hospitals located within the study area. The closest major hospitals are St. Bernard Hospital, with a capacity of 194 beds, located at 326 W. 64th Street and Holy Cross Hospital, a 331-bed facility, at 2701 W. 68th Street. Advocate Christ Medical Center is a 695-bed facility and Level I trauma center at 4440 W. 95th Street in Oak Lawn.[20] This medical campus also houses Advocate Hope Children's Hospital, a pediatric hospital that can accommodate up to 106 patients. The medical center is approximately 0.33 miles from the rail right-of-way.

3.2.4.8 Emergency Services

The Chicago Fire Department (CFD) provides fire protection and emergency medical services within the study area and throughout the City of Chicago. Engine 15, Truck 59, and Ambulance 18 of Battalion 20 at 8028 S. Kedzie Avenue and Engine 101, Truck 41, and Ambulance 58 at 2250 W. 69th Street are located in the study area. Engine 54, Truck 20, and Ambulance 14 of Battalion 18 at 7101 S. Parnell Avenue is also located within the project limits. These units would be the first to respond to a fire or emergency in the vicinity of the study area.

Additional fire units beyond the project limits include Engine 47, Truck 30 on E. Marquette Road, Engine 64, Truck 31 on S. Pulaski Road and Engine 73 at 8630 S. Emerald Avenue. Basic life support is provided by Ambulance 55 and Ambulance 27, respectively. While these units are located beyond the study area, their respective service areas are proximate to or may extend into portions of the study area.[21]

The Chicago Police Department (CPD) provides police protection within the City of Chicago. The city is divided into five Division Areas. The study area is situated in Area 1 and Area 2 which covers the south and southwest sides of Chicago. The study area falls within the jurisdiction of several police districts including District 8, located at 3420 W. 63rd Street in Chicago Lawn and District 7 at 1438 W. 63rd Street in Englewood. District 6 is located in Auburn Gresham at 7808 S.

Halsted Street. District 3 at 7040 S. Cottage Grove Avenue provides police coverage just east of the project limits.[22]

The Hometown Fire Protection District, headquartered at 4301 Southwest Highway, provides primary fire protection and emergency medical services to the City of Hometown. This volunteer fire department is staffed with approximately 40 firefighters. Hometown's Police Department is based at 4331 Southwest Highway and provides police protection for the municipality.[23,24]

3.2.4.9 Impacts to Community Services and Facilities

No-Build Alternative

The No-Build Alternative would have no direct effect on community services and facilities within the study area. Under the No-Build Alternative, the community facilities within the study area would remain similar to those described for existing conditions. Development would continue to reflect similar patterns, and changes in community facilities would be minor and small in scale.

Build Alternative

The Build Alternative would not result in direct adverse impacts to community facilities and services within the majority of the study area. However, the Build Alternative would displace one community facility, the I Care Christian Center Ministries church, located at 7500 S. Parnell Avenue. This church property would be acquired to allow the proposed flyover connection to the RID Line (see Section 3.6, Relocation and Right-of-Way Acquisition). At the public meeting held in October 2011, the pastor and approximately 26 congregants commented that they preferred Alternate RI-1, which would acquire the church. The church membership indicated that they would rather relocate the church than to remain in their current location and be left immediately adjacent to the flyover structures of Alternates RI-2 or RI-3. See Section 2.2.4.3 for further details on the recommendation of Alternate RI-1.

The Build Alternative would not introduce a new residential population to the project study area and therefore would not be expected to overburden existing community facilities and services in the vicinity of the study area. In addition, since the 75th Street CIP is a rail improvement project that is non-residential in nature, the Build Alternative would not introduce school-age residents to the study area that would overburden schools in the study area. As a result, no population-related impacts to schools are anticipated as a result of the project. The Build Alternative would not displace medical, police, fire or EMS facilities within the study area. Emergency response issues at the existing 71st Street grade crossing were identified for Engine 101, Truck 41, and Ambulance 58 in the CCA. The proposed grade separation at 71st Street would eliminate road-rail conflicts and improve response times for emergency vehicles traveling in this area.

The proposed closing of the Union Avenue viaduct would have little effect on response times as there are several through streets nearby including S. Halsted Street, S. Peoria Street and S. Morgan Street that would provide adequate north-south access for emergency vehicles to cross the railroad right-of-way. The closure of Union Avenue would reduce pedestrian access to Leland Giants Park

from the north as discussed in Section 3.2.3.4. No major changes other than those noted above would occur under the Build Alternative that would substantially change community facilities in the study area.

3.2.5 Land Use and Local Planning

This section identifies existing land use and zoning in the project study area and presents the goals, objectives, and policies of municipal, county, and regional planning entities. In addition, known redevelopment activities proposed within the study area are summarized.

3.2.5.1 Existing Land Use

Land use refers to the activity that is occurring on land and within the structures that occupy that land. Land use also pertains to regional land use planning and subsequent regional development. The rail alignments that extend throughout the study area predate many of the communities described above, as well as the majority of development found adjacent to the rail lines. Land uses within the study area are mostly residential (approximately 54 percent). Transportation and utilities account for almost 15 percent of land use within the study area with commercial and industrial/manufacturing use making up almost 7 percent, respectively (refer to Figure 3.2-10 and Figure 3.2-16).

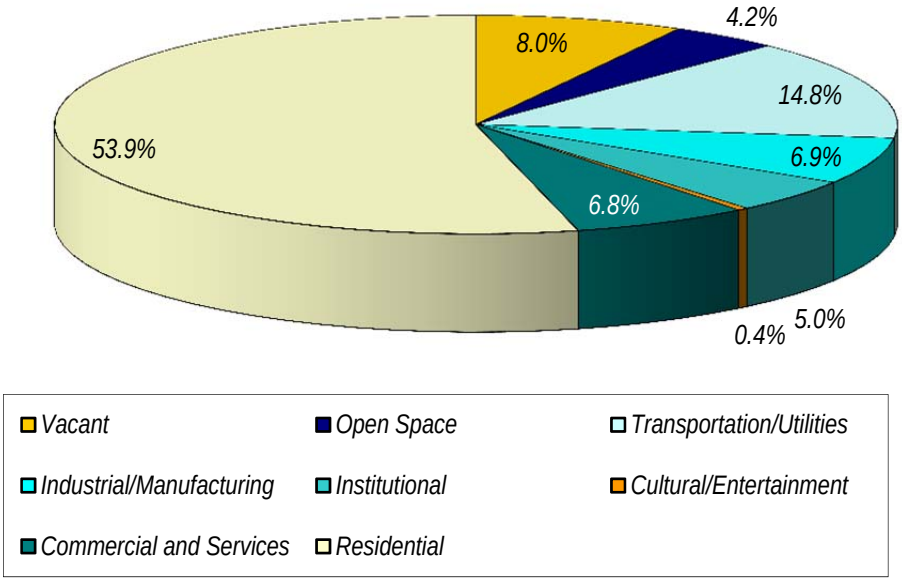


Figure 3.2-10: Types of Land Use within Study Area

Figure 3.2-11: Chicago Bungalows located within the Study Area

Notable residential structures within the project area include single-family detached homes built in the bungalow style. Chicago Bungalows were primarily built between 1910 and 1940. They are typically one and a half stories in height, and feature brick construction and detailed windows and stone work. Smaller one story bungalows were also common in the 1940s and 1950s, and typically have less architectural detail than the historic Chicago Bungalows (refer to Figure 3.2-11).

Another common housing type within the study area is the two-flat residence. Two-flats are typically two-story brick buildings that share a common front entrance with separate residences on each floor. Slightly higher residential densities are found in the vicinity of the Emerald Wye (the triangular rail junction) near 75th Street east of Halsted, with a mix of single- and two-family homes consisting residential two-flats, townhouses, and multiple-unit buildings.

Figure 3.2-12: Residences on South Parnell Avenue near 76th Street

Two- and three-story townhouse style homes are found near S. Parnell Avenue and W. 76th Street (refer to Figure 3.2-12). These residences feature new construction which distinguishes this development from many of the homes found throughout the project area. The residential neighborhood surrounding Auburn Park consists of two-story structures, and is defined by its proximity to open space provided by the park (refer to Figure 3.2-13). The street layout within this area varies from the traditional rectilinear street grid found in much of the city as it is influenced by the park's lagoons and historic bridges, producing curved roadways and unique block shapes.

Recreational uses make up 4 percent of the study area's land use. Major open space resources include Hamilton Park and Patterson Park (in Hometown). Several smaller parks such as Lily Garden Park, Leland Giants Park, and Lyle Park provide either recreational amenities or a green space buffer, as these resources are immediately adjacent to the existing rail rights-of-way.

Figure 3.2-13: View of Auburn Park

Commercial uses within the study area include a retail cluster found in the vicinity of 87th Street and the Dan Ryan Expressway containing big-box retail uses including Lowes, Home Depot, and Wal-Mart. A commercial corridor is also located along Columbus Avenue extending from 87th Street to 79th Street.

Notable transportation facilities within the study area are concentrated at the confluence of several rail lines (BRC, CSX, Metra, and NS) in the western portion of the study area. These facilities include BRC's Rockwell Yard, NS's Landers Yard, and the CSX Forest Hill Yard. Ashburn and Wrightwood are Metra commuter railroad stations on Metra's SouthWest Service (SWS) Line, which feature an unstaffed station shelter and surface parking areas.

Land uses in the central portion of the study area, between 74th Street and the existing right-of-way, generally consist of a mix of occupied and unoccupied manufacturing and industrial properties. These uses include a galvanizing plant, a metal recycling facility, as well as steel and metal fabrication companies.

3.2.5.2 Impacts to Land Use

No-Build Alternative

The No-Build Alternative does not propose changes to land use patterns within the study area. Current development patterns would continue and any changes would be based on local plans and market conditions. No land use impacts would result from this alternative.

Build Alternative

Direct land use changes resulting from the 75th Street CIP are anticipated to be limited and localized as project improvements associated with the Build Alternative would generally occur within the existing railroad rights-of-way. The Build Alternative would create minimal change in the general land use patterns within the study area since it would entail the improvement of railroad-related transportation uses which are already well-established in the community. Overall, the project would be consistent with existing land uses and would not alter the majority of land uses surrounding the rail lines. In addition, this alternative would not result in any changes to land use regulations that govern land use policy within the project study area.

Direct land use change within the study area would be limited to one residential neighborhood south of Hamilton Park, the area in the vicinity of the Union Avenue viaduct, and vacant industrial land south of 81st Street. The Build Alternative would require the acquisition of 42 parcels consisting of 25 vacant parcels (2 of which are city-owned), 15 occupied residential structures with 26 occupied dwelling units, 1 unoccupied residential property with 1 dwelling unit, and 1 church. Project-related acquisition in specific areas including south of Hamilton Park, and in the vicinity of Union Avenue and the 80th Street junction are detailed below.

The alignment for the proposed flyover connecting Metra's SWS to the RID Line south of Hamilton Park would require the acquisition of a total of 23 residentially zoned parcels (2.6 acres of land). These parcels consist of a total of 16 residential structures (15 occupied; 1 vacant) with 27 dwelling units (26 occupied; 1 vacant), 1 church property (0.1 acres), and 6 vacant parcels (0.8 acres). The 2.6 acres of land that would be acquired in this area would be permanently changed from the existing use (residential/vacant) to a transportation use.

Construction of two Union Pacific railroad tracks and related service roads as part of the 80th Street Junction improvements would convert portions of 17 vacant industrial parcels to railroad use. These

parcels are located between two sets of railroad tracks north of 87th Street and south of 81st Street. The land to be acquired, totaling approximately 12.8 acres, has been recently used primarily for illegal dumping of construction debris, but was previously owned by the Chicago and Western Indiana Railroad. Figure 3.2-14 and Figure 3.2-15 details the property to be acquired. Of the 12.8 acres of industrial land that would be acquired, nearly 40 percent (5.1 acres) could potentially be used for other purposes in the future.

Two additional vacant parcels would also be required in other areas to accommodate the Build Alternative. One city-owned vacant residential parcel at 7926 S. Parnell Avenue (0.2 acres) would be acquired to construct a recommended noise barrier. An additional city-owned parcel, which is a former railroad property, would be partially acquired east of the CSX tracks between 75th Street and 79th Street (1.2 acres) to accommodate proposed railroad tracks in that area.

Approximately 54 percent of land use within the study area is residential. The acquisition of approximately 2.5 acres of residential land comprising a total of 16 residential structures (15 occupied; 1 unoccupied) would represent a slight decrease in the overall percentage (approximately 0.05 percent) of residential land use within the study area. The acquisition of vacant industrial land required for the 80th Street Junction improvements would minimally reduce the overall percentage of vacant land within the study area by approximately 0.3 percent. As a result, the conversion of these properties to a transportation use is not anticipated to result in a significant change in land use within the study area. In the remainder of the study area, no changes to land use are anticipated as these uses would remain similar to the existing condition.

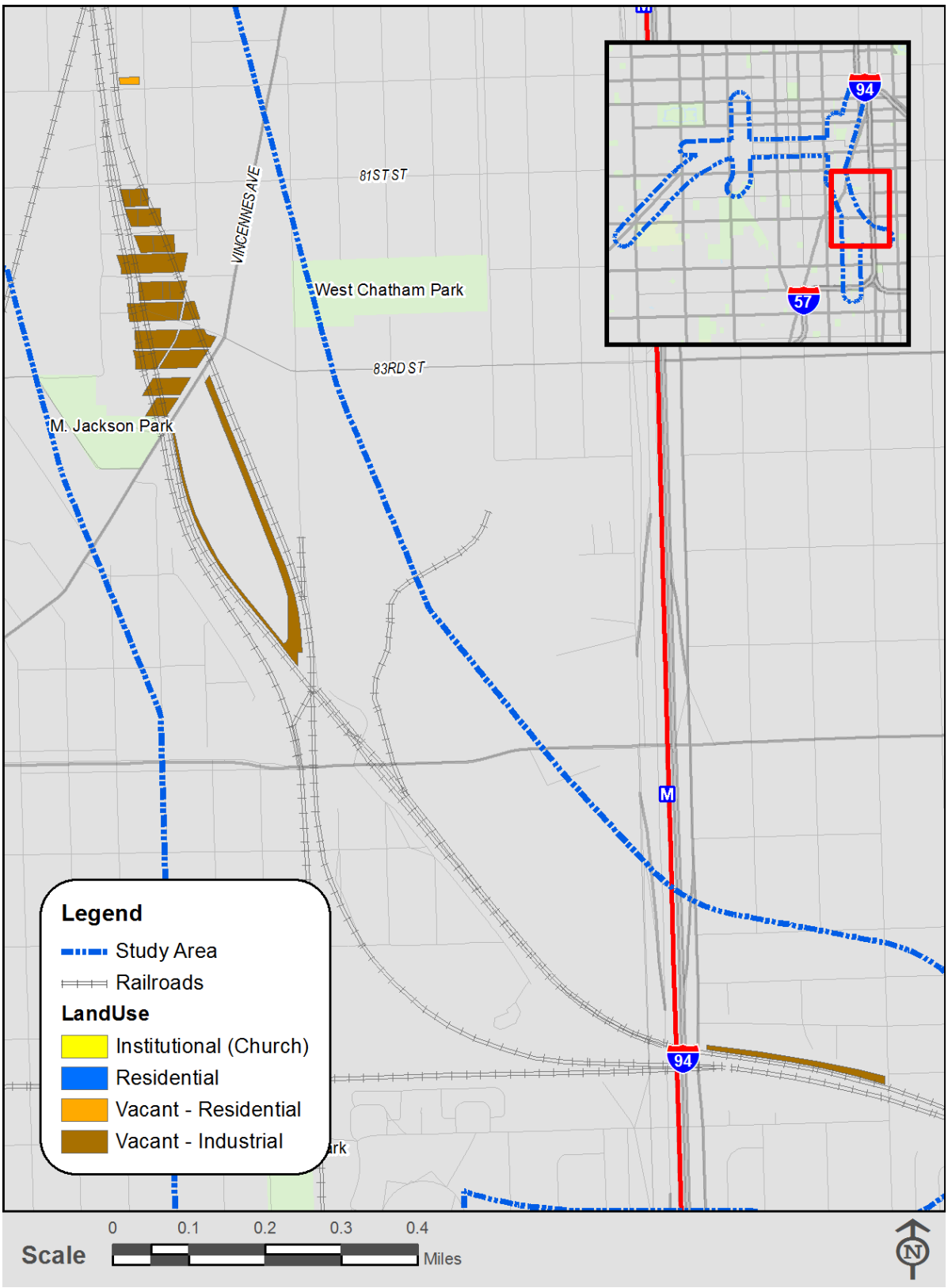


Figure 3.2-14: Parcels to be Acquired – South

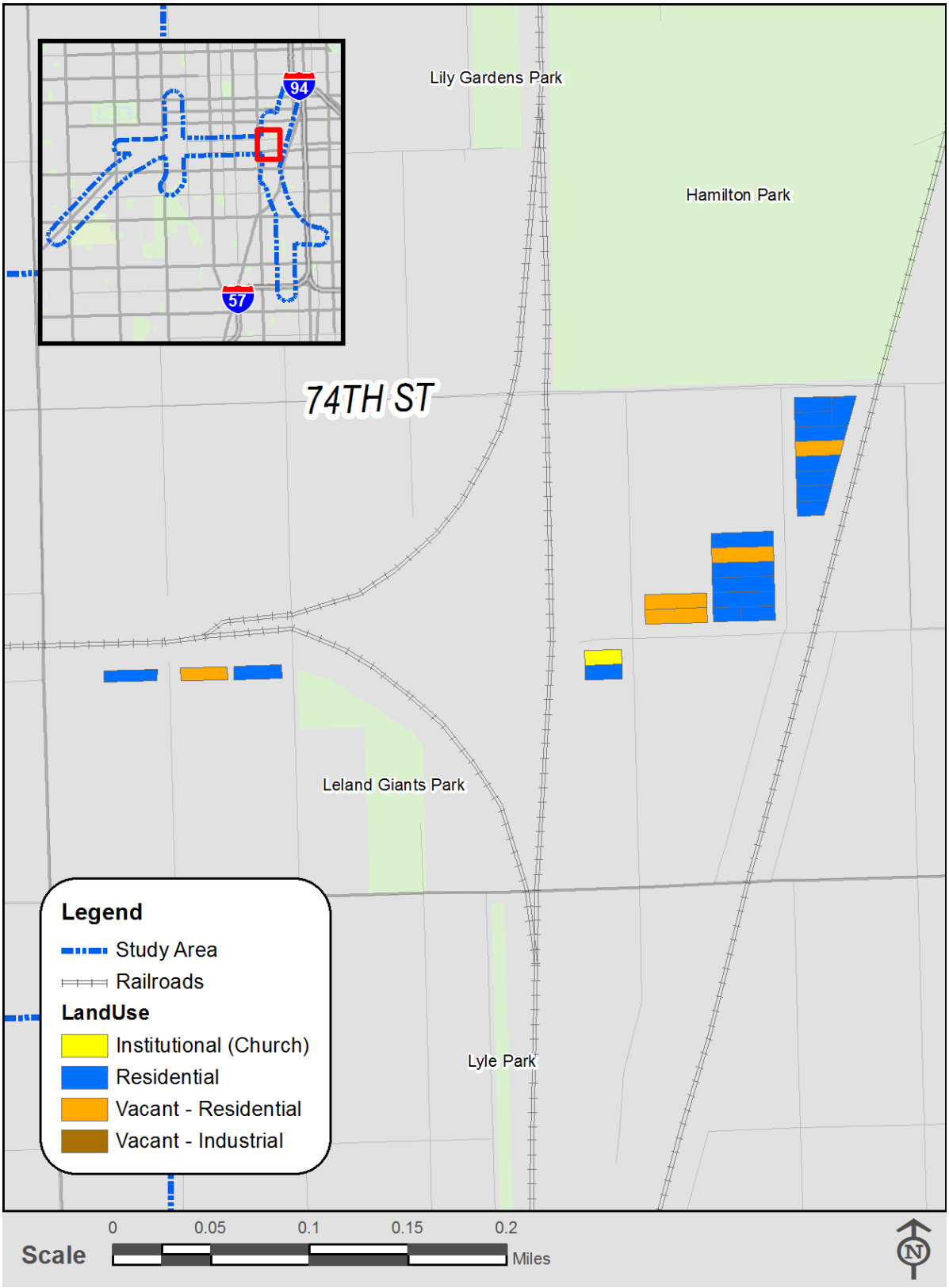


Figure 3.2-15: Parcels to be Acquired - North

3.2.5.3 Existing Zoning

As shown in Figure 3.2-16, the zoning districts within the study area are mostly residential with manufacturing districts chiefly along the railroads. Residential Single-Unit Districts (RS-2; RS-3) are found more throughout the southwestern and central portions of the corridor and the southeastern extent of the study area.

The area north and east of Hamilton Park is zoned as Residential Two-Flat, Townhouse, and Multi-Unit Districts (RT-4). Other residential designations include a limited number of Residential Multi-Unit Districts (RM-4.5, RM-5, RM6) situated throughout the northern section of the study area.

What is Zoning?

Zoning shapes communities and influences the way land can be developed. Zoning helps to determine the size and use of buildings, where they are located and, in large measure, the densities of neighborhoods. The Chicago Zoning Ordinance (Title 17 of the Municipal Code of Chicago) and the Hometown Zoning Ordinance have established zoning districts, standards and requirements used to regulate and guide development within the respective municipalities.

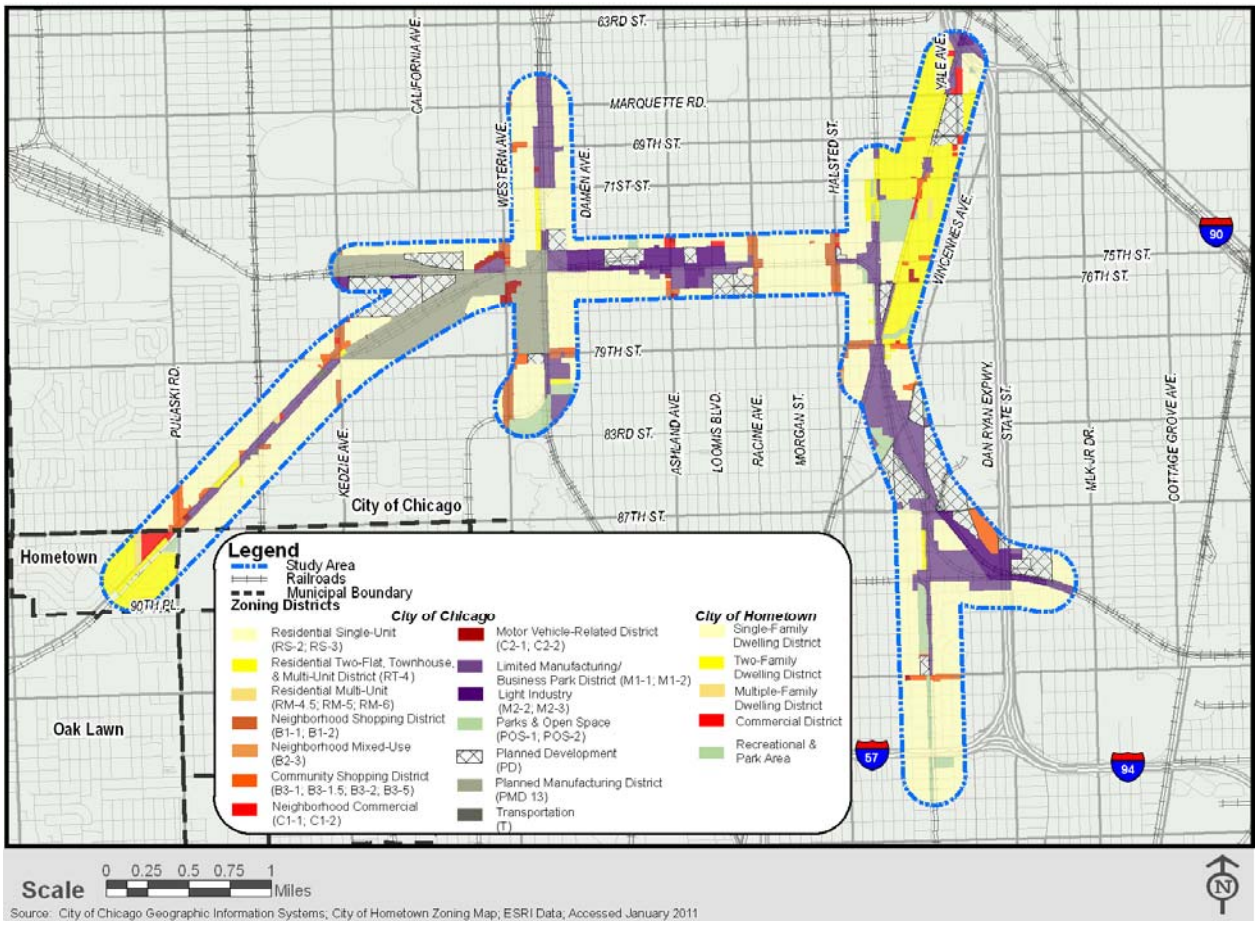


Figure 3.2-16: Zoning

Light manufacturing, warehouse, and distribution uses are zoned M1-1 and M1-2 Limited Manufacturing/Business Park District and are usually located next to the rail rights-of-way that extend through the study area. A Planned Manufacturing District (PMD), identified as PMD 13, Greater Southwest, encompasses the NS Landers Yard, the BRC Rockwell Yard, and the CSX Forest Hill Yard. In addition, Business and Commercial zoning districts are spread throughout the study area.

A small portion of the study area crosses into the City of Hometown, south of 87th Street and north of 90th Place. The main zoning district within this area is residential, specifically the Two-Family Dwelling District. Other zoning designations within this municipality include a Recreational & Park Area and a Commercial District.

3.2.5.4 Impacts to Zoning

No-Build Alternative

Under the No-Build Alternative, no zoning changes are anticipated in the vicinity of the study area. As a result, it is expected that the zoning designations within the study area would remain similar to existing conditions.

Build Alternative

The rail-related improvements included in the Build Alternative would not involve the introduction of any land uses or new structures that do not comply with existing zoning. Under the Build Alternative, the acquisition of land for new railroad right-of-way to allow the Metra connection to the RID Line would convert this land from the existing uses to a transportation use. Even though the use of this property would no longer be residential, it would be consistent with other instances in the study area where the existing railroads run through a variety of zoning classifications including manufacturing and residential designations. This occurs along a portion of the 75th Street rail right-of-way between Racine Avenue and Halsted Street that is zoned as a RS-3 district. Portions of the RID Line extending from 76th Street to 69th Street are also zoned in a RT-4 district. Zoning also typically covers streets which function as right-of-way in a similar manner to the railroad corridors.

The Build Alternative would not alter the zoning, development densities, or allowable uses on sites adjacent to the rail alignment or throughout the study area and, therefore, does not represent a major zoning impact.

3.2.5.5 Comprehensive Planning Initiatives

The project study area falls under the jurisdiction of the City of Chicago, Cook County, and various regional and local planning agencies. The following is a description of the major comprehensive planning documents that provide guidance for future land use, economic development, transportation, and climate change planning.

Fiscal Year 2012 – 2016 Proposed Rail Improvement Program - The FY 2012-2016 Proposed Rail Improvement Program describes funding for rail projects administered by the Illinois Department of Transportation (IDOT), including freight, passenger rail, and high-speed rail capital projects. This document also presents an overview of the existing rail system within the State of Illinois. The CREATE Program is identified as a component of the state rail plan's capital program. The plan specifically identifies the CREATE Program as a project of both regional and national significance. This document also notes CREATE project benefits including improved freight rail efficiency and passenger service, reduced motorist delays, and increased safety.[25]

City Space Plan 1998 - This document is the City of Chicago's comprehensive plan for the creation and preservation of open space in the city. The plan identifies open space needs and goals. One of the key policy recommendations of this document is the creation of more green space along Chicago's transportation and industrial corridors, including the Greater Southwest Industrial Corridor which extends into the project study area. The plan identifies suggestions for enhancing the physical environment of the industrial corridor such as landscaping improvements and creating attractive streetscapes in order to improve the marketability and safety of the corridor.[26]

Chicago Sustainable Industries (CSI) – The CSI is a City of Chicago initiative designed to coordinate the economic, social and environmental aspects of the city's manufacturing sector. This effort is intended to maximize the long-term viability of Chicago's manufacturing and industrial sector. The CSI notes that while Chicago has experienced a decline in manufacturing employment in recent decades, the city remains an important driver of production at the national level.[27] The CSI emphasizes that Chicago's industrial corridors, including the Greater Southwest Industrial Corridor within the study area, are important resources in that they generally align with railroad embankments, highways and arterial roadways. In addition, these corridors offer existing industrial land that is suitable for potential new manufacturing development. Although the CREATE Program is not specifically referenced in the CSI, project goals related to improved freight rail efficiency are also beneficial to the manufacturing sector in facilitating the movement of goods.

CMAP's *GO TO 2040* plan supports full funding and implementation of the CREATE Program.

Chicago Climate Action Plan (CCAP) - The CCAP is the City of Chicago's comprehensive plan for lowering greenhouse gas emission and adapting to climate change. The plan sets goals for greenhouse gas reduction and identifies key strategies for achieving these goals. The five key strategies focus on energy-efficient buildings, clean and renewable energy sources, improving transportation options, reducing waste and industrial pollution, and adaptation.[28] The CCAP specifically identifies the CREATE Program as an important initiative to improve freight rail efficiency and reduce greenhouse gas emissions. (The proposed project's effects on air quality and energy consumption are discussed in Sections 3.6 and 3.8, respectively.)

GO TO 2040 - The Chicago Metropolitan Agency for Planning (CMAP) is the regional transportation agency for Northeastern Illinois. The agency is responsible for developing the *GO TO 2040 Comprehensive Regional Plan*, which is the area's first comprehensive regional plan. *GO TO 2040* supports redevelopment and investment in existing communities in order to maximize existing infrastructure. The plan encourages more compact, mixed-use development with access to transit and other transportation alternatives. The plan encourages the development of a modern transportation system, by strategically prioritizing transportation investment, reducing congestion, improving efficiency of the freight system, and improving transit infrastructure. The plan supports full funding and implementation of the CREATE Program.[29]

Cook County Consolidated Community Development Plan 2010-2014 - The plan is developed by the Cook County Bureau of Community Development and is a comprehensive planning document for suburban Cook County municipalities under 50,000 people. The policy document guides the investment of federal housing and community funds.[30] The plan identifies a Community Development Block Grant for the City of Hometown, which was issued for street reconstruction of Komensky Avenue between 90th Place and Main Street.

Cook County Comprehensive Economic Development Strategy Report 2009 - The plan developed by the Bureau of Community Development and Department of Economic Development identifies goals for economic growth in Cook County for 2009-2010. Goals identified include adopting a regional approach to business development, promoting a shift from brown to green manufacturing, and developing effective business incubators. Additional goals include expanding access to public transit, supporting fair and equitable access to jobs and contract opportunities, as well as leveraging access to freight and multi-modal transportation. The report recognizes the importance of freight rail transportation in the Chicago Metropolitan Region and its impact on the rest of the United States.[31]

Greater Auburn Gresham Quality of Life Plan 2005 -This plan, developed by the Greater Auburn Gresham Development Corporation, outlines the strategies for community revitalization. The strategies include encouraging local business ownership and generating jobs for youth and young adults, developing compact business clusters on 79th Street, developing a transit village near Winneconna Parkway, preserving existing housing, and developing new housing.[32]

3.2.5.6 Compatibility with Comprehensive Planning Initiatives

No-Build Alternative

Under the No-Build Alternative, many of the freight transportation and transit infrastructure goals identified in a number of planning initiatives such as GO TO 2040, and Cook County's *Comprehensive Economic Development Strategy Report 2009* would not be fully achieved as the 75th Street CIP would not be implemented.

Build Alternative

The implementation of the Build Alternative would be consistent with the relevant public policy initiatives which guide development both within the project study area and throughout the region. The improvements associated with the Build Alternative would improve freight rail infrastructure throughout the study area and increase the operational efficiency of the rail network throughout the city and region. The project would support the transportation and transit infrastructure goals of CMAP's comprehensive regional plan, *GO TO 2040*. This plan, which encourages the development of a modern transportation system, specifically references the importance of the CREATE Program to the region. The project would also be in compliance with the *Chicago Climate Action Plan*, which identifies the CREATE Program as an important initiative that would lessen congestion and reduce greenhouse gas emissions within the City of Chicago.

The 75th Street CIP would also support the freight rail transportation goals identified in Cook County's *Comprehensive Economic Development Strategy Report 2009*. The Build Alternative would not result in any adverse public policy impacts.

3.2.5.7 Proposed Development

The following is a list of proposed developments currently approved by the Chicago Plan Commission within the project study area:

- City Lights Community Outreach Corporation is proposing to construct a four-story elderly supported living facility with 140 residential units and 36 accessory parking spaces at 7411-7447 S. Halsted Street and 7436-7448 S. Emerald Avenue.
- The Public Building Commission of Chicago is constructing a new 212,500 sq. ft. Chicago Public High School at 3300-3400 W. 77th Street and 7500-7700 S. Homan Avenue.
- Gateway Park, LLC is proposing to construct a container storage facility, a 16,000 square foot repair facility, and 27 accessory parking spaces within the Manufacturing Planned Development No. 776 on land generally located between S. Troy Street, W. 77th Street, Columbus Avenue, S. California Avenue and the NS CWI rail line.

Metra is planning to construct a new station on the RID Line within the neighborhood of Auburn Gresham. The project began the design engineering phase in 2012. Construction is anticipated to begin in 2015 and be completed in 2016.

3.2.5.8 Effects on Recent and Pending Development

No-Build Alternative

Under the No-Build Alternative, development along the corridor is expected to continue based upon market conditions. Future development would likely occur as part of infill strategies or through the development of underutilized properties.

Build Alternative

The implementation of the Build Alternative, as a transportation improvement project, would not involve residential or commercial development within the study area. In addition, improvements associated with the Build Alternative would be largely completed within existing rail right-of-way. As a result, the project components associated with the Build Alternative would not impact any of the proposed and pending developments identified within the project study area.

3.2.6 Relocation and Right-of-Way Acquisition

3.2.6.1 Current Policy

Transportation projects can result in the acquisition of property and displacement of residents and businesses when new right-of-way is required. Any land acquisition needed would be accomplished in accordance with the "*Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as Amended*" commonly known as the "*Uniform Act*" and the *IDOT Land Acquisition Manual*. The Uniform Act is applicable to all programs or projects undertaken by Federal agencies or with Federal financial assistance that require the acquisition of real property or that cause displacement of any person or business.

3.2.6.2 Right-of-Way Acquisition Impacts

No-Build Alternative

Under the No-Build Alternative, no acquisition of property or displacement of residents or businesses for new rail right-of-way would be necessary, thus resulting in no acquisition impacts.

Build Alternative

Implementation of the Build Alternative would require new right-of-way for the proposed flyover connecting Metra's SWS to the RID Line, new tracks at the 80th Street Junction, and for other track relocations. The full or partial acquisition or transfer of 42 parcels would be required to accommodate these project elements. A new alignment would extend through the neighborhood located south of Hamilton Park. The construction of the flyover would require the acquisition of 23 parcels consisting of a mix of occupied and unoccupied residential properties, a church, and vacant land (refer to Table 3.2-13). Two new UP tracks would be constructed south of 80th Street Junction and would require the full acquisition of 17 vacant industrial parcels and a partial acquisition of one parcel. In addition, one vacant publically owned parcel would be required at 7926 S Parnell Avenue to accommodate a recommended noise barrier and an access road, and there would be partial acquisition or property transfer of a publically owned parcel adjacent to the CSX rail line. The Build Alternative would not result in the acquisition of any commercial property or businesses displacement.

Table 3.2-13: Property Acquisition for the Build Alternative

Property Impacts by Land Use[1]	Build Alternative Improvements		
	Metra RID Connection	80th Street Junction	Other Areas
Park	0	0	0
Vacant Land - Privately Owned	6	17	0
Vacant Land – Publicly Owned	0	0	2
Residential	16	0	0
Institutional (i.e., Church)	1	0	0
Total	23	17	2

All acquisitions assume that entire parcel would be acquired if impacted.

The Build Alternative would displace a total 16 residential structures, one of which is unoccupied. The acquisition of the 15 occupied residential structures would displace approximately 78 residents (refer to Table 3.2-14). Construction of the proposed flyover south of Hamilton Park would also require the acquisition of one institutional parcel, the I Care Christian Center Ministries, located at 7500 S. Parnell Avenue.

Table 3.2-14: Residential Displacement for the Build Alternative

Alternative	Total Occupied Residential Structures	Single Family	Multi-Family	Total Occupied Dwellings	Estimated Residents*
Build Alternative	15	8	7	26	78

** Based on the U.S. Census average household size of 3 persons for the demographic study area.*

Availability of Replacement Residential Properties

According to the 2010 US Census, there were 3,036 vacant housing units within approximately a half-mile of the proposed property acquisition, as identified in Table 3.2-15. The vacant units represent 25 percent of total housing units. A total of 1,279 (42.1 percent) of the vacant units were available for rent and 225 (7.4 percent) were for sale. A remaining 1,478 (48.7 percent) were identified as "other vacant." The data indicate that approximately 1,504 (for rent and for sale units) or 12.4 percent of total housing units could be available for relocation.

Comparable housing is generally characterized as housing that would meet the needs of displaced residents in terms of price, size, location, and market availability. Market data from residential multi-listing services were reviewed to determine the availability of similar replacement properties. The market data show that a sufficient number of comparable replacement homes at similar values and in the same general areas are available.[4]

Table 3.2-15: Housing Vacancy within ½ mile of Proposed Property Acquisition

Occupancy Status	Number of Housing Units	Percent
Total housing units	12,150	
Occupied	9,114	75%
Vacant	3,036	25%
For Rent	1,279	42%
Rented, not occupied	18	0.6%
For sale	225	7.4%
Sold, not occupied	18	0.6%
For seasonal, recreational or occasional use	18	0.6%
Other vacant[i]	1,478	48.7%

Source: US Census 2010. Vacancy status was compiled for the following census tracts: 6809, 6811, 6812, 6813, 6814, 6911, 6912, 6903, and 7101.

[i]"Other vacant" includes year-round units which were vacant for reasons other than those mentioned. For example, held for occupancy of a caretaker, janitor; held for settlement of an estate, or held for personal reasons of the owner.

3.2.6.3 Mitigation of Right-of-Way Acquisition Impacts

The acquisition of these properties would be accomplished in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Act* (*Uniform Act*). The *Uniform Act* provides for uniform, fair, and equitable treatment of persons whose real property is acquired or who are displaced in connection with federally funded projects. As required by the United States and Illinois Constitutions, just compensation must be provided for property to be acquired. Fair market value is accepted as the standard for determining just compensation. Under the Uniform Act, in addition to just compensation, displaced residents are entitled to benefits to minimize hardships of relocation such as acquisition and relocation assistance designed to help residents and businesses with reimbursement claims and the lease or purchase of new locations. Relocation advisory assistance would be provided to owners and renters of displaced properties. Relocation advisory benefits would include determining the needs and preferences of displaced persons, providing current and ongoing listings of comparable dwellings for residential displacements, providing transportation to search for replacement housing, as well as financial referrals and housing inspection. Displaced residents would also be entitled to counseling and other assistance to minimize hardship in adjusting to the relocation. The Uniform Act would allow for reimbursement for moving expenses and payment for the added cost of renting or purchasing comparable replacement housing. Per IDOT policy and to be eligible for a replacement housing payment, the resident's new dwelling must be inspected to ensure that the replacement housing meets local housing and occupancy codes and is decent, safe, and sanitary. Additional information is available in IDOT's Highway and Railroad Improvements and Property Rights brochure, which was distributed at the Public Hearing for the project, and is included in Appendix J of the FEIS.

3.2.7 Environmental Justice

What is Environmental Justice?

Environmental Justice is the concept that environmental impacts should not disproportionately affect low-income and minority populations. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," signed on February 11, 1994 by President Clinton, requires that federal agencies, to the greatest extent allowed by law, administer and implement programs, policies, and activities that affect human health or the environment so as to identify and avoid "disproportionately high and adverse" effects on minority and low-income populations. IDOT's Community Impact Assessment Manual defines "disproportionately high and adverse impacts" as those that make some individuals or groups better off at the expense of minorities or low-income area residents. Additionally, Title VI of the Civil Rights Act of 1964 and related statutes assure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination on the basis of race, age, color, national origin, sex, disability, or religion as part of any federally-funded program.

3.2.7.1 Environmental Justice Effects of No-Build Alternative

Under the No-Build Alternative, the projected increase in train volumes would result in increased rail delays and train idling. Train delays would affect mobility and safety within the study area by increasing motorist, pedestrian, and emergency vehicle delays at highway rail grade crossings. Minority and low-income populations would be affected by reduced mobility, increased air emissions from idling trains and vehicles, and increased noise and vibration from the increase in train volumes. Under the No-Build Alternative, major improvements to viaducts would not occur, allowing the current local mobility problems to continue.

The fundamental principles in an Environmental Justice (EJ) analysis, as defined by the Federal Highway Administration (FHWA), are as follows:

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

3.2.7.2 Environmental Justice Effects of Build Alternative

Assessment Methodology

This section presents an analysis of the Build Alternative's potential to result in disproportionately high and adverse effects on minority and low-income populations. The Environmental Justice (EJ) analysis was prepared in accordance with applicable federal and state guidelines addressing environmental justice including Executive Order 12898, President's Council on Environmental Quality's (CEQ) Environmental Justice Guidelines Under the National Environmental Policy Act (December 1997), FHWA Order 6640.23A on FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (June 2012), and IDOT Community Impact Assessment Manual (2007). CEQ has oversight responsibility for the federal government's compliance with NEPA and Executive Order 12898. The CEQ guidance noted above is designed to assist agencies with their NEPA procedures to ensure that EJ concerns are effectively identified and addressed. The FHWA order establishes policies and procedures for the FHWA to use in complying with Executive Order 12898. The following steps were taken to perform the EJ analysis for the 75th Street CIP: identify existing minority and low-income populations, conduct public engagement, identify impacts of Build Alternative, and evaluate if identified impacts have disproportionately high and adverse effect on minority and low-income populations.

Existing Minority and Low-Income Populations

FHWA Order 6640.23A defines minority and low-income populations as "any readily identifiable group or groups of minority and low-income persons who live in geographic proximity and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed FHWA program, policy or activity."[33] Minority populations are identified by examining US Census 2010 data on race/ethnicity for census tracts within the demographic study area. FHWA Order 6640.23A defines a minority person as Black, Hispanic, Asian American, American Indian and Alaskan Native, and Native Hawaiian or Other Pacific Islander. CEQ guidelines suggest that a minority population of concern may be present when the minority population of the affected area is meaningfully greater than the minority population in the general population or other appropriate unit of geographic analysis or when the minority population of the affected area exceeds 50 percent.[34]

Minority population was determined by summing the following U.S. Census race/ethnic categories: African American, Asian, American Indian and Alaskan Native, Native Hawaiian and other Pacific Islander, Some Other Race and Hispanic (Non-White).

A low-income population was determined by examining U.S. Census poverty thresholds for a family. The 2012 Health and Human Services Poverty Guideline for a family of four is $23,050.

The demographic study area is used to establish the boundary for the EJ analysis. The demographic study area includes 40 census tracts with a total population of 138,838 in 2010 (refer to Figure 3.2-17).

The minority population of the demographic study area was 92.9 percent. Approximately 80.9 percent of the population identify themselves as Black or African-American, comprising the largest racial group across the project area. The demographic study area exhibits a greater percentage of minority population than the City of Chicago (at 68.3 percent) or Cook County (at 56.1 percent). Figure 3.2-17 shows the distribution of minority populations within the demographic study area by census tract. The demographic study area average, as well as 39 out of the 40 census tracts, exceeds the CEQ's 50 percent minority population threshold. The entire study area, except for the portion within the City of Hometown, qualifies as a minority population of concern for the purpose of the EJ analysis.

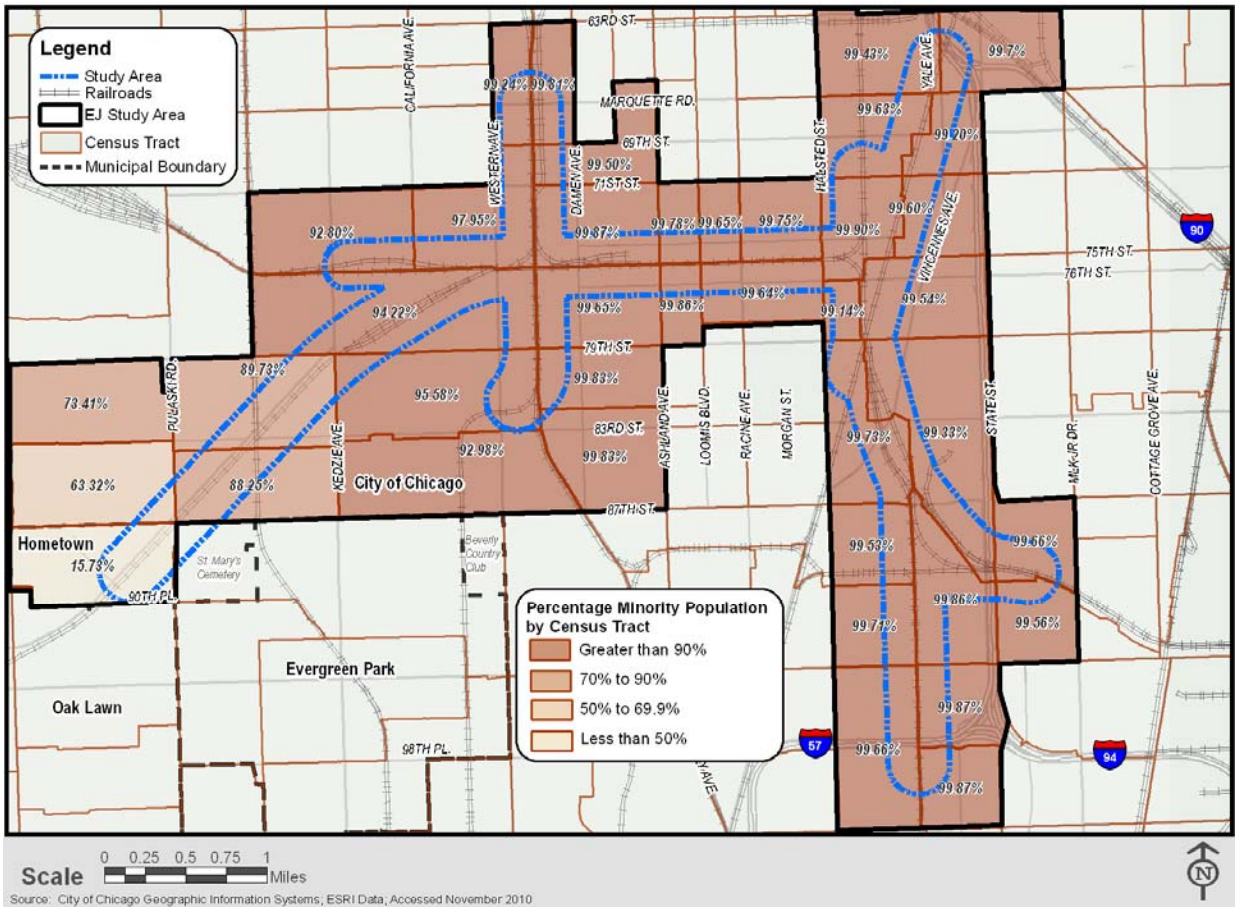
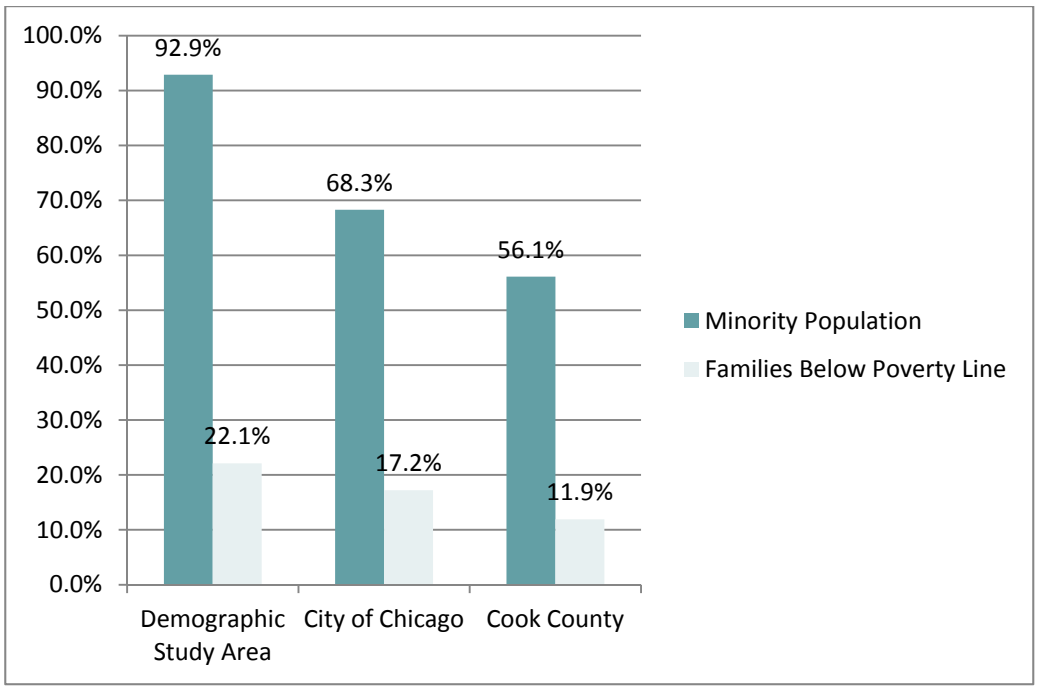


Figure 3.2-17: Minority Population by Census Tract

Low-income populations were identified using US Census statistical poverty thresholds as suggested by CEQ guidelines. In 2010, the US Census poverty threshold for a family of four was $22,314. The Department of Health and Human Services (DHHS) poverty guidelines were also reviewed in accordance with FHWA Order 6640.23A. The 2012 DHHS poverty threshold for a family of four was $23,050. The US Census statistical threshold was used as it is inclusive of all persons at or below the DHHS poverty guidelines. Low-income populations were identified by examining the percentage of families living below the US Census poverty level for each census tract within the

demographic study area. The percentage of families below the poverty level in each census tract was compared with the City of Chicago average and Cook County.

Figure 3.2-18 shows that the percentage of families living below the poverty level within the demographic study area is 22.1 percent. This is higher than the City of Chicago's rate of 17.2 percent and notably higher than the County average of 11.9 percent. Figure 3.2-19 shows the percentage of people living below the poverty level by census tract. According to the figure there are a greater number of families living below the poverty level within the eastern portion of the demographic study area. For the purpose of the EJ analysis, if the percentage of the population within the census tract was at least 10 percentage points greater than the City of Chicago average, it was considered a low-income population of concern. There are 12 census tracts within the demographic study area that qualify as low-income populations of concern for the purpose of the EJ analysis.



Source: US Census 2010; American Community Survey

Figure 3.2-18: Minority Population and Low-Income

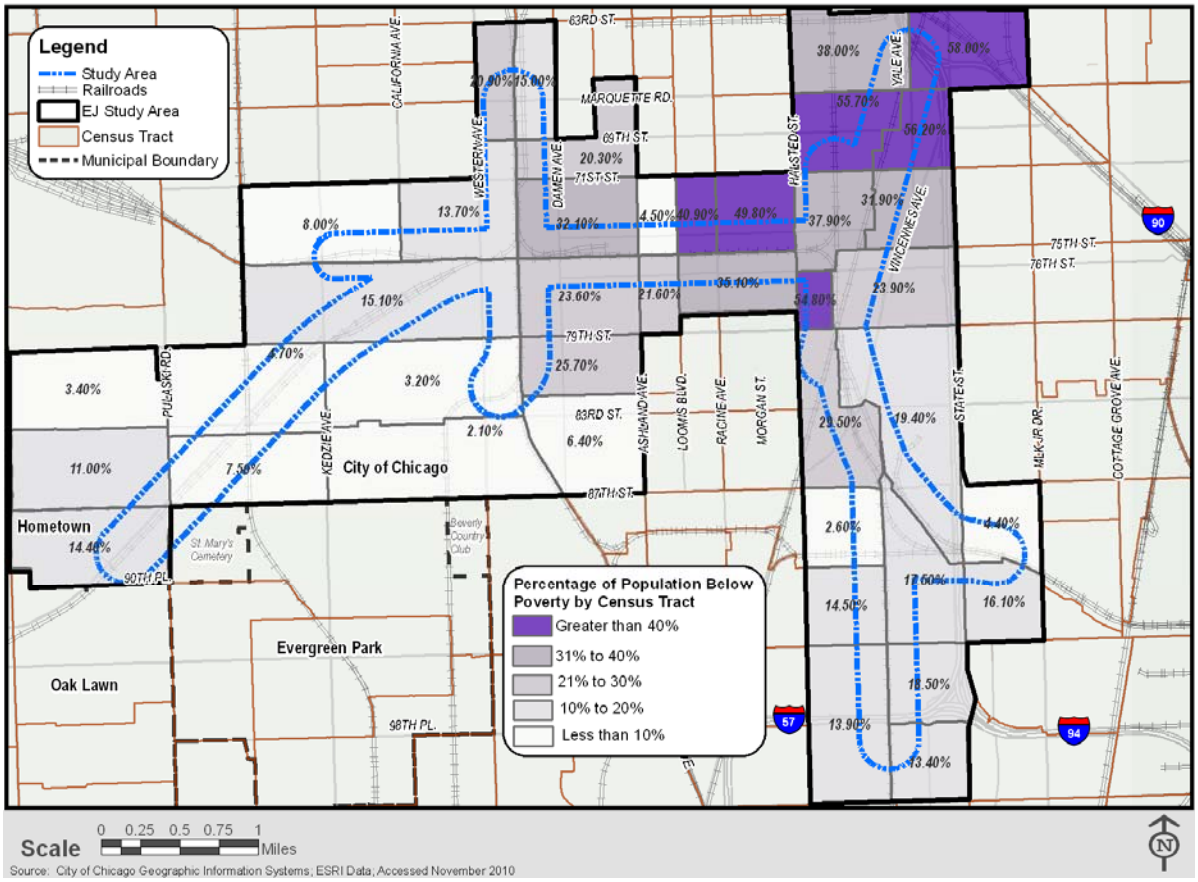


Figure 3.2-19: Low-Income Population by Census Tract (ACS 2010 5-Year Estimate)

Public Engagement

The public involvement process has been a key component of the 75th Street CIP and has provided numerous opportunities for community stakeholders to provide input and participate in the decision-making process for this project. Public outreach activities are summarized below.

IDOT's Context Sensitive Solutions process was implemented to gather public input on the project and included the development of a Stakeholder Involvement Plan (SIP). The purpose of the SIP is to ensure that all potentially affected groups are involved in the transportation planning process and to ensure the opportunity for meaningful input. The SIP included various mechanisms that allowed the public to be involved in the study process such as establishing working groups, various public outreach meetings, public hearings, and stakeholder workshops.

As part of the public involvement process, two Community Advisory Groups (CAGs) were established that consisted of various community stakeholders in order to obtain input on community's needs and concerns regarding the project. As the majority of the project study area is comprised of minority population and has a substantial low-income population, local service organizations that work with low-income populations and minority advocacy groups, churches, civic organizations, special interest groups, and local officials were invited to participate in the CAGs.

Approximately 46 different community groups were invited to participate as members of the CAGs, along with study area residents and business owners. The organizations participating in the CAG meetings are listed in Table 3.2-16. To date, five (5) CAG meeting have been held.

Table 3.2-16: Groups and Organizations Participating in CAG Meetings

The Monument of Faith Evangelistic Church	Neighborhood Housing Service/AmeriCorps VISTA - Auburn Gresham
Triple Street Block Club	Chicago Police Dept., District 6
76th, 77th, 78th & Hamilton Block Clubs	Neighborhood Housing Service – Auburn Gresham
Wrightwood Improvement Association	Black Contractors United
Greater Auburn Gresham Development Corp.	Pleasant Green Missionary Baptist Church
Chicago Police Department, District 6	New Birth Church of God in Christ
Chicago Fire Department, District 5, Engine 54	I Care Christian Center Ministries
Leo High School	Chicago Park District
Stewart Business Center	Block Club & CAPS – 6th District
SOS Children's Village	7700 Hermitage Block Club & CAPS – District 6

In addition to CAG meetings, IDOT held three public meetings to engage the public in the study process. More specifically, public meetings were held on June 7, 2011 and June 9, 2011 to receive comments and input from the public on the Purpose and Need for the 75th Street CIP. Based on that public input and additional technical analysis, a Range of Alternatives was developed to address the issues identified in project's Purpose and Need. A public meeting, with over 230 community participants, was held on October 27, 2011 to obtain public input on the Range of Alternatives.

In addition to CAG meetings, additional methods for outreach included local elected officials and community leader briefings and meetings, project mailings, a project website, brochures, fact sheets, email notices, and website updates. As noted above, multiple public meetings were held to gain feedback on the Purpose and Need of the project and the Range of Alternatives. Additional public meetings will be held at project milestones throughout the environmental review process. The project team remains committed to providing opportunities for the public and key stakeholders to offer input into the process of identifying problems, developing solutions to those problems, and providing input on the Build Alternative. A detailed discussion of Public Outreach activities is presented in Chapter 4, *Comments and Coordination*.

CSS is an important process in developing transportation solutions that are reflective of the communities where the transportation-related problems exist. Input was received on community needs and concerns regarding the project. Residents of the community expressed concerns regarding transportation infrastructure, specifically conditions as railroad viaducts such as poor lightening,

drainage deficiencies and deteriorated roadway surfaces. As a direct result of information provided by key stakeholders as well as technical information gathered, the improvement of viaducts to facilitate local mobility was made part of the Purpose and Need of the project.

Determining Disproportionately High and Adverse Impacts on Minority and Low-Income Populations

The potential adverse impacts of the Build Alternative were evaluated to determine how they would affect minority and low-income populations, and if they would result in disproportionately high and adverse effects. The FHWA Order defines disproportionately high and adverse impacts as: (1) Impacts that would be predominantly borne by a minority population and/or low-income population; or (2) Impacts that would be suffered by the minority population and/or low-income population and are appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the non-minority population and or non-low-income population.

As the majority of the study area qualifies as a minority population (92.9% for the study area and at similar proportions at the census tract level) any adverse impact resulting from the Build Alternative is likely to disproportionately impact minority populations. The distribution of low-income populations is more dispersed within the study area as identified in Figure 3.2-19. There are a greater percentage of low-income populations found within the eastern portion of the study area than the western portion. Potential disproportionate impacts on low-income populations vary based on impact category. Table 3.2-17 identifies potential impacts, both positive and negative, of the Build Alternative that could affect minority and low-income populations within the study area, as well as the concerns to be evaluated for each category. A detailed evaluation of each category is provided below.

Table 3.2-17: Potential Build Alternative Impacts that could affect Minority and Low-Income Populations

Potential Impacts	Build Alternative	Minority and Low-Income Populations Affected	Potential Environmental Justice Concerns to be Evaluated
Displace-ments	The Build Alternative would result in the acquisition of 16 residential structures (15 occupied; 1 unoccupied) representing approximately 27 dwelling units (26 occupied; 1 unoccupied) and 1 community facility.	Property acquisition and displacement would occur within a primarily minority and low-income neighborhood.	Extent of residential displacements. Disruption to group/community bonds of minority and low-income populations. Availability and affordability of replacement housing to accommodate displaced residents.
Community Cohesion	The Build Alternative would introduce a new rail flyover structure within a res-identical neighborhood located south of Hamilton Park and introduce new infra-structure elements that could affect how communities / neighborhoods within the study area interact with each other.	The flyover would be constructed within a primarily minority and low-income neighborhood.	Neighborhood segmentation/isolation. Disruption of group/community bonds or interactions among minority and low-income groups. Construction of temporary or permanent barriers.

Potential Impacts	Build Alternative	Minority and Low-Income Populations Affected	Potential Environmental Justice Concerns to be Evaluated
Mobility and Access	Build Alternative to improve 36 viaducts throughout the study area, eliminate at-grade-crossing at 71st Street, and close viaduct at Union Avenue.	Viaduct improvements to occur within minority and primarily low-income communities. Non-low-income populations would also benefit from viaduct improvements. Both low-income and non-low-income populations would be benefited by eliminating at-grade rail crossing at 71st Street. Closure of Union Avenue viaduct to occur within a primarily minority and low-income neighborhood.	Changes in travel time or travel patterns. Temporary or permanent change in vehicular access to businesses, public services, and other facilities. Changes to pedestrian and bicycle access.
Economic Conditions	The Build Alternative is estimated to generate temporary direct construction jobs.	Minority and low-income areas could benefit from construction related economic benefits.	Employment growth or loss. Business closure or relocation. Reduced tax base from conversion of land to transportation use. Reduced business visibility or access to businesses.
Cultural Resources	The Build Alternative would require temporary construction within a small portion of Hamilton Park. New rail flyover would be visible from portions of Hamilton Park.	Hamilton Park is located within a primarily minority and low-income neighborhood.	Altering or eliminating the historical significance of the site. Introduction of incompatible visual or audible element to the resource setting.
Noise and Vibration	The Build Alternative would result in an increase in noise and vibration along the rail alignment.	Impacts are spread out along the entire corridor affecting minority and low-income populations, as well as non-low-income populations.	Noise and vibration impacts exceeding impact criteria.
Special Lands	The Build Alternative would increase the noise levels, exceeding impact criteria at three public parks. Temporary construction activity would occur in two public parks, including Hamilton Park (a NRHP designated site).	Leland Giants Park and Hamilton Park are located within a minority and low-income area. The remaining parks are located within minority areas.	Increase in noise that could alter the usability of the site. Noise impacts exceeding impact criteria.

Potential Impacts	Build Alternative	Minority and Low-Income Populations Affected	Potential Environmental Justice Concerns to be Evaluated
Visual Resources	New rail infrastructure would alter the view in parts of the study area. Improvements to existing viaducts would improve visual quality of adjacent neighborhoods.	Minority and low-income areas would be affected by visual impacts. Non-low-income populations would also experience visual impacts.	Reduced neighborhood attractiveness or change in the community's aesthetic character.

Displacements – The Build Alternative would result in the acquisition of a total of 16 residential properties (15 occupied; 1 unoccupied). The proposed Metra RID Connection would require the acquisition of all 16 residential parcels as well as one community facility. The Build Alternative would displace the I Care Christian Center Ministries Church. At the September 2011 CAG meeting, the pastor of the church indicated to the study team that he would not be averse to relocating the church. A total of 27 dwelling units (26 occupied and 1 unoccupied) and approximately 78 residents would be displaced. All displacement and acquisition would occur within a minority and low-income area.

Various measures were evaluated to avoid or minimize impacts of the proposed flyover for the Metra RID Line Connection, as discussed in Section 2.2.4.3. The other proposed alignments would have required greater property acquisitions or resulted in severe impacts to cultural resources (Hamilton Park) or numerous street closures. No feasible alternative could completely avoid displacement impacts resulting from the construction of the rail flyover bridge.

Acquisition of properties and displacement would be predominantly borne by minority and low-income populations, however they are not considered disproportionately high and adverse. The loss of 26 occupied dwelling units represents a reduction in the number of housing units available to low-income and minority populations, however it accounts for only a 0.5 percent loss in the study area's housing stock. In addition, preliminary research indicates adequate replacement housing is available within 0.5 miles of the property acquisition. It is not anticipated that the relocation of these 78 residents would disrupt family or social ties. According to US Census data the majority of housing units within this portion of the study area are renter occupied.[35]

The acquisition of property would be accomplished in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act (Uniform Act). The Uniform Act provides for uniform, fair, and equitable treatment of persons whose real property is acquired or who are displaced in connection with federally funded projects. Just compensation would be provided for property to be acquired. In addition to just compensation, displaced residents are entitled to benefits to minimize hardships of relocation such as acquisition and relocation assistance designed to help residents and businesses with reimbursement claims, as well as, the lease or purchase of new locations. Benefits are available to both renters and owners of properties and all persons regardless of race, color, regions, sex, or national origin are eligible.

Community Cohesion – The proposed rail flyover for the RID Connection would extend through a neighborhood located south of Hamilton Park, requiring property acquisition and introducing a new elevated rail structure. The rail flyover would be constructed in a minority and low-income area. Although the flyover introduces a new physical structure through the neighborhood, the elevation of the structure above street level would allow pedestrians, motorists, and emergency vehicles to pass freely through the area and would still permit views to surrounding areas. The Build Alternative would not result in disproportionately high and adverse community cohesion impacts on minority and low-income populations.

Mobility and Access – The Build Alternative would remove a grade crossing at 71st Street which would eliminate delays for roadway users. Reduced delays at this intersection would benefit both minority and low-income populations in the surrounding neighborhoods. The closure of the Union Avenue viaduct at 75th Street would result in some minor changes to vehicular and pedestrian travel patterns within the study area. The closure of the Union Avenue viaduct would detour traffic to Halsted Street, one full block (660 feet) to the west. The proposed closure of the Union Avenue viaduct would also reduce pedestrian access to Leland Giants Park and the CTA #75 bus route by increasing travel times and distances (see Figure 3.3-10). The Union Avenue viaduct is located within a minority and low-income area. However, disproportionately high and adverse impacts are not anticipated as alternative parks such as Lily Gardens Park and Hamilton Park are located nearby and alternative bus and vehicular routes could be utilized.

The Build Alternative includes improvements to 36 railroad viaducts within the study area including new lighting system, cleaning and reconstruction of sewers, installation of ADA ramps, and reconstructing sidewalk and road surfaces where needed. These improvements would improve local mobility and safety for vehicles, pedestrians, and cyclists. These improvements would benefit minority and low-income populations within the study area, as the majority of viaduct improvements would occur within minority and low-income areas.

Economic Conditions – The Build Alternative would provide construction related economic benefits. Construction spending is estimated to generate temporary construction jobs. Construction related jobs would provide new employment opportunities for all populations, including minority and low-income populations.

The Build Alternative would not result in job loss, business closure or relocation, or limit visibility or access to businesses within the study area. The Build Alternative would result in a slight tax revenue loss as a result of acquiring and converting residential and commercial land to transportation use. The corresponding tax revenue loss associated with these lands is considered to be minimal, would affect the City as a whole, and would not result in disproportionately high and adverse economic impacts on minority and low-income populations.

Cultural Resources – Temporary construction activities would occur within Hamilton Park, a property listed in the National Register of Historic Places. The Build Alternative would need to use a small area of the southeastern corner of the park on a temporary basis to allow for the construction

of a new retaining wall on railroad property. Hamilton Park is located within a minority and low-income area. Any impacts to Hamilton Park resulting from the temporary construction activities will be mitigated by implementation of park restoration plans as part of the project's construction. With the implementation of mitigation measures, the Build Alternative is not anticipated to result in disproportionately high and adverse cultural resource impacts on minority and low-income populations. The Chicago Park District has stated that the temporary construction work would have no effect on the historic attributes of the park in their letter of January 25, 2012 (see Appendix I). The IDOT Bureau of Design and Environment (BDE) also determined that there would be no adverse effect on historic properties in a letter dated March 3, 2012 (see Appendix G), and received concurrence from the State Historic Preservation Officer.

Special Lands – The Build Alternative would exceed noise impact criteria per the *CREATE Noise and Vibration Assessment Methodology, June 2014*[36] (CREATE N&V Methodology) at three parks: Fernwood Parkway, Leland Giants, and (Wendell) Smith Playlot Parks. Temporary construction activities would occur within Hamilton Park and Leland Giants Park to construct retaining walls on existing railroad right-of-way, and a noise barrier at Leland Giants Park. Leland Giants Park and Hamilton Park are located within a minority and low-income area. Smith Playlot Park is located within a minority area. Due to right-of-way constraints, noise barriers would not be feasible at Fernwood Parkway Park or Smith Playlot Park. A separate CREATE project is proposing grade separation at 95th Street. The Chicago Department of Transportation also plans to complete a Quiet Zone application for the Union Pacific rail corridor from 95th Street to 101st Street. A Quiet Zone is a section of a rail line at least one-half mile in length that contains one or more consecutive public highway-rail grade crossings at which locomotive horns are not routinely sounded when trains are approaching the crossings. Typically, only the governmental entity responsible for traffic control or law enforcement at the crossings is permitted to create a Quiet Zone.[37] If these two projects are implemented, they would eliminate noise impacts at Fernwood Parkway Park and Smith Playlot Park. Further discussion of Quiet Zones can be found on page 3-54, under the discussion of *Additional Mitigation Measures and Offsetting Benefits.* All impacts to Hamilton and Leland Giants Parks resulting from the temporary construction activities will be mitigated by the implementation of park restoration plans as part of the project's construction. The park restoration plans for both parks will be approved by the Chicago Park District, and the Illinois Historic Preservation Agency (IHPA) will also approve the restoration plans for Hamilton Park due to its historic status. The Chicago Park District has concurred with this assessment in their letter of January 25, 2012 (see Appendix I). The IHPA has concurred that the work would have no adverse effect on the historic elements of Hamilton Park.

Noise – Noise was analyzed per the CREATE N&V Methodology. Residents, businesses, and community facilities including schools near the rail alignment would experience an increase in noise levels as a result of the Build Alternative. A total of 1,359 residential noise impacts – 1,092 moderate and 267 severe – have been predicted for the Build Alternative (refer to Figure 3.7-7 in Section 3.7 Noise and Vibration). Three institutional (park) uses would be moderately impacted – Leland Giants Park, Fernwood Parkway Park, and Smith Playlot Park. An additional seven

institutional uses would experience interior noise impacts. Noise impacts are distributed along nearly the entire corridor and would affect minority populations as well as low-income areas within the study area.

Noise mitigation was evaluated for areas that experience moderate or severe impacts. Noise mitigation measures considered included noise barriers, buffer zones, and noise insulation for non-residential locations. An analysis of noise barriers was performed and four were found to be feasible and cost effective, benefitting a total of 189 residences and one park. Buffer zones would require additional property acquisition and result in additional displacements, and were therefore not determined to be an acceptable mitigation option. Unmitigated noise impacts could result in disproportionately high and adverse impacts on minority and low-income populations. Due to this consideration, other offsetting benefits could be considered for implementation as part of the project.

Vibration – Much of the corridor currently experiences high vibration levels. Under the Build Alternative, 755 receptors (749 residences and 6 institutions) would experience ground-borne vibration (GBV) impacts due to the proposed project. The Build Alternative would result in a total of 77 receptors that would experience ground-borne noise (GBN) impacts when compared with existing conditions. These vibration impacts would be predominantly borne by minority and low-income populations and the severity of the impacts exceed FTA vibration impact criteria. The mitigation strategies evaluated for vibration impacts included buffer zones, planning and design of special track work and maintenance practices. The acquisition of additional properties for the purpose of establishing buffer zones would create additional community impacts and was therefore not considered a feasible mitigation measure. Several types of special trackwork were considered (see Section 3.7.2.5), but none were found to be a viable mitigation option for the 75th Street CIP study area due to the difficulty in maintaining the special track work under the operational conditions in this heavily-traveled freight corridor. The following routine maintenance procedures will be accomplished by the rail industry to mitigate vibration impacts through minimizing vibration sources: regularly scheduled rail grinding, wheel truing programs, vehicle reconditioning programs, and use of wheel-flat detectors. However, the implementation of these mitigation measures would not substantially mitigate the predicted vibration impacts. These vibration impacts, if left unmitigated, could result in disproportionately high and adverse impacts on minority and low-income populations. Due to this consideration, other offsetting benefits could be considered for implementation as part of the project.

Visual Resources – The Build Alternative would construct new rail infrastructure within portions of the study area including a new rail flyover, new railroad tracks, railroad bridges, and retaining walls. The Build Alternative would also improve 36 viaducts. These improvements would alter the visual environment in parts of the study area.

According to the Visual Resources analysis, high negative visual impacts would occur in the residential neighborhood to the south of Hamilton Park (refer to Figure 3.14-5 in Section 3.14 *Visual Resources*) as a result of the Metra RID Connection flyover and in neighborhoods adjacent to the

Forest Hill Junction (refer to Figure 3.14-6) as a result of the Forest Hill Flyover. The Metra RID Connection flyover would be most visible to residents on Parnell Avenue, Normal Avenue, or 75th Street in the neighborhood south of Hamilton Park. The Forest Hill Junction flyover would have the greatest impact on residents of 43 houses east of the railroad tracks from 75th Street to 78th Street, residents on Bell Avenue north of 75th Street, and residents south of 71st Street and west of Hoyne Avenue due to the increased elevation of the new permanent structure.

The visual impacts as a result of these two project elements are considered substantially adverse because of its intrusiveness and proximity to adjacent properties. These adverse visual impacts would be predominantly borne by minority and low-income populations within these neighborhoods. Potential mitigation measures to minimize visual resource impacts may include acquiring remnant parcels adjacent to new structures, landscaping, visual screening and aesthetic treatments for retaining walls. The details of proposed mitigation strategies will be developed through the CSS process in Phase II (final) design. Visual resource impacts if left unmitigated will result in disproportionately high and adverse impacts on minority and low-income populations within these neighborhoods. However, the Build Alternative would also improve the appearance and condition of 36 viaducts, resulting in positive impacts on visual resources within the study area. These improvements would benefit minority and low-income populations within the study area, as the majority of viaduct improvements would occur within predominantly minority and low-income areas.

75th Street CIP Benefits

According to FHWA's order on Environmental Justice, offsetting benefits resulting from a project should also be considered when evaluating disproportionately high and adverse impacts on minority and low-income populations. The project would provide benefits that would be experienced by minority and low-income populations. Several project elements would have positive impacts on aesthetics including railroad bridge and viaduct improvements. The face of railroad bridges at eight existing viaduct locations would be improved. Improvements such as new sidewalks, roadways, drainage, and lighting systems would be constructed or installed at 36 viaduct locations. This is a positive impact that directly addresses a major community concern regarding viaduct aesthetics and safety, and was added to the project as a result of the CSS process. These improvements would enhance the visual aesthetics, as well as safety and mobility within neighborhoods occupied by minority and low-income populations.

Although the Build Alternative would result in noise impacts, the removal of the interlockings at Forest Hill Junction, Belt Junction, and 80th Street Junction would decrease noise levels at sensitive-receptors near those areas. Minority and low-income populations within those areas would benefit from reduced noise levels, and the elimination of the rail conflicts would greatly reduce the noise and fumes from trains idling while awaiting the crossings to clear.

The Build Alternative would also result in potential benefits to Metra SWS Line riders including reduced travel times within the corridor and a decrease in unexpected delays for SWS trains since the

proposed connection to the RID Line would alleviate conflicts with Class I freight rail operations.[38] The switch from Union Station to LaSalle Street Station would increase the time required to access final destinations from the train terminal for some riders and decrease it for others. For the 79 percent of Metra SWS riders walking from Union Station to their final destination in downtown Chicago, approximately 45 percent would have a shorter or similar walk from LaSalle Street Station, while the other approximately 55 percent would have a longer walk. For the 21 percent of SWS passengers taking a bus, train, or other mode from Union Station, the impact would vary by destination. The SWS Line is classified as a non-minority rail line as indicated in Metra's 2010 Title VI Program and Policy, so the potentially negative impacts of the proposed change would not be borne primarily by minority populations.[39]

Additionally, the Build Alternative would result in benefits to minority and low-income populations within the study area including decreased train idling, improved local mobility and safety, and improved rail transit passenger services. In addition to the reduced travel times and improved reliability from the Wrightwood or Ashburn stations in the study area to downtown Chicago, SWS Passengers would have improved access to the near south side of Chicago via the existing 35th Street/'Lou' Jones/Bronzeville Metra station on the existing RID Line. Major destinations near this station include the Illinois Institute of Technology, US Cellular Field, and short walks to transfer to the CTA Red Line or Green Line. Minority populations living near the 35th Street Metra station would also benefit from the availability of reverse commute service to destinations along the SWS Line. Construction of the project would also result in economic benefits by creating employment opportunities for workers in the region and potentially within the study area.

Additional mitigation measures and offsetting benefits for impacts which could not be fully mitigated under the existing IDOT/CREATE Program policies are discussed below. Further background and details can be found in Environmental Justice Mitigation Measures, Offsetting Benefit and Enhancement Options Technical Memorandum found in Appendix B.

Additional Mitigation Measures and Offsetting Benefits

Under existing IDOT/CREATE Program policies, adverse noise, vibration and visual resources could not be fully mitigated or off-set. In accordance with Executive Order (EO) 12898, Title VI of the Civil Rights Act of 1964, and FHWA Order 6640.23A, the study team identified and evaluated additional mitigation measures and offsetting benefits. Measures that would not be considered under the current IDOT/CREATE Program policies were evaluated further under the flexibility provided by the FHWA's Environmental Justice Order 6640.23A in order to address concerns for equity and in consideration of the disproportionate impacts of the project. The following sections present plans for additional mitigation measures and offsetting benefits. The study team used stakeholder input gathered through the public involvement activities and CSS process to develop the additional mitigation measures and offsetting benefits that could be included as part of the project. The additional measures under investigation and outlined below were coordinated with elected officials

and the CAGs and were presented at the public hearing to gather input from the public and stakeholders.

Additional Noise Barriers – In the case of predicted noise impacts, IDOT and FHWA programmatically evaluated a range of other potential noise mitigation measures—including noise attenuating measures (e.g., insulation, windows, doors, air conditioning, etc.)—to address predicted noise impacts on low-income and minority populations. After careful consideration, these measures were determined to be not practicable due to unpredictable factors such as: physical condition of the residential structure which could make feasible noise reduction difficult to predict or possibly achieve; access to residential structures to assess before and after noise levels and to install recommended noise mitigation measures; varying presence or conditions of existing items (e.g., insulation, windows, doors, air conditioning, etc.) that might require installation or replacement. These factors create high levels of uncertainty with regard to feasible, uniform and practicable implementation. Therefore, IDOT and FHWA have determined that feasible noise barriers up to approximately double the economic reasonability criteria contained in the CREATE N&V Methodology are the only practicable mitigation measures to address disproportionately high and adverse noise impacts to low-income and minority populations. Using this approach, additional noise walls that are considered practicable were considered for inclusion with the project to mitigate predicted noise impacts to low-income and minority populations. Based on the noise abatement analysis and the preliminary design, one additional noise barrier is recommended for implementation:

- Barrier O is located along the north side of the BRC railroad tracks near the southeast limits of the project east of the Dan Ryan Expressway (I-94). This barrier would benefit 57 severely impacted receptors. The total estimated cost of the barrier would be $2,025,450. This equates to approximately $35,534 per receptor, which is $5,534 more per receptor than would be allowed under the CREATE N&V Methodology.

The noise analysis area for the 75th Street CIP overlaps with the noise analysis area for the CREATE EW3 Project. Due to this overlap and the resulting consistency in the noise analysis results, noise abatement is currently recommended for both projects to mitigate predicted impacts to low-income and minority populations. It is likely that the EW3 project will implement noise abatement in this area prior to 75th Street CIP. For this reason, IDOT and FHWA solicited the viewpoints of benefited receptors in the area of Barrier O as part of the EW3 Project. The feedback received during this process indicated that greater than 50 percent of the benefited residents desired the implementation of Barrier O. Based on the analysis and the preliminary design, Barrier O is likely to be implemented as part of the EW3 project. If it subsequently develops during the final design of the EW3 project that constraints not foreseen in the preliminary design occur, or public input substantially changes, the abatement measure may need to be modified or removed from the EW3 project plans. A final decision on the implementation of Barrier O will be made upon completion of the EW3 project's final design and corresponding public involvement process.

Funding of Quiet Zone Project – Train horn noise was cited as a community concern by CAG members and attendees at public meetings. Train horn noise was one of four project-related concerns that CAG members asked to be included in an addendum to the Problem Statement for the 75th Street CIP. As a result of ongoing coordination between the 75th Street CIP study team and the CREATE Partners, CDOT evaluated the feasibility of Quiet Zones at several corridor locations within the 75th Street CIP study area. These studies indicated that a Quiet Zone was feasible in only one corridor, along the UP Villa Grove subdivision from 95th Street to 130th Street. A portion of this corridor, from 95th Street to 101st Street, overlaps with the 75th Street CIP study area. CDOT continues to pursue a Quiet Zone along the UP Villa Grove subdivision. The implementation of this Quiet Zone would reduce noise levels for 175 moderately impacted residents in this corridor by reducing the need for trains to sound their horns.

If the City's ongoing study results in a recommendation for implementation, and if approval is granted by the Federal Railroad Administration, then the CREATE partners will further investigate funding the capital costs of Quiet Zone implementation by the City of Chicago for the three crossings within the study area: 95th Street, 97th Street, and 101st Street. Based on recent preliminary cost estimates developed by CDOT, the total capital costs for these three crossings are estimated to be approximately $590,000. Costs for implementation of the other crossings within the Quiet Zone but outside the 75th Street CIP study area are estimated at approximately $2.2 million, and would have to be provided by the City or other parties.

Bus Stop Improvements – Upgrading of up to 20 existing high-ridership bus stops within walking distance (i.e., one-half mile) of the project limits is recommended as a community enhancement that would contribute to improved mobility within the study area. Upgrades to these bus stops could include installing bus shelters (where they are feasible and currently do not exist) and electronic signs with real-time bus arrival information. CDOT will coordinate with CTA and with local officials and stakeholders during Phase II design to further evaluate and detail the recommended improvements. The CREATE partners will provide funding for the implementation of the recommended improvements. Planning, design, implementation (i.e., construction) and long-term maintenance will be provided by CDOT.

Sidewalk Improvements –To improve local mobility in the project area, CDOT will coordinate with local officials and community members during Phase II design to determine specific areas for improvements, such as connecting to schools, community centers, churches, and other destinations. The CREATE partners will provide funding for the implementation of the recommended improvements. Planning, design, implementation (i.e., construction) and long-term maintenance will be provided by CDOT. This would be in addition to the proposed improvements to sidewalks, ADA ramps, and crosswalks already included in the project as part of the improvements to local mobility at railroad viaducts. One specific area that could be investigated for such improvements is the vicinity of the proposed closure of the Union Avenue viaduct. Some residents in this location will be faced with longer walking distances to some destinations presently accessed using Union Avenue.

The number of other locations where this improvement could be considered, and the distance around each school or other neighborhood facility where sidewalk improvements could be constructed allows a great range in the potential cost of this type of mobility improvement.

Bicycle Facility Improvements – The community context audit for the project identified a desire for more bike lanes in the project area, particularly connecting east toward the Lakefront Trail. To improve local mobility, CDOT will coordinate with local officials and community members during Phase II design to identify recommended bicycle facilities that would be funded by the CREATE partners. Planning, design, implementation (i.e., construction) and long-term maintenance will be provided by CDOT.

Two bicycle facilities included in the City of Chicago's Streets for Cycling Plan 2020 - a 645-mile network of innovative bicycle facilities such as buffered bike lanes, protected bike lanes, and neighborhood greenways - were identified as potential options that could be implemented by CDOT with capital funding provided by the CREATE partners. The routes included in the Streets for Cycling Plan 2020 were identified in coordination with local community advisory groups, and through input received at public meetings and online webinars.

The first potential facility is the 6.2-mile long 76th Street "Crosstown Bike Route" from Damen Avenue to Rainbow Beach Park along the lakefront. Construction cost for this on-street bikeway is estimated at approximately $700,000. A second potential facility is a connection to another trail, the Major Taylor Trail, via a 750-foot long off-street path through Dawes Park near the intersection of Damen Avenue and 81st Street. Better connections to both facilities could enhance the local community by improving connections to existing trails that can be used for recreation and transportation.

Remnant and Vacant Parcel Improvements - Elected officials have expressed concern about the disposition of remnant land parcels left after the construction of the 75th Street CIP. Improvements to remnant and vacant parcels are recommended as an additional measure to improve visual appearance of the property and possibly support increased functional use within the community. IDOT, FHWA, and the participating railroads will coordinate with CDOT during Phase II to identify potential reuse of remnant or vacant parcels as community gardens and parks. Improvements could range from special landscaping, irrigation and drainage improvements, and facilities to enhance neighborhood gardening.

Streetscape Improvements – To improve the appearance and infrastructure conditions of existing transportation corridors, IDOT, FHWA, and the participating railroads will coordinate with CDOT during Phase II design to identify potential streetscape enhancements in the project study area. Visual enhancements could include adding trees, benches, way-finding, decorative pavement at prominent crosswalks, bike racks, and other amenities. These aesthetic items are relatively minor in cost but have developed community identity and generated significant community pride in other

areas. Examples of outreach between a major land use (McCormick Place) and the Bronzeville community can be seen along Dr. Martin Luther King Jr. Drive.

At present, CDOT has no streetscape projects planned within the 75th Street CIP study area, but there may be several viable locations, such as Halsted Street from 75th Street to 81st Street, or Racine Avenue from 74th Street to 81st Street. IDOT, FHWA, and the participating railroads will coordinate with CDOT to determine the viability of such a program.

Job Training Programs – IDOT, CDOT and the participating railroads commit to further exploring the following additional job training and education opportunities during Phase II final design and Phase III construction:

Job training:

- IDOT, CDOT, and/or the participating railroads could provide some funding to existing programs to help interested individuals obtain the required qualifications for jobs in the construction industry. Existing resources such as IDOT's Resource Center and the IDOT Highway Construction Careers Training Program could be utilized to fulfill this commitment.

- During construction, inspector trainees could be hired by the lead contracting agency (e.g., CDOT or the participating railroads) to increase exposure to project related activities. This non-traditional approach could be funded without federal funding, if needed.

Educational programs:

- The participating railroads would consider donations, volunteer service, or other assistance to Science, Technology, Engineering and Math (STEM) curriculum in area elementary schools. This program could bring project engineers into classrooms near the project to talk about their work on various aspects of the project to increase the interest of students in engineering and technical fields. This could be done at little or no direct cost to the project.

Young workers:

- Consideration was given to possible measures to develop, fund, and manage a program to hire youths during the summer for landscaping maintenance. Several people at the preliminary CAG meetings pointed out that hiring to do this work could achieve two goals: helping youth find work and improving the appearance of railroad property. Due to restrictions associated with the federal aid transportation programs that will fund construction of the project, such a program was not considered viable, and was not considered further.

Mortgage Assistance – Some property owners were concerned about the value they would receive for their property, especially if they owe more money on their mortgage than the fair market value of their property (i.e., negative equity). The CREATE partners would assist some residential property owners that would be displaced because of this project to settle their mortgage balance. This

commitment would be funded by project funds and opportunities would be evaluated on a case-by-case basis when appropriately justified.

Environmental Justice Summary and Next Steps

Based on existing socioeconomic conditions of the demographic study area, impacts, whether beneficial or adverse, would be predominantly borne by minority and low-income populations. According to the analysis, the Build Alternative for the 75th Street CIP would have disproportionate adverse noise, vibration, and visual impact on Title VI and Environmental Justice populations as defined by Title VI of the Civil Rights Act of 1964 and EO 12898. This determination was based on the fact that the project impacts would be predominantly borne by minority and low-income populations. To mitigate these impacts, a full range of mitigation measures under the IDOT/CREATE Program policies were investigated, as noted above. Some of these mitigation measures were found to be effective, and those have been incorporated into the project. However, even with the implementation of these mitigation measures, disproportionately high and adverse impacts on minority and low-income populations remained.

Where disproportionately high and adverse impacts remained, additional practicable mitigation and enhancement measures that would minimize impacts or provide offsetting benefits to the affected communities and individuals were evaluated. This approach is consistent with the guiding principles established under EO 12898 and Title VI of the Civil Rights Act of 1964, as well as the CREATE Program Environmental Justice Policy. Measures that would not be considered under the current IDOT or CREATE Program policies were evaluated under the flexibility provided by the FHWA's Environmental Justice Order 6640.23A in order to address concerns for equity and in consideration of the disproportionate impacts of the project. These measures, described above, range from additional noise barriers and sidewalk improvements to the funding of a Quiet Zone and remnant and vacant parcel improvements. Other opportunities evaluated include streetscape and bicycle improvements as well as employment and job training programs.

Input about these additional measures and offsetting benefits was gathered from the involved agencies, the CAGs, local officials, residents of the study area, and other project stakeholders. The feedback received from all parties demonstrated support for implementation of all of the additional mitigation measures.

IDOT, FHWA and the participating railroads are committed to providing the Additional Noise Barrier O and Mortgage Assistance. IDOT, CDOT and the participating railroads will commit to further exploring the following additional job training and education opportunities during Phase II final design and Phase III construction.

The remaining additional mitigation measures discussed above are outside the jurisdiction of FHWA and IDOT and will require coordination with other agencies such as CDOT and CTA. Although FHWA and IDOT cannot commit to implementing these measures, they do commit to coordinating with the responsible agencies during Phase II (final) design to advance the planning and design of

mitigation measures. It is important to note that the intent of the additional mitigation measures is that the 75th Street CIP project would provide capital funding only (i.e., no maintenance and operational funding would be included). The responsible agencies would need to commit the resources required to perform the work to plan, design, operate and maintain any associated infrastructure improvements. These actions would need to occur during the Phase II (final) design process so that the required funding could be procured for their construction. While the implementation of these additional mitigation measures is desirable, IDOT's and FHWA's decision to move forward with the project would not change if the additional mitigation measures outside of their control are not implemented. Consequently, if these additional mitigation measures are not implemented by the responsible external agency, it will not affect the commitments stated in the FEIS and would not create the need to update the Preferred Alternative. A combined letter of support from CDOT and CTA is included in Appendix C-10.

Table 3.2-178 outlines the mitigation measures and offsetting benefits that could be provided under existing IDOT/CREATE Program policies, as well as additional mitigation measures and offsetting benefits that were studied to address disproportionately high and adverse impacts to low-income and minority populations. Potential implementing agencies are also noted in the summary table below. The additional mitigation measures are separated into those under the jurisdiction of FHWA and/or IDOT and those that are outside of their jurisdiction.

Table 3.2-18: Summary of Recommended Mitigation and Offsetting Benefits

Mitigation Measure/ Offsetting Benefit	Concern or Need to be Addressed	Potential Implementing Agency	Disposition of the Measure
Existing IDOT/CREATE Program Policies			
Noise Barriers (Feasible and Reasonable)	Noise Impacts	IDOT/FHWA/CDOT/Railroads	Carried forward as environmental commitment
Vibration Mitigation	Vibration Impacts	Railroads	Carried forward as environmental commitment
Visual Impact Screening	Visual Impacts	IDOT/FHWA/CDOT/Railroads	Carried forward as environmental commitment
Viaduct Improvements	Local Mobility; Visual Impacts	IDOT/FHWA/CDOT/Railroads	Carried forward as environmental commitment
Additional Mitigation and Offsetting Benefits Under IDOT and/or FHWA Jurisdiction			
Additional Noise Barriers (Feasible and Practicable)	Noise Impacts	IDOT/FHWA/CDOT/Railroads	Carried forward as environmental commitment
Job Training Programs	Economic Impacts	IDOT/CDOT/Railroads	To be further studied / coordinated during Phase II
Mortgage Assistance	Neighborhood Impacts	IDOT/FHWA/CDOT/Railroads	Carried forward as environmental commitment
Additional Mitigation and Offsetting Benefits Outside of IDOT and FHWA Jurisdiction			
Quiet Zone on UP Villa Grove Subdivision	Noise Impacts	CDOT/Railroads	To be further studied / coordinated during Phase II
Bus Stop Improvements	Local Mobility	CDOT	To be further studied / coordinated during Phase II
Sidewalk Improvements	Local Mobility	CDOT	To be further studied / coordinated during Phase II
Bicycle Facility Improvements	Local Mobility	CDOT	To be further studied / coordinated during Phase II
Remnant and Vacant Parcel Improvements	Visual Impacts; Neighborhood Impacts	CDOT	To be further studied / coordinated during Phase II
Streetscape Improvements	Visual Impacts, Economic Impacts	CDOT	To be further studied / coordinated during Phase II

3.3 Transportation

The study area has an extensive multi-modal transportation network that includes four freight rail carriers, two active intermodal yards for freight transfer, two regional commuter rail lines, one inter-city passenger rail line, a heavy rail rapid transit line, fixed-route bus service on most major streets, an interstate highway, a gridded street network, bicycle facilities, and sidewalks along nearly every street. The existing conditions of these transportation systems and the expected impacts of the No-Build and Build Alternatives are discussed in more detail in the following sub-sections. The design year for the 75th Street CIP is 2029.

3.3.1 Railroads

3.3.1.1 Existing Conditions

Four freight carriers – the Belt Railway of Chicago (BRC), CSX, Norfolk Southern (NS), and Union Pacific (UP) – and two passenger carriers, Amtrak and Metra, pass through the study area.

Figure 3.3-1 shows a schematic map of the routes used by each of these railroads and the major conflict points to be addressed by the project.[40] Figure 3.3-2 shows additional conflicts north of the study area on the former Chicago and Western Indiana (CWI) railroad, now a part of NS.

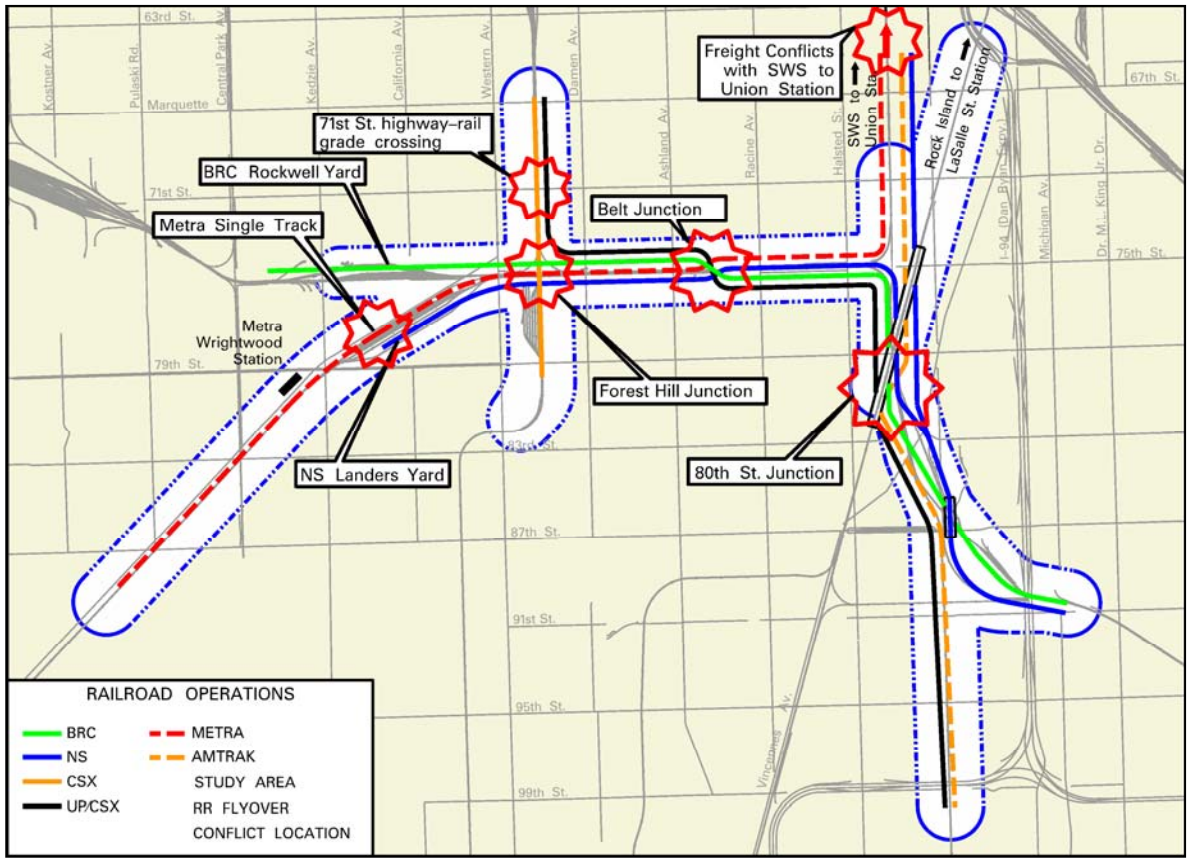


Figure 3.3-1: 75th Street CIP Rail Conflicts within the Study Area

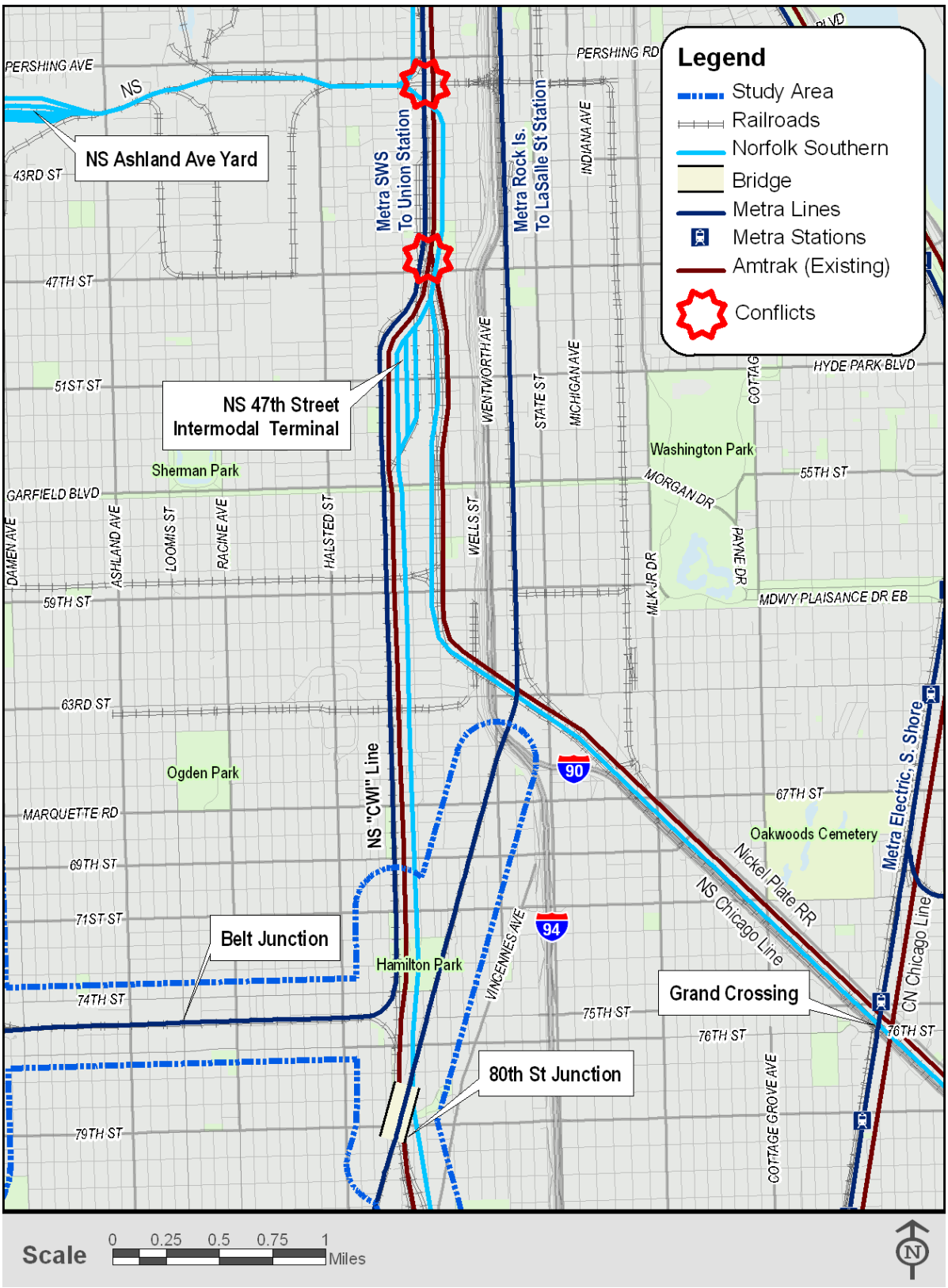


Figure 3.3-2: Rail Conflicts along the CWI Line, north of the 75th Street CIP

Table 3.3-1 shows the current number of peak day trains per day passing through each track section. A map showing the location of the various track sections is shown in Figure 3.3-3.

Table 3.3-1: Existing Peak Day Train Volumes[41]

Track Section		Existing (2009)		
ID	RR and Location	Passenger	Freight	Total
A	Metra/NS, SW of Landers Yard	30	3	33
B	BRC, West of Forest Hill Jct.	0	46	46
C	CSX, South of Forest Hill Jct.	0	24	24
D	CSX, North of Forest Hill Jct.	0	37	37
E	BRC/Metra/NS, Belt Junction	30	52	82
F	Amtrak/NS CWI Line, 75th St. to 47th St.	32	5	37
G	Amtrak/BRC/NS/UP, 75th St. Wye to 80th St. Jct.	2	62	64
H	Amtrak/BRC/UP, 80th St. Jct. to 86th Street	2	41	43
I	Amtrak/UP, South of 86th Street	2	24	26
J	NS, 80th St. Jct. to State St.	0	16	16
K	BRC, 86th St. to State St.	0	17	17
L	BRC/NS, East of State St.	0	33	33
M	Rock Island, South of 74th St.	78	0	78
N	Rock Island, North of 74th St.	78	0	78
O	NS Chicago Line, South of 47th St.	14	46	60

Sources: CTCO Train Model Output,[42] CREATE P4 Project Fact Sheet[43]

Approximately 82 trains per day pass through Belt Junction in the center of the 75th Street corridor

Metra SWS passenger trains operating in the study area generally consist of one locomotive and seven cars. Depending on their location, they typically travel at speeds of 40 to 55 mph through the corridor, and pass through most grade crossings in less than 10 seconds. Freight trains operating in the 75th Street corridor are typically much longer, with some over 9,000 ft (1.7 miles) in length, with 4 locomotives and more than 130 cars. Freight train speeds are slower than passenger train speeds, particularly when they must start from a stop. The longer trains can take more than four or five minutes to clear a crossing.

Additional details regarding train volumes can be found in Chapter 1 (Purpose and Need) of this Environmental Impact Statement (EIS).

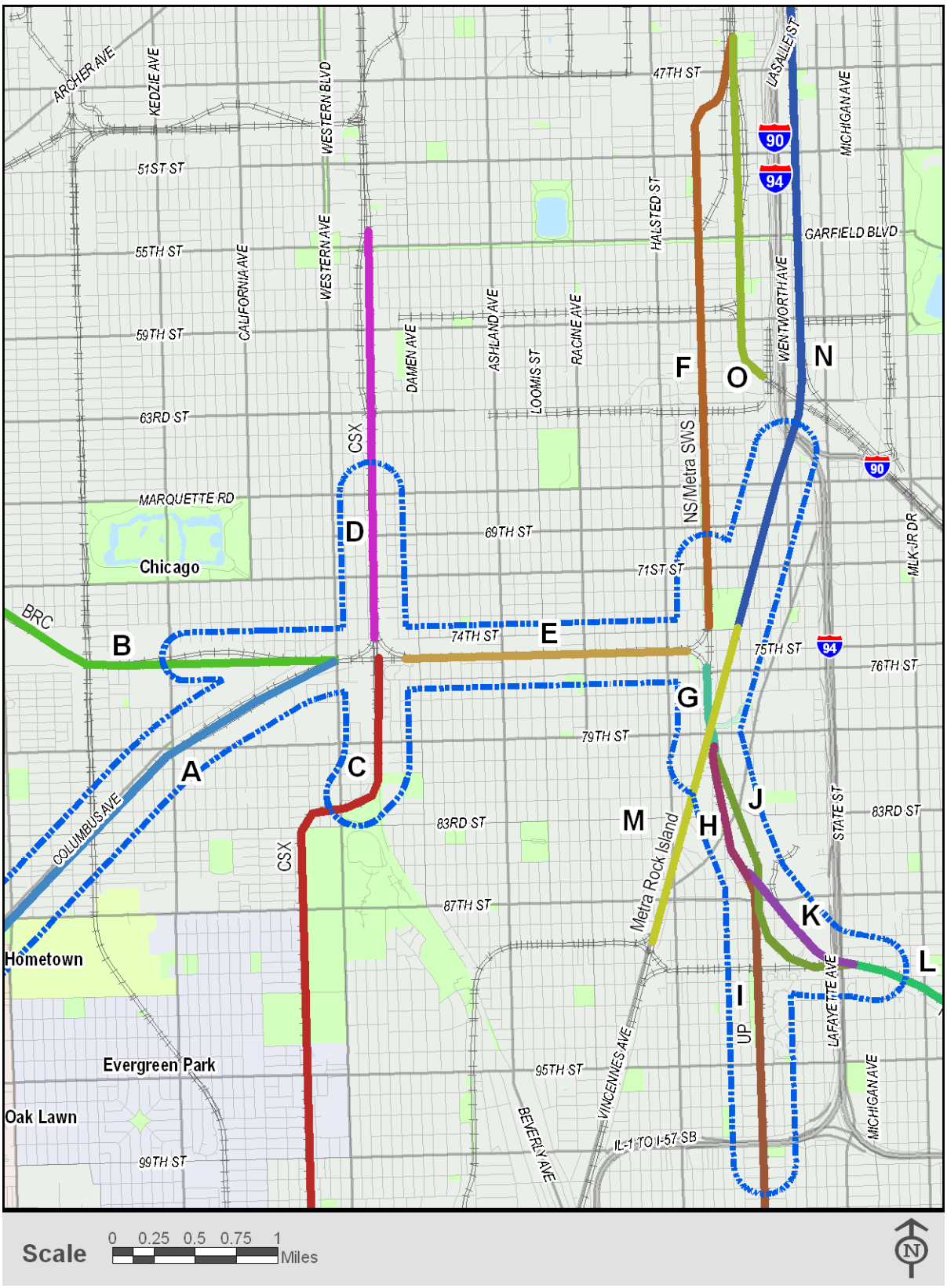


Figure 3.3-3: Train Volume Section Map

3.3.1.2 Impacts to Railroad Facilities and Operations

No-Build Alternative

With the No-Build Alternative, there would be no major capital improvements to the rail systems in the corridor. The only physical changes would be any maintenance or reconstruction of existing rail infrastructure needed to keep the system functioning. Passenger rail traffic through the 75th Street corridor would remain relatively constant throughout the design period. The CTCO train model predicts an increase of two additional trains per day on the Metra SWS Line and two additional Amtrak trains per day on the Cardinal/Hoosier State Line by the design year of 2029. However, these are not necessarily trains in revenue service, as Metra has stated that there are no current plans to increase service on the SWS Line.

The CTCO Train Model projects that freight train traffic would continue to increase through the corridor until approximately the year 2024, at which time the corridor would essentially reach full capacity. Freight rail traffic is then predicted to remain generally constant at that level through the design year of 2029. The greatest increase in daily freight rail volumes is projected to be along the CSX line north (Section D) and south (Section C) of Forest Hill Junction, at an additional 25 and 24 trains per day, respectively. Increases of approximately 15 freight trains per day are expected through 80th Street Junction (Section G), while Belt Junction (Section E) is expected to handle an additional 11 freight trains per day.

Overall, the number of freight trains through all legs of the corridor is projected to increase by 48 percent over 2009 levels in the No-Build Alternative. The average length of trains would also increase from 62.9 to 75.3 freight cars per train due to a higher percentage of intermodal trains in the future. Intermodal trains are typically longer than other types of freight trains. The combination of the increase in number of trains and average length of trains increases the total number of freight cars moving through the corridor by 78 percent, from approximately 1.9 million to 3.4 million cars per year. The increase in freight traffic would result in increases in train delays, train idling, train noise, and vehicular delays at grade crossings beyond the levels currently experienced. Metra SWS operations would also be subject to longer and more frequent delays. Existing (2009) and projected No-Build (2029) rail traffic peak day daily volumes are shown in Table 3.3-2.

Build Alternative

The Build Alternative would increase the rail capacity through the 75th Street corridor by eliminating the major existing rail conflicts and adding additional track in several areas. The number of freight trains passing through the corridor is projected to grow by an additional 21 percent compared to the No-Build Alternative through the Year 2029 to take advantage of this added capacity. The number of freight *cars* would increase by 23 percent over the No-Build Alternative to nearly 4.2 million cars per year. This is an increase of 118 percent over the existing annual volume of freight car passing through the study area. A summary of the growth in freight traffic is shown in Table 3.3-3.

At Belt Junction (Section E), total daily train volumes are projected to increase by 80 percent over current levels, with daily train traffic (freight and passenger) increasing from 82 trains per day in 2009 to an estimated 148 trains per day in the Year 2029. Through 80th Street Junction (Section G), daily traffic would increase from the current 64 trains per day to 127 trains per day with the Build Alternative. Details of the train projections for the Build Alternative throughout the 75th Street corridor are presented in Table 3.3-2.

Total freight trains through the corridor are projected to increase from 84 trains per day in 2009 to 124 in 2029 with the No-Build Alternative, and to 152 freight trains per day with the Build Alternative.

Note that in three locations, daily rail traffic is projected to go down substantially from the projected No-Build Alternative or even current levels in some cases. This reduction in train volumes with the Build Alternative would occur principally on the CSX line north and south of Forest Hill Junction (Sections C and D), and is the result of other improvements in the CREATE Program making a different route outside the 75th Street corridor more efficient for the CSX traffic.

Table 3.3-2: Projected Weekday Daily Train Volumes[41]

Track Section		Existing (2009)			No-Build (2029)			Build (2029)		
ID	RR and Location	Passenger	Freight	Total	Passenger	Freight	Total	Passenger	Freight	Total
A	NS/Metra, SW of Landers Yard	30	3	33	32	3	35	34	5	39
B	BRC, West of Forest Hill Jct.	0	46	46	0	53	53	0	91	91
C	CSX, South of Forest Hill Jct.	0	24	24	0	48	48	0	11	11
D	CSX, North of Forest Hill Jct.	0	37	37	0	62	62	0	41	41
E	Belt Junction	30	52	82	32	63	95	34	114	148
F	Amtrak/NS CWI Line, 75th St. to 47th St.	32	5	37	36	13	49	6	5	11
G	Amtrak/BRC/NS/UP, 75th St. Wye to 80th St. Jct.	2	62	64	4	77	81	6	121	127
H	Amtrak/BRC/UP, 80th St. Jct. to 86th Street	2	41	43	4	51	55	4	100	104
I	Amtrak/UP, South of 86th Street	2	24	26	4	23	27	4	44	48
J	NS, 80th St. Jct. to State St.	0	16	16	0	22	22	0	22	22
K	BRC, 86th St. to State St.	0	17	17	0	28	28	0	59	59
L	BRC/NS, East of State St.	0	33	33	0	50	50	0	82	82
M	Rock Island, South of 74th St.	78	0	78	78	0	78	78	0	78
N	Rock Island, North of 74th St.	78	0	78	78	0	78	112	0	112

Source: CTCO Train Model Output[42]

The other location projected to experience a decrease in rail traffic under the Build Alternative would be along the CWI line north of 75th Street (Section F). Most of this decrease is the result of the 30 Metra SWS trains that now use the CWI line shifting to the RID Line with the Build Alternative.

Table 3.3-3: Rail Freight Traffic through the Study Area

Route	Existing 2009	No-Build 2029	No-Build Increase Over Existing	Build 2029	Build Increase Over No-Build
Average Daily Freight Train Trips Through the Study Area, All Lines	84	124	48%	152	23%
Annual Freight Cars Through the Study Area, All Lines	1,918,188	3,412,184	78%	4,184,749	23%

Source: CTCO Train Model Output[42].

3.3.2 Roadways

3.3.2.1 Existing Conditions

Figure 3.3-4 shows a map of the roadway network near the study area, with IDOT's current annual average daily traffic (AADT) volume counts[44] and all the highway-rail crossings in the study area also shown. The roadway network is an urban street grid of arterials, minor arterials, collector streets, and local streets; occasionally severed by railroad tracks, freeways, open space, or institutional land uses. With some exceptions, through streets in the study area (and throughout Chicago) are spaced every half-mile, with local streets every 1/8 mile (660 feet) or 1/16 mile (330 feet). Major roadways include 79th Street, 87th Street, and 95th Street in the east-west direction; Halsted Street, Ashland Avenue, Western Avenue, Kedzie Avenue, and Pulaski Road in the north-south direction; and Vincennes Avenue, and Columbus Avenue/Southwest Highway which cross the study area at an angle from southwest to northeast.

There are 54 locations where roadways cross railroad tracks within the study area. Of the 54 crossings, 8 are at-grade and 46 are grade-separated with railroad viaducts. The viaducts cross above 19 local streets, 24 through streets, 2 expressways (I-94 and I-57), and a private access roadway to railroad property (Lowe Avenue). Local input identified viaduct conditions as a major safety and mobility concern in the study area. In response to these concerns, the need to improve local mobility was added to the Purpose and Need for the project (see Chapter 1), and viaduct underpasses were surveyed at 37 locations where bridge work is likely to be completed as a part of the 75th Street CIP. Major survey findings included the following:

- 13 percent of light fixtures were non-functioning.
- Roadway drainage problems - typically clogged or collapsed sewer inlets - exist at 20 underpasses.
- Water was leaking through bridge decks or abutments at 19 locations.
- Roadway resurfacing or reconstruction was needed at 17 locations due to poor pavement conditions.
- Sidewalk replacement was needed at 14 locations.

- Sidewalk ramps needed to be constructed at 94 locations to meet ADA standards.

A full table summarizing viaduct conditions can be found in Appendix A.

The eight highway-rail at-grade crossings include crossings of four local streets, one minor through street, and three major through streets (see Table 3.3-4). Three of the crossings are programmed for grade separation as a part of the CREATE Program. This includes the grade separation of 71st Street from the north-south CSX railroad tracks as part of this 75th Street CIP. The other two grade separation projects - which are not included in the 75th Street CIP - are Columbus Avenue at the BRC railroad tracks (CREATE Project GS 11) and 95th Street at the UP railroad tracks (CREATE Project GS 21a). Of the five at-grade crossings planned to remain, four are on local streets carrying less than 4,000 vehicles per day and one is through the busy intersection of 87th Street & Pulaski Road.

Table 3.3-4: Highway-Rail Grade Crossings in the Study Area

Street Name	Road Type	AADT	AADT Source	Railroad	Existing Daily Train Volume	To Be Grade Separated?
71st St	Major Through Street	11,200	IDOT	CSX	37 freight	Yes[a]
Columbus Ave	Minor Through Street	11,500	IDOT	BRC	46 freight	Yes[b]
83rd Place	Local	1,000	ICC	Metra/NS	30 passenger, 3 freight	No
Lawndale Ave	Local	1,500	ICC	Metra/NS	30 passenger, 3 freight	No
87th St/Pulaski Rd	Major Through Street	43,800	IDOT	Metra/NS	30 passenger, 3 freight	No
Duffy Ave	Local	2,850	IDOT	Metra/NS	30 passenger, 3 freight	No
95th St	Major Through Street	24,200	IDOT	UP	2 passenger, 24 freight	Yes[c]
97th St	Local	3,600	ICC	UP	2 passenger, 24 freight	No

Sources: IDOT[45], CTCO Train Model Output[42], Metra SWS Schedule[46], Amtrak Cardinal/Hoosier Schedule[47]

[a] *Grade separation is proposed as part of the 75th Street CIP*
[b] *Grade separation will be evaluated as part of the CREATE GS-11 project*
[c] *Grade separation will be evaluated as part of the CREATE GS-21a project*

Figure 3.3-4 - Roadway Network and Highway-Rail Crossings

3.3.2.2 Impacts to Roadways

This section describes the impacts of the project on study area roadways under No-Build and Build Alternatives. The impacts to roadways for the 75th Street Corridor Improvement Project would mostly occur at highway-rail crossings. Changes in train volumes, average lengths, and speeds would affect delays at highway-rail grade crossings in both the No-Build and Build Alternatives. Changes in automobile traffic volumes also have an impact on motorist delays at grade crossings. More drivers waiting for a train to pass would result in more total hours of delay. Year 2040 projected traffic volumes were provided by CMAP for the No-Build and Build Alternatives. Design year projected volumes for 2029 (see Table 3.3-7) were developed by interpolating between existing and 2040 volumes.

No-Build Alternative

The No-Build Alternative assumes that all projects in the regional Transportation Improvement Plan (TIP) and the fiscally constrained model of the CMAP GO TO 2040 Plan, with the exception of the 75th Street CIP, would be implemented. Roadway projects in the TIP include resurfacing portions of Western Avenue, Kedzie Avenue, and 87th Street; and traffic signal interconnect and timing on sections of 87th Street and 95th Street. These projects are not likely to have a major effect on roadway traffic volumes, and there are no other major capital projects in the study area that would have a marked effect on roadway traffic either. The only physical changes would be any maintenance or reconstruction of existing facilities needed to keep them functioning.

Delays at grade crossings were estimated using a method developed by the Illinois Commerce Commission (ICC).[48] The ICC method calculates expected gate-down times based on input data such as freight and passenger train volumes, freight lengths, freight speeds, and the presence of nearby intermodal yards or passenger train stations (see Table 3.3-5).

Table 3.3-5: Calculated Gate-Down Times at Highway-Rail Grade Crossings

Grade Crossings			Calculated Gate-Down Time (min/day)		
Roadway	Railroad	Section ID	Existing (2009)	No-Build (2029)	Build (2029)
71st St	CSX	D	112[49]	207	0
Columbus Ave	BRC	B	258	325	531
83rd Pl	NS/Metra	A	57	62	70
Lawndale Ave	NS/Metra	A	57	62	70
87th St/Pulaski Rd	NS/Metra	A	38	42	47
Duffy Ave	NS/Metra	A	38	42	47
95th St	UP	I	45	45	98
97th St	UP	I	45	45	98

The aggregate gate-down times are multiplied by the average daily motor vehicle flow rates (vehicles per minute) to estimate the number of vehicles impacted. The gate-down times are used to calculate the total motorist delay. Because the method does not account for varying motor vehicle

traffic volumes by time of day, variability in gate-down times, motor vehicle departure rates from queues, or additional vehicles affected during queue clearance, the calculated delays may not precisely represent actual conditions. Although this analysis may not provide accurate projections of the actual vehicle-hours of delay, it should provide a good indication of the relative difference between the alternatives (see Table 3.3-6).

Table 3.3-6: Relative Change in Motor Vehicle Delays at Highway-Rail Grade Crossings

Grade Crossings			Vehicle-Hours of Delay	
Roadway	Railroad	Section ID	%Change No-Build vs. Existing	%Change Build vs. No-Build
71st St	CSX	D	116.0%	-100.0%
Columbus Ave*	BRC	B	23.5%	54.9%
83rd Pl	NS/Metra	A	31.7%	16.8%
Lawndale Ave	NS/Metra	A	27.7%	16.8%
87th St/Pulaski Rd	NS/Metra	A	28.2%	22.1%
Duffy Ave	NS/Metra	A	33.7%	22.1%
95th St*	UP	I	-0.6%	164.7%
97th St	UP	I	0.9%	164.7%

**Grade separation will be evaluated as part of other CREATE projects. Calculations assume that the crossing is not grade separated.*

At the 71st Street highway-rail grade crossing, the estimated gate-down time nearly would double in the No-Build conditions from 112 minutes to 207 minutes per day[49]. Delays to motorists at 71st Street are projected to increase by 116 percent in the No-Build Alternative, largely due to an increase from 37 to 62 freight trains per day on the CSX line (see Section D on Figure 3.3-3). The average daily traffic (ADT) volume would also increase by approximately 300 vehicles per day to 14,900 vehicles per day. This increase in motor vehicle traffic and increased average freight train lengths contribute to the increased motor vehicle delays. Given the availability of nearby grade-separated crossings, some traffic would be expected to divert from 71st Street to parallel routes such as Marquette Road, 68th Street, 69th Street, and 79th Street to avoid these delays. Some of these diversions would be pre-planned, while others would be spontaneous in response to encountering a crossing blocked by a freight train. The spontaneous crossings would likely divert to the nearest alternate route at 69th Street via residential streets such as Hoyne Avenue and Oakley Avenue north of 71st Street.

At the Columbus Avenue crossing of the BRC tracks, the delays are projected to increase by approximately 24 percent in the No-Build Alternative due to an increase in the number of trains, from 46 to 53, and an increase in average train lengths. At the four grade crossings along the Metra and NS tracks that run parallel to Columbus Avenue, motorist delays would increase by approximately 30 percent in the No-Build Alternative, mostly due to a decline in average freight train speeds from 16.8 MPH to 13.7 MPH. Average train speeds generally decline in the No-Build scenario due to higher train volumes, resulting in more rail congestion in the study area. Train volumes, speeds, and average lengths on the UP railroad tracks would not see large changes, which

results in little change to delays at the 95th Street and 97th Street grade crossings in the No-Build Alternative.

Roadway pavement and drainage deficiencies under railroad viaducts would not be addressed as part of the project in the No-Build Alternative, although it could be accomplished with other sources of funding not related to the project. Most likely though, pavement conditions would continue to be poor at many locations.

Build Alternative

The Build Alternative would provide an overpass for the rail traffic at 71st Street that would eliminate the 71st Street grade crossing. The Build Alternative would also include the closure of Union Avenue at the 75th Street rail corridor. Both of these changes would affect the traffic volumes at the crossings and on parallel routes.[50] Delays at the other highway-rail grade crossings would also be affected by changes in train volumes, speeds, and average lengths. The traffic volumes and delays on all other roadways would be unchanged from the No-Build Alternative.

At 71st Street, construction activities would require a complete closure of the street for up to two weeks to install a temporary grade crossing and remove the existing grade crossing, a closure of one week to set the new bridge span in place, a closure of one week to remove the temporary grade crossing, and the restriction of the roadway to one-way traffic for approximately two months to reconstruct the roadway and lower the profile. Traffic would be detoured to 69th Street, Marquette Avenue, and 79th Street as described in Section 3.16.4. In the long run, the new structure for the CSX railroad tracks would eliminate the grade crossing delays for roadway users. This would encourage more vehicles to use 71st Street, increasing the ADT volume by an estimated 20 percent over the No-Build Alternative to 17,900 vehicles per day. The volumes on Marquette Road, 69th Street, and 79th Street would all decrease, with the greatest changes on 69th Street, which is the closest parallel route. A reduction in "cut through" traffic on residential streets such as Hoyne Avenue and Oakley Avenue would also be expected. Changes to traffic volumes are shown in Table 3.3-7.

Other highway-rail grade crossings to remain would see increased delays due to a combination of higher train volumes, higher motor vehicle volumes, and longer train lengths. Delays at the Columbus Avenue crossing are projected to increase by approximately 55 percent compared to the No-Build Alternative due to a large increase in the number of trains, from 53 to 91 per day, as well as a 20 percent increase in the average length of trains. However, the Columbus Avenue grade crossing is anticipated to be eliminated as a result of a separate project in the CREATE program (GS 11). The planned grade separation structure at the Columbus Avenue crossing would eliminate all vehicular delays in this location. Delays at the four crossings along the NS/Metra rail line would increase by approximately 20 percent compared to the No-Build Alternative, mostly due to an increase from 3 to 5 freight trains per day and longer train lengths. Along the UP line, the freight train volume would increase from 23 trains per day to 44 trains per day, and the average length of trains would increase by 11 percent. This results in a 165 percent increase in vehicle-hours of delay

at the 95th Street and 97th Street crossings. However, the 95th Street crossing is also programmed for grade separation as CREATE project GS 21a. The planned grade separation structure at 95th Street would eliminate all vehicular delays in this location.

The closure of the Union Avenue viaduct at 75th Street would detour all traffic to Halsted Street, one full block (660 feet) to the west. There is no parallel through route immediately to the east. The ADT volumes on Halsted would then increase by an additional 700 vehicles per day compared to the No-Build Alternative to a total of 17,600 vehicles per day. Projected traffic volumes for the 2029 Build Alternative are shown in Table 3.3-7.

Table 3.3-7: Selected Highway-Rail Crossings in the Study Area

Street Name	Railroad	Existing ADT (2006)	No-Build ADT (2029)	Build ADT (2029)	No-Build % Change vs. Existing	Build % Change vs. No-Build
Marquette Rd	CSX	15,300	15,800	15,100	3.3%	-4.4%
69th St	CSX	10,600[a]	10,200	8,700	-3.8%	-14.7%
71st St	CSX	14,600	14,900	17,900	2.1%	20.1%
79th St	CSX	28,500	28,800	28,400	1.1%	-1.4%
Columbus Ave	BRC	14,400[a]	12,800	12,800	-11.1%	0.0%
83rd Place	Metra/NS	1,200[b]	1,400	1,400	16.7%	0.0%
Lawndale Ave	Metra/NS	1,900[b]	2,000	2,000	5.3%	0.0%
87th St	Metra/NS	21,500	23,200	23,200	7.9%	0.0%
Pulaski Rd	Metra/NS	33,800	33,900	33,900	0.3%	0.0%
Duffy Ave	Metra/NS	3,600[a]	3,900	3,900	8.3%	0.0%
Union Ave	BRC/Metra/NS	600[c]	700	0	16.7%	-100.0%
Halsted St	BRC/Metra/NS	16,700	16,900	17,600	1.2%	4.1%
95th St	UP	29,900	30,600	30,600	2.3%	0.0%
97th St	UP	3,900	4,600	4,600	17.9%	0.0%

[a] *Existing ADT year is unknown*
[b] *Existing ADT year is 2007*
[c] *Existing ADT year is 2005 from street closure report*

As discussed in Section 2.2.4.6, a total of 37 viaduct locations were surveyed to document deficiencies in the lighting, drainage, roadway, sidewalks, and general structural conditions. Recommended improvements in the Build Alternative would include roadway resurfacing or

reconstruction where pavement condition is rated as poor. There are currently 17 locations that would qualify for roadway improvements. This would improve the comfort for drivers and bicyclists traveling under viaducts, and reduce the risk of damage to vehicles.

Other rail or viaduct construction work is expected to require temporary lane reductions or detours in the study area. Some low volume residential streets at locations with major bridge work may be closed for up to three months. These streets include Peoria Street, Morgan Street, Aberdeen Street, and 78th Street. At arterial and collector streets with major bridge work, more work may be completed at night, on weekends, and during mid-day periods to avoid impacts to traffic in peak travel hours. These streets include 74th Street, Vincennes Avenue, Damen Avenue, and Western Avenue. Major streets would likely be narrowed, reduced to one-way operation, or require the use of flaggers to control traffic depending on the details of the construction work to be completed, the width of the roadway, and the traffic needs. Minor bridge rehabilitation or viaduct improvement work (described in Section 2.2.4.6) may require closures of one to two weeks at minor streets and lane reductions on major streets. Major streets are shown in Figure 3.3-4.

Signed detour routes would be posted when any streets are closed, and all detour routes would be coordinated with emergency service providers. Roadway Traffic Management Plans will be prepared for each construction contract to address local access, any needed roadway detours, transit service, and access for emergency services. The plans will be prepared in coordination with the relevant public agencies and local officials,

3.3.3 Transit

3.3.3.1 Existing Conditions

The existing public transit network in the project study area includes two Metra commuter rail lines, the Chicago Transit Authority (CTA) Red Line, multiple CTA bus routes, and three Pace bus routes on 95th Street. The Amtrak *Cardinal/Hoosier* Service route also passes through the study area, but does not stop at any stations. Figure 3.3-5 shows the transit service coverage in the study area.

The Metra SouthWest Service (SWS) Line connects Manhattan, IL to Chicago Union Station with 30 trains per weekday, serving a total of 13 stations. The SWS serves approximately 8,800 trips per weekday and 2.6 million trips per year, with Wrightwood and Ashburn stations each accounting for approximately 7 percent of the ridership (excluding boardings at Union Station).[51, 52] The Wrightwood Metra station is located at the intersection of 79th Street & Kedzie Avenue (3200 W) and the Ashburn station is located at 83rd Place & Lawndale Avenue (3700 W). According to Metra passenger survey data, 97 percent of SWS passengers traveling to the central business district did so for work or "business related to work."[53] The remaining trips were made for school or other purposes.

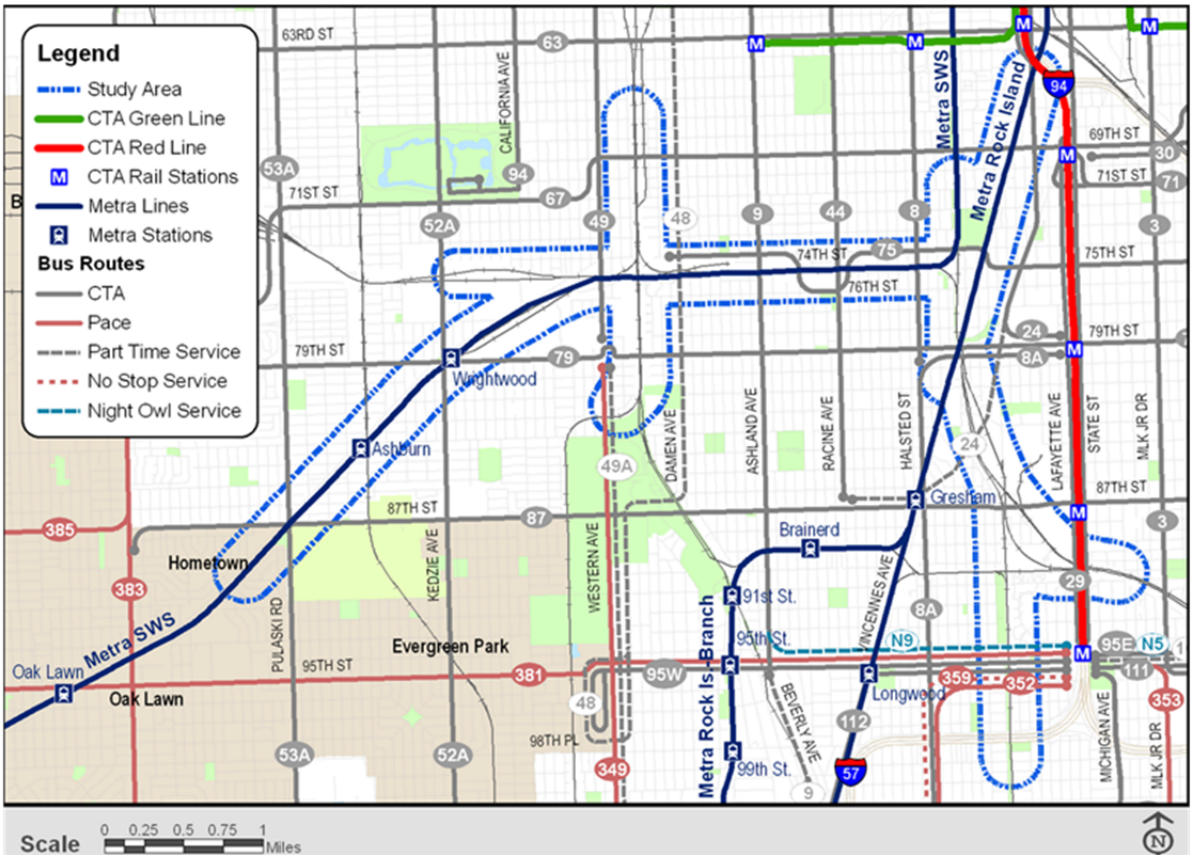


Figure 3.3-5: Existing Transit Service in Study Area

The Metra Rock Island District (RID) Line connects Joliet to Chicago LaSalle Street Station and serves a total of 26 stations. The station closest to the study area is Gresham, located at 87th Street & Halsted Street (800 W). The Gresham station is located just outside the study area, but a new station on the RID Line in the Auburn Park area is being planned by Metra. Construction is partially funded, and is expected to begin in 2015 and be completed in 2016.[54] The frequency of existing train services by time period and day of the week is shown in Table 3.3-8.

.

Table 3.3-8: Scheduled Passenger Train Service, Number of Trains by Time Period

Direction	Time Period	Rail Transit Route		
		Metra SWS at Wrightwood Station	Metra RID at Gresham Station	CTA Red Line At 87th Street Station[55]
Inbound	AM Peak (7-9 AM)	3	6	18
	Mid-Day (11 AM - 1 PM)	1	2	15
	PM Peak (4-6 PM)	1	2	22
	Weekday Total	14*	25	186
	Saturday Total	3	10	164
	Sunday Total	0	8	144
Outbound	AM Peak (7-9 AM)	1	3	22
	Mid-Day (11 AM - 1 PM)	1	2	16
	PM Peak (4-6 PM)	3	7	16
	Weekday Total	14*	25	186
	Saturday Total	3	10	164
	Sunday Total	0	8	144

Sources: Metra Schedules,[46,56] CTA Schedule[57]

** One Metra SWS train in each direction does not stop at the Wrightwood Station, so there are 15 Metra SWS trains per day in each direction through the 75th Street corridor.*

3.3.3.2 Impacts to Transit Service

The No-Build and Build Alternatives would have impacts on Metra SWS, Amtrak, and bus routes in the study area. Neither alternative is expected to impact CTA Red or Green Line rail transit operations within the study area in any way. Metra RID trains are not expected to see changes to service frequency or travel times, but schedules could potentially be adjusted under the Build Alternative to coordinate with Metra SWS trains that would be shifted to the line.

No-Build Alternative

The No-Build Alternative would not make any direct changes to the existing transit service. The train model shows travel times increasing by 2 percent for Metra SWS trains and by 1 percent for Amtrak trains in the project corridor. This minor increase in travel time compared to the greater freight increases is the result of passenger rail retaining first priority to move through the corridor. However, as freight train volumes grow through the study area, unanticipated delays similar to those currently experienced (see Section 1.3.4) could become more frequent. Buses traveling across grade crossings on 87th Street (CTA #87), Pulaski Road (CTA #53A), and 95th Street (CTA #95W, #112, #N9; and Pace routes #352, #359, and #381) would be subject to the same delays as motorists discussed in Section 3.3.2.2.

Build Alternative

The Build Alternative would eliminate many conflict points for Metra SWS trains in the study area, including Forest Hill Junction, Belt Junction, and conflicts along the CWI line. A second track for Metra SWS would also be added from approximately Western Avenue to Ashburn Station past the NS Landers Yard, eliminating some minor delays for Metra service. A second Metra platform would be added at the Wrightwood Station to serve the new second track. Amtrak trains would benefit from the removal of conflicts at 80th Street Junction, but would still travel along the CWI line where some freight conflicts exist north of the study area.

Metra SWS average travel times through the corridor are expected to be reduced by approximately 2 minutes and 21 seconds.

Travel times (within the corridor only) are projected to decrease by 2 minutes and 21 seconds for Metra, and 2 minutes and 20 seconds for Amtrak in the Build Alternative compared to the No-Build Alternative[42]. Unexpected delays should also be reduced for SWS trains due to the connection to the RID Line, which does not have any conflicts with Class 1 freight rail operations.

The Build Alternative would shift the Metra SWS from the CWI line to the RID Line at the east end of the 75th Street corridor. This would mean that the SWS would then arrive in downtown Chicago at the LaSalle Street Station rather than its present terminal at Union Station. Metra has indicated that there is adequate capacity on the RID Line and at LaSalle Street Station to accommodate the additional trains from the SWS Line.[58] This change in station terminals would affect the final leg of the trip for approximately 4,400 Metra SWS riders per average weekday. LaSalle Street Station is located approximately 4 blocks east and 2 blocks south of Union Station (see Figure 3.3-6).

Based on Metra's analysis of an on-board passenger survey conducted in fall, 2006[51], 79 percent of Metra SWS riders walk from Union Station to their ultimate destination in downtown Chicago.[59] Approximately 45 percent of these walkers would have a shorter or similar walk from LaSalle Street Station, while the other approximately 55 percent would have a longer walk. The maximum possible increase in walking distance would be the distance from LaSalle Street station to Union Station, which is 0.5 miles. For the 21 percent of SWS passengers taking a bus, train, or other mode from Union Station, the impact would vary by destination. Current travel times to Streeterville, River North, the Near North Side, the Near East Side, S. Michigan Avenue, the Museum Campus, and much of the South Loop are shorter by bus or rail transit from LaSalle Street Station than from Union Station. Transit travel times to the Illinois Medical District are approximately the same from both stations. Going to many areas west of the Chicago River, such as portions of the West Loop, Near West Side, South Loop, and University Village is faster from Union Station than from LaSalle Street Station.

Figure 3.3-6: Metra Stations and Central Area Neighborhood Map

Both 2011 public meetings were advertised at all Metra SWS stations and in the Metra newsletter. A total of six comments about the stations were received; four were opposed to the switch and two favored it.

As in the No-Build Alternative, the buses in the study area traversing grade crossings at 87th Street, Pulaski Road, and 95th Street would experience the same delays as motorists for the Build Alternative described in Section 3.3.2.2. Nearly all other bus routes in the study area travel under railroad viaducts at some point. These routes could experience temporary detours for railroad, viaduct, or roadway construction. The details of maintenance of traffic activities during construction will be determined during the final engineering phase of the project.

3.3.4 Pedestrian and Bicycle Facilities

3.3.4.1 Existing Conditions

Sidewalks generally exist on both sides of the streets in the City of Chicago and the City of Hometown, including under rail viaducts. Locations without sidewalks include the east side of Lafayette Avenue and the west side of State Street, both of which are adjacent to the Dan Ryan Expressway (I-94). The condition of sidewalks varies from place to place. As noted in Section 3.3.2.1, a survey of 37 viaduct underpasses was conducted in November, 2010 within the study area. The survey found that 13 percent of lighting fixtures were non-functional, there are sidewalk pavement deficiencies at 14 locations, there are drainage problems on sidewalks at 19 locations, and 67 percent of the nearest ADA ramps to the viaducts do not meet current standards. All of these conditions create safety concerns for pedestrians and discourages them from traveling under viaducts in the study area.

In addition to sidewalks under viaducts, there are several defined pedestrian-only crossings of rail lines in the study area. At 73rd Street, there are pedestrian underpasses beneath the CWI and RID Line embankments into Hamilton Park from the west and east, respectively. Along the NS and Metra tracks near 82nd Street, there is an at-grade pedestrian crossing with warning lights. Like motorists, pedestrians and cyclists can be delayed at the highway-rail grade crossings discussed in Section 3.3.2. In addition to these sanctioned pedestrian crossings, worn dirt paths through the grass show evidence of pedestrians crossing the CSX tracks at 72nd Street and 73rd Street. At most other locations in the study area, the relatively steep side slopes of the embankments discourage frequent pedestrian crossings.

The existing bicycle facility network in the project study area – as shown on the spring, 2013 Chicago Bike Map[60] – is shown in Figure 3.3-7. There are marked bike lanes on Marquette Road, 83rd Street east of Vincennes Avenue, Vincennes Avenue north of 76th Street, and Damen Avenue (2000 W) to the north and south of the study area. There are buffered bike lanes on Halsted Street (800 W) from 69th Street to 75th Street and on Vincennes Avenue from 84th Street to 103rd Street. Buffered bike lanes use pavement markings to provide additional separation for bicyclists from both moving traffic and parked vehicles. The Major Taylor Trail, a north-south multi-use path, terminates

near the CSX railroad tracks in the Dan Ryan Woods northeast of the intersection of 87th Street (8700 S) and Western Avenue (2400 W). Local input identified a desire for additional bike lanes to improve the connections to the Lakefront Trail along Lake Michigan about 4 miles from the study area. Bike lanes have since been added to E. 71st Street from the Dan Ryan Expressway to South Chicago Avenue, and to E. 75th Street between Cottage Grove Avenue (800 E) and Stony Island Avenue (1600 E), both east of the study area. Other recommended bike routes in the study area include Duffy Avenue (in Hometown), Loomis Boulevard (1400 W), 83rd Place (8332 S), 83rd Street (8300 S), 76th Street (7600 S), and 71st Street (7100 S).

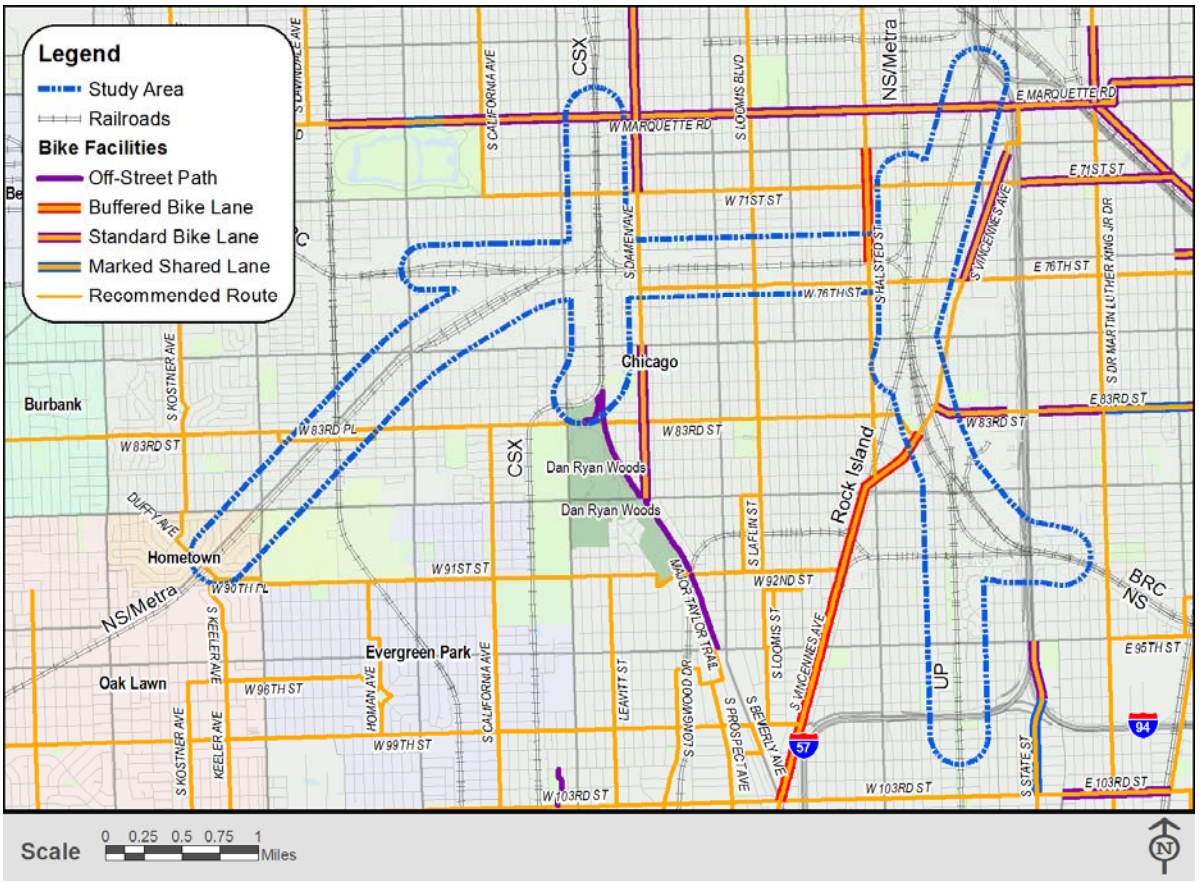


Figure 3.3-7: Existing Bicycle Facility Network

The Chicago Department of Transportation also completed the Streets for Cycling 2020 Plan[61] in 2012, which identified 645 miles of bicycle routes within ½ mile of all residents in Chicago. The plan focuses on creating innovative bicycle facilities such as protected bike lanes, buffered bike lanes, and neighborhood greenways (a.k.a., bicycle boulevards) throughout the city. Streets included in the plan are shown in Figure 3.3-8. Vincennes Avenue is identified as a key route to downtown Chicago, called a "Spoke Route." Other "Crosstown Bike Routes" on major streets include Halsted Street, Damen Avenue, Columbus Avenue, 69th Street, 76th Street, and 83rd Street. A variety of "Neighborhood Bike Routes" are also recommended on residential streets, including a connection to the Major Taylor Trail at 81st Street and Damen Avenue.

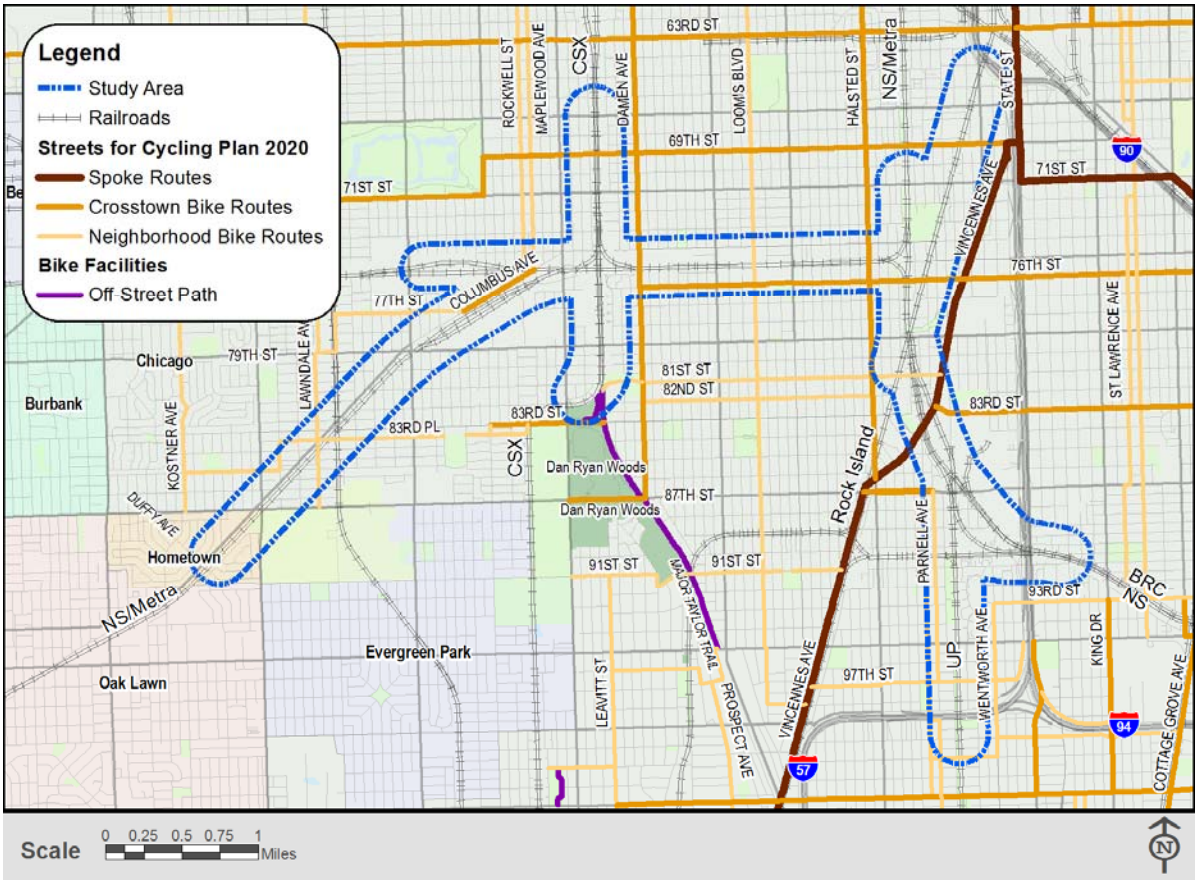


Figure 3.3-8: Streets for Cycling Plan 2020 Recommended Bikeway Network

Conditions at railroad viaducts are a major concern of cyclists. Poor lighting conditions can make it difficult to see poor pavement conditions, creating a risk of falling. Motorists may also have trouble seeing cyclists (or anything else) in the viaduct or immediately outside of the viaduct. The Vincennes Avenue viaduct (see Figure 3.3-9), located between 83rd Street and 84th Street, is particularly dark due to its size. It also has poor pavement conditions and drainage problems. Combined with being an important bike route, this location is a known concern for cyclists on the south side.

Figure 3.3-9: Vincennes Avenue Viaduct – Figure Looking North

3.3.4.2 Impacts to Pedestrian and Bicycle Facilities

No-Build Alternative

The No-Build Alternative includes all projects in the regional Transportation Improvement Plan (TIP) and the fiscally constrained model of the CMAP GO TO 2040 Plan, with the exception of the 75th Street CIP. There are several roadway projects in the regional TIP along portions of Western Avenue, Kedzie Avenue, 87th Street, and 95th Street that could potentially include sidewalk or ADA ramp reconstruction. Additionally, the City successfully applied for federal grants for the roadway, sidewalk, and curb and gutter improvements at the Morgan Street and Peoria Street viaducts in the study area. Work at these two locations was completed in 2012 as projects separate from 75th Street CIP. Additional roadway, sidewalk, ADA ramp, or viaduct-related construction is not included with the No-Build Alternative. However, such work could potentially be undertaken by the City of Chicago as part of their regular capital improvement and maintenance programs.

Delays would generally increase for pedestrians and bicyclists at highway-rail grade crossings as described in Section 3.3.2.2 and shown in Table 3.3-6. The largest percent increase in delay to roadway users occurs at the 71st Street crossing of the CSX railroad tracks.

Build Alternative

The Build Alternative includes all projects in the regional Transportation Improvement Plan (TIP), the fiscally constrained model of the CMAP GO TO 2040 Plan, plus the 75th Street CIP. The major elements of the 75th Street CIP affecting bicycle and pedestrian facilities is the correction of deficiencies at 36 railroad viaducts, as discussed in Section 2.2.4.6. A summary of work to be completed is shown in Table 3.3-9.

Table 3.3-9: Summary of Local Mobility Improvements in Project Study Area by Alternative

Resource Category	Build Alternative	No-Build Alternative[a]
Viaducts with lighting systems replaced (number)	36	0
Viaducts with resurfaced or reconstructed roadways (number)	17	2
Viaducts with sidewalk reconstruction (number)	14	2
Sidewalk (ADA) ramps reconstructed (number)	94	5
Sewers cleaned or reconstructed (number)	20	0
Bridges waterproofed (number)	13	0
Abutments waterproofed (number)	7	0
Bridge underdrains installed (number)	4	0

[a] *The No-Build Alternative includes roadway, sidewalk, and ADA ramp improvements at Morgan Street and Peoria Street that are planned for completion in 2012. If this work is not completed as planned, it would be included in the Build Alternative. The numbers in the Build Alternative also includes work at Morgan Street and Peoria Street.*

New lighting systems would improve visibility for pedestrians, cyclists, and motorists entering, exiting, and traveling under viaducts. Sewers would be cleaned and reconstructed where necessary, reducing the amount of ice on roads and sidewalks in the winter and improving pavement life. Roadways would be resurfaced or reconstructed, providing a safe riding surface for cyclists.

Sidewalks would be reconstructed, reducing trip hazards for pedestrians. ADA ramps would be constructed where current standards are not met, improving accessibility for persons with disabilities, children on bikes, and people pushing strollers. Overall, this would represent a large improvement to local mobility and safety in the study area for pedestrians and cyclists.

At grade crossings, delays would generally increase due to higher freight volumes and average train lengths (see Table 3.3-6). However, the grade separation of 71st Street at the CSX railroad tracks would eliminate delays for pedestrians and cyclists at that crossing. The elevation of the CSX railroad tracks over 71st Street would also eliminate the informal crossings of the tracks at 72nd Street and 73rd Street. Although these are not authorized pedestrian crossings of railroad property, they are frequently used by neighborhood residents. Pedestrians would have to travel further north to 71st Street. While this would add distance and time to the pedestrian trips, it would also provide a safer route.

The proposed closure of the Union Avenue viaduct in the Build Alternative would also reduce pedestrian access to Leland Giants Park and the CTA #75 bus route. An individual going to Leland Giants Park from 7400 S. Union Avenue (i.e., the intersection of 74th Street and Union Avenue) would have to walk almost half a mile farther to access the park, an approximate increase of 7 to 10 minutes. This would likely put the park out of walking distance for some individuals, making them more likely to use Lily Gardens Park and Hamilton Park as nearby alternatives. Hamilton Park is just a quarter mile from the intersection of 74th Street & Union Avenue. The walking routes from Union Avenue north of the viaduct to Lily Gardens Park and Hamilton Park are shown in Figure 3.3-10.

For the #75 bus, a pedestrian at 76th Street and Union Avenue would have to walk a quarter mile farther to access the stop at 74th Street & Halsted Street instead of the stop at 74th Street & Union Avenue, an approximate increase of 4 to 5 minutes. An average of 51 passengers per day board eastbound #75 buses at this stop and 13 passengers per day board westbound buses. It is unknown how many of these trips originate on Union Avenue south of 75th Street. As an alternative, some transit trips originating south of the railroad viaduct could use the #79 bus route located three eighths of a mile to the south on 79th Street. Both the #75 and #79 serve the 79th Street Red Line train station to the east. Walking routes from Union Avenue south of the viaduct to the nearest CTA #75 and CTA #79 bus stops are shown in Figure 3.3-10.

The existing at-grade pedestrian crossing of the NS tracks near 82nd Street & St. Louis Avenue would also be removed and replaced by a new at-grade pedestrian crossing approximately 800 feet to the southwest at 83rd Street & Central Park Avenue. This is along the east side of the crossing of the CN tracks, just a block northeast of the Metra Ashburn Station. Travel distances are expected increase for some pedestrians while decreasing for others. See Figure 3.3-11 for the locations of these crossings.

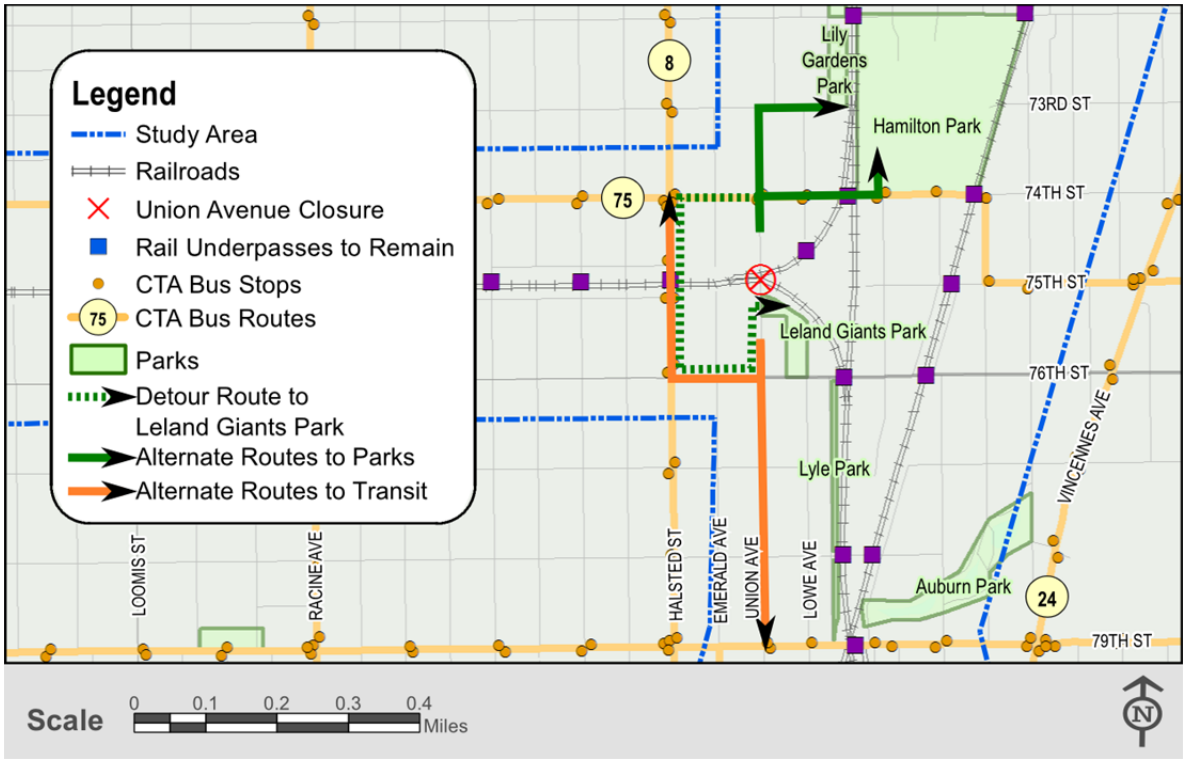


Figure 3.3-10: Alternate Pedestrian Routes due to Union Avenue Viaduct Closure

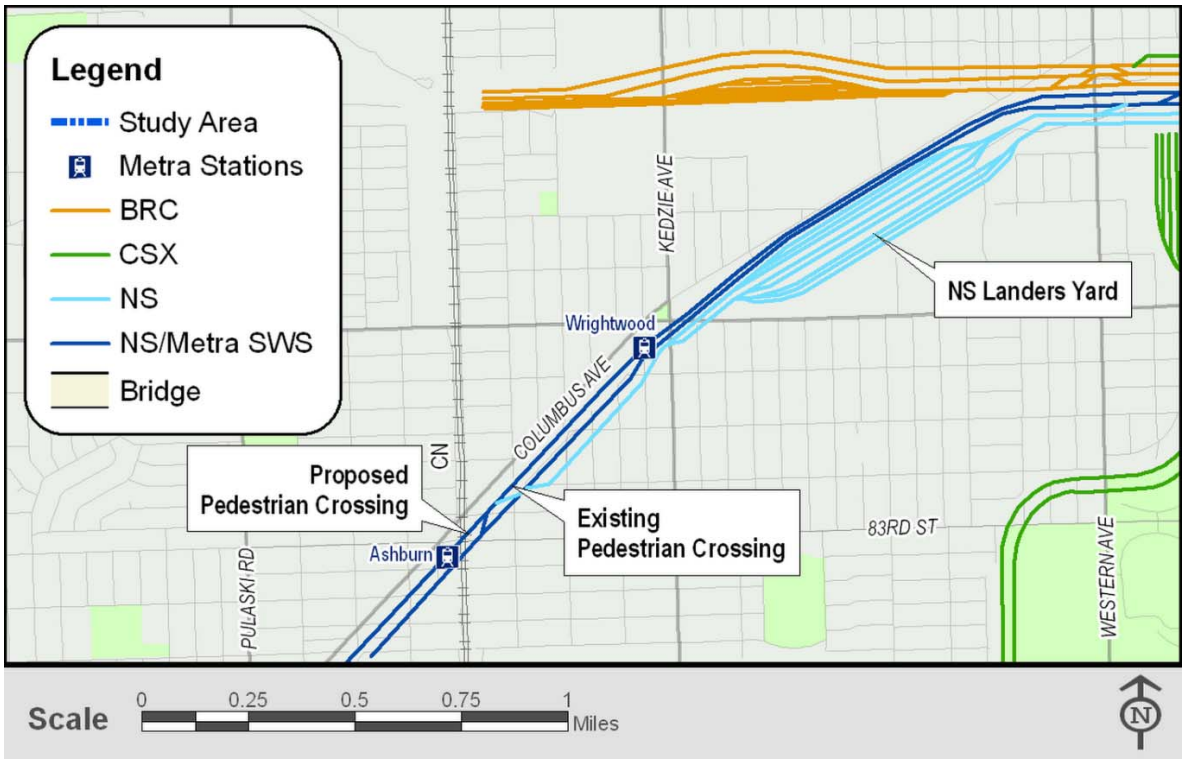


Figure 3.3-11: Pedestrian Rail Grade Crossings

3.4 Agriculture

The project study area has been a densely developed urban area for decades and contains no agricultural lands or agri-business. Additionally, all adjacent land is developed or zoned for purposes other than agriculture. On May 14, 2010, IDOT informed the Illinois Department of Agriculture (IDOA) of the 75th Street CIP study and requested their comments on the project. In a letter dated June 3, 2010, (see Appendix C) the Illinois Department of Agriculture responded by writing, "*Because this project will occur entirely within the urbanized area of Chicago and agricultural land is not involved, it is exempt from further review in accordance with Section 2.c of the IDOA-IDOT Cooperative Working Agreement on the protection of Illinois farmland. The IDOA would consider such an action to be consistent and in compliance with Illinois' Farmland Preservation Act.*"

No direct impacts to agricultural lands are expected to result from the implementation of any of the alternatives under consideration, nor are there any community gardens that would be affected by the alternatives.

3.5 Cultural Resources

3.5.1 Existing Resources

Section 106 of the National Historic Preservation Act of 1966, as amended, and the Advisory Council on Historic Preservation's implementing regulations, 36 C.F.R. 800, require federal agencies to consider the effects of their actions on historic and archaeological resources and to provide the Advisory Council on Historic Preservation a reasonable opportunity to comment on such actions. Specifically, Section 106 applies to those historic and archaeological sites that are either listed on or have been determined eligible to be listed on the National Register of Historic Places (NRHP). Historic and archaeological sites determined to be eligible for the National Register are also protected by Section 4(f) of the 1966 Department of Transportation Act. See Section 3.13, Special Lands, for additional details on Section 4(f).

The first step in the Section 106 process is to undertake research and field surveys to identify cultural resources that might be considered eligible for listing on the National Register. The Illinois Department of Transportation (IDOT) conducted such surveys over much of the project area in 2005, and then again in 2010 in the remaining areas within the entire project limits. In a letter dated June 28, 2010, to the State Historic Preservation Officer at the Illinois Historic Preservation Agency, IDOT documented the results of those surveys. The letter (see Appendix G) concluded that "*None of the 11 bridges to be replaced are on the Illinois Historic Bridge Survey list and all are common types of undistinguished styles. All of the other structures are domestic dwellings of common styles in this area of Chicago. None of them meet the criteria for listing on the National Register*." On June 30, 2010, the State Historic Preservation Officer concurred with the finding regarding the other structures in the neighborhood that "*no historic properties subject to protection under Section 106 of the National Historic Preservation Act of 1966, as amended, will be affected by this proposed project.*" Additional coordination regarding noise and vibration impacts to structures in the project area is ongoing.

There are, however, two historic properties associated with Hamilton Park that are listed on the National Register of Historic Places. These are Hamilton Park itself, bounded by 72nd Street on the north, the Metra Rock Island District (RID) rail line embankment on the east, 74th Street on the south, and the NS CWI rail line embankment on the west, and the Hamilton Park Fieldhouse, located within the park just south of 72nd Street. The 30-acre park was listed on the National Register in 1995 as part of the Historic Resources of the Chicago Park District multiple property listing.[62] The fieldhouse (see Figure 3.5-1 and Figure 3.5-2) was added to the Register in 2005.

Figure 3.5-1: Hamilton Park Fieldhouse

Hamilton Park and the Hamilton Park Fieldhouse are both listed on the National Register of Historic Places.

Figure 3.5-2: Hamilton Park and Vicinity

The park was determined to be eligible for the Register under NRHP Criteria A and C. These criteria specify that the property has an "association with events that have made a significant contribution to the broad patterns of our history," and that the property "embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values." The identified areas of significance were landscape architecture, architecture, entertainment/recreation, and social history.

Hamilton Park was created in 1904 and was designed by the nationally-renowned landscape architects the Olmsted Brothers and architects Daniel H. Burnham and Company. The fieldhouse includes murals on American political history by noted Chicago artist John Warner Norton. The park and fieldhouse are operated by the Chicago Park District. The park includes a wide variety of facilities for outdoor recreation, including a walking path, athletic fields, tennis courts, playground, spray pool, and water playground. The Chicago Park District conducts a variety of programs throughout the year in the fieldhouse, including gymnastics, dance, exercise, music, and basketball.[63]

The park still maintains a strong degree of its historic character. The central feature is a large oval sunken athletic field surrounded by a tree-lined perimeter walk (see Figure 3.5-3). The existing plantings are generally consistent with the Olmsted Brothers original planting plan, generally naturalistic in form, with some formal plantings. The perimeter plantings along the east and west sides of the park maintain the original design of heavy tree and shrub plantings to serve as a screen of the railroad properties. The original path system in the park also remains intact.

Figure 3.5-3: Hamilton Park central oval, with rail embankment in background.

No archaeological sites have been identified within the project limits, and because of the intensive development in the area, none are expected to be encountered. If, however, archaeological resources are discovered during construction, work within the vicinity would be suspended and IDOT would consult with the Illinois Historic Preservation.

3.5.2 Impacts to Cultural Resources

Hamilton Park and the fieldhouse within the park are the only cultural resources within the study area that have been determined to be on or eligible for the National Register of Historic Places. Neither alternative would have any effect on the Hamilton Park Fieldhouse. Changes associated with both the No-Build and the Build Alternatives could possibly affect Hamilton Park.

3.5.2.1 No-Build Alternative Impacts

Under the No-Build Alternative, there would be no construction that would affect Hamilton Park or the fieldhouse. There would be an increase in rail traffic along the rail line that abuts the park on the west side as the result of anticipated continued growth in freight traffic. The increased rail traffic would increase noise levels along the west side of the park, but not to the point of constituting a noise impact under the CREATE N&V Methodology.[36] (See Section 3.7.1.2, Noise Analysis Methodology, for further details on the definition of noise "impacts.") The affected area of the park includes only portions of the walking path and the athletic fields, and is not used for activities that would be particularly sensitive to noise, such as outdoor concerts. The rail lines have been in their present location since before the construction of the park, and rail noise has always been a part of the park's environment.

3.5.2.2 Build Alternative Impacts

With the Build Alternative, the Metra SWS trains would be relocated from the existing CWI line, along the immediate west side of Hamilton Park, to the RID Line, along the immediate east side of the park. There would be no change in the number of daily Metra trains, so the noise from these passenger trains would simply move from one side of the park to the other. This reduction in noise on the park's west side would be offset by an increase in the number of freight trains using the CWI line with the Build Alternative, resulting in essentially no change from existing noise conditions along the west side of the park. Along the east side of the park, the addition of the Metra SWS trains would increase the noise levels slightly – approximately three decibels – over existing levels. This increase is small enough to not be considered a noise impact under the CREATE N&V methodology (see Table 3.7-2 in Section 3.7.1.2).

The Build Alternative would not require any permanent acquisition of property from Hamilton Park. The Build Alternative would, however, need to use a small area of the southeastern corner of the park on a temporary basis to allow construction of a new retaining wall on railroad property. The total park area affected by the temporary construction activity is estimated to be approximately 60 feet long along the railroad right-of-way and approximately 15 feet wide, with a total area of approximately 933 square feet. The location and extent of this proposed construction is shown in Figure 3.5-4. No change is proposed to the permanent property boundaries of the park. There are no programmed park uses of the area affected by the temporary construction.

Figure 3.5-4: Hamilton Park Temporary Construction Area

The area of the temporary construction would be cleared of vegetation to allow access for construction equipment. Vegetation in that area consists of volunteer shrubs and small trees. The area does not constitute a designed landscape and is not part of the original Olmsted template for the park. It is anticipated that construction in this area would last less than one year. The new retaining wall would be constructed on railroad property in front of and parallel to the existing crib-structure retaining wall just visible through the vegetation (see Figure 3.5-5, just left of the wooden pole).

Figure 3.5-5: Hamilton Park and Existing Railroad Retaining Wall

Upon completion of the rail embankment retaining wall construction, the park area would be re-planted according to a landscape design plan developed in coordination with the Chicago Park District. The aesthetic treatment of the exposed face of the new retaining wall would also be coordinated with the Chicago Park District. A short portion of the existing low stone block wall at the sidewalk at the bottom of the slope (see Figure 3.5-5) would be removed during construction and would be returned to its current location upon completion. A short portion of the existing sidewalk in front of that wall might also be removed. Pedestrian access to the park is available from the sidewalk all along 74th Street, including a paved path at Parnell Avenue, so there would be no restriction of access to the park during construction.

Coordination occurred with the Chicago Park District on December 12, 2011. The Chicago Park District stated that they would be willing to issue a temporary construction permit for the work in Hamilton Park, subject to their approval of a landscape restoration plan. The Chicago Park District has provided a letter dated January 25, 2012, documenting this intent (see Appendix G).

Coordination also occurred with the IHPA. In a meeting on February 14, 2012, IHPA stated that subject to their review and approval of the park restoration plans during Phase II design, they would agree to issuance of the permit for the temporary construction work. The IHPA also concurred with

IDOT's determination that the temporary construction work would have no adverse effect on Hamilton Park (see the IDOT letter of March 3, 2012, in Appendix G).

During the coordination with the IHPA, they noted that they had received comments from consulting parties that were interested in the preservation of the Art-Deco design features on the Damen Avenue viaduct. This viaduct is proposed to be widened and renovated as part of the 75th Street CIP. The IHPA acknowledged that the structure had been reviewed and determined to not be eligible for listing on the National Register, but also recognized that the structure had aesthetic merit. In order to preserve the aesthetic features of this structure for the local community, IDOT has committed to preserve and/or replicate the Art Deco design features in the renovated Damen Avenue structure.

3.6 Air Quality

3.6.1 Introduction

This section discusses the potential for an increase in air pollution as a result of the 75th Street CIP. Air pollution comes from many types of industries, commercial operations, and engines, including those used by mobile sources (e.g., cars, buses, trucks, and locomotives). Mobile sources pollute the air through combustion and fuel evaporation. These emissions contribute greatly to air pollution nationwide and are the main cause of air pollution in non-industrial urban areas.

Mobile sources **is a term used to describe a variety of vehicles, engines, and equipment that generate air pollution and that move, or can be moved, from place to place.**

3.6.2 Regional Air Quality Status

The Clean Air Act (CAA), and its amendments, is the primary basis for regulating national air pollutant emissions. As required by the CAA, the U.S. Environmental Protection Agency (USEPA) has established standards, the National Ambient Air Quality Standards (NAAQS), for certain pollutants, called criteria pollutants. Primary standards define air quality levels intended to protect the public health. Secondary standards define levels of air quality intended to protect the public welfare from any known or anticipated adverse effect of a pollutant (e.g., visibility, vegetation damage, material corrosion). These standards are shown in Table 3.6-1.

The air quality region that includes Chicago and the project area met the NAAQS for inhalable particulate matter (PM_{10}), carbon monoxide (CO), nitrogen dioxide, sulfur dioxide (SO_2), and lead (the region is in attainment for these NAAQS). However, the region did not meet the NAAQS for ozone (O_3) and $PM_{2.5}$ (the annual standard) and has been classified by USEPA as nonattainment for these pollutants.[64]

Areas that violate the NAAQS are called *non-attainment areas*. Chicago is a non-attainment area for both ozone and $PM_{2.5}$.

Due to the nonattainment status, the region had to develop and implement a State Implementation Plan (SIP) that would help reduce emissions of these pollutants, eventually bringing the region into attainment. To ensure that new projects would not adversely affect air quality, the Chicago Metropolitan Agency for Planning (CMAP) developed a regional transportation plan and analyzed the combined effects of all of the proposed projects on the regional air quality. This is called a conformity analysis. The conformity analysis demonstrates that the emissions resulting from the plan or Transportation Improvement Program (TIP) meet the requirements of the SIP.

Footnotes are listed at the end of this section

Table 3.6-1: National Ambient Air Quality Standards

Pollutant	Averaging Period	Primary Standard	Secondary Standard
Carbon Monoxide (CO)	1-hour (1)	35 ppm	None
	8-hour (1)	9 ppm	None
Ozone (O_3) (2)	8-hour (3)	0.075 ppm (4)	Same as primary
Nitrogen Dioxide (NO_2)	1-hour (5)	100 ppb	None
	Annually	53 ppb (6)	Same as primary
Lead (7)	Rolling 3-month average	0.15 µg/m^3	Same as primary
Sulfur Dioxide	1-hour (8)	0.075 ppm	None
	3-hour (1)	None	0.5 ppm
Inhalable Particulates (PM_{10})	24-hour (9)	150 µg/m^3	Same as primary
Fine Particulates ($PM_{2.5}$)	24-hour (5)	35 µg/m^3	Same as primary
	Annually (10)	12 µg/m^3	15 µg/m^3

(1) Not to be exceeded more than once per year.
(2) EPA revoked the 1-hour ozone standard of 0.12 ppm; however some areas have continuing obligations under that standard ("anti-backsliding").
(3) 3-year average of the 4th highest daily maximum 8-hour average.
(4) In 2008 this standard was changed from 0.08 (the 1997 standard) to 0.075. The 1997 standard and its implementation rules remain in place as EPA addresses the transition between the 1997 and 2008 standards.
(5) 3-year average of the 98th percentile.
(6) The official level of the annual NO_2 standard is 0.053ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.-year
(7) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
(8) 3-year average of the 99th percentile of the maximum 1-hour average.
(9) Not to be exceeded more than once per year on average over 3 years.
(10) 3-year average.

Source: USEPA, 2014: www.epa.gov/air/criteria.html, accessed July 17, 2014.

3.6.3 Methodology

***Criteria pollutants* are pollutants for which USEPA has established standards.**

Mobile sources produce CO, PM_{10}, and $PM_{2.5}$ criteria pollutants; volatile organic compounds (VOC) and nitrogen oxides (NO_x), both precursors to O_3, which is also a criteria pollutant; as well as other Mobile Source Air Toxics (MSATs). Locomotive engines in particular emit large amounts of PM and NO_x, although USEPA continues to pass new rules requiring more efficient engines and fuel improvements to minimize pollution. The newest rule is anticipated to cut PM and NO_x emissions up to 90 and 80 percent, respectively, by the time it is fully implemented in 2040.[65]

To ensure the project wouldn't cause a significant impact to local and regional air quality, several different analyses are required, as described in the following sections.

3.6.3.1 Conformity

Projects, such as the 75th Street CIP, located in nonattainment areas must prove that they conform to the CAA, which means it would not cause or contribute to any new localized violations of CAA standards, nor increase the frequency or severity of any existing violations within the project study area. Conformity is achieved either through a General Conformity emission analysis and/or by being included in a conforming transportation plan and TIP.

The purpose of conformity is to demonstrate that the proposed project will not cause nor contribute to any new localized violations nor increase the frequency or severity of any existing violation of the NAAQS.

- *General Conformity* applies to non-transit/non-highway projects and is applicable to this project because of the proposed freight rail improvements. For General Conformity, the project-related emissions were estimated for both the worst-case construction year and the design year of 2029 and compared to the *de minimis* thresholds for each pollutant of concern. If emission levels were estimated to be below these thresholds, the project would be considered as satisfying conformity rules.

De minimis refers to the minimum threshold for which a conformity determination must be performed. Below this threshold, a project is assumed to have minimal emission increases.

- *Transportation Conformity* applies to transit/highway projects and is applicable to this project because of the proposed improvements to passenger commuter rail and the grade separation at 71st Street, which affects a highway. Transportation Conformity is achieved if the project meets the following criteria:
  - The project was included in the GO TO 2040 regional plan and fiscally-constrained portion of the 2010-2015 TIP, and has not changed significantly from what was reflected in the TIP.
  - The project will comply with $PM_{2.5}$ and/or PM_{10} control measures in the SIP.
  - The PM Hot-Spot analysis requirements are satisfied either by demonstrating that the project is not one of air quality concern, or by performing a qualitative hot-spot analysis.
  - The results of these analyses are included in Section 3.6.5.1 (General Conformity) and Section 3.6.5.2 (Transportation Conformity).

3.6.3.2 Microscale Analysis

A localized project-level analysis was prepared to evaluate changes in railroad and roadway emissions, comparing existing emissions (as of 2009) to the emissions of the Build scenario (i.e., the emissions expected in 2029 if the project is built) and the No-Build scenario (i.e., the emissions expected in 2029 if this project is not built). The results of these analyses are located in Section 3.6.5.3 (Microscale Analysis).

3.6.3.3 Mobile Source Air Toxics

In addition to regulating the emissions of the criteria pollutants listed in Table 3.6-2, the USEPA regulates MSATs. MSATs are compounds emitted from highway vehicles and non-road equipment (e.g., locomotives and construction vehicles) that have the potential to cause adverse health effects. Depending upon the size of a transportation project, and whether it would add capacity to area roadways or the rail system, FHWA has developed a tiered approach with three levels of analysis. Since the 75th Street CIP would improve transit and freight operations while reducing idling times and fuel usage, this project was classified as a project with low potential MSAT effects, requiring a qualitative assessment.[66] The qualitative assessment focuses on what the relative difference would be between the Build and No-Build Alternatives on potential MSAT emissions. Since emissions are directly related to fuel usage, the annual fuel usage for each alternative was compared. More detailed information about MSATs is located in Appendix D-Air Quality and the qualitative analysis is discussed in Section 3.6.5.4 (Mobile Source Air Toxics).

3.6.3.4 Climate Change and Greenhouse Gas Emissions

There currently are no standards to study a project's effect on climate change or greenhouse gas emissions. Therefore, the topic is discussed qualitatively in Section 3.6.5.5, followed by a comparison of fuel usage.

3.6.4 Existing Conditions

Each criteria pollutant is monitored on a continuous basis throughout the State of Illinois and reported to USEPA. Major objectives of monitoring air quality are to provide an early warning system for pollutant concentrations, assess air quality in light of public health and welfare standards, and to track trends or changes in these pollutant levels. The data from air quality monitors closest to the study area are shown in Table 3.6-2.

Table 3.6-2: Pollutant Monitoring Data

Pollutant	Averaging Period	Maximum Averaging Period Concentration	NAAQS
Carbon Monoxide (CO)	1-hour (1,4)	4.8 ppm	35 ppm
	8-hour (1,4)	2.7 ppm	9 ppm
Ozone (O_3)	8-hour (2,4)	0.063 ppm	0.075 ppm
Nitrogen Dioxide (NO_2)	1-hour (3,4)	0.08 ppm	0.100 ppm
	Annually	0.021 ppm	0.053 ppm
Inhalable Particulates (PM_{10})	24-hour (3,5)	82 µg/m³	150 µg/m³
Fine Particulates ($PM_{2.5}$)	24-hour (3,4)	33.4 µg/m³	35 µg/m³
	Annually (3,4)	14.1 µg/m³	15 µg/m³

(1) Second highest maximum concentration over the past five years.
(2) 3-year average of the 4th highest daily maximum 8-hour average.
(3) 3-year average.
(4) 1820 S. 51st Avenue, Cicero, Cook County.
(5) 13th Street and 50th Avenue, Cicero, Cook County.
(6) 3535 E. 114th Street, Chicago, Cook County.

Source: USEPA AirData <http://www.epa.gov/air/data/index.html>, accessed 2/1/11.

3.6.5 Air Quality Impacts

3.6.5.1 General Conformity

Construction Year Analysis – The equipment and hours of operation proposed to be used for construction of the 75th Street CIP were estimated and multiplied by the emission factors in USEPA's "NonRoad2008a" model to determine project-related emissions during the assumed peak construction year of 2017 (refer to Appendix D – Air Quality for construction estimates and fuel usage information). The results are summarized in Table 3.6-3 and show that the peak construction year emissions for HC, NO_x, PM_{10} or $PM_{2.5}$ are all estimated to be less than the 100 tons/year *de minimis* threshold level.

Table 3.6-3: Construction Year Analysis

	HC (tons/year)	NO_x (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Construction Emissions 2017	7.9	46.5	5.7	5.5
Threshold	*100*	*100*	*100*	*100*
Does Construction Year Total Emissions Exceed Threshold?	No	No	No	No

Source: Jacobs, 2013.

Design Year Analysis – The Chicago Transportation Coordination Office (CTCO) Train Model data provided estimates of fuel consumption for the Existing, No-Build, and Build scenarios. These data were multiplied by the USEPA emission factors for locomotives to estimate the total annual emissions associated with each alternative (refer to Appendix D-Air Quality for fuel usage data and

USEPA emission factors). Table 3.6-4 shows that the increase in project-related emissions for HC, NO_x, PM_{10}, or $PM_{2.5}$ is less than the 100 ton/year *de minimis* threshold level.

Table 3.6-4: Design Year Analysis

	HC (tons/year)	NO_x (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Operations Emissions 2029 No-Build	5.22	139.26	2.83	2.74
Operations Emissions 2029 Build	4.15	110.78	2.25	2.18
Delta Emissions due to Build	-1.07	-28.48	-0.58	-0.56
Threshold	*100*	*100*	*100*	*100*
Does Design Year Delta Exceed Threshold?	No	No	No	No

Source: Chicago Transportation Coordination Office. "75th CIP Air Quality Results." April 28, 2011 and USEPA, April 2009, Technical Highlights, Emission Factors for Locomotives, EPA Office of Transportation and Air Quality, EPA-420-F-09-025.

General Conformity Requirements – Since the construction year and design year emissions are less than the *de minimis* threshold levels, the project is not required by the Illinois' General Conformity regulations to complete a full General Conformity determination and is considered to meet the General Conformity requirements.

The construction and design year emissions would meet the *de minimis* threshold, thereby satisfying the general conformity rules.

3.6.5.2 Transportation Conformity

TIP – This project is included in the FY 2010-2015 TIP endorsed by the Metropolitan Planning Organization Policy Committee of the CMAP, and in the proposed 2014 - 2019 TIP. Projects in the TIP are considered to be consistent with the current regional transportation plan endorsed by CMAP (GO TO 2040). Portions of the project are contained in the fiscally constrained TIP; however, the project has funding needs beyond the horizon years of the TIP. Segments of the project will be moved into the TIP as its horizon years are advanced and funding is identified. The scope of the project has not changed significantly from what was reflected in the TIP. There are three TIP identification numbers associated with the 75th Street CIP: 01-07-0001 for the passenger corridor from LaSalle Street Station/Union Station to Canal Interlocking/Chicago Ridge Interlocking; 01-06-0058 for the 71st Street/CSX grade separation; and 01-05-0012 for the East-West Corridor, including Belt Junction.

SIP – On October 25, 2010,[67] the FHWA and the Federal Transit Administration (FTA) determined that the current regional transportation plan is in conformity with the SIP and the transportation-related requirements of the 1990 CAA Amendments. On August 7, 2013,[68] the FHWA and the FTA determined that the updated TIP also is in conformity with the SIP and the CAA Amendments. These findings were in accordance with 40 CFR Part 93, "Determining Conformity of Federal Actions to State or Federal Implementation Plans." Since the project is part of the transportation plan that conforms to the SIP, it complies with the with $PM_{2.5}$ and/or PM_{10} control measures in the SIP.

PM Hot-Spot Analysis – A Hot-Spot Analysis is required only if the passenger rail portion of the project is deemed to be an air quality concern (with regards to PM_{10} and $PM_{2.5}$). Typical projects of air quality concern include an increase of 10,000 trucks per day (or the passenger train equivalent to this increase in emissions), or a 50 percent increase or more in trains at an existing intermodal terminal with a "large vehicle fleet."[69]

- *Truck-Train Analysis* - Total $PM_{2.5}$ emissions for 10,000 trucks per day for one mile would be 685.4 grams. The increase in passenger locomotives between the No-Build and Build Alternatives would be six per day, with total emissions per day for one mile calculated at 21.2 grams. The net increase in emissions of $PM_{2.5}$ from CREATE 75th Street CIP trains (21.2 grams/day) does not closely approach or exceed the $PM_{2.5}$ emissions for 10,000 trucks 685.4 grams/day) during the Build year of 2029. Under these criteria, the 75th Street CIP is therefore not a "project of air quality concern."
- *Train Arrival Analysis* - The only potential change affecting the number of passenger train arrivals would result from shifting the terminus of the Metra Southwest Service (SWS) Line from Union Station to LaSalle Street Station by connecting the SWS Line to the Rock Island District (RID) Line. This shift would cause the passenger trains at LaSalle Street Station to increase from 78 in the existing condition (2009) to 112 in the build condition (2029). The net increase would be 34 trains, which is a 44 percent increase (Refer to Table 3.6-5). As this increase does not closely approach or exceed 50 percent, under these criteria, the 75th Street CIP would not be a "project of air quality concern."

Table 3.6-5: Train Arrival Analysis at LaSalle Street Station

Scenario	Daily Passenger Train Arrivals at LaSalle Street Station		
	RID	SWS	Total
Existing	78	0	78
Build	78	34	112
Increase	0	34	34
Percent increase of Build over Existing			*44%*

Source: CTCO, 2011

The USEPA has determined that projects that meet both of the above criteria meet the CAA's requirements without any further Hot-Spot analysis. The 75th Street CIP meets both the truck-train analysis and train arrival analysis criteria described above, and therefore would not cause or contribute to any new localized $PM_{2.5}$ and PM_{10} violations or increase the frequency or severity of any $PM_{2.5}$ and PM_{10} violations.

The 75th Street CIP is included in the TIP, which complies with the SIP, and satisfies the PM hot-spot analysis requirements; therefore transportation conformity is achieved.

3.6.5.3 Microscale Analysis

Locomotive Analysis - For the locomotive emissions analysis, the fuel consumption data from the CTCO Train Model were multiplied by the USEPA emission factors for HC, NO_x, PM_{10}, $PM_{2.5}$, and SO_2 to estimate the annual emissions associated with each alternative. Table 3.6-6 compares the No-Build and Build emissions levels with existing emissions levels. While the number of train movements in 2029 with either the Build or No-Build Alternatives would increase substantially over existing conditions, improvements in fuel composition and engine emission controls will substantially reduce future total emissions below current levels for all criteria pollutants except CO, a benefit of the project. While total annual emissions of CO increase over the 2009 Existing Condition, the emissions of CO would be lower for the Build Alternative than for the No-Build Alternative. The elimination of most train delays and locomotive idling with the Build Alternative are the principal reason for this improvement.

Table 3.6-6: Annual Locomotive Emissions

Year	HC (tons/ year)	CO (tons/ year)	NO_x (tons/ year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)*	SO_2 (tons/year)
2009 Existing Condition	11.04	32.27	208.66	5.94	5.77	19.85
2029 Build Alternative	4.15	46.04	110.78	2.25	2.18	0.17
2029 No-Build Alternative	5.22	57.88	139.26	2.83	2.74	0.21

**Per USEPA Publication EPA-420-F-09-025, Emission Factors for Locomotives, (April 2009), "PM2.5 emissions can be estimated as 0.97 times the PM10 emissions…"*

Source: USEPA, April 2009, Technical Highlights, Emission Factors for Locomotives, EPA Office of Transportation and Air Quality, EPA-420-F-09-025 and USEPA, December 1992, Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources. EPA-420-R-92-009.

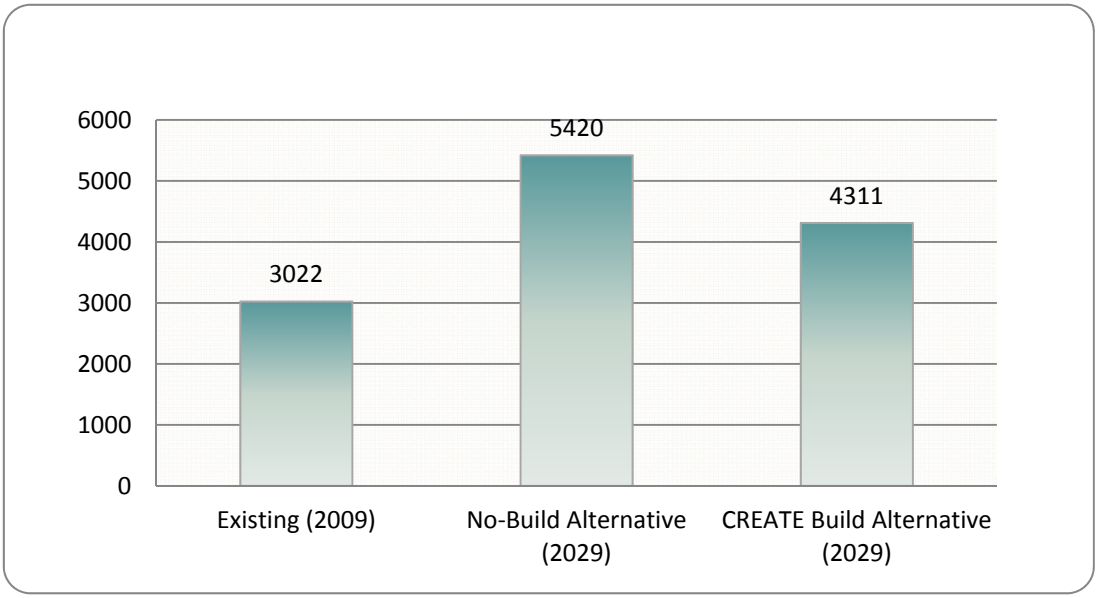
Additionally, current and future USEPA locomotive regulations, as well as improvements in fuel composition, will continue to perpetuate better emissions performance.

Fuel consumption with the Build Alternative would be lower than with the No-Build Alternative, resulting in reductions of locomotive emissions.

Roadway CO Analysis - In accordance with the IDOT-IEPA "Agreement on Microscale Air Quality Assessments for IDOT Sponsored Transportation Projects," this project is exempt from a project-level carbon monoxide air quality analysis because it does not add through lanes or auxiliary turning lanes.

3.6.5.4 Mobile Source Air Toxics

For the Build Alternative, the amount of MSATs emitted would be proportional to the amount of fuel used. The estimated fuel usage for the Build Alternative is approximately 20 percent lower than for the No-Build Alternative (refer to Figure 3.6-1). This reduced fuel usage is associated with the reduction in time it would take trains to operate within or traverse the corridor and the reduction in the time trains spend idling.



Source: Chicago Transportation Coordination Office. "75th CIP Air Quality Results." April 28, 2011.

Figure 3.6-1: Rail Fuel Usage-75th CIP (gallons/day)

The additional freight activity contemplated as part of the Build Alternative will have the effect of increasing diesel emissions in the vicinity of nearby homes, schools, and businesses; therefore, under the Build Alternative there may be localized areas where ambient concentrations of MSAT would be higher than under the No-Build Alternative. However the magnitude and the duration of these potential differences cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific health impacts, as discussed in detail in Appendix D.

Also, in addition to the reduction in fuel usage between No-Build and Build Alternatives, emissions would likely be lower than present levels in the design year as a result of USEPA's national control programs, which include clean diesel technologies for locomotive engines and the use of ultra-low sulfur diesel fuel. The Technical Memorandum prepared for the CREATE Grand Crossing Rail Project (P4),[70] which analyzed emissions specific to Cook County, concludes that future region-wide MSAT emission levels would be significantly lower than today.

3.6.5.5 Climate Change and Greenhouse Gas Emissions

Climate change describes the gradual increase or decrease in worldwide average surface temperatures, causing long-term fluctuations in weather patterns, with a tendency towards more severe storms. Human and natural increases in greenhouse gases (GHGs) are a factor in climate change. Some amount of GHG in the atmosphere is necessary to trap heat in the atmosphere, keeping the planet warm. However, as GHGs continue to build up in the atmosphere, the heat trapped in the atmosphere increases, increasing the average temperature of the earth worldwide. Over the past 30 years the increase in temperature has been just over one degree, however, it is anticipated that over the next 100 years, the increase could be three to seven degrees.[71]

Water vapor is the most abundant GHG contributing to the GHG effect naturally; however the burning of fossil fuels and other human activities add to the GHG concentration in the atmosphere. Since this project involves the burning of fossil fuels, the effect on GHGs has been qualitatively assessed.

To date no standards have been developed to study a project's effect on climate change, nor has the USEPA established thresholds for greenhouse gas emissions. However, CMAP and the FHWA have identified that transportation energy consumption is a factor in GHG emissions. Strategies identified by CMAP and FHWA to reduce the emissions of GHG include improving system performance, reducing growth in vehicle miles traveled, transition to lower GHG fuels, and improved vehicle technologies. As described above in the MSAT discussion, fuel usage is expected to be reduced by 20 percent over the No-Build scenario with this project, due to the improved operations and reduced idling. Therefore, although the project would not have a significant global effect, the project would likely reduce GHG emissions between the Build and No-Build conditions. Additionally, improvements to locomotive technologies and fuels, as previously discussed, would also likely reduce GHG emissions over the existing conditions.

In addition to the concern for the project's impact on global climate change, there is also concern for climate change's impact upon the project. USDOT has developed guidance for climate adaptation, which would decrease a system's vulnerability to the effects of severe storms, such as flooding and high winds. FHWA and IDOT will continue to assess the risk to this project from climate change, and adjust facility design and construction plans as necessary to reduce the risks to the project.

3.6.6 Air Quality Mitigation

The proposed project would not cause nor contribute to any new localized violations, nor increase the frequency or severity of any existing NAAQS violations. The project satisfies the general conformity rules and achieves transportation conformity. Additionally, fuel consumption would be reduced with the Build Alternative, resulting in reductions of locomotive emissions compared to the emissions expected with the No-Build Alternative. Therefore, the project would not adversely impact air quality, and no mitigation is required. Table 3.6-7 summarizes how the project meets the air quality evaluation criteria.

Table 3.6-7: Summary of Air Quality Evaluation Criteria

Criteria	Requirement	Does construction of the 75th Street CIP meet air quality requirements?
General Conformity	Construction emissions < 100 tons/year	Yes
	Design emissions < 100 tons/year	Yes
Transportation Conformity	Project is listed on the TIP and has not significantly changed	Yes Project is consistent with TIP numbers 01-07-0001, 01-06-0058, and 01-05-0012
	Project will comply with SIP	Yes
	Project Meets Hot-Spot requirements	Yes Emissions of the Build Alternative would be less than equivalent of 10,000 trucks/day and there would be less than a 50% increase in trains at the terminal station
Microscale Analysis	Locomotive emissions	Yes Emissions would be reduced with the Build Alternative
	Roadway CO emissions	N/A Project is exempt since there would be no new through lanes or turning lanes
MSATs	None	N/A Emissions would be reduced with the Build Alternative
Greenhouse Gas Emissions	None	N/A Emissions would be reduced with the Build Alternative

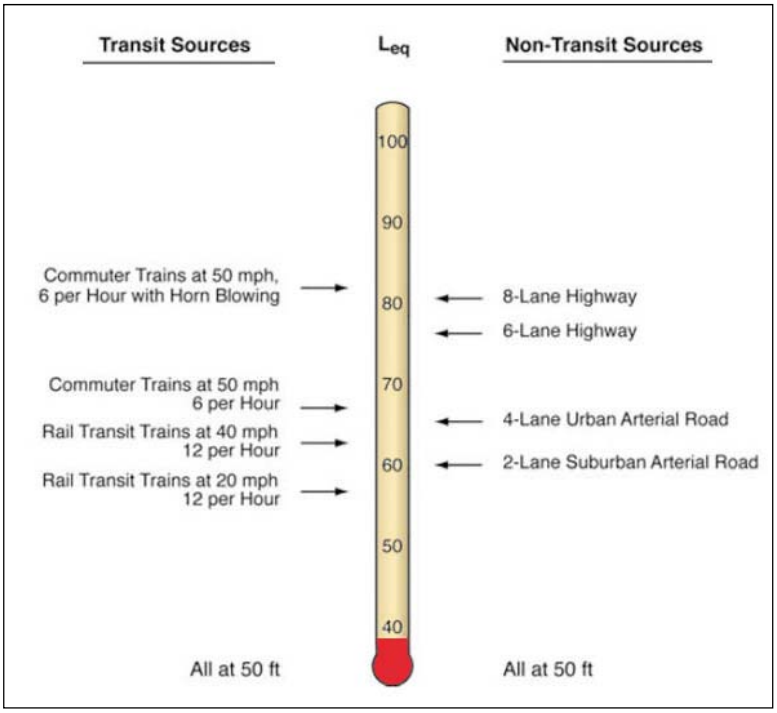
3.7 Noise and Vibration

3.7.1 Noise

3.7.1.1 Introduction

Noise is the sound in a community emanating from man-made sources such as automobiles, trucks, buses, aircraft, trains, and industrial sources, or from natural sources such as animals and wind. Noise can result in community annoyance, especially in residential areas. Noise levels are measured in decibels. To account for the increased human sensitivity to particular pitches or frequencies, the "A"-weighted scale was developed to measure how the human ear hears noise and how "annoying" the noise is. Noise in terms of the "A"-weighted scale is expressed as dBA units.

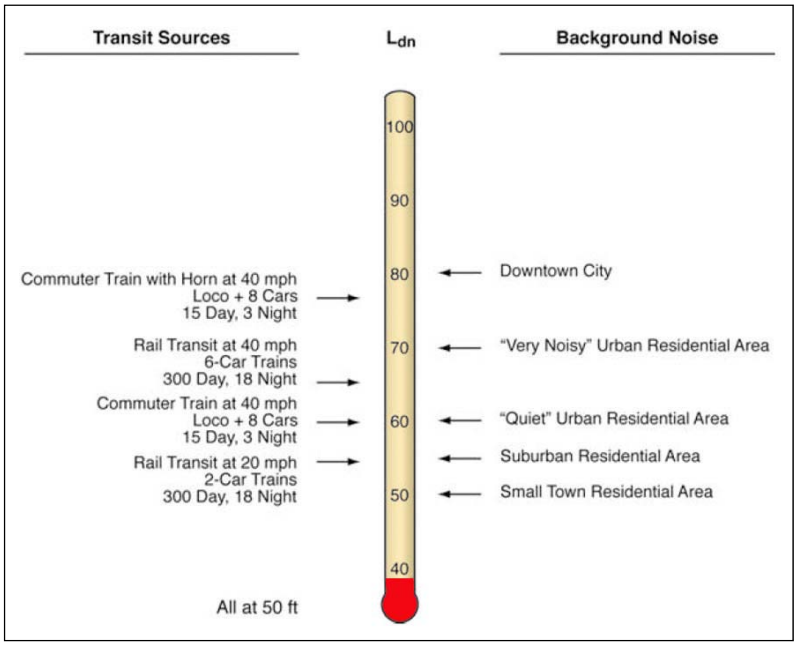
L_{eq} and L_{dn} are two noise descriptors typically used to represent the average noise level over a given period of time. L_{eq} is the average noise level over one hour for daytime uses, such as parks and schools (refer to Figure 3.7-1 for typical L_{eq} noise levels). For areas where nighttime noise is a concern, such as places where people sleep, the day-night noise level L_{dn} metric is used (refer to Figure 3.7-2 for typical L_{dn} noise levels). L_{dn} logarithmically averages the noise levels over a 24-hour period and includes a 10 dBA penalty to nighttime noise levels between the hours of 10:00 PM and 7:00 AM to account for the increased noise-sensitivity of people during nighttime hours. The effect of this penalty is that one train pass-by during the nighttime hours is equivalent to 10 pass-bys during the daytime hours.



Source: FTA *Noise and Vibration Impact Assessment*, May 2006, Figure 2-16.

Figure 3.7-1: Typical Hourly L_{eq} Levels

L_{eq} is the average hourly noise level for daytime uses, such as parks and schools, where nighttime noise is generally not an issue.



L_{dn}, the average day-night noise level, is used for areas where nighttime noise is a concern, such as places where people sleep.

Source: FTA *Noise and Vibration Impact Assessment*, May 2006, Figure 2-17.

Figure 3.7-2: Typical L_{dn} Levels

The amount of noise heard by the community from the freight and commuter rail operations varies due to a number of factors, including the number of locomotives and cars, their speeds, the frequency of train pass-bys and time of day, train and track configuration and condition, intervening terrain and buildings, and distance between the receptor and the track.

3.7.1.2 Noise Analysis Methodology

Freight and Passenger Trains - Since there are no existing guidance documents or methods specifically applicable to the evaluation of freight train traffic noise combined with passenger traffic noise, the CREATE Program has established a specific methodology to analyze potential noise impacts resulting from this project. The CREATE N&V Methodology is based on the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* guidance manual (May 2006),[72] with certain modifications to allow for the evaluation of freight train traffic.

The FTA approach, as adopted by CREATE, categorizes the noise sensitivity of receptors by the types of land uses and their sensitivity to noise. Additionally, as discussed in the introduction, the noise metric that is used to describe the noise level is different depending upon whether the land use is sensitive to nighttime noise. For land uses involving primarily daytime activities (Categories 1 and 3), the average hourly noise level (L_{eq}) is the noise descriptor used. For land uses where nighttime sensitivity is a factor (Category 2), the day-night noise level (L_{dn}) is the noise descriptor used. Table 3.7-1 describes the types of land uses included in each category.

Table 3.7-1: Land Use Categories

Land Use Category	Noise Metric dB(A)	Description of Land Use
1	Outdoor Leq (h)* (daytime noise metric)	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use. Also included are recording studios and concert halls.
2	Outdoor Ldn (day-night metric)	Residences and buildings where people normally sleep. This category includes homes, hospitals and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor Leq (h)* (daytime noise metric)	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds and recreational facilities can also be considered to be in this category. Certain historical sites and parks are also included.

** Leq for the noisiest hour of transit-related activity during hours of noise sensitivity.*
Source: *CREATE Noise and Vibration Assessment Methodology, June 2014 Table 4-5.*

Background noise level is the monitored noise level without train noise.

The first step involves identifying all noise-sensitive land uses, such as residences, schools, and parks within the noise screening distance, which varies depending upon predicted Build condition freight and passenger train volumes, speed, length of trains, existing noise levels, and presence of intervening buildings. For the 75th Street CIP, the screening distances range from 225 to 1,500 feet.[73] These noise-sensitive land uses are then grouped into clusters by similar conditions, such as type of land use (as described in Table 3.7-1) and distance to track. A noise analysis is then performed on each cluster to determine the changes in noise level associated with the project and the potential for noise impacts.

The overall noise level is the background noise plus train noise.

To estimate the noise associated with railroad activities, an FTA spreadsheet model was used. For each receptor cluster, passenger and freight train data are entered into the model, along with intervening building rows, and distance to each track. The model then calculates the predicted train traffic noise level at the receptor cluster. The train noise level is then added to the background noise level to produce the overall noise level.

Finally, the increase in noise levels between Build levels and the Existing levels is compared to the FTA Impact Thresholds identified in Table 3.7-2 to determine whether an impact would occur.

Table 3.7-2: Noise Level Increase Defining FTA Noise Impact Criteria

Existing Overall Noise Exposure (L_{eq} or L_{dn})	Impact Threshold for Increase in Overall Noise Exposure (dBA)					
	Land Use Category 1 or 2 Sites			Land Use Category 3 Sites		
	No Impact	Moderate Impact	Severe Impact	No Impact	Moderate Impact	Severe Impact
45	<9	9-14	>14	<13	13-19	>19
46	<8	8-13	>13	<13	13-18	>18
47	<8	8-12	>12	<12	12-17	>17
48	<7	7-12	>12	<11	11-16	>16
49	<7	7-11	>11	<11	11-16	>16
50	<6	6-10	>10	<10	10-15	>15
51	<6	6-10	>10	<9	9-14	>14
52	<5	5-9	>9	<9	9-14	>14
53	<5	5-8	>8	<8	8-13	>13
54	<4	4-8	>8	<8	8-12	>12
55	<4	4-7	>7	<7	7-12	>12
56	<4	4-7	>7	<7	7-11	>11
57	<4	4-6	>6	<7	7-10	>10
58	<3	3-6	>6	<6	6-10	>10
59	<3	3-5	>5	<6	6-9	>9
60	<3	3-5	>5	<6	6-9	>9
61	<3	3-5	>5	<5	5-9	>9
62	<3	3-4	>4	<5	5-8	>8
63	<3	3-4	>4	<5	5-8	>8
64	<3	3-4	>4	<5	5-8	>8
65	<2	2-4	>4	<4	4-7	>7
66	<2	2-4	>4	<4	4-7	>7
67	<2	2-3	>3	<4	4-7	>7
68	<2	2-3	>3	<4	4-6	>6
69	<2	2-3	>3	<4	4-6	>6
70	<2	2-3	>3	<4	4-6	>6
71	<2	2-3	>3	<4	4-6	>6
72	<2	2-3	>3	<3	3-6	>6
73	<2	2	>2	<3	3-5	>5
74	<2	2	>2	<3	3-5	>5
75	<1	1-2	>2	<2	2-5	>5

L_{dn} is used for land uses where nighttime sensitivity is a factor;
Maximum 1-hour L_{eq} is used for land use involving only daytime activities.

Source: *CREATE Noise and Vibration Assessment Methodology, June 2014, Table 4-6.*

Table 3.7-2 was developed by FTA to approximate the annoyance level of the community resulting from an increase in noise, as well as a maximum noise level that would interfere with activities, such as carrying on conversations or sleeping. There are two levels of impact shown in Table 3.7-2 – Moderate Impact and Severe Impact. Moderate Impact is the level at which the increase in noise would be noticeable to most people, but may not be sufficient to cause strong, adverse reactions from the community. By contrast, Severe Impact would cause a significant percentage of people to be highly annoyed by the new noise.[74]

If potential noise impacts are identified, the analysis continues for affected areas with a Detailed Noise Analysis which refines the analysis and, if necessary, evaluates mitigation measures.

Roadway Noise - One other source of potential impact is the change in elevation of a roadway, such as would occur at 71st Street where grade separation is proposed, and thus potential could exist for changing the line of sight to sensitive receptors, and require a roadway noise assessment. The elevation of 71st Street is anticipated to be depressed less than three feet, not affecting the line of sight to any sensitive receptors; therefore, it is not considered a Type I project and a roadway noise assessment would not be required.

3.7.1.3 Potential Noise-Sensitive Receptors

The study area was divided into nineteen noise evaluation areas (NEAs) exhibiting similar background noise levels and types of train activity (refer to Figure 3.7-3). Areas excluded from the NEAs were industrial or transportation land uses which do not contain noise-sensitive receptors (such as residences or hospitals). Screening distances were developed for each NEA to identify the limits of potential noise impact from freight and passenger train activity. The distances vary depending upon the background noise levels, population density, and the volume and type of freight traffic with the Build Alternative. Table 3.7-3 identifies the screening distances for each NEA. The "obstructed" distance applies if building rows are present between the railroad and the edge of the screening distance, such as an industrial area or dense residential area. The "unobstructed" distance applies if no intervening building rows are present, such as would occur with a large park or cemetery adjacent to the tracks. Refer to Appendix E - Noise for further information on the evaluation of screening distances.

Each noise evaluation area was further subdivided into receptor clusters to group together multiple residences which are approximately the same distance from the track and which would experience a similar number of train pass-bys. Community facilities, such as schools, parks, and libraries, were treated as separate individual clusters because they were evaluated by the daytime noise metric while residences were evaluated using the day-night metric (i.e., L_{eq} for schools/parks/libraries versus L_{dn} for residences). These clusters are shown on maps in Appendix E – Noise.

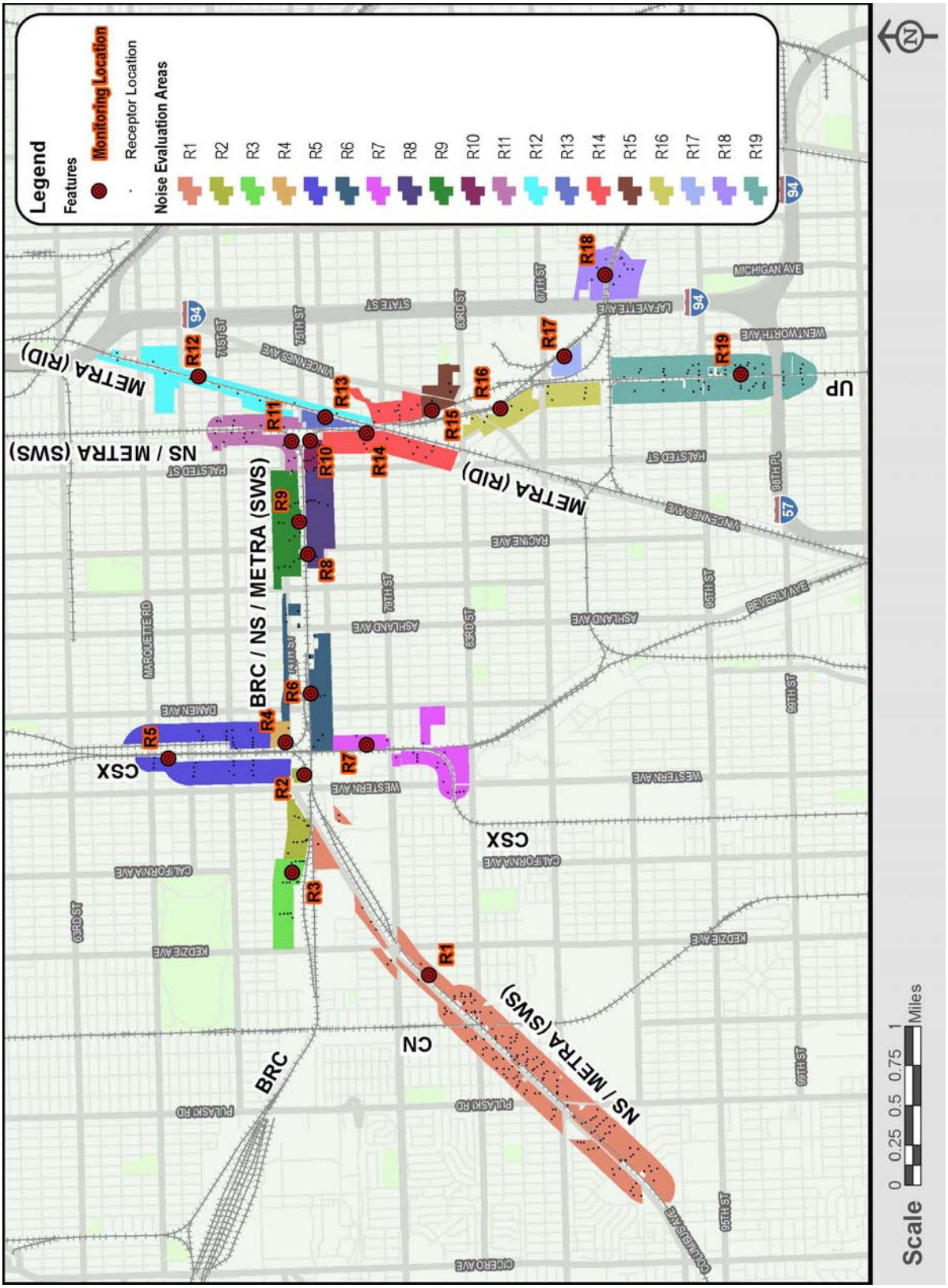


Figure 3.7-3: Noise Evaluation Areas and Noise Monitoring Locations

Table 3.7-3: Screening Distances for Each Noise Evaluation Area

Noise Evaluation Area	Freight Activity Category	Unobstructed Screening Distance (feet)	Obstructed Screening Distance (feet)
R1	High (near Grade Xing)	1200	750
	Medium (not near Grade Xing)	750	375
R2	High	1200	750
R3	High	1500	1000
R4	High	1500	1000
R5	High (near Grade Xing)	1500	1000
	Medium (not near Grade Xing)	1000	500
R6	High	1200	750
R7	Medium	1000	500
R8	High	1500	1000
R9	High	1500	1000
R10	High	1200	750
R11	Medium	1000	500
R12	Low Mix	450	225
R13	High	1500	1000
R14	High	1200	750
R15	High	1200	750
R16	High	1200	750
R17	High	1500	1000
R18	High	1500	1000
R19	High (near Grade Xing)	1200	750
	High (not near Grade Xing)	1200	750

Source: Jacobs, 2012.

3.7.1.4 Noise Monitoring

A noise monitoring program was developed to obtain information on background noise levels throughout the study area. Locations representative of the noise environment were chosen for noise monitoring within all 19 NEAs, shown on Figure 3.7-3 as sites R1 through R19. Noise monitoring was performed October 18 through October 22, 2010, between 8:00 a.m. and 5:00 p.m. Two types of measurements were taken for each site:

- Background noise level – all noise sources in the environment when trains were not passing by the monitor, and
- Monitored noise level –includes existing train noise that passed by the monitor in addition to the background noise level.

For land use Category 2 (residential areas sensitive to nighttime noise), the FTA conversion method was used to convert the one-hour metric (L_{eq}) to the day-night metric (L_{dn}), which involves subtracting 2 dBA from the L_{eq} for measurements taken between 7:00 a.m. and 7:00 p.m. This calculation "handicaps" the Category 2 measurement taken during the day so that the noise analysis more accurately assesses the effect of project noise in the quieter nighttime hours. Table 3.7-4 shows the monitored noise level at each site along with the resulting background noise level expected to occur without any train activity. Refer to Appendix E - Noise for more detail regarding noise monitoring and the calculation of background noise levels.

Table 3.7-4: Monitored and Background Noise Levels (dBA)

Site Number	Monitored Noise Level (Leq) (Note 1)	Background Noise Level	
		Hourly Equivalent (Leq)	Day-Night (Ldn)
R1	64	52	50
R2	61	52	50
R3	55	53	51
R4	52	52	50
R5	53	50	48
R6	61	50	48
R7	53	53	51
R8	59	52	50
R9	57	52	50
R10	68	52	50
R11	57	50	48
R12	57	52	50
R13	57	55	53
R14	62	52	50
R15	61	58	56
R16	64	46	44
R17	57	53	51
R18	59	59	57
R19	77	57	55

Note 1 - Monitored noise level includes background levels and train pass-bys.

Source: Jacobs, 2012.

3.7.1.5 Noise Impacts

There are two main train-related noise sources that would contribute to noise impacts – wayside noise and horn noise. Wayside noise is the noise coming from the diesel engine of the locomotive and the movement of the train's wheels against the rails during a pass-by. Horn noise occurs approximately 1,000 feet before a grade crossing to warn motorists and pedestrians approaching the

grade crossing that a train is approaching. Where horn noise is present, it is typically the source of impact, as it is much louder than the wayside noise.

Project details including number of trains during the day and night periods, number of cars and locomotives per train, and train speed were estimated by the Chicago Transportation Coordination Office (CTCO) for each track in the project study area and for each condition – Existing, No-Build, and Build. This information was then averaged for each track and input into the CREATE spreadsheet model to estimate train-related noise at each receptor cluster. The train noise levels were then added to the background levels, and the difference between the Existing condition and the Build Alternative condition was identified and compared to the FTA impact table (Table 3.7-2) to identify which clusters were impacted. Figure 3.7-4, Figure 3.7-5, and Figure 3.7-6 summarize the overall exterior noise level for each cluster for the Existing, No-Build, and Build conditions, respectively. Table 3.7-5 summarizes the lowest and highest noise levels by NEA and the lowest and highest changes in noise levels between the Existing and No-Build/Build conditions. Tables E-2 and E-4 in Appendix E – Noise detail the exterior noise levels for each cluster. The largest changes in sound levels occurred between Existing and Build conditions, with a decrease of 12 dBA in NEA R5 and an increase of 10 dBA in NEA 11. Generally a change of 2 to 3 dBA is barely perceptible to the human ear, while a 5 dBA change is readily noticeable.

Where there are no exterior activities, such as at churches, libraries, and some schools, the interior noise levels are assessed. To compute interior noise levels, the exterior project noise levels are estimated as described above. A building noise reduction factor is then applied which subtracts from the project-related noise level to account for the shielding of the building. The factor ranges from 10 dBA for a typical structure that has windows that open, to 35 dBA for a masonry structure with double glazed windows. Unless it is confirmed that the windows are kept closed almost every day of the year, the window should be considered open, so the 10 dBA factor should be used. An impact occurs if the interior project-related noise level is either 51 dBA or greater or would be 14 dBA greater than existing project-related noise levels. Within the study area, twenty-six churches, a library, and four schools have been identified as having no exterior activities. The estimated impact associated with each alternative is described below.

Of these 31 interior receptors, six are above the 51 dBA threshold in the existing conditions: three religious facilities (God's Way Apostolic Faith Church, Freedom Temple Church of God, and Trinity United Church of Christ), the Ashburn Community Elementary School, the Parker Elementary Community Academy/Amandla Elementary Charter School, and the Banner School. Tables E-3 and E-5 in Appendix E – Noise detail the interior noise levels by cluster.

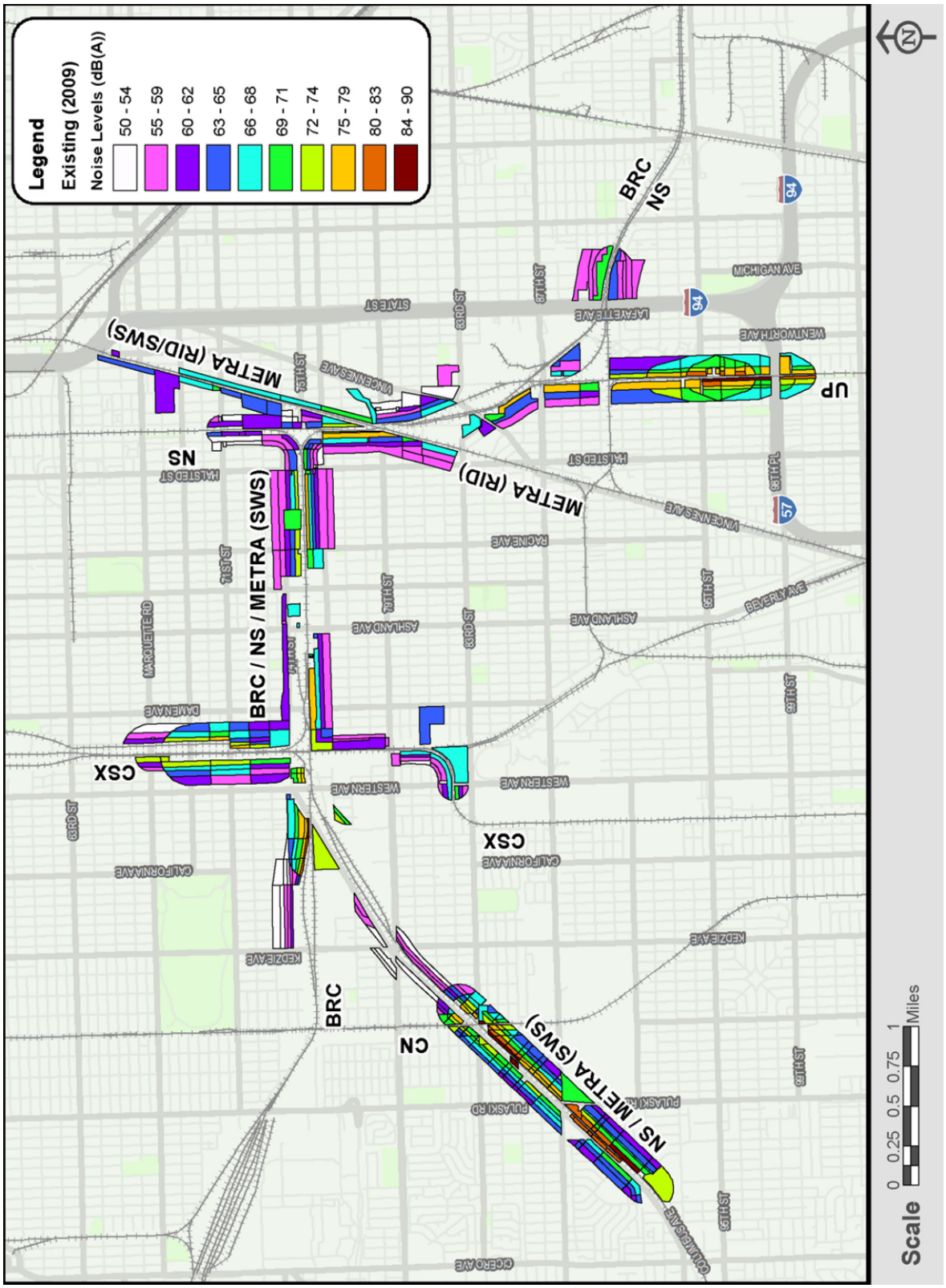


Figure 3.7-4: Existing Exterior Noise Levels

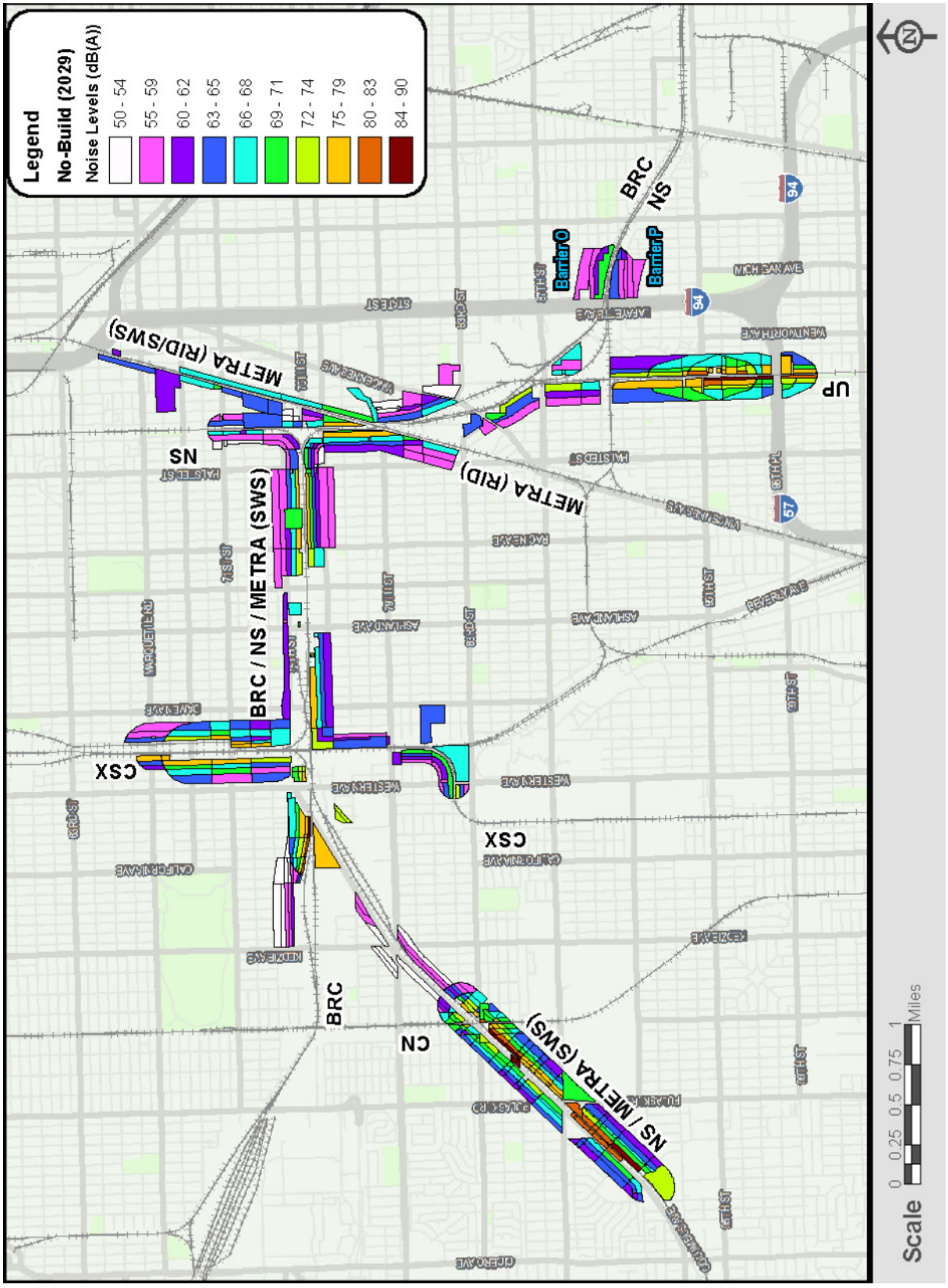


Figure 3.7-5: No-Build Alternative Exterior Noise Levels

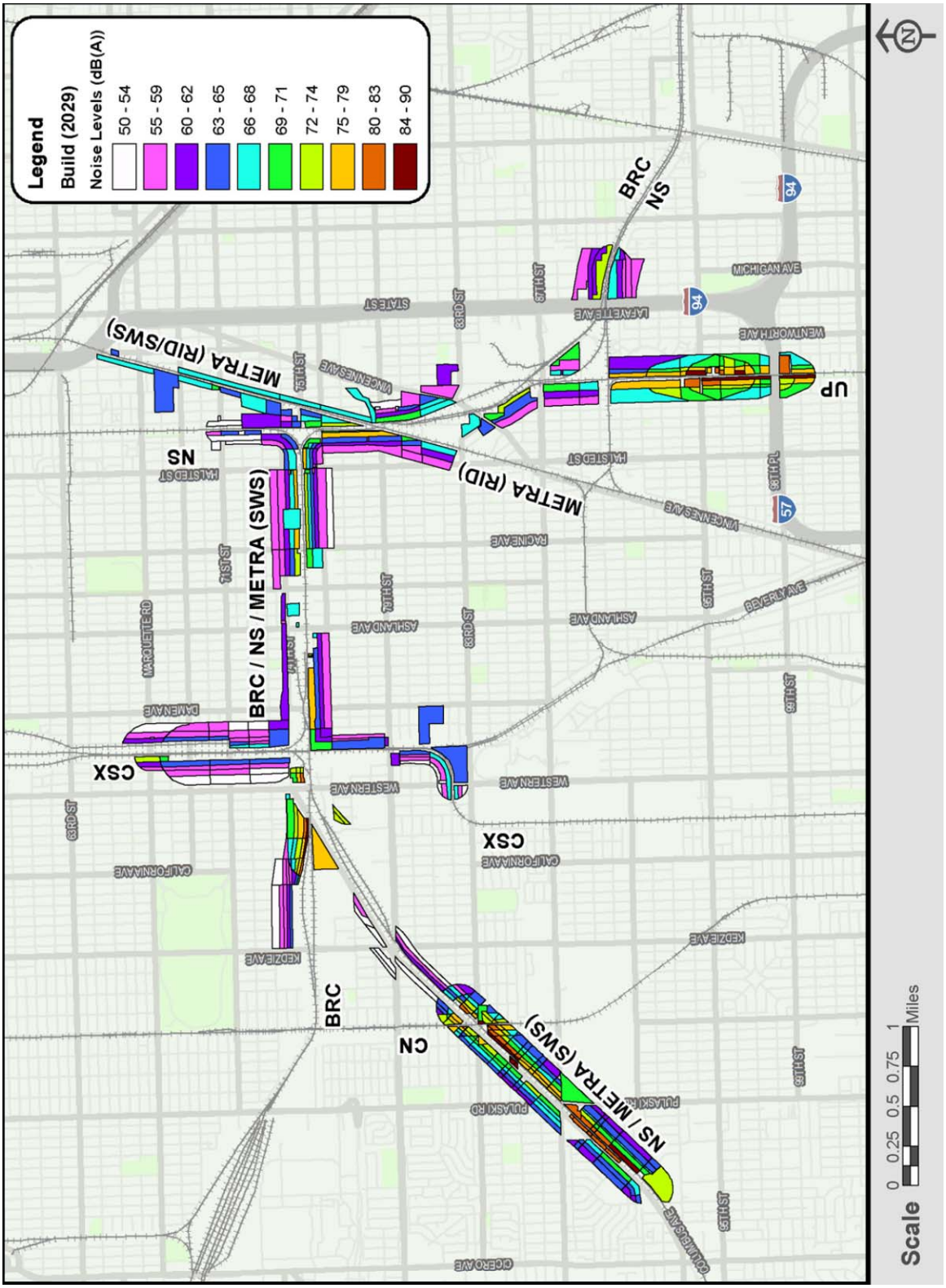


Figure 3.7-6: Build Alternative Exterior Noise Levels

Table 3.7-5: Lowest and Highest Exterior Noise Level for Each Noise Evaluation Area

Noise Evaluation Area	Range of Noise Levels (dBA)			Range of Increase Over Existing	
	Existing	No-Build	Build	No-Build	Build
R1	52-87	51-87	51-87	-4 / 1	-2 / 5
R2	53-87	53-87	55-89	0 / 1	1 / 3
R3	52-80	53-80	54-82	0 / 1	2 / 4
R4	62-68	64-68	61-63	0 / 2	-5 / -1
R5	52-75	54-78	50-74	1 / 5	-12 / 2
R6	55-76	57-78	55-76	1 / 3	-2 / 2
R7	54-70	55-74	53-67	1 / 4	-3 / 2
R8	55-75	55-75	54-74	0 / 2	-1 / 1
R9	55-74	56-75	55-75	0 / 2	-3 / 2
R10	50-70	52-71	56-75	0 / 2	3 / 7
R11	45-65	52-68	49-68	0 / 8	-10 / 10
R12	54-69	54-69	63-70	0 / 0	-1 / 9
R13	58-74	59-76	65-74	0 / 2	-1 / 8
R14	51-77	50-78	53-76	-2 / 2	-2 / 6
R15	52-66	53-67	55-67	0 / 1	1 / 3
R16	57-75	57-74	56-72	-4 / 0	-4 / 1
R17	57-67	57-68	59-71	0 / 3	-1 / 7
R18	57-69	58-71	58-74	0 / 2	1 / 5
R19	61-84	60-84	62-86	-2 / 0	1 / 3

Source: Jacobs, 2012.

No-Build Alternative - Beyond routine maintenance, no improvements would be constructed under the No-Build Alternative. The train volumes are expected to increase between the model base year of 2009 (Existing Conditions) and the No-Build year of 2029 as a function of natural economic increase in demand for freight movement. See Table 3.3-2 for details of the projected increases in train traffic under the No-Build Alternative.

As shown in Table 3.7-6 and Figure 3.7-7, compared to Existing conditions, the increase in noise levels at 1,099 residences would exceed the FTA impact thresholds. One institutional land use, Lily Gardens Park, would have increase above the moderate impact threshold, according to the exterior criteria. An additional seven institutions would exceed the FTA threshold according to the interior criteria – four religious facilities (God's Way Apostolic Faith Church, Freedom Temple Church of God, Beacon Light Baptist Church, and Trinity United Church of Christ), and three schools (the Ashburn Community Elementary School, the Parker Elementary Community Academy/Amandla Elementary Charter School, and the Banner School). These are the same receptors that are above the FTA interior thresholds under existing conditions, as described above, except for the Beacon Light Baptist Church, which is not above the FTA threshold under existing conditions. Appendix E - Noise details the predicted noise levels by cluster.

Mapping is provided in *Appendix E – Noise* where concerned citizens can locate the property of interest, identify the cluster, then look up the noise levels in the detailed impact tables.

The majority of the increases above the FTA thresholds – both residential and institutional exterior and interior receptors – occur along the CSX railroad to the north and south of the Forest Hill Junction, the NS "CWI" Line north of 80th Street Junction, and the NS/BRC line south and east of 80th Street Junction (see Figure 3.7-7 Clusters Above the FTA Cumulative Noise Level Increase Threshold Under the No-Build Alternative).

Build Alternative Impacts - Many improvements are proposed under the Build Alternative, including a new rail flyover to connect Metra's SWS Line to the Rock Island District (RID) Line just south of Hamilton Park, a new flyover structure at Forest Hill Junction which includes a grade separation at 71st Street, and the addition of tracks into various rail yards throughout the corridor. All of these improvements are associated with increases to the predicted Build noise levels. One benefit of the project would be the removal of the interlockings at Forest Hill Junction, Belt Junction, and 80th Street Junction. The sensitive-receptors near those areas would experience a decrease in noise levels with the elimination of the gap in the rails that allows the trains to cross tracks. Although there is a large increase in train volumes, many of the areas near these interlocking do not reach the impact level because they receive the benefit of the reduction in track noise resulting from the elimination of the noise-creating interlockings and the grade separation at 71st Street.

Moderate impacts **are noticeable to most people, while** ***severe impacts*** **would cause a significant percentage of people to be highly annoyed.**

As shown in Table 3.7-6 and Figure 3.7-7, a total of 1,359 residential noise impacts – 1,092 moderate and 267 severe – have been predicted for the Build Alternative. Three institutional land uses would be moderately impacted – Leland Giants Park, Fernwood Parkway Park, and (Wendell) Smith Playlot Park. An additional seven institutional land uses would experience interior impacts – four religious facilities (God's Way Apostolic Faith Church, Freedom Temple Church of God, Trinity United Church of Christ, and St. Thaddeus Catholic Church), and three schools (the Ashburn Community Elementary School, the Parker Elementary Community Academy/Amandla Elementary Charter School, and the Banner School). These are the same interior receptors above the FTA threshold under existing conditions, as described above, except for the St. Thaddeus Catholic Church, which is just above the interior noise threshold of 51 dBA. Appendix E – Noise details the noise levels and number of impacts by cluster.

In order to construct the Forest Hill flyover for the CSX tracks (in Noise Evaluation Areas 4, 5, 6, and 7, in Figure 3.7-3) it would be necessary to construct temporary tracks along the east side of the existing rail corridor. These temporary tracks would be in use for approximately one year while construction is underway. These tracks were also evaluated for noise effects, and the results of that analysis are included in Section 3.16.1, Construction Impacts.

Table 3.7-6: Number of Sensitive Receptors above the FTA Cumulative Noise Level Increase Threshold in Each Noise Evaluation Area

Noise Evaluation Area	Number of Sensitive Receptors Above the FTA Cumulative Noise Level Increase Threshold	
	No-Build	Build
R1	Institutional: 1 interior	Residential: 170 moderate; 41 severe Institutional: 1 interior
R2	0	Residential: 384 moderate
R3	0	Residential: 81 moderate
R4	0	0
R5	Residential: 632 moderate; 39 severe	0
R6	Residential: 55 moderate Institutional: 2 interior	Institutional: 2 interior
R7	Residential: 143 moderate; 51 severe	0
R8	0	0
R9	0	0
R10	0	Residential: 60 moderate, 34 severe Institutional: 1 moderate
R11	Residential: 16 moderate Institutional: 1 moderate	Residential: 33 moderate, 40 severe
R12	Institutional: 1 interior	Residential: 90 moderate, 12 severe Institutional: 1 interior
R13	Residential: 17 moderate	Residential: 32 moderate, 17 severe
R14	Residential: 81 moderate	Residential: 20 moderate, 38 severe
R15	0	0
R16	0	0
R17	Institutional: 1 interior	Residential: 20 severe
R18	Residential: 65 moderate	Residential: 41 moderate, 65 severe
R19	Institutional: 2 interior	Residential: 181 moderate Institutional: 2 moderate, 3 interior
TOTAL	Residential: 1,009 moderate; 90 severe, Institutional: 1 moderate, 7 interior	Residential: 1,092 moderate; 267 severe Institutional: 3 moderate, 7 interior
Note: Detailed information for each cluster is included in Appendix E – Noise, Tables E-4 and E-5.		

Source: Jacobs, 2011.

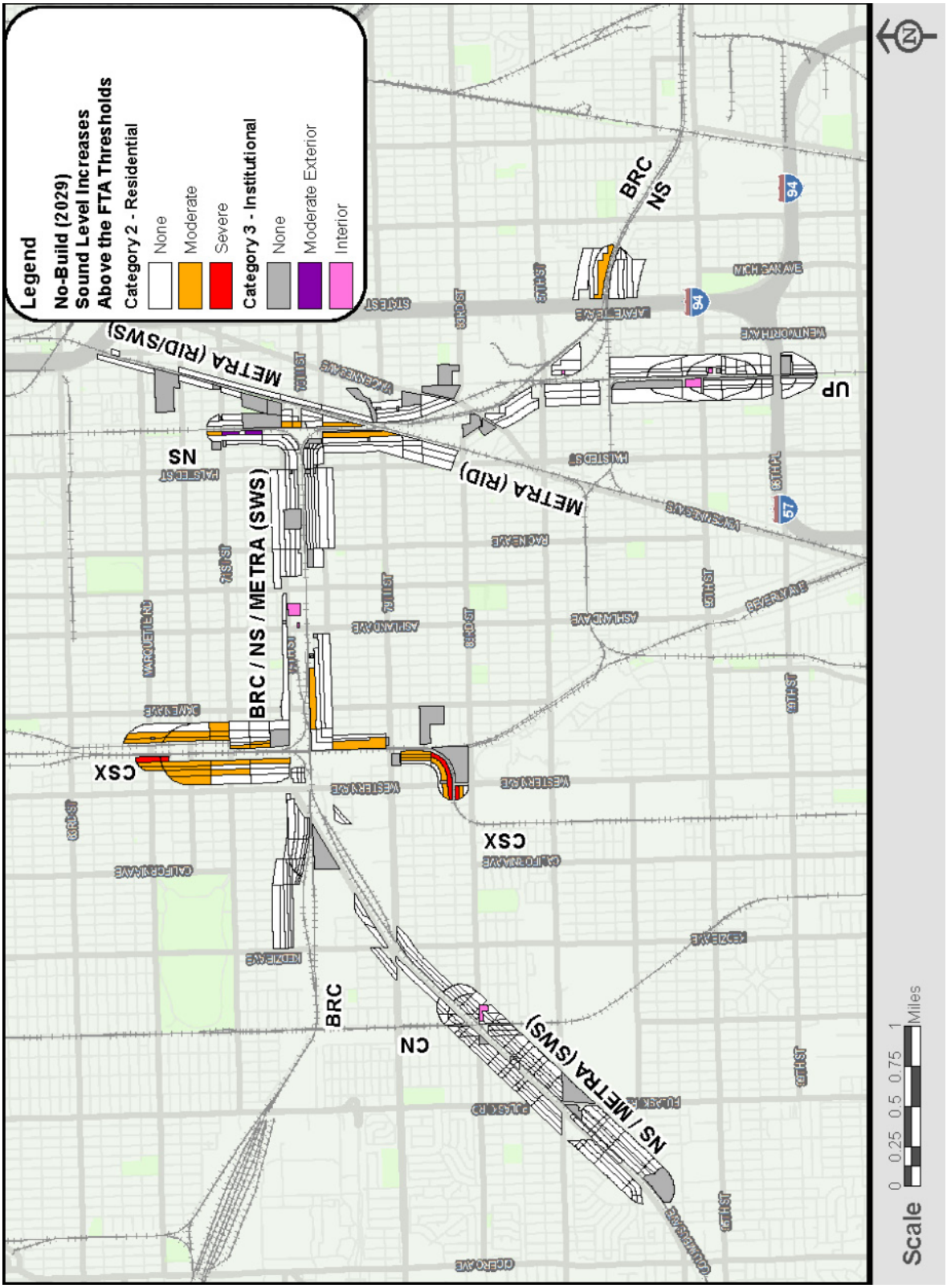


Figure 3.7-7: Clusters above the FTA Cumulative Noise Level Increase Threshold under the No-Build Alternative

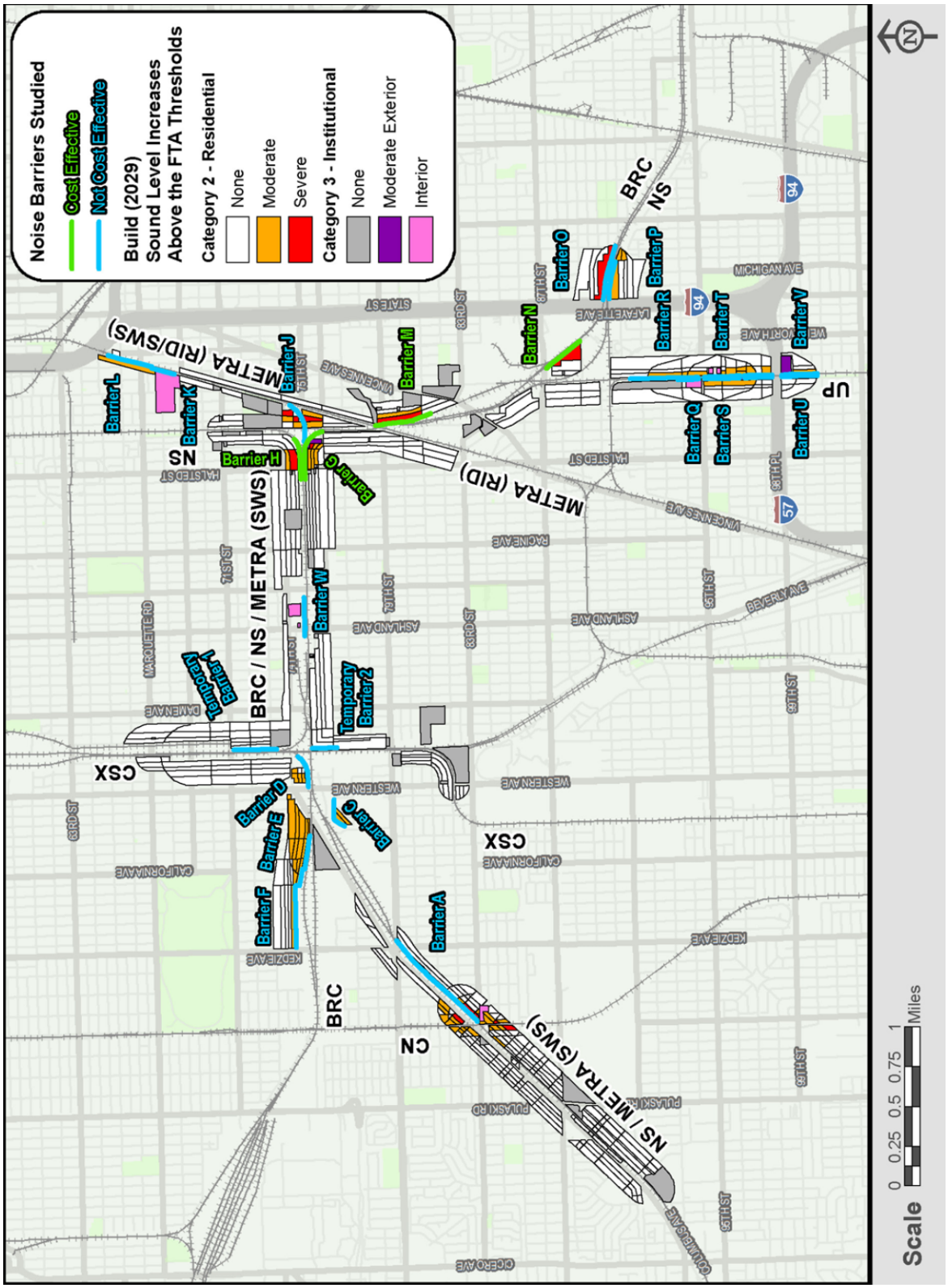


Figure 3.7-8: Build Alternative Impacts

3.7.1.6 Noise Mitigation

Noise mitigation is required to be considered for areas that experience a moderate or severe impact. To be feasible, the mitigation would need to be constructible in the area proposed and the mitigation needs to provide a reduction in noise levels of at least 5 dBA. Mitigation for exterior noise impacts must also be cost effective, not exceeding a cost of $5,000 per benefited receptor for each decibel meeting or exceeding the moderate impact threshold, up to a total limit of $30,000 per benefited impacted receptor. For severely impacted receptors, the cost per benefited receptor should not exceed $30,000. This can include receptors located above ground-floor elevation in multi-story buildings (e.g. second floor apartments). For interior impacts, noise mitigation measures must not exceed a cost of $5,000 per benefited receptor for each decibel exceeding the Existing Scenario CREATE Program Train Noise Level, up to a total limit of $30,000 per benefited receptor.

Noise barriers are generally the most practical noise mitigation option given their overall effectiveness and their ability to be constructed on the railroad right-of-way in most instances. Other typical options include acquisition of property to serve as a buffer zone and noise insulation for non-residential locations. Given that the majority of the study area is built-out, buffer zones are generally not an option for mitigation.

Each impacted area was studied to determine if a sufficiently long noise barrier could be constructed to protect the impact area, and if so, whether it would be cost effective. The effectiveness of a noise barrier in mitigating rail noise is largely dependent on sufficient height and physical continuity along its length to screen out a moving train along most of its visible path. The railroads' clearance and sight line requirements were used to determine where potential barriers could be located. Where minor modifications (i.e., additional civil and/or structural work) would allow for a shorter noise wall, and if these modifications were necessary solely due to the barrier, the barrier options were compared and the lower cost barrier was included in the analysis. The additional costs such as land acquisition and additional civil and structural work were included in the total barrier cost. Extensive coordination was conducted with the railroads to develop barrier options that could be feasible and more cost effective. Twenty-one barriers were determined to be feasible and were then analyzed for their effectiveness at mitigating impacts, as well as their cost-effectiveness. Figure 3.7-8 shows where noise barriers were studied; and

Table 3.7-7 summarizes the feasibility and cost effectiveness of constructing a barrier for each impacted area. Figures showing the barriers that were studied are included in Appendix E – Noise.

At each at-grade crossing, a barrier would need to be discontinued to allow for the crossing as well as sight distance to maintain adequate visibility of a train approach. These physical breaks allow noise to flow unimpeded to adjacent residences, compromising the efficacy of potential noise barrier solutions for areas near grade crossings. In the areas detailed below, a barrier would not mitigate much of the noise due physical interruption from multiple grade crossings:

Table 3.7-7: Barrier Analysis for Each Impacted Area

NEA	Impact Location	Is Barrier Feasible [1]?	Barrier Name	Height (feet) above ground level	Cost of Barrier[2]	Number of benefited impacted residences	Is Barrier Cost Effective?
R1	Near CN/Metra/NS, between Lawndale Ave and 83rd Street	No, with the three grade crossings so close in proximity, barriers would not be able to mitigate the horn noise.	N/A	N/A	N/A	N/A	N/A
	East of Metra/NS, between 83rd Street and 82nd Street	Yes	Barrier A	17 ft	$2,390,625	27 res.	No
	Southeast of Landers Yard, between 77th and 76th Streets	Yes	Barrier C	14 ft	$364,000	19 res.	No
R2	North of BRC, between Columbus Ave. and CSX	Yes	Barrier D	18 ft	$801,563	16 res.	No
R3	North of Rockwell Yard, between Columbus Ave. and Francisco Ave. / Mozart St.	Yes	Barrier E	18 ft	$1,259,550	102 res.	No
	North of Rockwell Yard, between Francisco Ave./ Mozart St. and Kedzie Ave.	Yes	Barrier F	20 ft	$1,507,500	30 res.	No
R6	North of BRC/Metra, between Ashland Ave. and Racine Ave.	Yes	Barrier W	15 ft	$809,585	2 churches	No
R10	South and west of BRC, between Green St. and 76th St.	Yes	Barrier G	13 ft	$1,174,181	62 res and 1 park	Yes
R11	Northwest of BRC/ NS CWI, between Halsted St. and 74th St.	Yes	Barrier H	15 ft	$650,850	51 res.	Yes
R11/ R12	North of Metra flyover, between BRC and Metra Rock Island	No, sight lines prohibit the construction of a barrier	N/A	N/A	N/A	N/A	N/A
R13	South of Metra flyover, between BRC and Metra Rock Island	Yes	Barrier J	10 ft	$2,590,000	17 res.	No

NEA	Impact Location	Is Barrier Feasible [1]?	Barrier Name	Height (feet) above ground level	Cost of Barrier[2]	Number of benefited impacted residences	Is Barrier Cost Effective?
R12	West of Rock Island, Parker/Amandla School	Yes	Barrier K	32 ft	$1,280,000	27 classrooms	No
	West of Rock Island, Normal Pkwy to 65th Street	Yes	Barrier L	12 ft	$300,000	13 res.	No
R14/ R15	East of BRC/NS/UP, between 79th and 82nd Streets	Yes	Barrier M	15 ft	$1,091,049	56 res.	Yes
R17	West of BRC (east of NS), between 87th and 89th Streets	Yes	Barrier N	15 ft	$539,250	20 res.	Yes
R18	East of Dan Ryan, north of BRC/NS	Yes	Barrier O	22 ft	$2,025,450	57 res.	No
	East of Dan Ryan, south of BRC/NS	Yes	Barrier P	14 ft	$1,175,625	32 res.	No
R19	West of UP, between 94th and 95th Streets	Yes	Barrier Q	15 ft	$258,375	Portion of church set back from 95th Street	No
	East of UP, between 91st and 95th Streets	Yes	Barrier R	15 ft	$844,125	67 res.	No
	West of UP, between 95th Street and I-57	Yes	Barrier S	15 ft	$770,625	39 res. and 1 park	No
	East of UP, between 95th Street and I-57	Yes	Barrier T	15 ft	$796,875	33 res., 1 church & 10 classrooms	No
	West of UP, between I-57 and 100th Pl.	Yes	Barrier U	15 ft	$442,875	1 park	No
	East of UP, between I-57 and 100th Pl.	Yes	Barrier V	15 ft	$438,750	21 res. and 1 park	No

[1] A barrier would be feasible if it could be physically constructed in the proposed location and if the noise levels are reduced by 5 dBA or more.
[2] Barrier cost calculated as height times length times – $25/sq. ft. for barriers =<15 foot), $37.50/sq.ft. for barriers >15 foot and < 30 foot.
[3] Maximum allowed barrier cost calculated as $5,000 per dBA equal or above impact level per benefited impacted receptor, up to $30,000; severely impacted receptors $30,000.

Source: Jacobs, 2013.

- Columbus Avenue – Future impacts (both moderate and severe) are predicted along Columbus Avenue in the southwest portion of NEA R1. Future Metra, NS and CN train volumes are expected to increase and impact an area concentrated on either side of the GTW tracks (used by CN) between Lawndale Avenue and Kedzie Avenue. For impacted areas near Lawndale Avenue, east and west of the GTW tracks, potential noise barriers would be ineffective due to large, physical interruptions caused by the presence of grade crossings at Lawndale Avenue and 83rd Place.

- 95th /97th Street – Future increases in train volume along the UP line are predicted to moderately impact a large portion of R19 in the southeast end of the study area. Grade crossings at 95th Street and 97th Street would interrupt barrier systems designed to protect residences between 92nd Street and 100th Street. Similar to potential barrier solutions along Columbus Avenue, barrier systems in this area would offer insufficient protection along the full length to be cost-effective.

Due to the predicted noise impacts in areas where highway-rail grade crossings limit the feasibility of barriers, the Chicago Department of Transportation (CDOT) decided to undertake a separate study to evaluate the feasibility of establishing new 24-hour Quiet Zones in four railroad corridors. The results of that study are summarized below:

- BRC railroad at Columbus Avenue - A Quiet Zone was evaluated for the BRC crossing of Columbus Avenue. There are challenges in pursuing a Quiet Zone at this location due to the proximity of the BRC Rockwell Yard immediately west of the crossing and the NS Landers Yard southwest of the crossing. The FRA Train Horn Rule requires trains to sound a horn for all movements within and through the two rail yards. The mandatory train horns in close proximity to the grade crossing cause the purpose of a Quiet Zone to not be met. CDOT will therefore not be pursuing Quiet Zone implementation at the BRC Columbus Avenue crossing. However, as part of the CREATE Program, CDOT is currently evaluating proposals to complete the Phase I preliminary engineering and environmental (NEPA) documentation for a grade separation at this crossing (CREATE Project GS 11). The Phase I study began in 2013; completion is anticipated in late 2014 or early 2015.
- GTW railroad from 79th Street to 83rd Place - The two at-grade crossings within the 75th Street CIP study area at 83rd Place and Columbus Avenue could not be evaluated on their own as a Quiet Zone due to the FRA Rule stating that any at-grade crossing within 0.5 miles would also have to be included into the Quiet Zone. The study area for this corridor was therefore extended north to 79th Street. During the existing conditions evaluation, CSX filed an application with the Surface Transportation Board to acquire the Elsdon Subdivision from GTW, and the Quiet Zone study effort was suspended.
- Metra/NS railroad from 83rd Place to 87th Street/Pulaski Road - A Quiet Zone was evaluated for the corridor of 83rd Place to 87th Street/Pulaski Road. Before beginning an existing conditions evaluation, the study area for this corridor had to be extended south to provide the minimum length of 0.5-mile to establish a Quiet Zone. The close proximity of this corridor to the GTW corridor would require both Quiet Zones to be established concurrently. During the existing conditions evaluation, CSX filed an application with the Surface Transportation Board to acquire the Elsdon Subdivision from GTW, and the Quiet Zone study effort was suspended.
- UP railroad from 95th Street to 101st Street - CDOT previously initiated a Quiet Zone study in this corridor from 95th Street south to 130th Street due to continued resident requests for Quiet Zone implementation. CDOT is continuing to study the potential to implement a Quiet Zone in

the UP corridor with an eventual goal of issuing an application to the FRA. Another separate CREATE project plans to eliminate some of the horn noise via a grade separation at 95th Street (CREATE Project GS 21a). However, as these improvements are still under study and have not received commitment, they have not been assumed as mitigation for this project.

As shown in Table 3.7-7, of the 21 analyzed noise barriers, four were determined to be cost-effective, benefiting 189 residences and one park: Barrier G (benefitting NEA R10), Barrier H (benefitting NEA R11), Barrier M (benefitting NEA R14/15), and Barrier N (benefitting NEA R17).

Per the CREATE N&V Methodology, once noise barriers are found to be feasible and cost-effective, the desires of the benefited receptors need to be determined via the viewpoints solicitation process. The goal of the solicitation process is to obtain responses from at least one-third of the benefited receptors. If the first attempt does not obtain this number of responses, a second attempt should be made, either by certified mail or some other form of certified delivery. If after the second attempt there are still less than one-third of the responses received, the tally can be conducted based on the responses received.

For the first attempt, opinion letters were sent by regular mail to each property owner and renter/leaser that would be benefited by the cost-effective barriers (see Appendix E). Less than one-third of the responses were received; therefore a second attempt was made, sending opinion letters via certified mail.

Responses were received for all four barriers, and all of the responses received were in favor of the implementation of their respective noise barrier (see Appendix E for further detail). Based on the noise analysis and the preliminary design, Noise Barriers G, H, M and N are likely to be implemented as part of the 75th Street CIP. If it subsequently develops during the final design of the 75th Street CIP that constraints not foreseen in the preliminary design occur, or public input substantially changes, the abatement measure may need to be modified or removed from the project plans. A final decision on the implementation of Barriers G, H, M, and N will be made upon completion of the 75th Street CIP's final design and corresponding public involvement process.

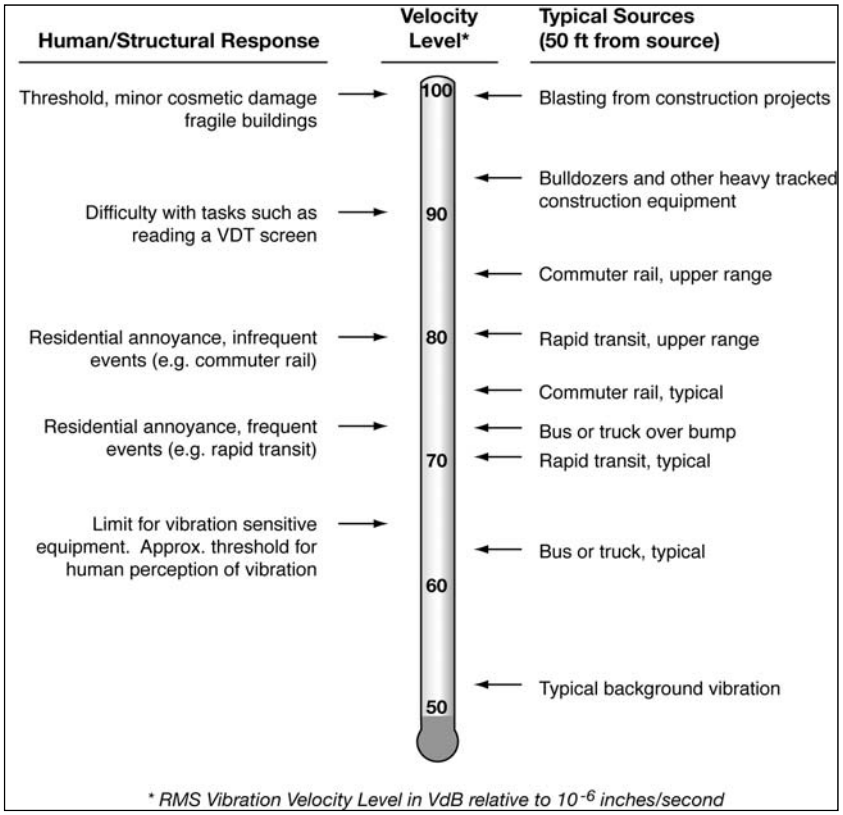
The noise analysis for this project may need to be reassessed if: a) the project is revised in a manner in which impacts of the project may change due to the project revisions (e.g., a new track alignment is moved closer to a receptor), or b) the CREATE Program's train model is updated due to projects being removed or added to the CREATE Program.

3.7.2 Vibration

3.7.2.1 Introduction

Vibration, which may be felt on adjacent properties, is typically generated as a result of the rolling of train wheels over the rails. Ground-borne vibration is a common concern with rail projects and is commonly experienced as the noticeable movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. The rumbling sound is the noise radiated from the motion of the room surfaces, and is referred to as ground-borne noise. Building damage is typically not a factor for normal transportation projects. Ground-borne vibration and ground-borne noise do not typically annoy people who are outdoors.

The motion due to ground-borne vibration is described in vibration velocity levels, measured in decibels referenced to 1 micro-inch per second. Generally, the abbreviation for vibration decibels (VdB) is used to avoid potential confusion with the decibel used to describe noise levels. Figure 3.7-9 shows typical ground-borne vibration levels for common sources as well as typical human and structural response to ground-borne vibration. As shown, the range of interest is from approximately 50 to 100 VdB, from imperceptible background vibration to the threshold of damage. Although the approximate minimum threshold of human perception to vibration is 65 VdB, annoyance is usually not common unless the vibration exceeds 70 VdB.



Source: Federal Transit Administration, May 2006

Figure 3.7-9: Typical Ground-Borne Vibration Levels

Ground-borne vibration **is the noticeable movement of building floors, rattling of windows, and shaking of items on walls or shelves.**

Ground-borne noise **is the low frequency rumbling noise associated with the motion of room surfaces.**

3.7.2.2 Vibration Analysis Methodology

The CREATE Program has established a method for analyzing vibration for this project since there are no existing guidance documents or methods specifically applicable to the evaluation of freight train vibration. The CREATE N&V Methodology is based on the FTA's *Transit Noise and Vibration Impact Assessment* guidance manual with certain modifications to allow for the evaluation of freight traffic.

The first step is to identify any vibration-sensitive land uses and buildings within the FTA's screening distances, as described in Table 3.7-8. The screening distances vary based upon building type, and range between 120 and 600 feet.

Table 3.7-8: Land Use Categories and Screening Distances for Railroad Vibration

Land Use Category	Screening Distance	Description of Land Use Category
1	600 feet	High Sensitivity: Buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance, such as vibration-sensitive research and manufacturing, hospitals with vibration-sensitive equipment, and university research operations. Manufacturing of computer chips is an example of a vibration-sensitive process. Note that this category does not include most computer installations or telephone switching equipment as it is rare for computers or other electronic equipment to be particularly sensitive to vibration.
2	200 feet	Residential: Residences and buildings where people normally sleep. This category includes homes, hospitals and hotels.
3	120 feet	Institutional: This category includes schools, libraries, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.

Source: FTA *Noise and Vibration Impact Assessment*, May 2006

The project's effect on these land uses is then assessed and compared to the FTA criteria to determine the potential for impact and the need for mitigation. The FTA ground-borne vibration and ground-borne noise impact criteria for a General Assessment, adopted by the CREATE Program, are based on land use and number of train events, as shown in Table 3.7-9. The ground-borne vibration criteria are given in terms of the maximum vibration level (VdB) for an event. The methodology also has separate criteria for ground-borne noise. The ground-borne noise criteria are given in terms of the maximum A-weighted noise level (dBA) for an event.

Additionally, the criteria provide a method to assess ground-borne vibration impact at locations with existing train operations. The criteria are based on the number of existing trains compared with the build year trains, and the existing vibration levels compared with the build year vibration levels.

The level of vibration received at a neighboring structure is a function of the type of trains, track system and condition, train speeds, distance from track, typical geological condition, and type of receiving structure. Ground-borne vibrations generally decrease as the distance from the tracks increases.

For the 75th Street corridor, classified as a heavily-used rail corridor (existing train volume of more than 12 trains per day), the following logic is used to determine if an impact is considered to occur:

- If existing vibration levels are less than the impact criteria in Table 3.7-9, then impact is determined as follows:
  - If future design year vibration levels are less than the impact criteria, then there is *no impact*.
  - If future design year vibration levels equal or exceed the impact criteria, then there is an *impact*.
- If existing vibration levels currently equal or exceed the impact criteria, then impact is determined as follows:
  - If there would be a substantial increase in the number of events, then there is an *impact* (for the 75th Street corridor, an increase of 50 percent would be considered a substantial increase).
  - If there would not be a substantial increase in the number of events and if
    - Future design year vibration levels are *not* 3 VdB greater than existing levels, then there is *no impact*.
    - Future design year vibration levels increase by 3 VdB or more, then there is an *impact*.

Table 3.7-9: Land Use Categories and Ground-Borne Vibration and Ground-Borne Noise Impact Criteria

Land Use Category	Ground-Borne Vibration Impact Levels[1] (VdB re 1 micro-inch /sec)			Ground-Borne Noise Impact Levels[1] (dB re 20 micro-Pascals)		
	Frequent Events[2]	Occasional Events[3]	Infrequent Events[4]	Frequent Events[2]	Occasional Events[3]	Infrequent Events[4]
Category 1: Buildings where vibrations would interfere with interior operations.	65 VdB[5]	65 VdB[5]	65 VdB[5]	N/A[5]	N/A[5]	N/A[5]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

(1) An impact occurs if any of the levels in the table are achieved or exceeded.

(2) "Frequent Events" is defined as more than 70 vibration events per day. For a typical line-haul freight train where the rail car vibration lasts for several minutes, the frequent events criterion should be applied to the rail car vibration.

(3) "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations. Generally this category is not applicable to freight rail cars but could apply to freight locomotives.

(4) "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines. Generally this category is not applicable to freight rail cars but could apply to freight locomotives. The locomotive vibration only lasts for a short time, the infrequent-events criteria are appropriate for fewer than 30 events per day.

(5) This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.

Source: CREATE Noise and Vibration Assessment Methodology, June 2014 and FTA Noise and Vibration Impact Assessment, May 2006

If potential impacts are identified, and if the planning and design of special trackwork and buffer zones are viable mitigation measures, then a Detailed Vibration Analysis would be conducted. A Detailed Vibration Analysis refines the analysis to determine whether an actual vibration impact would occur. If the planning and design of special trackwork and buffer zones are not viable mitigation measures then a Detailed Vibration Analysis is not required.

3.7.2.3 Existing Conditions

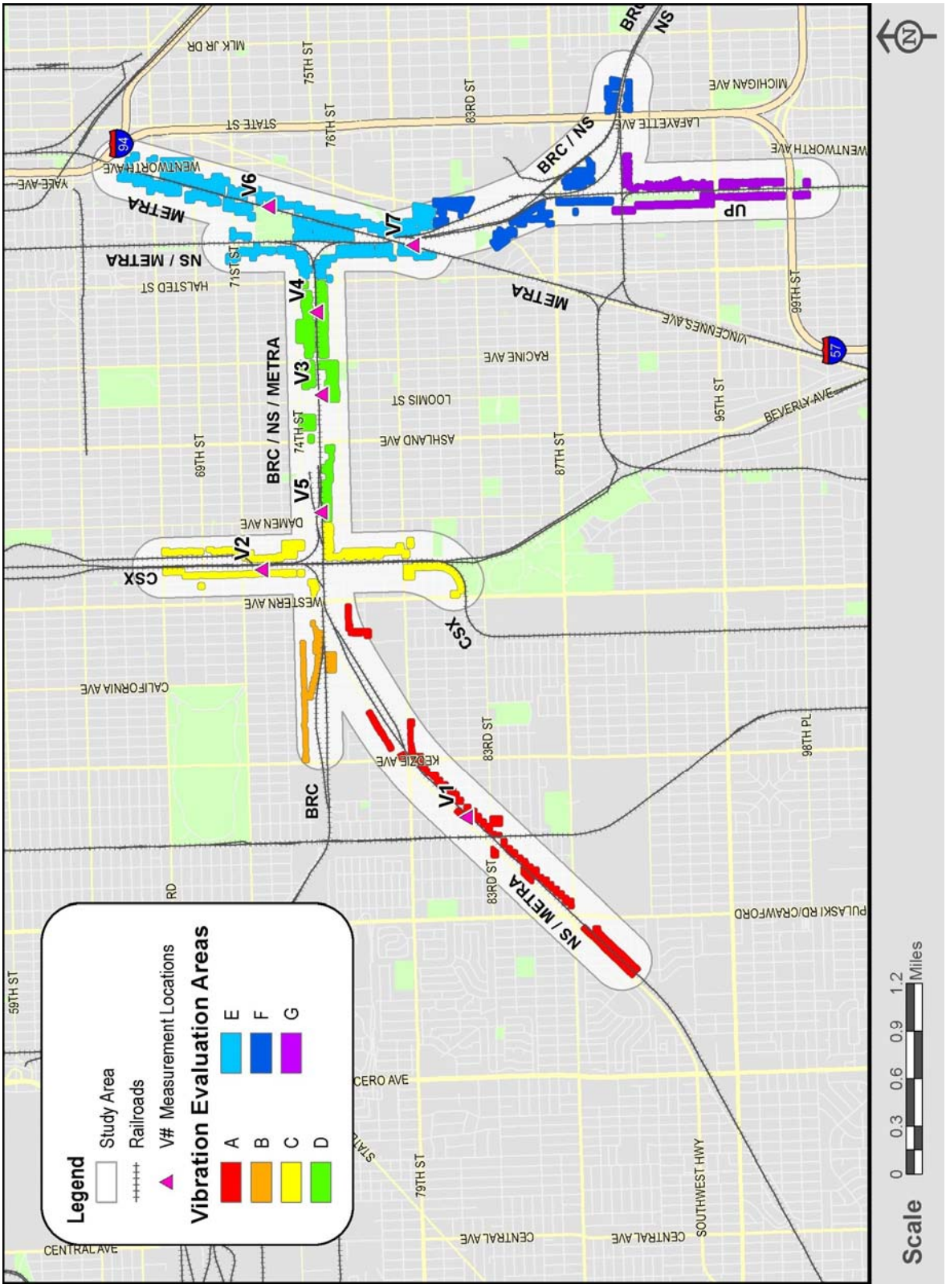
Existing Vibration Sources

Several freight railroads operate in the project area, including BRC, CSX, Norfolk Southern (NS), and Union Pacific (UP). These railroads' tracks are also used by Metra for their Southwest Service (SWS) commuter rail line and by Amtrak. Metra also operates the RID Line in the project study area. For the purpose of describing the existing vibration conditions, the study area is divided into seven vibration evaluation areas as shown on Figure 3.7-10 and described in Table 3.7-10.

Table 3.7-10: Vibration Evaluation Areas

Vibration Evaluation Area	Track Description	Frequency of Existing Vibration Events
A	NS at-grade tracks and NS Landers Yard. Also used by Metra for its SWS.	Heavily-used rail corridor
B	BRC at-grade tracks and BRC Rockwell Yard.	Heavily-used rail corridor
C	CSX at-grade tracks, CSX Forest Hill Yard, and at-grade crossing of BRC and NS tracks (Forest Hill Junction). NS crossing also used by Metra for its SWS.	Heavily-used rail corridor
D	BRC and NS tracks on embankment. Also includes a series of crossovers, called Belt Junction.	Heavily-used rail corridor
E	BRC, NS and Metra RID Line tracks (all on embankment), and a wye connecting the NS and BRC tracks. The RID Line crosses over the NS and BRC tracks on a high structure. Metra's SWS runs north, using the NS tracks to go to Union Station. Metra's RID Line runs northeast toward LaSalle Street Station.	Heavily-used rail corridor
F	BRC, NS and UP tracks (all on embankment).	Heavily-used rail corridor
G	At-grade UP tracks.	Heavily-used rail corridor

Source : Harris Miller Miller & Hanson Inc., 2011



Source: Harris Miller Miller & Hanson Inc., 2011

Figure 3.7-10: Vibration Evaluation Areas

Potential Vibration-Sensitive Land Uses

Land use in the study area is predominantly residential, with some commercial and light industrial use and parks. The industrial and park areas are not vibration-sensitive. No highly-sensitive uses were identified within the screening area. Table 3.7-11 identifies the vibration-sensitive land uses within the screening area.

Table 3.7-11: Land Use Categories and Ground-Borne Vibration Impact Criteria

Vibration Evaluation Area	Vibration Sensitive Land Uses within Screening Area[1]
A	Residential: On the east side of the tracks, the area is residential between 79th and 91st Streets with houses approximately 100 feet from the tracks. Institutional: The Teddy Bear day care on Columbus Avenue and the Ashburn Community Elementary School are located in this area.
B	Residential: On the north side of the tracks, along W. 75th Street, east of Western Ave., houses are approximately 175 feet from the tracks. Along 75th Street, west of Columbus Ave. houses are located approximately 50 feet from the tracks. Along W. 74th Street, multi-family residential buildings are located 50 feet from tracks. Institutional: None
C	Residential: On the east side of the tracks, south of 71st Street, houses are located approximately 150 from the tracks. On the west side of the tracks, north of the BRC/NS crossing, houses are located approximately 200 to 250 feet from the tracks. To the east of the Forest Hill Yard, houses are located approximately 150 feet from the tracks, and to the south houses are located approximately 100 feet from the tracks. Institutional: None – The school on the east side of the tracks, Southside Academy, is outside of the screening area (250 feet from the tracks).
D	Residential: On the south side, the area is predominantly residential, with houses approximately 100 feet from the tracks. On the north side, east of Ada Street, houses are generally within 100 feet of the tracks. Institutional: On the south side, the Thurgood Marshall Library and the Grace Fellowship Bible Church are located adjacent to the tracks. The school on the north side, Alonzo Stagg, is outside of the screening area (200 feet from the tracks).
E	Residential: On both sides of the tracks, houses are located along the entire length of the embankments, with the exception of Hamilton Park, which is not vibration-sensitive. The houses are between 50 and 200 feet from the tracks. Institutional: The Mount Nebo Baptist church, the Alden Princeton Rehabilitation and Health Care Center, and the Parker Elementary Community Academy/ Amandla Elementary Charter School are located in this area.
F	Residential: On the east side of the tracks, houses are located between W. 79th Street and W. 82nd approximately 100 to 200 feet from the tracks. On the west side of the tracks, houses are located approximately 50 feet from the tracks, and a multifamily building is located approximately 150 feet from the tracks. At 88th and 89th Streets, houses are located between the NS and BRC tracks, at a distance of approximately 50 feet. East of I-94, on both sides of the tracks, houses are located between 50 and 150 feet from the tracks. Institutional: None

Vibration Evaluation Area	Vibration Sensitive Land Uses within Screening Area[1]
G	Residential: On both sides of the tracks, houses are approximately 100 feet from the tracks. On the east side, north of W. 95th Street, a multifamily complex is approximately 100 feet from the tracks. Institutional: The Trinity United Church of Christ, the St. Thaddeus Catholic Church, and the Banner School are located adjacent to the tracks.

[1] The Screening Distances are 200 feet for Land Use Category 2 (Residential) and 120 feet for Land Use Category 3 (Institutional).

Source : Harris Miller Miller & Hanson Inc., 2011

Existing Vibration Measurements

Ground-borne vibration measurements of trains in the project area were conducted between December 5th and 9th, 2005 (see example in Figure 3.7-11). The data are valid for the existing conditions in 2011 because there has been no change to the type of train traffic or soil conditions in the study area. The purpose of the measurements was to characterize existing vibration conditions in the vibration evaluation areas and to determine whether the generalized ground-borne vibration curves in the FTA Manual would apply to the project area without further adjustments. The FTA generalized vibration curves are used to approximate vibration levels at varying distances and with varying train characteristics. The measurement results indicate that the vibration levels are consistent throughout the study area.

Figure 3.7-11: Ground Vibration Measurements along the CSX north of Forest Hill Junction

Sites were selected for ground-borne vibration measurements that were representative of the train and track configurations present in the entire study area. It should be noted that measurements did not occur within all of the vibration evaluation areas described above. The vibration evaluation areas are used only to describe the vibration-sensitive land use and the existing vibration environment within different portions of the overall study area. The sites are shown on Figure 3.7-10, and described in Table 3.7-12. Measurement site photographs and data are provided in Appendix F – Vibration.

Table 3.7-12: Vibration Monitoring Locations and Results

Site Number	Location	Measurement Site Distances from Near Track (ft)	Comments	Comparison to FTA Curves
V1	Columbus Ave. & St. Louis Ave.	50, 100, 125, 150	At-grade, Metra and freight trains	Same as FTA curve
V2	Bell Ave. between 71st St. and 72nd St.	65, 90, 115, 140	At-grade, turnouts, freight trains only	Same as FTA curve
V3	76th St. between Ada St. and Loomis Blvd.	95, 120, 145, 195	Embankment, switches, crossovers, track turnouts, Metra and freight trains	5 VdB higher than FTA curve, due to the presence of crossovers
V4	75th St. & Sangamon Ave.	72, 107, 137, 162	Embankment, Metra and freight trains	Same as FTA curve
V5	76th St. & Winchester Ave.	40, 65, 90, 140	Embankment, Metra and freight trains	Same as FTA curve
V6	East side of Hamilton Park	40, 65, 90, 115	Embankment, Metra RID Line	Same as FTA curve
V7	80th St. & Parnell Ave.	7, 31, 81, 131	Bridge columns, viaduct	10 VdB lower than FTA curve at closer distances, due to elevated structure, same as FTA curve at greater distances

Source: Harris Miller Miller & Hanson Inc., 2006

Trains were measured at a wide variety of speeds ranging from 5 mph to 50 mph. To allow comparison with the FTA vibration projection curves, the vibration data were normalized to a common speed of 20 mph using the standard adjustment factors recommended by FTA. Comparisons of the measurement results with the FTA curves are summarized in Table 3.7-12 and described below.

Metra Trains At-Grade and on Embankment - Vibration data from at-grade and embankment sections match the FTA curve with the exception of Site 3. Measured data at Site 3 show higher vibration levels (about 5 VdB) than the FTA curve due to the presence of crossovers at the center of the Belt Junction. FTA's adjustment for crossovers and other special trackwork is +10 VdB close to the track (roughly interpreted as within 50 feet), but with less of an increase at greater distances from the track.

Metra Trains on Viaduct - The measured data indicate that the vibration levels in the ground close to the support columns of the viaduct are 10 VdB lower than the FTA curve for at-grade track. This result is consistent with the FTA prediction model where an elevated structure is assumed to generate 10 VdB lower vibrations than an at-grade track. Further away from the viaduct, however, the ground-borne vibrations are similar to those represented by the FTA curve for an at-grade track configuration. This result supports the conclusion that ground-borne vibrations from a short viaduct like the one over 80th Street act like those for an elevated structure close to the viaduct and at further

distances, the at-grade track dominates the vibration levels. For long viaducts, the 10 VdB reduction is expected to apply at all distances.

Freight Trains At-Grade and on Embankment - Ground-borne vibration from freight trains is generally dominated by the locomotives because they are typically heavier than freight rail cars. The measured data from freight trains agree with the measured data for Metra trains. The vibration levels match the FTA curves, and were 5 VdB higher at Site 3 due to the presence of the multiple crossovers in the Belt Junction area.

3.7.2.4 Vibration Impacts

The potential vibration impacts from Metra trains, freight trains, and Amtrak trains were assessed according to the FTA and CREATE General Assessment methodology. The following factors were used in projecting vibration levels in the study area:

- The FTA generalized vibration curves were adjusted for train speed and used to predict ground-borne vibration levels based on the distance to sensitive receptors.
- Wheel impacts at turnouts and crossovers were assumed to cause localized vibration increases up to 10 VdB at 50 feet with less of an increase at greater distances from the track.
- The train speeds and volumes throughout the study area were based on data provided by the CTCO.
- The vibration levels of trains on long bridges were assumed to be 10 VdB lower than from trains on at-grade sections.
- The predicted maximum ground-borne noise levels were calculated by subtracting 50 dB from the predicted maximum ground-borne vibration levels. This adjustment factor is appropriate for the low frequency (< 30Hz) characteristics of the noise from trains on surface track, and is in accordance with FTA methodology.

No-Build Alternative - With the No-Build Alternative, there would be no changes to the existing tracks or the locations of turnouts or crossovers beyond routine maintenance. The speed of trains in the corridor for the No-Build Alternative would be less than the existing speeds in some areas due to train traffic congestion. However, there is projected to be a substantial increase in the number of trains per day in two areas: vibration evaluation area F in the area from the Dan Ryan Expressway to S. Indiana Avenue, and vibration evaluation area C along the CSX tracks north and south of Forest Hill Junction (see Figure 3.7-10).

Ground-borne vibration (GBV) levels are projected to exceed the FTA threshold at 28 residences (see Table 3.7-13).

Ground-borne noise (GBN) levels are projected to exceed the FTA threshold at 57 residences and one institutional use, the Teddy Bear Day Care center on Columbus Avenue (see Table 3.7-14). Figure 3.7-12 shows the receptors that exceed the FTA thresholds under the No-Build Alternative.

Table 3.7-13: Ground-Borne Vibration Summary

Vibration Evaluation Area	Range of Max Ground-borne Vibration (GBV) Levels (VdB)			Range of Increase Between Build and Existing	Receptors Exceeding the Ground-borne Vibration (GBV) FTA Thresholds	
	Existing	No-Build	Build		No-Build	Build
A	67 to 93	67 to 92	72 to 93	-4 to 8	0	28 res.
B	71 to 84	71 to 84	72 to 84	-1 to 2	0	21 res.
C	71 to 80	71 to 80	72 to 87	-1 to 7	28 res.	44 res.
D	66 to 82	66 to 82	72 to 83	-1 to 9	0	89 res., 1 church, 1 library
E	68 to 95	68 to 93	72 to 93	-6 to 9	0	419 res., 1 hospital, 1 school, 1 church
F	67 to 81	67 to 81	72 to 84	-9 to 6	0	50 res.
G	72 to 80	72 to 80	72 to 85	0 to 8	0	98 res., 1 church
Total Ground-Borne Vibration (GBV) Impacts					28 res.	749 res., 3 churches, 1 library, 1 hospital, and 1 school
GBV Impact Criteria - 72 for residences, 75 for institutional uses.						

Source: Harris Miller Miller & Hanson Inc., 2011.

Table 3.7-14: Ground-Borne Noise Summary

Vibration Evaluation Area	Range of Max Ground-borne Noise (GBN) Levels (dBA)			Range of Increase Between Build and Existing	Receptors Exceeding the Ground-borne Noise (GBN) FTA Threshold	
	Existing	No-Build	Build		No-Build	Build
A	35 to 43	36 to 42	36 to 43	0 to 5	3 res., 1 daycare	5 res.
B	n/a	n/a	n/a	n/a	0	0
C	30	n/a	37	7	0	2 res.
D	n/a	n/a	n/a	n/a	0	0
E	35 to 45	35 to 43	35 to 43	-3 to 6	49 res.	62 res.
F	35	35	n/a	n/a	5 res.	0
G	n/a	n/a	35	8	0	8 res.
Total Ground-Borne Noise (GBN) Impacts					57 res., 1 daycare	77 res.
GBN Impact Criteria - 35 (dBA) for residences, 40 (dBA) for institutional uses; GBN levels are noted only when the impact criteria has been exceeded, or when the level is needed to compare the No-Build or Build Alternatives to existing conditions.						

Source: Harris Miller Miller & Hanson Inc., 2011

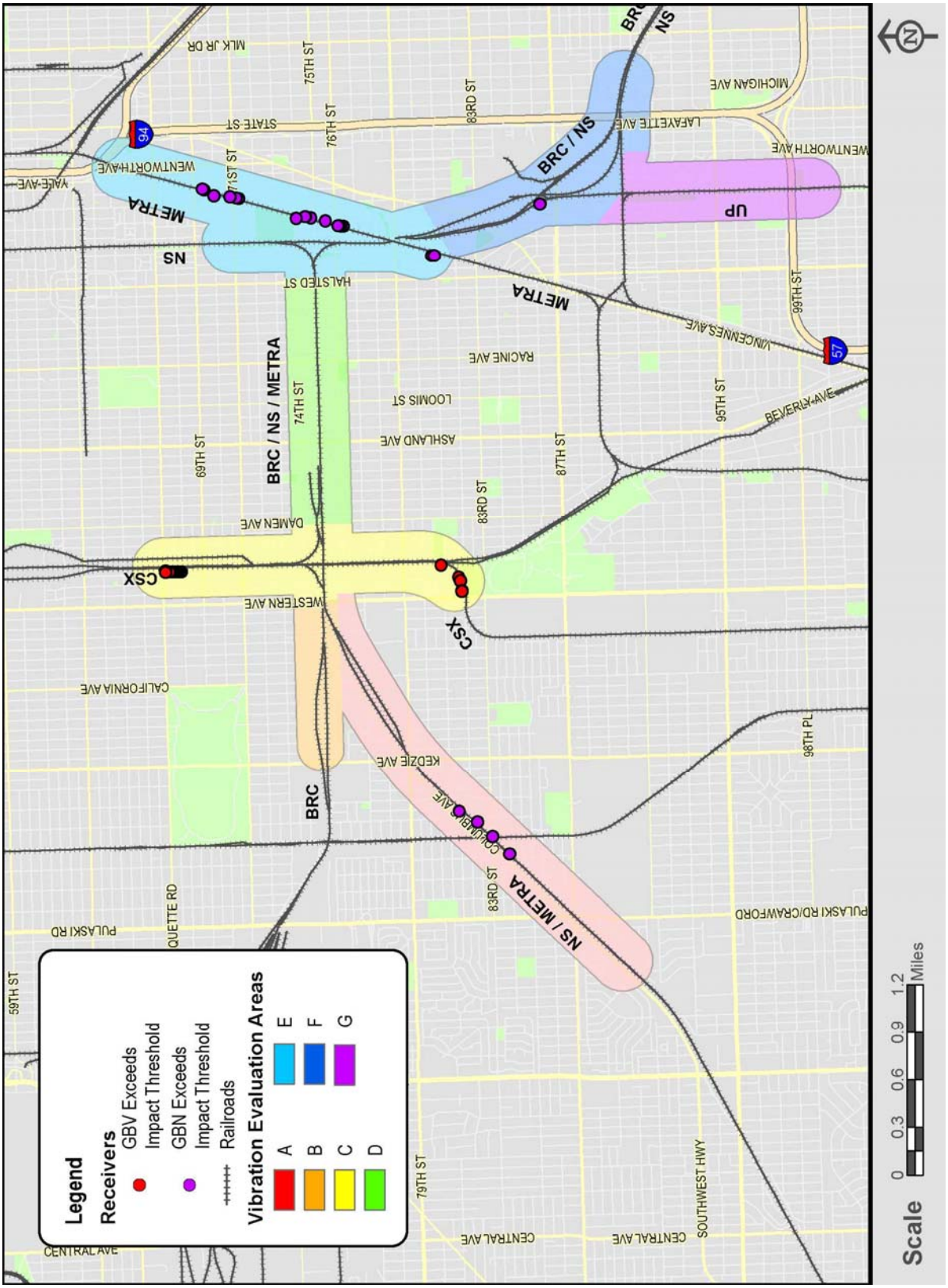


Figure 3.7-12: Locations where the No-Build Alternative Vibration Exceeds the FTA Threshold

Build Alternative Impacts - The potential for vibration impact is determined by comparing the predicted Build Alternative vibration levels with the impact criteria and the existing vibration levels. Much of the corridor currently experiences high vibration levels and, as a result of constructing the project, would experience a substantial increase in the number of train events in the design year.

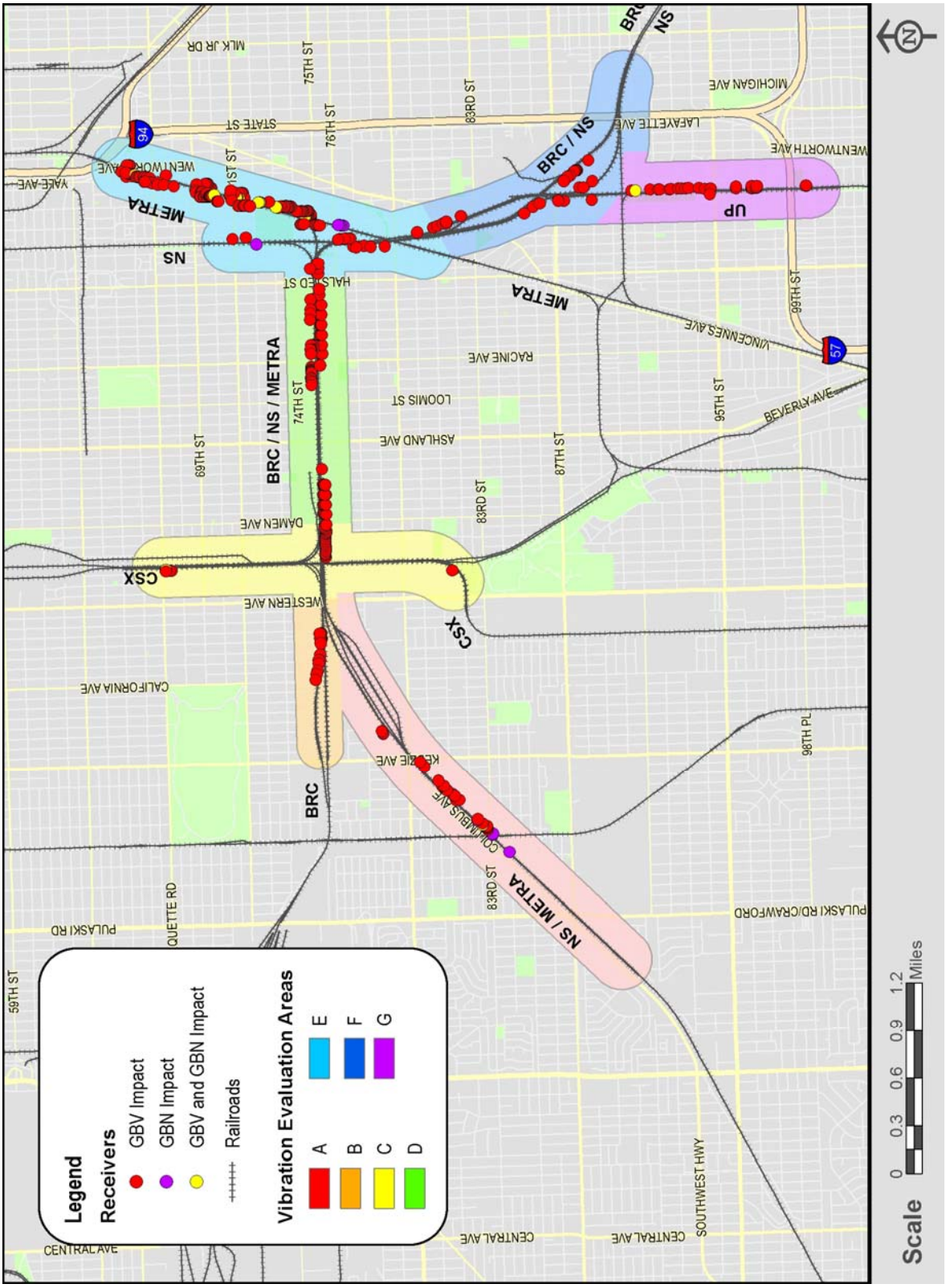
Ground-borne vibration (GBV) impacts are projected to occur at 749 residences and 6 institutional uses. It should be noted that annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. Much of the study area currently experiences vibration levels that may cause annoyance. The impacted institutional uses are: the Grace Fellowship Bible Church, the Thurgood Marshall Library, Mount Nebo Baptist Church, the Alden Princeton Rehabilitation and Health Care Center, the Parker Elementary Community Academy/ Amandla Elementary Charter School, and the Trinity United Church of Christ (see Table 3.7-13). The distance from the impacted receptors to the nearest track varies from 23 feet to 236 feet. The farthest receptor with ground-borne vibration impact, at 236 feet from the tracks, is affected due to the increase in trains on Metra's RID Line, north of the proposed Metra flyover near Hamilton Park. The vibration impacts are mostly due to the increased speeds of Metra trains, freight trains, and Amtrak trains in the study area for the Build Alternative. Locations where there are new turnouts and crossovers also account for some impacts.

Ground-borne noise (GBN) impacts are projected to occur at 77 residences (see Table 3.7-14). The farthest receptor from the tracks with ground-borne noise impact is at 87 feet.

The locations of the GBV and GBN impacts in the study area are shown on Figure 3.7-13. Locations where there would be additional GBV and GBN impacts for the Build Alternative are shown with red and purple dots respectively. Locations with both GBV and GBV impact are shown with yellow dots. Enlarged figures showing the impact locations, and detailed impact summary tables are provided in Appendix F – Vibration.

Mapping is provided in *Appendix F – Vibration* where concerned citizens can locate the property of interest to see if it is impacted.

In order to construct the Forest Hill flyover for the CSX tracks (in Vibration Evaluation Area C in Figure 3.7-13) it would be necessary to construct temporary tracks along the east side of the existing rail corridor. These temporary tracks would be in use for approximately one year while construction is underway. These tracks were also evaluated for vibration effects, and the results of that analysis are included in Section 3.16.1, Construction Impacts.



Source: Harris Miller Miller & Hanson Inc., 2011

Figure 3.7-13: Build Alternative Vibration Impact Locations

3.7.2.5 Vibration Mitigation

The train traffic in the study area includes freight trains and passenger trains, with both types powered by heavy diesel locomotives. The heavy axle loads associated with such locomotives are outside the range of applicable design parameters for vibration reduction measures applied on lighter rail transit systems. As a result, typical vibration control measures developed for rail transit systems are not effective for diesel locomotive-hauled trains.

In view of the above consideration, the CREATE N&V Methodology states that the only viable vibration mitigation strategies are maintenance programs, planning and design of special trackwork, and buffer zones.[36] With regard to the latter strategy, all of the tracks in the study area are bordered by heavily-developed residential, institutional, and commercial land uses so that the acquisition of adjacent properties for the purpose of establishing buffer zones would create additional impacts. Therefore, buffer zones are not considered a viable mitigation measure for the 75th Street CIP study area.

The following types of vibration mitigation options were considered:

- Flange bearing frogs – The crossing point of two rails is known as a "frog," and is a source of noise and vibration where train wheels cross the gap between rail heads. Flange bearing frogs can be used at crossing diamonds to allow the weight of a train to rest on the wheel flange instead of the tread and pass over a flat surface with no gap between the rail heads (i.e., no flangeway), thereby reducing noise and vibration. There are three crossing diamonds in the study area. One is being removed at Forest Hill Junction, which will eliminate the noise and vibration caused by that diamond. Two will remain, one at Oakdale Junction near 90th Street & Eggleston Avenue, and another where the Metra SWS tracks along Columbus Avenue cross the north-south CN tracks near the intersection of 83rd Street & Central Park Avenue (3600 W). While some railroads are currently testing the use of flange bearing frogs, they are not currently an accepted design standard by the railroads in the study area.
- Movable point frogs at turnouts – These types of frogs operate by using a separate switch machine to move a small portion of rail that eliminates the flangeway gap in the rail. This frog does reduce noise and vibration, but its use is typically limited to areas with higher speeds, usually in excess of 60 miles per hour. Trains in the study area seldom reach this speed. Movable point frogs are also three to four times more expensive than conventional turnouts, require a different stock of maintenance materials, and require special training for employees in the maintenance process. Moveable point frogs are not considered a viable mitigation measure for the 75th Street CIP.
- Spring frogs – This type of special trackwork is typically used for passenger rail applications at turnouts where there is very little divergent traffic. Spring frogs can reduce component wear, but require more maintenance than conventional frogs. Due to the high amount of divergent train movements in the 75th Street CIP study area and the higher maintenance costs, spring frogs are not considered a viable mitigation measure.

- Welded rail joints – Rail joints are a source of noise and vibration. It is already the policy of all the railroads in the study area to eliminate most rail joints in mainline track by welding the joints. Rail joints are only used on a temporary basis during construction or after a rail failure, or on a permanent basis as a part of the signal system in the form of insulated joints.
- Ballast mats – An elastic mat can be placed under railroad ballast to reduce vibration. However, such mats are typically used only in lighter rail transit applications because the loading from heavier diesel locomotives may cause them to wear out quickly and lose effectiveness. Ballast mats are not considered a viable mitigation measure for the 75th Street CIP.

With the exception of welded rail joints, which are standard railroad policy, the measures discussed above are not considered viable for vibration mitigation in the 75th Street CIP study area. Therefore, maintenance programs are the primary vibration mitigation approach available. The following maintenance procedures will be accomplished by the rail industry to mitigate vibration impacts through minimizing vibration sources:

- Regularly scheduled rail grinding,
- Wheel-truing programs,
- Vehicle reconditioning programs, and
- Use of wheel-flat detectors.

The vibration analysis for this project may need to be reassessed if: a) the project is revised in a manner in which impacts of the project may change due to the project revisions (e.g., a new track alignment is moved closer to a receptor), or b) the CREATE Program's train model is updated due to projects being removed or added to the CREATE Program.

3.8 Energy

3.8.1 Introduction

Energy consumption for the project includes both the energy needed to construct the project and the energy used by rail vehicles operating through the study area. Fuel usage estimates for all rail operations within the 75th Street CIP have been produced by the CTCO's *Rail Traffic Controller* computer model.[75] Changes in fuel consumption due to changes in vehicular usage are also considered.

3.8.2 Existing Conditions

Freight and passenger rail travel in the 75th Street corridor suffers from congestion, low operating speeds, and delays due to the several rail conflict points within the study areas. During this delay time, the locomotives are idling and consuming fuel. The total estimated rail fuel consumption within the study area in 2009 is 3,022 gallons per day.

3.8.3 Energy Impacts

No-Build Alternative

Under the No-Build Alternative, rail traffic in the study area would increase, but would still be restricted by the existing train conflicts. The increase in rail traffic would reach the maximum capacity of the corridor by the year 2024, and no further increases in rail traffic would be possible beyond that point. The expected further increase in freight movements after that time would have to be accommodated through increased truck traffic on existing roadways, heavier reliance on air or sea cargo transportation options, or routing trains around the Chicago area to bypass the congestion.

The total estimated rail fuel consumption in the study area for the No-Build Alternative is 5,420 gallons per day for 2024 and beyond. This is an increase of 79 percent over the 2009 fuel usage.

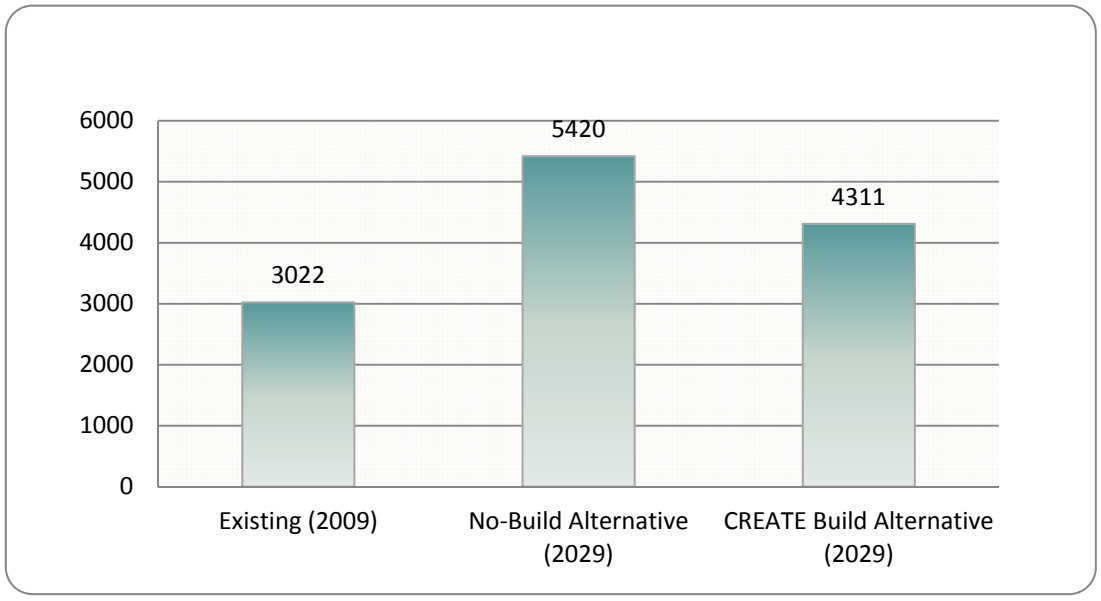
Build Alternative

Construction of the 75th Street CIP would require indirect consumption of energy for processing materials, construction activities, and maintenance for the track to be added within the project limits. (See also Section 3.18, *Short-Term Uses Versus Long-Term Productivity,* for further discussion of energy use during construction.) Energy consumption by rail vehicles in the area may temporarily increase during the construction period due to possible additional delays caused by the construction. There would also be some delays to auto traffic due to construction activities, which may also temporarily increase fuel consumption.

Rail operations with the Build Alternative would use approximately 20% less fuel than the No-Build Alternative.

The Build Alternative would substantially reduce idling and slowing conditions for rail traffic in the 75th Street corridor. Overall rail fuel consumption would be reduced to 4,311 gallons per day, even though an increased number of trains would be traversing the corridor with the Build Alternative (see Section 3.3.1.2). The more efficient

rail operations would result in approximately 20 percent less direct energy consumption for the 75th Street CIP Build Alternative in the year 2029 (refer to Figure 3.8-1). This savings in fuel consumed for rail operations equates to over 400,000 gallons of fuel saved per year in 2029.



Source: Chicago Transportation Coordination Office. "75th CIP Air Quality Results", April 28, 2011.

Figure 3.8-1: Projected Rail Fuel Usage-75th CIP (gallons/day)

The Build Alternative would also result in changes in vehicular traffic. The elimination of the grade crossing at 71st Street would reduce the idling time at this crossing, thereby reducing overall vehicular energy consumption. The closing of the Union Avenue viaduct may increase auto travel for the relatively few cars currently using this route. The new route around the closed underpass would generally add two blocks or less to a vehicular trip. Since the traffic volume currently using the underpass is only approximately 500 vehicles per day, any increase in fuel usage would be minimal. Taken together, these two changes in auto travel would likely result in a slight decrease in fuel usage with the Build Alternative. Given the relatively small value of this change in auto fuel consumption, no further analysis was conducted.

The Build Alternative would result in a reduction in the daily fuel usage in the long term. This reduction would eventually offset construction and maintenance energy requirements, resulting in a net savings in energy usage.

3.9 Natural Resources

The entire study area of the 75th Street CIP has been fully urbanized for many decades, and there are no remaining "natural" areas within the study area.

3.9.1 Vegetation

3.9.1.1 Existing Conditions

Most vegetation within the study area consists of managed lawns and landscaped areas associated with the residential, commercial, and public park land uses. Grasses, weeds, and volunteer trees and shrubs occur commonly in less well-maintained strips along transportation and industrial corridors or on vacant properties. Within nearly all the residential areas, there is good coverage of street trees, including a large number of mature trees.

Figure 3.9-1: Typical vegetation along rail rights of way

The northernmost portion of the Dan Ryan Woods, a unit of the Cook County Forest Preserve District, extends into the study area and directly abuts the CSX railroad right-of-way in the northeast quadrant of the intersection of Western Avenue and 83rd Street. Approximately 18.1 acres of this Forest Preserve (7.7% of the total property) lies within the study area, but the great majority of this area is devoted to parking, trails, and open lawn areas, with the forested areas being limited to relatively narrow bands along the borders of the property.

3.9.1.2 Impacts to Vegetation

The No-Build Alternative would have no direct effect on vegetation within the study area. In response to comments received through the project's public involvement program, there has already been some increased attention given to proper maintenance of vegetation at the viaducts and along railroad rights-of-way. This increased maintenance activity is unrelated to the 75th Street CIP, but

may continue into the future as a result of increased attention from the City of Chicago and the railroads.

For the Build Alternative, there would be some substantial clearing of existing vegetation to allow construction of the new rail facilities. With the exceptions discussed below, all of this clearing would occur within the existing railroad or City of Chicago rights-of-way. Much of the vegetation to be cleared consists of weeds and volunteer species. There is no construction proposed in the vicinity of Dan Ryan Woods, and the project would have no effect on the vegetation in that area.

There are three areas where vegetation clearing would be required outside of existing right-of-way. The first is in the residential area immediately to the south of Hamilton Park, where the Metra connection to the Rock Island District Line is proposed to be constructed.

Figure 3.9-2: Street Trees along 7500 Parnell, South of Hamilton Park

A 66-foot wide path of new right-of-way would be acquired for this new corridor, and all existing street trees and vegetation on the new right-of-way would be cleared. To assess this impact, a tree survey was conducted in the neighborhood to be affected by the proposed construction. Based on the results of that survey, it is estimated that 8 street trees and 35 trees on private property of 6" diameter or greater would be removed by the construction. To mitigate this loss, the project proposes to replace all 43 of these removed trees with new trees to be planted in the immediate neighborhood along public streets and on the portions of the newly-acquired right-of-way that would not be required for construction. The tree survey established that there is sufficient open space along the streets in this neighborhood – 74th Street, 75th Street, Parnell Avenue and Normal Avenue – to accommodate all of the proposed replacement trees.

All trees of 6" diameter or greater removed for the project will be replaced within the immediate neighborhood.

In addition, some minor clearing would be required in temporary construction areas within Hamilton Park and Leland Giants Park. In both cases, temporary construction permits would be obtained to allow vegetation clearing for access to railroad property for the construction of new retaining walls on railroad rights-of-way. Following construction, both of these areas would be restored and completely re-planted according to landscape plans to be approved by the Chicago Park District. The clearing in the two parks is discussed further in Section 3.13.2.

3.9.2 Wildlife

3.9.2.1 Existing Conditions

The only wildlife species found within the study area are those that have adapted to areas of dense urban development. Examples include, but are not limited to, squirrels, rabbits, and opossum. Other than the lagoons within Auburn Park, there are no water resources that would support any sort of amphibian or aquatic life. Review of the study area by the IDOT Bureau of Design and Environment Natural Resources Unit and the IDNR determined that the project does not require biological or wetland surveys.

3.9.2.2 Impacts to Wildlife

The No-Build Alternative would have no effect on the limited wildlife within the project area.

The Build Alternative would demolish structures and clear some areas of vegetation along existing rights-of-way that presently serve as habitat for the common species that have adapted to the urban environment. Construction activities may take some individuals of these species, while the others would likely relocate to similar habitats along adjacent portions of the rail right-of-way. As part of the construction program, licensed local contractors will be engaged to control nuisance species when required by the City of Chicago municipal ordinance 13-32-325.

3.9.3 Threatened and Endangered Species

State-Listed Species

The Illinois Department of Natural Resources (IDNR) Review Tool indicates that there are no records of any state or federally listed species within the project study area. Per the IDOT Biological Resources Review memorandums dated June 23, 2010, December 16, 2011, October 8, 2013, and January 30, 2014 (see Appendix H), no coordination of the project with the IDNR or the U.S. Fish and Wildlife Service is necessary. There would thus be no impacts to any protected species.

Federally-Listed Species

The following federally threatened and endangered species and their habitats are listed (October 2013) as occurring in Cook County, Illinois:

- Eastern prairie fringed orchid (mesic prairies, sedge meadows)
- Piping plover (open, sandy beaches)
- Hine's emerald dragonfly (spring-fed wetlands on dolomite)
- Leafy prairie clover (prairie remnants on thin soil over limestone
- Mead's milkweed (late successional tall grass prairie)
- Prairie bush clover (dry to mesic prairies with gravelly soil)

All of these species occur in specialized habitats that do not occur within the project area. Therefore, the project would have no effect on these species or their habitats.

3.10 Wetlands and Water Resources

Water resources within the 75th Street CIP study area are limited to artificial ponds in City parks. There are no remaining streams, wetlands, or other natural water bodies within the study area.

3.10.1 Wetlands

There are no natural streams or wetlands in the project study area.

The IDOT Bureau of Design and Environment Natural Resources Unit reviewed National Wetland Inventory mapping (Englewood, Blue Island and Lake Calumet USGS Quadrangle maps) and aerial photography of the project area and determined that there are no wetlands present within the project study area.[76] Based on this determination, no further coordination with the Illinois Department of Natural Resources and the U.S. Fish and Wildlife Service is necessary regarding wetlands in the project area. The project alternatives would have no impact on any jurisdictional wetlands.

3.10.2 Surface Waters

The only surface waters within the study area are the lagoons in Auburn Park, north of 79th Street and east of the Metra RID Line (see Figure 3.10-1). The park and lagoons are managed by the Chicago Park District. The lagoons are a remnant of the original wetlands that existed on the site in the 1870s, but are now an entirely maintained feature. The project alternatives would not impact any surface waters.

Figure 3.10-1: Lagoon in Auburn Park

3.10.3 Groundwater

The study area is generally underlain by heavy clay soils that formed as the lake bed of Lake Chicago at the end of the last glaciation, and includes none of the glacial gravel moraines that serve as aquifers in other areas of northern Illinois. There is no karst topography within the study area. Based on a review of the Illinois Geological Survey's Water and Related Wells in Illinois mapping and database,[77] there are no public water supply wells within the project study area. The only water wells within the area are a group of seven shallow environmental observation wells on a single property belonging to the Chicago Fire Brick Company. Public water supply for the area is provided by the City of Chicago from Lake Michigan, and groundwater is not used as a source of potable water in the study area. The project alternatives would have no direct impact on groundwater or water wells.

There are no Sole Source Aquifers, as designated under Section 1424(e) of the Safe Drinking Water Act, within the project area. The project is not located in an area designated as a Class III Special Resources Groundwater, nor is it within a watershed that has been designated by IEPA as vital for a particularly sensitive ecological system.

There are no sensitive water resources such as water supply, reservoirs, groundwater recharge areas, or high quality streams within the study area, and thus runoff or other nonpoint source pollution would have no effect on these resources. This project would not create any new potential "routes" for groundwater pollution or any new potential "sources" of groundwater pollution as defined in the Illinois Environmental Protection Act (415 ILCS 5/3, et seq.). Accordingly, the project is not subject to compliance with the minimum setback requirements for community water supply wells or other potable water supply wells as set forth in 415 ILCS 5/14, et seq.

3.11 Floodplains

The Federal Emergency Management Agency (FEMA) maintains Flood Insurance Rate Maps (FIRM) for Cook County. These maps show the flood hazard areas that lie within the 100-year floodplain. FIRM panels 0630, 0515, 0520, 0635, and 0655[78] cover the 75th Street CIP project area, and a review of these maps indicates that there are no special flood hazard areas within the project area.

The proposed project would have no effect on floodplains.

3.12 Special Waste

Special waste[79] potentially includes infectious medical waste, hazardous and nonhazardous waste, industrial process waste or pollution control waste, contaminated soils, and any empty portable device or container in which special waste has been handled. Transportation projects are evaluated to determine a project's potential involvement with special waste and other regulated substances, such as hazardous substances and petroleum products (common sources of potential Special Waste), in order to protect construction workers, residents of the project area, and the local environment from inadvertent exposure to hazardous wastes during construction of the project. The evaluations are also intended to protect the public entities purchasing right-of-way for the project from unknowingly acquiring properties that would later require major expenditures for clean-up of special wastes.

3.12.1 Existing Conditions

A Special Waste Assessment screening was performed to characterize existing conditions within the 75th Street CIP study area. This screening was performed in accordance with the *CREATE Railroad Property Special Waste Procedures, FHWA, July 2006*. The screening consisted of the following activities:

- Requested environmental spill records and related environmental information from all railroads in the study area,
- Reviewed records identified in searches of state and federal environmental databases and obtained through Freedom of Information Act (FOIA) requests, and
- Conducted a series of site reconnaissance tours of both the existing railroad rights-of-way (ROW) within the study area as well as the other areas identified for potential acquisition to construct the project using tours of the public rights-of-way.

3.12.1.1 Environmental Spill Records

Participating railroads identified current and past property uses within railroad ROW in the study area that might represent environmental concerns. A total of 41 spills were reported to have occurred at the Landers Yard from 1996 to May, 2011. These spills ranged in size from a few gallons to approximately 1,000 gallons, and consisted principally of petroleum products. No other railroad spills were reported. Properties within the railroad ROW have been used for railroad operations for over 100 years, and it is likely that other spills occurred prior to 1996 that may not have been reported. Thus, there is a potential to encounter unknown substances or undocumented spills during any excavation work within or near these properties. In August and September 2014 participating railroads responded that there were no changes in status in or adjacent to the study area since the May 2011 information requests.

3.12.1.2 Database Search

In addition to railroad spill records, a search of current federal and state databases, obtained through Environmental Data Resources, Inc. (EDR), was conducted to identify sites of environmental concern

located within 500-feet of either side of the existing railroad ROW located within the Environmental Survey Request (ESR) area. The database search results supplemented the results of: 1) an earlier Special Waste Assessment conducted in 2006, 2) data from the review of historical Sanborn Fire Insurance mapping, and 3) historical aerial photographs. Additionally, telephone interviews were conducted with Chicago Department of Environment (CDOE) representatives, Freedom of Information Act (FOIA) requests were submitted, and EDR database report address/ownership errors were corrected as appropriate. All of this information was combined into a single data set and then screened in accordance with the CREATE *Railroad Property Special Waste Procedures* criteria for the presence of:

- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) within 500 feet of the ESR limits,
- RCRA sites within the ESR limits,
- Active Underground Storage Tank (UST) or Open Leaking Underground Storage Tank (LUST) incidents within 500 feet of the ESR limits, and
- Properties with other constituents of concern either within or near the ESR limits.

A total of 126 sites were reviewed during the 2012 screening process. An updated EDR database search was conducted in August 2014 and an additional 84 sites were identified for review. These sites consisted of post-2011 agency database updates as well as EDR proprietary databases of potential historic gas stations/fill stations, automotive repair/service/garages sites and potential dry cleaners/ laundry/laundromat sties which were not available in the 2011 EDR report.

3.12.1.3 Site Reconnaissance

Site reconnaissance tours of the study area were conducted on June 28 and 29, and July 12 and 23, 2011. Railroad properties were visited during these four days of site visits with the study team accompanied by representatives of the various participating railroads. The visits were conducted primarily by walking the study areas along the railroad ROW or by windshield survey in some areas where construction activities associated with the proposed 75th Street CIP are anticipated. The purpose of the tours was to identify:

- Obvious signs of contamination or evidence of open dumping;
- Noticeable contamination in the form of discolored soil, seeping liquids, vegetation damage from other than vegetation control activities, dead animals, suspect odors, oil sheen, dead-end pipes or abnormal grading, fills, or depressions;
- Buildings located near or adjacent to areas of potential construction within the limits of the ESR having the potential to contain special waste (e.g., buildings older than 30 years that could contain asbestos or other regulated materials); and
- Bulk material/release sources (such as drums, totes, tanks, recycled autos, stockpiles, etc.).

Properties that could not be visually inspected from the railroad ROW were assessed from nearby public streets. Access to private properties other than the railroads was not available. Due to access

limitations for the numerous non-railroad properties, inspection of building interiors was not completed as part of the special waste assessment.

Emphasis was given to areas identified by participating railroad information responses and areas where excavation/handling of soils is anticipated, as determined by the locations where proposed construction below existing ballast would be performed.

General observations made during the field surveys included:

- Minor/scattered surface staining consistent with common railroad usage was observed throughout the ESR area;
- No active remediation activities were observed within the ESR area;
- Large/numerous mounds of construction debris and scattered depressions were observed in the southeastern portion of the study area, south of 80th Street Junction, near Vincennes Avenue (identified as Sites 250 and FO2);
- While piles of cuttings, yard waste, and branches were common (especially in the eastern portion of the ESR), no distressed vegetation was noted; and
- While there were no overall observations within the railroad ROW of improper disposal of hazardous substances or petroleum products, discolored flowing or ponded water, cisterns, septic systems, abnormal odors, or hazardous substance or petroleum containers, there were several instances of ponded water, stained soils, and petroleum containers noted for specific sites adjacent to the railroad ROW.

An additional site reconnaissance visit was conducted on October 23, 2013, of only the several additional properties added to the proposed right-of-way acquisitions for the recommended noise barriers that had not been identified at the time of the initial reconnaissance visits. As a result of these site reconnaissance visits and the prior data collection activities comprising the Special Waste Assessment (SWA) screening as part of the CREATE Railroad Special Waste Procedure, additional evaluation of identified areas as part of a Preliminary Environmental Site Assessment (PESA) was recommended.

Additional site reconnaissance visits were conducted on August 28, and September 2, 2014 to assess the land use of the additional 84 sites identified in the 2014 EDR update, as well as to assess any land use changes since the 2011 site visits that could result in increased risk of releases.

3.12.1.4 Preliminary Environmental Site Assessment

The PESA report dated April 2012 was conducted in general accordance with the scope and limitations of the *CREATE Railroad Property Special Waste Procedures, FHWA, July 2006;* ASTM E1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*; ASTM, 2005 and the U.S. Environmental Protection Agency's *All Appropriate Inquiries Updated Guidance, USEPA, 2011*. The project area was reassessed in 2014 between the

publication of the DEIS and the FEIS to check for new reported releases of hazardous substances and to determine if land uses have changed such that additional special waste studies would be necessary.

The purpose of the PESA and the 2014 update was to assess the potential existence of "Recognized Environmental Conditions" (RECs) at the properties identified during the SWA screening that might cause worker safety or other concerns during construction of the project. Specific identification of RECs was based on the presence of one or more of the following:

- Listing of a spill/release; leaking underground storage tank (LUST); Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); or Voluntary Action – Illinois Environmental Protection Agency Site Remediation Program (IEPA/SRP) – that did not include a No-Further-Action / No-Further Remediation (NFA/NFR) date indicating a resolution of the problem;
- LUST, CERCLIS, or Voluntary Action (IEPA/SRP) that did not include a NFA/NFR date;
- NFA/NFRs that included institutional, engineering, or groundwater usage controls;
- Underground storage tanks (USTs) that remain in service or have not yet been removed;
- Site reconnaissance-based indications of potential special waste;
- A pattern of violations, releases, or large scale material handling in which a significant number of incidental/intermittent minor releases would be anticipated.

PESA Risk Ratings

No Risk: After a review of available information, there is no indication of the presence of regulated substances in the project area or where the property is outside of the ESR or proposed construction areas.

Low Risk: Current or former land use may include a facility that treats, stores, disposes of, transports, or is otherwise involved with regulated substances. However, based on available information, there is no reason to believe there would be any involvement with regulated substances of significant quantity.

Moderate Risk: After review of available information, indications are found that identify a potential for soil or water contamination or other environmental hazard; however, the hazard was not verified by testing. The area could have a long history of industrial or commercial use or a Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) or a leaking underground storage tank (LUST) site may be present near the subject property.

High Risk: A High Risk is based on the presence of potentially hazardous compounds, as detected by testing, or the presence of an active leaking underground storage tank, an IEPA Site Remediation Program site, or a history of numerous and/or significant spills reported on the subject property.

After review of each of the sites, the PESA, combined with the 2014 PESA update, concluded that 143 of the 210 SWA-identified sites revealed the presence of a REC that could be associated with the proposed project construction areas.

The PESA also identifies sites requiring further investigation to clarify the risks presented, sites where a maximum depth of excavation stipulation may be necessary to protect worker safety and sites where potentially impacted soil could require special handling or disposal. All of these sites would require further study in the form of a Preliminary Site Investigation (PSI) to resolve these concerns. PSI

recommendations have been grouped by the portion of ESR area where the sites are located, and by the anticipated type of construction activity and the depth of soil excavation (especially below existing ballast material). A PESA Risk Assessment Rating was determined for each site exhibiting a concern by assigning each a ranking as having: no risk, low risk, moderate risk, or high risk in terms of potential impact to implementation of the project (see the box to the right for a definition of the risk rankings). These recommendations were subsequently supplemented with the results of the October 2013 reconnaissance.

Using these criteria, the PESA, combined with the 2014 PESA update, recommended that PSIs be conducted in fifteen (15 general areas in the vicinity of the 52 sites ranked as having a moderate or high Risk Finding. This sampling/screening work would be conducted prior to the completion of Phase II design and prior to any excavation or disturbance of soils for construction. Depending on the nature and seriousness of further contamination problems discovered during the PSIs, changes to the design of the project may need to be evaluated for measures to avoid, reduce, mitigate, or account for confirmed Special Waste.

3.12.2 Impacts

No-Build Alternative – The No-Build Alternative would have no effect on or involvement with any special waste sites, and no further detailed investigations of existing sites would be conducted for the No-Build Alternative.

Build Alternative - The Build Alternative could have involvement with a number of sites having recognized environmental conditions. Based upon all of the data collected through the PESA process, a risk rating was assigned to all of the identified sites. A total of 49 sites were classified as Not Applicable (meaning that the sites are outside the areas anticipated to be affected by construction). Based on the rating criteria presented in the above sidebar, a total of 18 sites were classified as having No Risk, including one REC that was ranked as No Risk. A total of 91 sites were classified as having Low Risk, a total of 44 sites were classified as having Moderate Risk, and a total of 8 sites were classified as having High Risk.

PSIs are recommended for all 52 of the sites that are rated as Moderate or High Risks. Based upon the locations of these sites and the proposed construction areas, the sites were organized into 15 separate geographic groups, each of which would be investigated as a separate PSI. The risks associated with construction in any of these sites will be reevaluated once the results of the 15 PSIs are available to define the nature and extent of contamination. At that time, decisions will be made based upon potential liability associated with ROW acquisition of sites impacted by Special Waste or for encountering Special Waste as part of the project. These decisions could include modification of the final design to avoid the contaminated material (either by property, or area, or depth interval) modification of the proposed construction work (when practical), or management and/or disposal of contaminated materials in accordance with the applicable federal and state regulations.

It is also possible that some of the RECs identified in the PESA could be managed during project construction through risk-based methods. However, the determination of the appropriate method will, in part, be dependent upon the specific construction activities planned for the impacted location and the nature of the contamination present. For example, if a paved parking area will be constructed adjacent to a project structure, the planned paving could be used as an engineered barrier to prevent exposure to residual soil contamination beneath the parking area. However, at this time, based upon the level of information available through the PESA effort, there is insufficient information available regarding the identified RECs or the specific nature of the planned construction activities at a given REC location to allow determination of whether it could be best managed using risk-based methods. Once the PSIs recommended in the PESA have been completed, REC-by-REC determinations can be made.

The Build Alternative would also require the demolition of a number of residential buildings. There is a possibility that these structures might include asbestos-containing materials (ACM), heating oil tanks, or lead-based paint (LBP). Surveys for ACM, heating oil tanks, and LBP of all buildings to be demolished would be conducted in accordance with City of Chicago, state, and federal regulations prior to demolition.

3.13 Special Lands: Section 4(f), Section 6(f), and OSLAD Lands

Special lands generally include publicly-owned parks, recreational areas, wildlife and waterfowl refuges, forest preserves, and historic sites. Special lands are protected by several laws:

- Section 4(f) of the Department of Transportation (DOT) Act of 1966 – This section of the Act, and its subsequent amendments, stipulate that the Federal Highway Administration (FHWA) and other DOT agencies cannot approve the use of land from publicly-owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites, unless there is either no feasible and prudent alternative and all possible planning to minimize harm to the property is included, or if there is a finding of *de minimis* impact (i.e., no adverse effects to the features, attributes, or activities qualifying the property for Section 4(f) protection).[80]
- Section 6(f) of the Land and Water Conservation Fund Act of 1965 (LAWCON) – This section of the Act established a fund to assist states with the planning, acquisition, and development of lands and waters for the purpose of outdoor recreation. Properties acquired or developed with these funds cannot be converted to any use other than outdoor recreation without the permission of the United States Secretary of the Interior. The Secretary may approve the conversion if it is consistent with the Statewide Comprehensive Outdoor Recreation Plan (SCORP) and may determine conditions necessary to substitute other properties of reasonably equivalent usefulness and location.[81]
- Open Space Lands Acquisition and Development (OSLAD) Program – OSLAD is a state-financed grant program that provides funding assistance to local government agencies for acquisition and/or development of land for public parks and open space.[82] It is the state equivalent of the federal LAWCON program described above and has similar protections and requirements for converting the land to other uses. The difference is that approval must come from the Illinois Department of Natural Resources (IDNR) rather than the Secretary of the Interior.[83]

3.13.1 Existing Conditions

The study area includes a portion of the Cook County Forest Preserve District's Dan Ryan Woods, 14 municipal parks in the City of Chicago, and Patterson Park in Hometown, IL. These are listed alphabetically in Table 3.13-1 and mapped in Figure 3.13-1. All but three of these parks (Murray Park, Dr. Martin Luther King Jr. Park, and West Chatham Park) are located immediately adjacent to existing rail lines or a road bordering an existing rail line. Two of the identified publicly-owned parks and recreational areas have received federal LAWCON or state OSLAD funding assistance. Dawes Park (8052 S. Damen Ave) received LAWCON funds for a spray pool. West Chatham Park received LAWCON funds and OSLAD funds for a spray pool and park expansion.

Table 3.13-1: Special Lands in the Study Area

Name	Ownership	Size (acres)		Type of Resource		
		Total	Within Study Area	4(f)	6(f)	OSLAD
Auburn Park	Chicago Park District	8.5	4.0	x		
Dan Ryan Woods	Cook County Forest Preserve District	241.7	18.1	x		
Dawes Park	Chicago Park District	16.6	6.1	x	x	
Dr. Martin Luther King Jr. Park	Chicago Park District	6.4	4.5	x		
Fernwood Parkway Park	Chicago Park District	8.6	5.1	x		
Hamilton Park	Chicago Park District	30.0	30.0	x		
Leland Giants Park	Chicago Park District	1.4	1.4	x		
Lily Gardens Park	Chicago Park District	2.4	2.4	x		
Lyle Park	Chicago Park District	1.6	1.6	x		
Mahalia Jackson Park	Chicago Park District	4.4	4.4	x		
Murray Park	Chicago Park District	3.3	2.0	x		
Patterson Park	City of Hometown	3.6	3.6	x		
Periwinkle Park	Chicago Park District	0.5	0.5	x		
Robichaux Park	Chicago Park District	13.3	13.3	x		
Smith Playlot Park	Chicago Park District	4.2	4.2	x		
West Chatham Park	Chicago Park District	15.0	1.0	x	x	x

Sources: City of Chicago GIS; Cook County ROW; Illinois Department of Natural Resources, Division of Grant Administration.

Hamilton Park is of particular interest because of its size, historical significance, and the fact that it is immediately adjacent to two of the principal rail lines within the project study area. At 30 acres in size, Hamilton Park is the largest park within the study area.[84] The park was created in 1904 by the South Park Commission, and was designed by Edward Bennett of the Daniel Burnham Company and the Olmsted Brothers as one of ten new neighborhood parks that were intended to provide recreation and relief for people in congested tenement districts.[85] The park was listed on the National Register of Historic Places in 1995.[86]

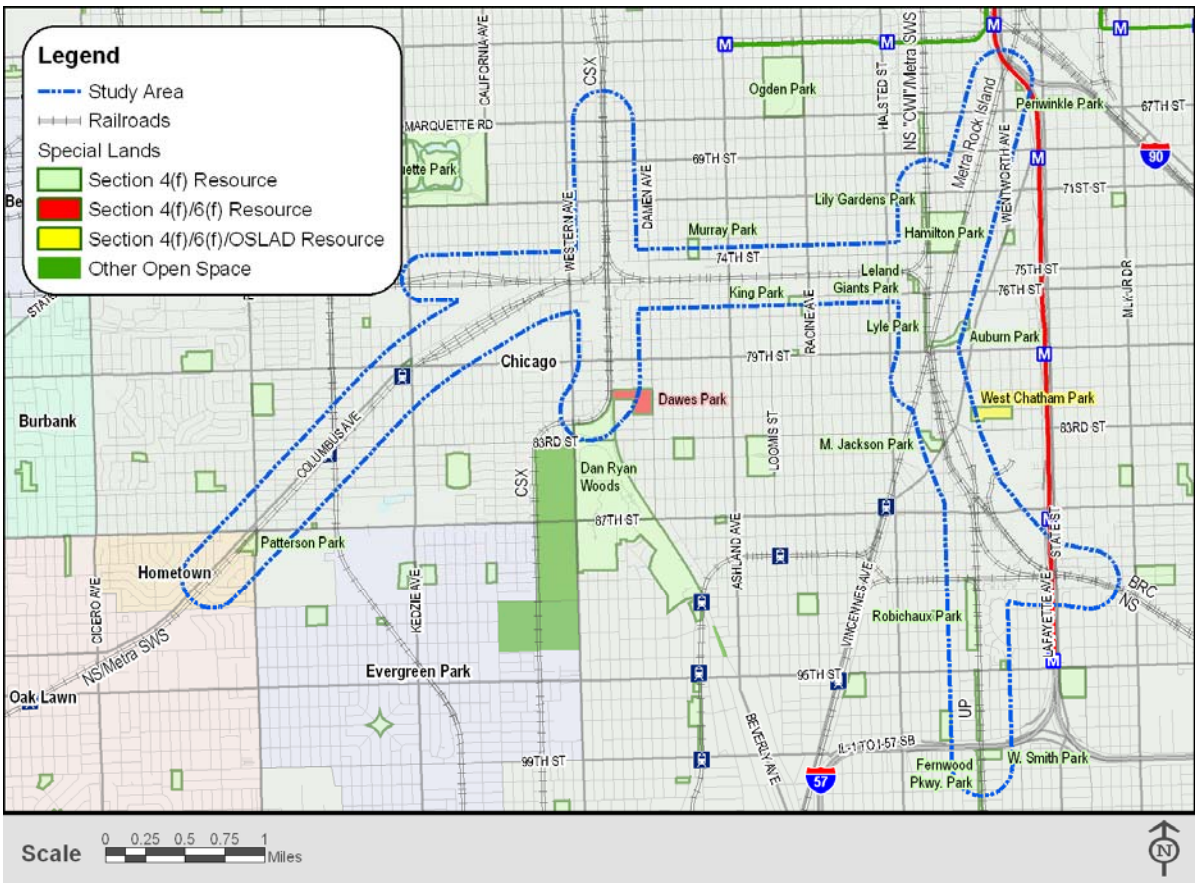


Figure 3.13-1: Special Lands in Study Area

As shown in Figure 3.13-2, the central area of Hamilton Park is devoted to athletic fields that can be used for baseball, softball, soccer, or other activities. The northeast corner of the park contains a swimming pool, playground, water playground, basketball courts, and tennis courts. A 0.4-mile walking path encircles the central athletic fields. The Hamilton Park Fieldhouse is located adjacent to 72nd Street on the north side of the park, and includes gyms, an auditorium, and community meeting space. The Hamilton Park Fieldhouse (see Figure 3.13-3), designed by Edward Bennett of Daniel H. Burnham and Company, is listed on the National Register of Historic Places both as a separate property and as a contributing element of the Hamilton Park property. Additional details about Hamilton Park's historic significance are presented in Section 3.5.1.

Figure 3.13-2: Hamilton Park

There are many programmed activities at Hamilton Park, including youth basketball leagues, adult table tennis, various types of dance classes for both youth and adults, exercise classes for adults, and special events such as jazz performances.

Figure 3.13-3: Hamilton Park Fieldhouse

All of the other parks in the study area are smaller neighborhood parks, with no known expansions planned. The only park to receive special note at the Community Advisory Group (CAG) meetings as a local source of pride was Auburn Park and its lagoons. Auburn Park is shown in Figure 3.13-4 with the existing rail embankment in the background (other images of Auburn Park are shown in Figure 3.2-13, Figure 3.10-1, and Figure 3.14-4).

Figure 3.13-4: Auburn Park, with rail embankment in background

The IDOT Bureau of Design and Environment Natural Resources Unit and IDNR have reviewed the project study area using their Natural Resources Review Tool (NRRT) and Wetland Impact Review Tool (WIRT), and have determined that there are no natural areas or nature preserves within the study area.[8]

3.13.2 Impacts to Special Lands

3.13.2.1 Impacts of No-Build Alternative

The No-Build Alternative would not require the acquisition of any property from any of the public parks or other protected lands within the study area.

Although there would be no construction of new facilities with the No-Build Alternative, there would be a continuing increase in the number of freight trains traversing the rail lines within the corridor. See Section 3.3.1.2 for information on the increasing train volumes. Due to the increases in train traffic on some study area rail lines, the noise level increase at Lily Gardens Park would exceed the FTA's moderate impact threshold. (FTA thresholds are described in Table 3.7-2; generally, the higher the existing noise level, the smaller the increase needed to be considered an "impact.")

Lily Gardens Park immediately abuts the west side of the NS "CWI" rail line from 71st Street to 74th Street (Figure 3.13-1). Noise levels in the park are projected to increase by approximately seven decibels with the No-Build Alternative due to projected increases in the number of freight trains on this line in the future (see Table 3.13-2). (Note that with the Build Alternative, Metra SWS trains would be moved to the RID Line on the east side of the park, and the resulting increase in noise from just the added freight trains would no longer be great enough to constitute a noise "impact.")

There would also be minor increases in noise levels with the No-Build Alternative at six other protected properties, but the increases would not exceed the FTA threshold. At five of these parks, the noise increases under the No-Build Alternative are only one decibel. Along the west side of Hamilton Park, the increase under the No-Build Alternative is projected to be four decibels. This change would likely be perceptible, but is not a great enough increase to exceed the FTA threshold.

Table 3.13-2: Noise Impacts on Special Lands

Name	Noise Levels (dBA)			Build Increase over Existing (dBA)	Build Impact[a]
	Existing	No-Build	Build		
Auburn Park	66	66	67	+1	None
Dan Ryan Woods	66	67	65	-1	None
Dawes Park	64	65	64	0	None
Fernwood Pkwy Park – North	82	82	84	+2	Impact
Fernwood Pkwy Park – South	80	80	82	+2	Impact
Hamilton Park – West	60	64	60	0	None
Hamilton Park – East	65	65	68	+3	None
Hamilton Park - Southeast	63	63	65	+2	None
Leland Giants Park	62	63	68	+6	Impact
Lily Gardens Park – North	58	65	62	+4	None
Lily Gardens Park - South	58	65	61	+3	None
Patterson Park	82	83	83	+1	None
Robichaux Park	74	74	76	+2	None
Smith Playlot Park	75	75	77	+2	Impact
West Chatham Park	58	58	60	+2	None

[a]The CREATE N&V Methodology includes two categories of noise impact – "Moderate" and "Severe." In all park locations determined to have noise impacts, the impacts were identified as "Moderate" impacts.

3.13.2.2 Impacts of Build Alternative on Special Lands

The Build Alternative would not require a permanent acquisition of property from any of the parks or other protected lands in the study area. The Build Alternative would require construction permits from the Chicago Park District to allow temporary construction activity in small areas at two parks immediately adjacent to rail rights-of-way where new retaining walls on railroad property, as well as one noise barrier, would be required. One location is in the southeast corner of Hamilton Park, just north of 74th Street and along the Metra RID Line right-of-way. The second location is in Leland Giants Park which is located east of Union Avenue and along the south and west sides of the rail corridor. These construction permits are discussed in detail in Sections 3.13.2.3 and 3.13.2.4,

following. No other temporary construction permits or easements in parks or other special lands are anticipated.

The increase in train volumes projected to occur with the Build Alternative would increase noise levels at nine public parks in the study area (See Table 3.13-2). All nine of these affected parks are located immediately adjacent to the existing rail rights-of-way. At three of these parks – Fernwood Parkway, Leland Giants, and (Wendell) Smith Playlot Parks – the noise level increases with the Build Alternative would constitute a noise impact per the CREATE N&V Methodology. At each of these parks, the railroad lines have been in place for over a century and were operating when the parks were first created. Train noise has thus been a part of the environment at the parks since their establishment. Only at Leland Giants Park would the noise increase with the Build Alternative (+6 decibels) be greater than 3 decibels, which is the minimum change in noise level generally considered to be perceptible by the human ear. (A noise barrier is proposed for Leland Giants Park and would result in the noise being reduced from current levels by 1 decibel, to 61 decibels. See Sec. 3.7.1.6.)

The possibility of noise impacts creating a "constructive use," or a substantial impairment of features or attributes of a park, was evaluated. The FHWA has determined that a constructive use occurs when the projected noise level increase attributable to the project substantially interferes with enjoyment of an urban park where serenity and quiet are significant attributes.[87] Serenity and quiet are not significant attributes at any of the three parks with noise impacts. Fernwood Parkway Park is a narrow strip of passive green space adjacent to railroad tracks. Smith Playlot Park offers a baseball field, basketball courts, playgrounds, and a small fieldhouse that can be used for indoor meeting space. At Leland Giants Park, the primary uses are playgrounds and basketball courts. It is therefore not anticipated that these changes in noise level would affect the use of any of the parks, and these changes in noise level are not considered to constitute a constructive use of the parks.

The proposed project would also introduce an elevated rail structure through the residential neighborhood to the south of Hamilton Park. Depending on the presence of tree foliage and the particular sightlines from the park south down Parnell and Normal Avenues, this new structure may be visible from southern areas of the park. Where the proposed structure connects with the existing SWS to RID Line flyover structure over 74th Street, it would become more visible from the southeast corner of the park. The existing rail embankments along both the entire east and west sides of the park and the existing rail structures over 74th Street at the southeast and southwest corners of the park have been a part of the park's setting for over 95 years, and are much more evident from the park than the new flyover structure would be.

The Build Alternative would also introduce a new visual element into the view northward from Leland Giants Park. A new structure to carry the Metra SWS above the existing rail embankment would be constructed, and portions of this structure would be visible from the northern end of the park. The new retaining wall to be constructed on railroad right-of-way adjacent to Leland Giants Park would basically replace the existing view of the rail embankment with a view of a new concrete

wall. The area disturbed by construction in front of the wall would be replanted with screening vegetation.

The Build Alternative would also include closing the Union Avenue viaduct and constructing cul-de-sacs on both sides of the 75th Street rail corridor. This would make pedestrian access to Leland Giants Park somewhat more difficult for residents of the residential blocks immediately north of the 75th Street rail corridor. Once the viaduct is closed, it would be necessary for residents of that area north of the railroad tracks to travel west to Halsted Street, south to 76th Street, and east to get to Leland Giants Park. Leland Giants Park features only outdoor basketball courts and playground equipment and is generally lightly used. For all but those living within just a block of the closed viaduct, Lily Gardens Park and Hamilton Park are just as close and offer amenities similar to those of Leland Giants Park. The detour route to Leland Giants Park from the 7400 block of S. Union Avenue and the alternate walking routes to Lily Gardens Park and Hamilton Park are shown in Figure 3.3-10. There were no comments about effects on access to these parks during any of the public involvement activities.

No other impacts to parks or other special lands are anticipated as a result of the Build Alternative. There will be no impacts of any type to either Dawes or West Chatham Parks, the only 6(f)/OSLAD properties in the study area.

3.13.2.3 Temporary Construction in Hamilton Park

A temporary construction permit from Chicago Park District would be required to allow the construction of a new retaining wall to support the widened embankment where the Metra SWS connection would tie to the existing RID Line. The new wall would be located entirely on railroad property, but would require temporary access through a narrow strip of park property for construction equipment. The construction permit would be for a generally rectangular strip of land approximately 15 feet wide running approximately 60 feet along the west side of the RID Line right-of-way, from the sidewalk on 74th Street northwards (see Figure 3.13-5). The total area of the temporary construction activity within the park would be approximately 933 square feet. It is estimated the construction permit would be required for less than one full construction season. There would be no change to the permanent park boundaries.

The area to be affected by the proposed temporary construction activities is currently covered with volunteer shrubs and small trees along the relatively steep slope of the Rock Island railroad embankment (see Figure 3.13-6). The vegetation in this area does not constitute a designed landscape and is not part of the original Olmsted template for the Park. Additionally, there are no programmed park uses for this area. The area would be cleared of vegetation to allow access for construction equipment. A new retaining wall would be constructed on railroad property in front of the existing crib-structure retaining wall now visible through the vegetation on the same figure. As discussed previously, Hamilton Park is listed on the National Register of Historic Places, in part because the park was originally designed by the Olmsted Brothers (see Section 3.5.1 for additional details).

This plan has been coordinated with the Chicago Park District at meetings on June 30 and December 12, 2011, and with the Illinois Historic Preservation Agency (IHPA) in meetings on August 31, 2011, and February 14, 2012. Upon completion of the construction work, the area would be re-planted according to a landscape design plan developed in coordination with both the Chicago Park District and the IHPA. Their approval of the restoration plans, including the landscape design, would be a condition of the construction permit. The Chicago Park District's concurrence with this approach is documented in their letter of January 25, 2012, which can be found in Appendix I. IHPA concurrence with this approach as outlined in IDOT's letter of March 3, 2012, is shown in Appendix G.

A short portion of the existing low stone wall at the bottom of the slope (see Figure 3.13-6) would also be removed during construction and would be returned to its current location upon completion. A short portion of the existing sidewalk in front of that wall might also be removed. Pedestrian access to the park is available from the sidewalk all along 74th Street, including a paved path at Parnell Avenue, just to the west, so there would be no restriction of access to the park during construction.

Figure 3.13-5: Area of Proposed Construction in Hamilton Park

Figure 3.13-6: View of Area of Proposed Construction in Hamilton Park

3.13.2.4 Temporary Construction in Leland Giants Park

The Build Alternative would also require the construction of a new retaining wall on railroad property just beyond the north and east boundaries of Leland Giants Park. The new wall would be located several feet inside the current railroad right-of-way (see Figure 3.13-7 and Figure 3.13-8), and would support a noise barrier atop it. To simplify property maintenance in the future, 0.12 acres of current railroad property on the outside of the proposed retaining wall/noise barrier will be ceded to the Chicago Park District and will become additional park property. In order to allow access for construction equipment, a temporary construction permit would be required from the Chicago Park District for an additional area extending into Leland Giants Park approximately 15 feet over a length of approximately 370 feet. The total area of park land to be temporarily affected would be approximately 5,565 square feet.

Existing vegetation within the construction permit area and along the embankment would be cleared to allow construction of the new retaining wall. The construction period is anticipated to be less than one year. Upon completion of construction, the affected area of park, including the additional donated area, would be landscaped in accordance with the restoration plan to be approved by the Chicago Park District as a condition of the construction permit. There are no programmed uses for this area of the park, and the proposed retaining wall construction area would not interfere with access to or use of the other areas of the park. Chicago Park District's letter of concurrence with this approach, dated January 25, 2012, is included in Appendix I.

Figure 3.13-7: Leland Giants Park, with rail embankment in background

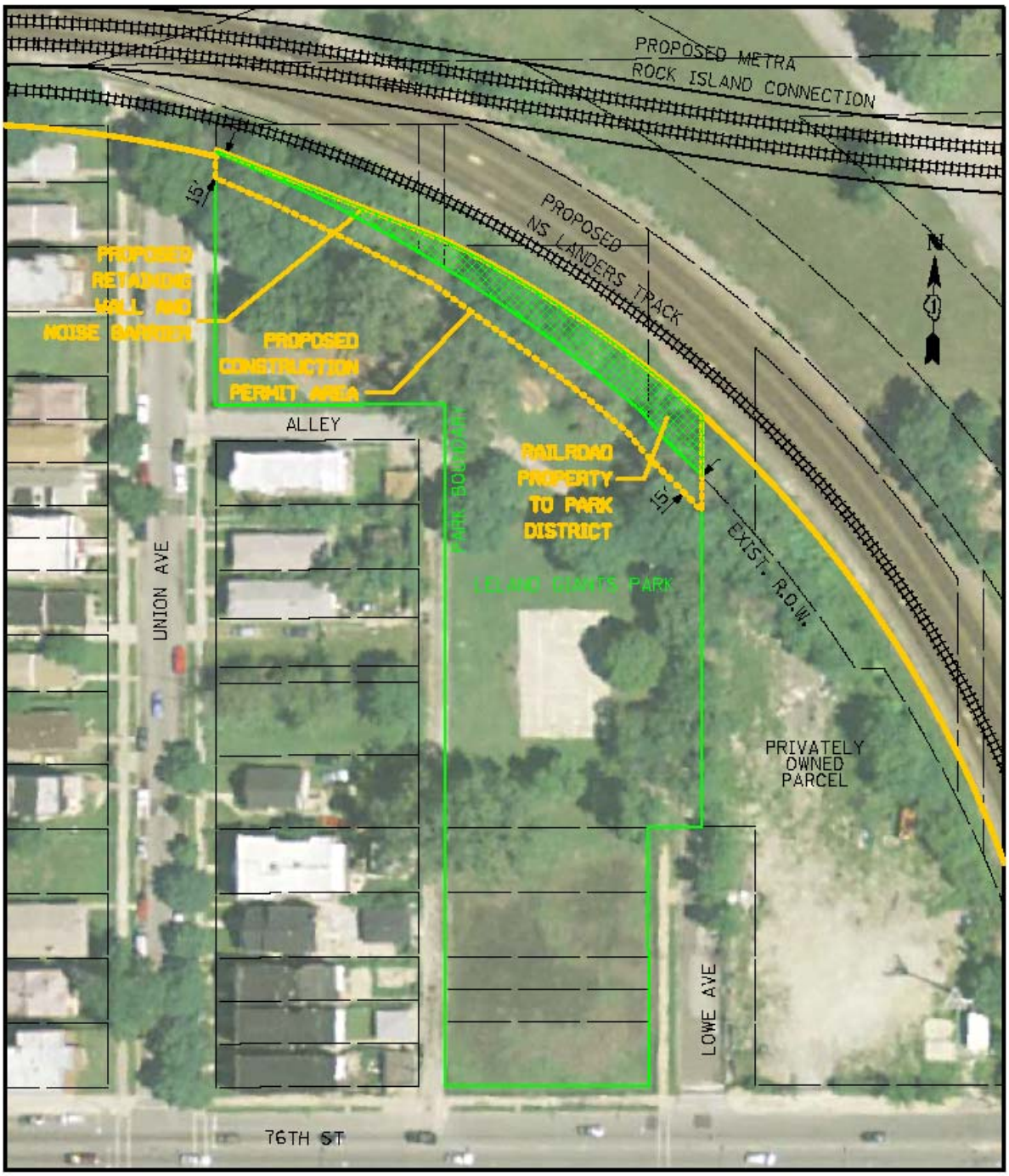


Figure 3.13-8: Proposed Construction Permit Area in Leland Giants Park

3.13.3 Section 4(f) Considerations

Section 4(f) of the Department of Transportation Act of 1966 prevents the use of public park land for transportation purposes except under certain limited circumstances. One of these exceptions is for temporary use of the park land that is so minimal that it does not qualify as a "use" within the meaning of the law. There are five conditions that must be satisfied for this exception to apply. The complete text of the law relating to this exception is presented in the following highlighted text box.

Section 4(f) Exceptions

§774.13 (d), Temporary occupancies of land that are so minimal as to not constitute a use within the meaning of Section 4(f). The following conditions must be satisfied:

(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) property are minimal;

(3) There are no 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 permanent basis;

(4) The land being used must be fully restored, i.e., the property 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 official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.

The construction work proposed to take place in both Hamilton Park and Leland Giants Park, as discussed in Sections 3.13.2.3 and 3.13.2.4, meets all five of these conditions. The Chicago Park District is the official agency with jurisdiction over both of the parks. Documentation of their agreement that the proposed work meets the conditions set forth for this exception to Section 4(f) is included in their letter of January 25, 2012, and can be found in Appendix G.

As a property listed on the National Register of Historic Places, Hamilton Park also qualifies for protection under Section 106 of the National Historic Preservation Act of 1966, as amended. See Section 3.5 for more details regarding the Section 106 process with respect to Hamilton Park.

In addition to the coordination with the Chicago Park District discussed above, IDOT and the study team have coordinated with the IHPA with regard to potential impacts to Hamilton Park. (The IHPA serves as the State Historic Preservation Office within Illinois.) Based on this coordination and the analyses described above, IDOT has determined in their letter of March 3, 2012, that the proposed temporary construction work in Hamilton Park would have no adverse effect on the park, and IHPA concurred with this determination on March 5, 2012 (see Appendix G).

3.13.4 Mitigation of Impacts to Special Lands

All impacts to Hamilton and Leland Giants Parks resulting from the temporary construction activities will be mitigated by implementation of park restoration plans as part of the project's construction. These restoration plans will be developed in coordination with the IHPA and the Chicago Park District, and the necessary Construction Permits for the temporary work in the parks will only be granted by the Chicago Park District once they are satisfied with the park restoration plans.

Without mitigation, noise impacts would be anticipated at three parks as a result of the Build Alternative. A noise barrier was analyzed for Leland Giants Park and was found to be cost-effective, and is being considered. A barrier would not be feasible at Fernwood Parkway or Smith Playlot Parks due to right-of-way constraints and nearby at-grade crossings. The feasibility and cost-effectiveness of these noise barriers was evaluated in Section 3.7-1 – Noise. The final decision on implementing noise mitigation measures will be made upon the completion of the project design and the public involvement process.

The blowing of train horns at the 101st Street, 97th Street, and 95th Street grade crossings is the predominant source of noise exposure at Fernwood Parkway and Smith Playlot Parks. The 95th Street grade crossing is proposed to be grade-separated in the future under another CREATE Program project (GS 21a), which would eliminate the noise impact at that location. The only feasible noise mitigation for the 97th Street crossing would be the implementation of a Quiet Zone. As a separate project, the Chicago Department of Transportation plans to apply to the Federal Railroad Administration for the implementation of a Quiet Zone along the Union Pacific rail corridor form 95th Street to 101st Street. These measures would eliminate the noise impacts at Fernwood Parkway and Smith Playlot Parks.

3.14 Visual Resources

Visual resources include the full variety of places or things that can be viewed by residents, employees, or visitors to an area. Examples could include historic buildings, landmarks, natural areas, parks, a city skyline, public art, or simply the existing scale and form of land uses in an area. Section 3.14.1 describes the existing visual environment and resources in the study area, along with public comments regarding these resources where applicable. Section 3.14.2 describes the potential changes to visual resources due to the project and applicable feedback on those changes from stakeholders obtained through the public involvement process.

3.14.1 Existing Conditions

The study area is generally flat, making the railroad embankments the most prominent features of the landscape.

The study area is relatively flat, with no natural features that would create scenic vistas either from the ground level or from the feature itself. The entirety of the study area has been developed for many years, so there are no major undisturbed natural areas to serve as a visual focal point. However, the built environment does include notable visual resources, including 15 municipal parks (see Section 3.13, Special Lands), a portion of the Dan Ryan Woods Forest Preserve, many structures over 50 years old, and examples of public art in the form of murals on bridge abutments. Railroad viaducts and embankments are also highly visible in the study area due to their elevation above the ground level.

The 75th CIP is being developed using a context sensitive solutions (CSS) process. The CSS process requires a stakeholder involvement process that identifies and develops an understanding of the concerns and values of all project stakeholders. With regard to visual resources, the opinions of local residents in the study area were solicited through multiple Community Advisory Group (CAG) meetings, public meetings, and a community context audit. The input received from stakeholders about the visual resources in the study area is included in the following sections.

3.14.1.1 Parks

There are two parks where the Build Alternative could create visual impacts. At the southeast corner of Hamilton Park, Metra's SouthWest Service (SWS) Line would join the Rock Island District (RID) Line, impacting views from the park and views of the park from the south. Leland Giants Park is located along the Belt Railway of Chicago (BRC) rail tracks east of Union Avenue and north of 76th Street. At this location, the clearing of vegetation and construction of a retaining wall would change views from the park.

Hamilton Park (see Figure 3.14-2) is the largest park in the project area, and the most architecturally notable building is the Hamilton Park Fieldhouse (see Figure 3.14-1), which are both listed on the National Register of Historic Places. The fieldhouse was constructed in 1905, and designed in the classical revival style by architects Daniel Burnham and Company, and Edward Bennett. Hamilton

Park itself was also designed by Burnham and Bennett, with additional collaboration by the Olmsted Brothers.[88]

Hamilton Park and the fieldhouse are visible from several residential buildings along 72nd Street on the north side of the park and 74th Street on the south side of the park, but are partially obstructed by trees for much of the year. The park and fieldhouse are not visible from the east or west due to the presence of existing elevated railroad embankments bordering the park. No comments have been received from stakeholders regarding the historic nature or aesthetics of Hamilton Park.

Leland Giants Park (see Figure 3.14-3 and Figure 3.14-19) is a small neighborhood park containing playground equipment, four basketball hoops, and open space. No comments have been received related to Leland Giants Park.

Figure 3.14-1: Hamilton Park Fieldhouse

Figure 3.14-2: Hamilton Park from 74th Street

Figure 3.14-3: Leland Giants Park – Looking East

Other parks bordering railroad tracks in the study area include Lily Gardens Park, Lyle Park, and Day Ryan Woods. With the exception of improvements at rail viaducts near these parks, the views from these facilities would not change. A brief description of each location is as follows:

- Lily Gardens Park is located east of Lowe Avenue between 71st Street and 73rd Street, west of Norfolk Southern's Chicago and Western Indiana (CWI) rail line used by Metra's SWS. The park was named for two basins that once contained water lilies, but were removed and replaced with playgrounds due to maintenance difficulties. Other than the playgrounds, the park is grassy open space and trees.
- Lyle Park is located adjacent to the BRC tracks from 76th Street to 79th Street. It is mostly a 30-foot-wide grass strip, and also includes playground equipment between 76th Street and 77th Street.
- Dan Ryan Woods is located south of the CSX railroad tracks near 82nd Street and east of Western Avenue (2400 W). It is a part of the Cook County Forest Preserve District, and contains large areas of wooded land, open space used as ball fields, and picnic shelters. A former railroad right-of-way along the eastern edge of the park has been converted to a multi-use path called the Major Taylor Trail from approximately 8200 South to 91st Street. The trail continues south of Dan Ryan Woods, with some interruptions, as far as 134th Street.

Many of the public parks in the study area were developed immediately next to existing railroad embankments.

Attendees at CAG meetings also cited Auburn Park (see Figure 3.14-4) as a source of local pride. Auburn Park is separated from the RID tracks by Fielding Avenue, and is located just east of the Metra RID Line between 77th Street and 79th Street. The park serves as a median between two curvilinear one-way streets, both of which are named Winneconna Parkway. The park runs at an angle, creating a unique deviation from the standard Chicago street grid. A quarter-mile long lagoon with a fountain is the central feature of the park. There are no active recreational uses other than walking paths around the lagoon. Two north-south roadways traverse the lagoon with bridges, Eggleston Avenue and Normal Avenue. Both bridges are lined with ornamental white balustrades. The 75th CIP does not include any work that would impact Auburn Park. There are no potential visual impacts associated with the 75th CIP at any other parks in the study area.

Figure 3.14-4: Auburn Park

3.14.1.2 Residential Areas

Residential neighborhoods are generally more sensitive to visual impacts than other land uses, meaning residents place a higher level of importance on the views from their homes than commercial or industrial stakeholders. Therefore, the views *from* residential properties are important, and potentially the views *of* certain properties as well. This section describes six particular residential areas where there is a potential for new rail infrastructure that could create visual impacts: the residential area south of Hamilton Park, two areas in the 75th Street rail corridor east of Morgan Street (1000 W), and the three residential areas surrounding Forest Hill Junction (see Figure 3.14-5 and Figure 3.14-6). These six residential areas are smaller than the officially defined Chicago neighborhood boundaries, and will be referred to as “sub-neighborhoods” in this document.

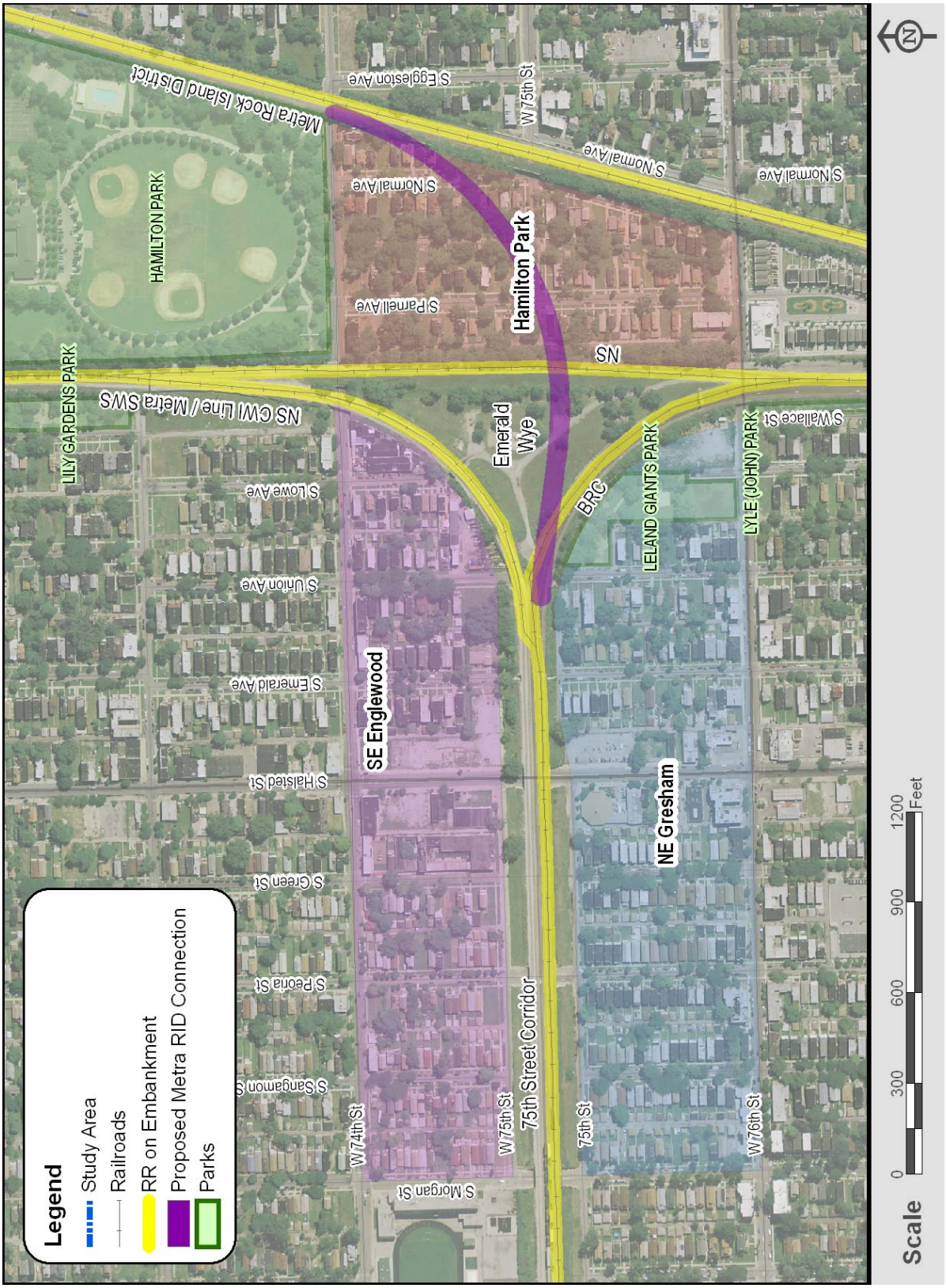


Figure 3.14-5: Hamilton Park, SE Englewood, and NE Gresham Sub-Neighborhoods

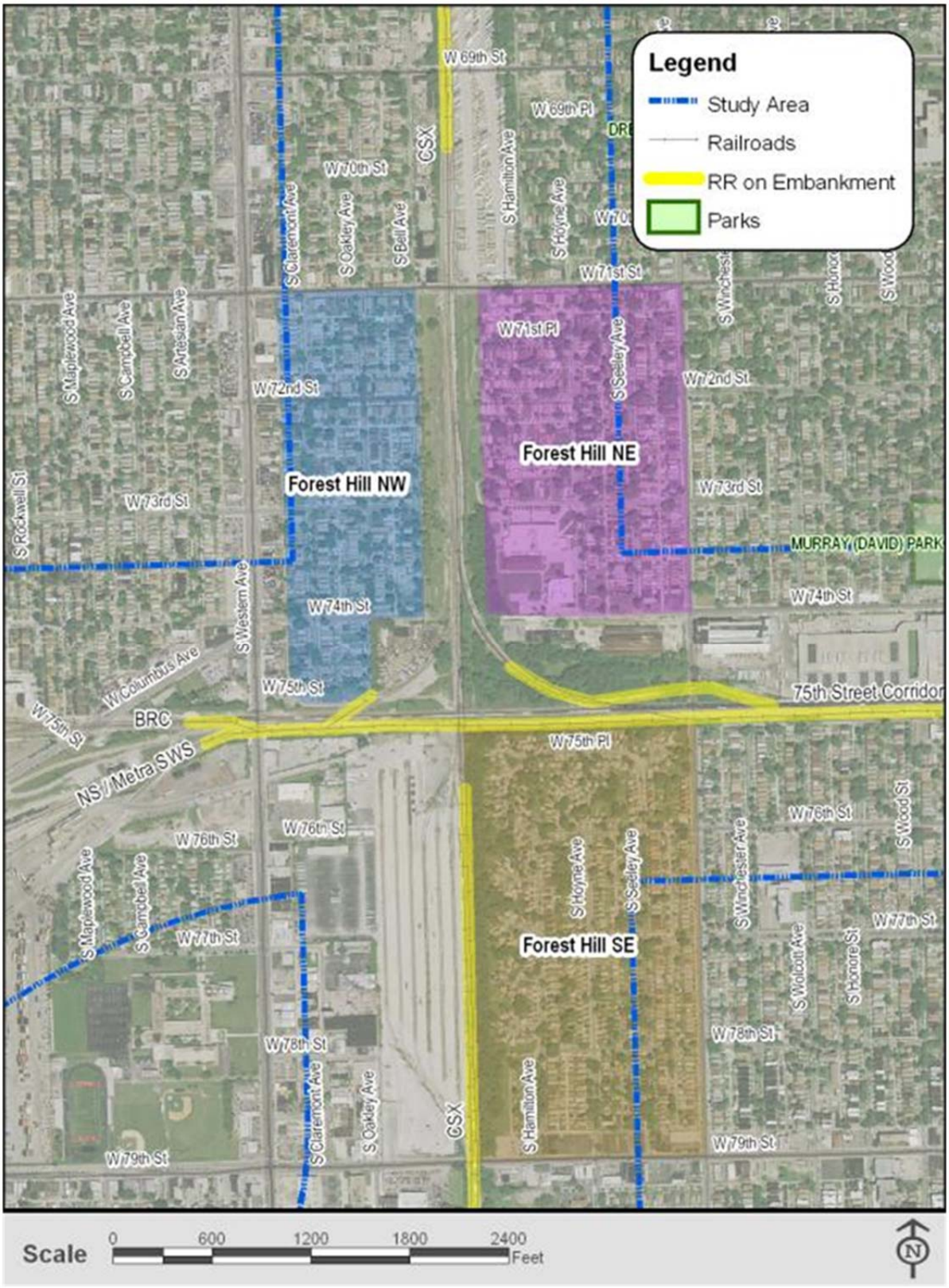


Figure 3.14-6: Forest Hill Sub-Neighborhoods

Hamilton Park Sub-Neighborhood

The Hamilton Park sub-neighborhood is bordered by 74th Street and Hamilton Park to the north, the RID Line Metra tracks on an existing embankment to the east, 76th Street to the south, and the NS's CWI railroad tracks on an existing embankment to the west. The railroad embankments and viaducts are prominent visual features as they form the boundary for two of the four sides of the sub-neighborhood.

The primary land uses are single-family housing and two-flats (also called duplexes), but there are also some larger multi-family residential properties, and one church. Many homes were constructed between 1880 and 1910 and there are several Chicago bungalows that were constructed between 1910 and 1930. One participant at a CAG meeting described the eastern half of the study area as historic. However, none of the residential properties in the study area have been listed on the National Register of Historic Places (NRHP) or determined to be eligible for listing on the NRHP. Examples of houses in the Hamilton Park sub-neighborhood are shown in Figure 3.14-7 and Figure 3.14-8.

Figure 3.14-7: Chicago Bungalow, S. Parnell Ave.

Figure 3.14-8: House on S. Normal Ave.

The Southeast Englewood sub-neighborhood was defined as the area bordered by the 75th Street rail corridor to the south and east, 74th Street to the north, and Morgan Street to the west. This area is officially a part of Chicago's Englewood neighborhood. West of Halsted Street, there are primarily single-family bungalows built in the 1920s. There are also some two-flats and a few larger multi-family residential buildings. The area east of Halsted Street is older and denser, built in the 1910s with more brick two-flats and larger multi-family residential buildings. There are two industrial properties along the railroad tracks between Union Avenue and 74th Street, and a church and convenience store on Halsted Street.

The railroad tracks run along the south and east boundaries of this sub-neighborhood. The existing embankment, viaducts, and freight trains are easily visible from many residential properties (see Figure 3.14-9).

Figure 3.14-9: 75th & Sangamon – looking southwest

Northeast Gresham Sub-Neighborhood

The Northeast Gresham sub-neighborhood was defined as the area bordered by the 75th Street rail corridor to the north and east, 76th Street to the south, and Morgan Street to the west. This area is officially a part of Chicago's Gresham neighborhood. West of Halsted Street is a mix of single-family homes and two-flats built in the 1910s. East of Halsted Street is a mix of single family homes, two-flats, and several four-flats. Larger multi-family residential buildings are mostly built along 76th Street. Mixed use commercial buildings and churches are present on Halsted Street.

The railroad tracks run along the north and east boundaries of this sub-neighborhood. The existing embankment, viaducts, and freight trains are easily visible from many residential properties (see Figure 3.14-10).

Figure 3.14-10: 75th & Peoria – looking northeast

Forest Hill SE Sub-Neighborhood

Southeast of Forest Hill Junction along the CSX railroad tracks, there are several curved streets and cul-de-sacs. This is a rather unique street pattern in the City of Chicago, but was common in post-World War II residential developments. Most of the houses were constructed in 1946 and 1947, and are two-story, single-family, brick homes, with little architectural detail other than shutters and awnings. The back yards of many houses abut the railroad tracks, but no houses face the tracks. Several stakeholders at CAG meetings and public meetings expressed concerns about the distance between houses and proposed temporary railroad tracks as well as the height of the proposed permanent railroad structure. Some of the houses located along the CSX railroad tracks are shown in Figure 3.14-11.

Figure 3.14-11: 7552 S. Hamilton Avenue – looking northwest

Forest Hill NE and Forest Hill NW Sub-Neighborhoods

The land uses adjacent to the CSX tracks *north* of Forest Hill Junction (labeled as Forest Hill NE and Forest Hill NW in Figure 3.14-6) are also mainly residential in character between 74th Street and 71st Street. The houses on Bell Avenue face east towards the CSX tracks, but houses east of the railroad tracks all face north or south. The homes on Bell Avenue are mostly Chicago bungalows (see Figure 3.14-12), but there are many houses from the early 1960s as well.

The houses east of the railroad tracks were mostly constructed in the 1960s. These mid-century houses are typically one-story tall and characterized by narrow lots, low-pitched roofs, large picture windows, yellowish bricks, many aluminum awnings over windows, and small front porches (see Figure 3.14-13). The CSX railroad tracks are at grade in this area. There is about 150 feet of green space between the rail tracks from Bell Avenue to the west and from the side of houses to the east. A large amount of vegetation obscures the view of the railroad tracks from Bell Avenue.

Figure 3.14-12: 7200 S. Bell Avenue – looking southwest

Figure 3.14-13: 2148 W. 72nd Pl. – looking west

The CSX's 59th Street intermodal yard begins north of 71st Street along the east side of the tracks and continues north to 54th Street. On the west side of the tracks, between 71st Street and 69th Street, are three auto body repair businesses (see Figure 3.14-14).

Figure 3.14-14: 71st Street – looking west at CSX rail tracks

3.14.1.3 Public Art

Public art is another local visual resource that could be affected by the 75th Street CIP. The public art in the study area consists of six railroad bridge abutments that are painted with murals: Aberdeen Street, Morgan Street, Peoria Street, and Halsted Street under the BRC and NS tracks; and 69th Street and Marquette Road on the Metra RID Line. No comments were received regarding the murals as a community asset or issue of concern. Examples of murals are shown in Figure 3.14-15 and Figure 3.14-16.

Figure 3.14-15: Morgan Street Bridge – East Abutment - Looking Northeast

Figure 3.14-16: Halsted Street Bridge – East Abutment - Looking East

3.14.1.4 Railroad Property

In addition to the visual resources discussed above, some of the most visible elements of the built environment are the existing railroad embankments and bridges. Because the railroad tracks are elevated through most of the study area, the tracks and the trains that use them are visible from many streets, parks, and residences in the neighboring areas.

Aesthetic concerns related to the viaducts and other railroad property included:

- **Bridge conditions**
- **Deteriorated pavement**
- **Poor lighting**
- **Overgrown vegetation**
- **Litter and dumping**
- **Broken fences**

The appearance of viaducts and railroad property were identified as major concerns for the community in the community context audit and in the public meetings. Residents feel that the viaducts are unattractive, poorly lit, have drainage problems, crumbling concrete, and deteriorated roadway and sidewalk surfaces. A survey of viaducts confirmed that these issues exist throughout much of the project area. Several residents also noted problems with embankments, including overgrown vegetation, litter and dumping (see Figure 3.14-21), and broken fences. An example of a typical viaduct is shown in Figure 3.14-17 and a newer viaduct on the RID Line is shown in Figure 3.14-18. A vegetated railroad embankment is shown in Figure 3.14-19 and an embankment with a concrete retaining wall is shown in Figure 3.14-20.

Figure 3.14-17: Typical railroad viaduct, Union Pacific RR over 88th Street

Figure 3.14-18: Newer railroad viaduct, Metra Rock Island District RR over 69th Street

Figure 3.14-19: Railroad embankment and freight train in Leland Giants Park

Figure 3.14-20: Railroad Embankment with concrete retaining wall in Lily Gardens Park

Figure 3.14-21: Dumping along BRC tracks near 86th Street

3.14.2 Impacts to Visual Resources

Impacts to visual resources include any changes to the human environment that can be perceived visually by residents, employees, visitors, or other people traveling through the study area. There are three types of project aesthetics to be considered:[89]

- *Internal aesthetics* are related to the design of the project feature itself. For example, the appearance of a new bridge or retaining wall structure would be an internal aesthetic.
- *Relational aesthetics* deal with how a project relates to its surroundings. Does it block existing views? Does it contrast greatly with its surroundings?
- *Environmental aesthetics* examine the overall impact of the project on the total affected environment. Does the project enhance the quality of the environment, decrease it, or have no effect?

Much of the work associated with the 75th Street CIP would take place on railroad property, and would not be highly visible from most other areas. However, there are several areas where project elements would be visible to the community. The project elements affecting visual resources are shown in Figure 3.14-22 and described below.

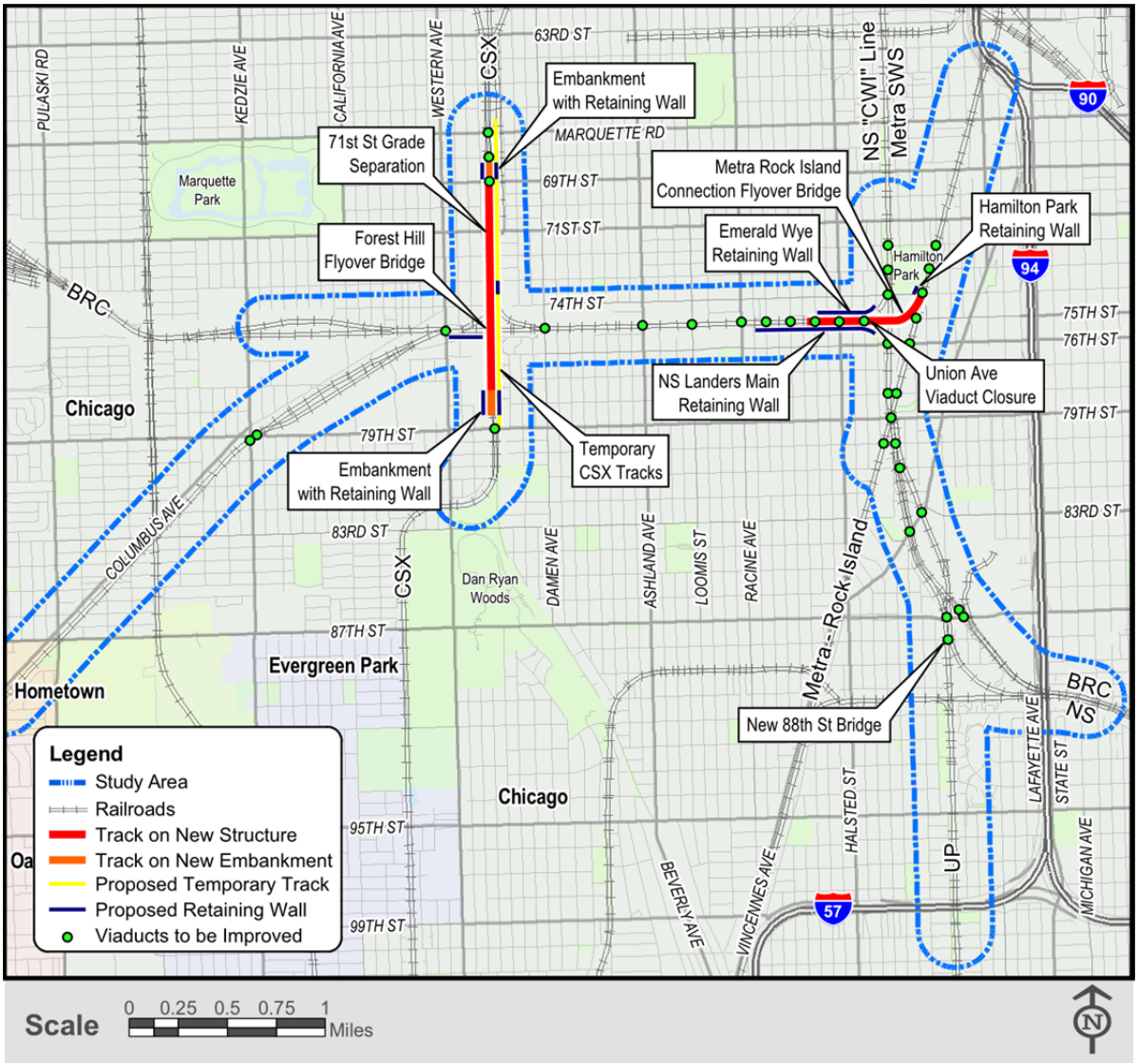


Figure 3.14-22: Project Elements Visual Impacts

3.14.2.1 Internal Aesthetics

The detailed design of project elements such as railroad bridges and retaining walls will be important to the internal aesthetics of the project. It is anticipated that the rail flyover bridges for the Metra RID Connection, Forest Hill Junction, and the grade separation at 71st Street would primarily be prefabricated concrete spans. The two renderings shown in Figure 3.14-23 and Figure 3.14-24 were created to help visualize the two major project elements. No public comments or concerns regarding the appearance, or internal aesthetics, of the new bridge structures have been received.

Figure 3.14-23: Metra Rock Island District Connection Partial Rendering – Looking South from Parnell Avenue & 74th Street

Figure 3.14-24: Forest Hill Junction Flyover Partial Rendering – Looking West at 7552 S. Hamilton Avenue

Many public comments were received, however, regarding the appearance of *existing* railroad viaducts. While improving aesthetics is not a specific goal of the project, several new bridges and bridge extensions would improve appearances at several locations. These include:

- Damen Avenue – Rehabilitate and widen existing bridge to the north, maintaining decorative attributes
- Vincennes Avenue – Rehabilitate and widen existing NS bridge to the south.
- Aberdeen Street – Rehabilitate existing bridges and extend 10 feet to the south.
- Morgan Street – New one-track bridge south of the existing bridges.
- Peoria Street – New one-track bridge south of the existing bridges.
- Halsted Street – New one-track bridge south of the existing bridges.
- 79th Street – Rehabilitate and extend existing bridge to the east.
- 88th Street – New two-track bridge between two existing bridges.

The new bridge spans are expected to be steel truss plate girders, similar in design and appearance to those recently constructed at the north end of the study area along the Metra RID Line (see Figure 3.14-18). No comments or concerns have been received about these newer bridges or viaducts.

Concrete retaining walls would be constructed in several locations as shown in Figure 3.14-22. The walls would replace existing vegetated embankments along the south side of the 75th Street Corridor from May Street (1132 W) east through Leland Giants Park, along the north side of the 75th Street corridor from Peoria Street (900 W) to Lowe Avenue (632 W), and in the southeast corner of Hamilton Park. The design of the retaining walls could be a simple concrete wall (see example in Figure 3.14-25), or could potentially have a more aesthetic treatment like those recently constructed along the Dan Ryan Expressway (see Figure 3.14-26).

Figure 3.14-25: Typical Concrete Retaining Wall

Figure 3.14-26: Concrete Retaining Walls along the Dan Ryan Expressway (I-94)

Retaining walls would also be used at Union Avenue where the viaduct would be closed and filled. The appearance at Union Avenue would likely be similar to the wall shown in Figure 3.14-27, an existing cul-de-sac at 400 W. 37th Place in Chicago, but taller.

Figure 3.14-27: Example Retaining Wall at 400 W. 37th Place

No public comments have been received regarding the design of retaining walls. However, some public comments were received related to litter and overgrown vegetation along the railroad embankments. Retaining walls could help alleviate those problems, but some people may prefer the appearance of grass or trees to a concrete retaining wall.

Many design details (e.g., color, texture, public art) could still be changed or added in the final engineering phase of the project. Because the 75th Street CIP is designated as a CSS project, IDOT will continue to seek community input at meetings through the Phase II design process.

3.14.2.2 Relational Aesthetics

There are multiple project elements that would affect the relational aesthetics in the study area. Relational aesthetics deal with the how a project fits in with its surroundings, and its impact on views within the study area. The most visible project elements that would create the greatest change in relational aesthetics are the rail flyover structures for the Metra RID Connection, Forest Hill Junction, and the grade separation at 71st Street.

The Metra RID Connection adds a new elevated rail line through the Hamilton Park sub-neighborhood (see Section 3.14.1.2), which is already bordered by rail lines to the east and the west. The height of the railroad tracks on the new structure above the existing ground level would decline from its peak near Union Avenue to a height of approximately 37 feet above the intersection of 75th Street & Parnell Avenue, to 28 feet above Normal Avenue, and to 21 feet above ground level where it joins the Metra RID Line at 74th Street. The structure would be visible from many residential properties within the area, as well as along the public streets (see Figure 3.14-23). It would also be visible from southern areas of the Hamilton Park, particularly in the winter when

views are not as obscured by tree foliage. The proposed structure would connect with the existing RID Line in the southeast corner of the park near 74th Street. The existing rail embankments for the RID Line along the east edge of the park and the NS CWI tracks along the west edge of the park have been a part of the park's setting for over 95 years.

Many members of the public, especially the congregation of the I Care Christian Ministries Church, expressed concerns about being located in close proximity to the new rail line. Noise and safety were two major reasons for the concerns, but comments submitted by the church members also mentioned "other negative impacts." Talking with the church members and others in the neighborhood, it was clear that the presence and visibility of a rail structure looming over the church or houses is a concern of the community.

The RID Connection flyover would also change views from 75th Street and properties along 75th Street (see Figure 3.14-9 and Figure 3.14-10) due to the increased elevation of the east-west railroad tracks for the flyover. The current elevation of the railroad tracks on the embankment is approximately 17 feet above the ground level. The two new Metra tracks would begin rising at Sangamon Street, transition from embankment to structure near Peoria Street, and reach a peak of 31 feet above the current rail line near Union Avenue. This means that east of Halsted Street two of the railroad tracks in this corridor would be more than twice as high as they are today. However, because the tracks would be constructed on structure rather than embankment, natural light would be visible between the existing track level and the new structure. The bridge is likely to be made of pre-fabricated concrete spans. The public could potentially offer input on some design details (e.g. color) during the Phase II design of the project.

Retaining walls would be constructed along the south side of the 75th Street railroad corridor from east of Racine Avenue to Leland Giants Park. This would reduce the width of the grass embankment that currently exists along the rail line from Racine Avenue to Halsted Street (see Figure 3.14-10) and eliminate the sloped embankment east of Halsted Street completely. Multiple volunteer trees located on railroad property would be removed adjacent to Leland Giants Park (see Figure 3.14-28 and Figure 3.14-29.) Similarly, the replacement of a retaining wall in the southeast corner of Hamilton Park north of 74th Street would also require the removal of volunteer trees (see Figure 3.14-29). Landscaping would be restored in both parks per the direction of the Chicago Park District. No comments have been received about the potential retaining walls, but residents have expressed concern about the maintenance of vegetation on railroad embankments in the 75th Street corridor. Retaining walls could help alleviate those problems.

Figure 3.14-28: Railroad Embankment in Leland Giants Park

Figure 3.14-29: Retaining Wall to be Replaced in Southeast Corner of Hamilton Park

The Forest Hill Junction flyover structure is the other major project element that could affect views in the project area. The existing rail line would begin rising at 79th Street, reach a peak approximately 33 feet above Forest Hill Junction (75th Street), and decline to the existing track elevation near 69th Street (see Figure 3.14-22). This would make the railroad tracks more visible to residents along both sides of the rail line from 71st Street to 79th Street. North of 71st Street, the view of the tracks is blocked by industrial buildings to the west and a CSX intermodal yard to the east. The rail structure would also be slightly visible between houses from Hamilton Avenue and the cul-de-sacs between 75th Place and 78th Street, as shown by the rendering in Figure 3.14-24. Residents along the railroad tracks have expressed concerns about the height and visibility of the proposed railroad tracks, showing that they perceive a potentially major visual impact at this location.

There were also concerns about the reduced distance between homes and the temporary railroad tracks to be constructed east of the existing tracks, particularly from residents in the area from 79th Street to 75th Street. The temporary tracks, to be constructed on a combination of railroad and City of Chicago right-of-way, would be constructed 40 to 55 feet west of the existing property line. This would require the removal of some trees in the railroad right-of-way that currently partially block the view of the railroad from residential properties.

As mentioned in Section 3.14.2.1, several bridges would be constructed or extended to accommodate changes in railroad track locations as part of the project. Additionally, roadway pavement, sidewalk, drainage, and lighting deficiencies would be corrected at 36 viaducts in the study area, and the Union

Avenue viaduct would be permanently closed. This work would help improve the general appearance of the study area, particularly for people traveling on streets under the railroad viaducts.

3.14.2.3 Environmental Aesthetics

Table 3.14-1 summarizes the project elements with impacts to visual resources and the overall effect on the environmental aesthetics of the study area. The impacts are described qualitatively based on professional judgment and input received from stakeholders.

Table 3.14-1: Summary of Visual Impacts

Project Alternative	Project Element and Visual Impacts	Level of Visual Impact (Positive/Negative)
No-Build	*Viaduct improvements would not be completed at all 36 locations.* • The appearance and condition of public infrastructure such as roadways, sidewalks, and lighting could be improved using other sources of funding, but would not be likely to occur throughout the project area. This would lead to a continued degradation in the condition and appearance of both the public infrastructure and the railroad bridge itself at most viaduct locations.	Low (Negative)
Build	*A new rail flyover structure would be constructed connecting the Metra SWS Line to the Metra RID Line.* • The view from portions of Hamilton Park, particularly the southeast quadrant, would be impacted. • The view from some residences on Normal Avenue, Parnell Avenue, and 75th Street would be impacted. Visual impacts would be more significant the closer a home is to the new structure.	High (Negative)
	The height of Metra tracks in the 75th Street corridor would increase east of Morgan Street in conjunction with the new rail flyover. • Concrete retaining walls would replace the vegetated embankments along the north side of the railroad tracks east of Peoria Street and along the south side of the railroads tracks east of May Street. • The view from some residences along each side of 75th Street would change due to the height of the tracks and the new retaining walls.	Low (Negative)
	A new Norfolk Southern "Landers Yard track" would be constructed along south side of 75th Street corridor. • A concrete retaining wall would replace the vegetated embankment along the railroad tracks from Racine Avenue east through Leland Giants Park. • Views from residences along the south half of the 75th Street corridor would change.	Low (Negative)
	A new two-track Union Pacific railroad bridge would be constructed over 88th Street between two existing bridges west of Harvard Avenue. • The bridge would briefly be visible for users passing under the bridge. It is largely hidden between two existing bridges.	Low (Positive)

Project Alternative	Project Element and Visual Impacts	Level of Visual Impact (Positive/Negative)
	Temporary tracks would be constructed from 79th Street to 66th Street along the east side of the existing CSX railroad tracks. • Vegetation would be cleared behind homes adjacent to the railroad tracks from 79th Street to 75th Place, potentially making the railroad tracks and freight trains more visible	Moderate (Negative)
	The elevation of the CSX railroad tracks would be raised from approximately 78th Street to 69th Street. • The railroad embankment and structure would be more visible from the homes in Forest Hill sub-neighborhoods (see definition in Section 3.14.1.2) that are adjacent to or in close proximity to the railroad tracks. Visual impacts would be more significant the closer a home is to Forest Hill Junction (i.e., 75th Street), where the elevation of the proposed railroad tracks is the highest.	High (Negative)
	Existing bridges would be constructed or extended at 7 locations. • The appearance at these locations would be improved by new structural elements.	Moderate (Positive)
	Substantial bridge work would be completed at 11 viaduct locations. • Four of the 11 locations have murals on bridge abutments: at Aberdeen Street, Morgan Street, Peoria Street, and Halsted Street. There is a potential for damage to the murals by concrete patching or other work. Other murals at 69th Street and Marquette Road on the Metra RID Line would not be affected.	Neutral
	Viaduct improvements would be completed at 36 locations. • The appearance and condition of public infrastructure such as roadways, sidewalks, and lighting would be improved. • Appearance of bridge abutments could be improved in conjunction with waterproofing work at 75th Street, 78th Street, 80th Street, 81st Street, Vincennes Avenue, and 87th Street.	Moderate (Positive)

The No-Build Alternative has one impact on visual resources, the continued degradation of railroad bridges and public infrastructure under at rail viaducts over time. Some conditions could be improved with other sources of funding, as was done for Morgan Street and Peoria Street in 2012. However, the appearance and condition of infrastructure at most viaduct locations would continue to deteriorate over time. Given that the existing environmental aesthetics at many viaducts are already poor, this was judged to be a slow change having a *low negative impact*.

Two project elements in the Build Alternative were judged to have a *high negative impact* on visual resources in the study area. These are the Metra Rock District Island connection, which introduces a new rail structure through the Hamilton Park sub-neighborhood; and the Forest Hill Flyover, which elevates an existing rail line from approximately 78th Street to 69th Street.

- Metra RID Connection flyover (in Hamilton Park sub-neighborhood) – Of the three general corridors considered for an elevated Metra RID Line Connection structure (i.e., north of Hamilton Park, through Hamilton Park, south of Hamilton Park), this one is the shortest in

length, and thus minimizes the visual impacts. However, this new structure would still be very visible to almost anyone who lives or travels on Parnell Avenue, Normal Avenue, or 75th Street within the Hamilton Park sub-neighborhood, as well as park users in the southern section of Hamilton Park. Remnants of parcels acquired for the new structure may present an opportunity to add new landscaping to offset some visual impacts of the flyover structure.

- Forest Hill Flyover – This would have the greatest impact on residents of 43 houses east of the railroad tracks from 75th Street to 78th Street due to the increased elevation of the new permanent structure. North of 75th Street, residents on Bell Avenue currently have a somewhat limited view of the existing at-grade railroad tracks due to foliage and buffer distance between the street and the railroad tracks. Elevating the tracks would make them more visible to approximately 39 houses along Bell Avenue. East of the tracks north of 75th Street, there are only 8 homes abutting the railroad property. However, it is likely that all residents south of 71st Street and west of Hoyne Avenue would regularly see the new railroad structure as they travel on any of the four east-west residential streets. Given the wide ROW, there may be opportunities for visual screening through landscaping or other means if desired.

One project element in the Build Alternative was judged to have a *moderate negative impact* on visual resources. This is the removal of some trees associated with the construction of the temporary CSX tracks east of the existing tracks. This could make the tracks more visible to residents of houses adjacent to the railroad property. In the long term, tree planting and restoration could be a mitigating option after the temporary tracks are removed from service.

Several other project elements in the Build Alternative were judged to have a *low negative impact* on the environmental aesthetics of the area. These include new retaining walls along 75th Street, in Hamilton Park, and in Leland Giants Park; the increased elevation of the new east-west Metra tracks east of Morgan Street; and potential impacts to murals on several bridge abutments.

- Retaining Walls – The proposed retaining walls are necessary to accommodate new railroad tracks in certain areas without acquiring additional property. It is assumed that residents would generally prefer the existing greenery along the embankments to a concrete retaining wall, but the community has also expressed concerns about maintenance of the vegetation along the rail lines. Given that the walls are being constructed where there are already existing elevated rail lines they would have only a low impact on the character of the area. Some type of aesthetic treatment for the walls could potentially be used to minimize the visual impacts in some locations. An example of a unique texture for retaining walls can be seen just east of the study area along the Dan Ryan Expressway (see Figure 3.14-26). The public will have the opportunity to provide input about various design details during the Phase II design of the project.
- Metra RID Connection flyover (Morgan to Union) – Because no houses face the rail line, the increased elevation of the tracks would not be visible from many residential properties. It would be visible to people traveling on 75th Street, but given that there is an existing elevated

rail line at this location, it would only have a low impact on the character of the area. The flyover also impacts users of Union Avenue, who would see new cul-de-sacs and retaining walls where there is currently a viaduct. However, it is possible that some residents could consider this a visual improvement over the existing appearance of the viaduct.

The Build Alternative includes bridge construction and rehabilitation at Aberdeen Street, Morgan Street, Peoria Street, and Halsted Street in the 75th Street corridor. This has the potential to damage existing murals on the bridge abutments. However, it is likely that much of the murals would remain intact. Because no comments were received from the community regarding the murals, and bridge rehabilitation has a generally positive effect on the condition and appearance of a viaduct, this was judged to be an overall *neutral impact*. Potentially, funding could be designated for new or replacement murals, or other public art, as a mitigating action.

Lastly, several project elements were judged to have *low or moderate positive impacts* on overall environmental aesthetics. These include new bridge construction and viaduct improvements.

- New bridge at 88th Street – This new bridge would be constructed to accommodate new UP railroad tracks. It is located where a bridge previously existed between two existing bridges. The new bridge could block the view of the less attractive older bridges somewhat. However, the minor benefits would be limited only to users traveling under the viaducts, thus having a low impact.
- Bridge construction and extension – The face of the railroad bridges at eight existing viaducts would be improved by the construction or extension of bridges to accommodate new or relocated railroad tracks. This would directly addresses a major community concern regarding viaduct aesthetics, and was therefore judged to be a moderate positive impact.
- Viaduct improvements – New sidewalks, roadways, drainage, and lighting systems would be constructed or installed at multiple locations (see Section 2.2.4.6) to address the local mobility concerns expressed by the community. Bringing this infrastructure up to a state of good repair would improve the appearance of the neighborhoods for people traveling in the study area. This is a major work item that has been added to the project as a result of the CSS process. It was judged to be a moderate positive impact.

3.15 Permits/Certifications

The project is not anticipated to affect any waters of the United States and would therefore not require a Section 404 permit under the Clean Water Act, nor would a Section 401 Water Quality Certification be required. No other federal permits are anticipated.

It is anticipated that this project would result in the disturbance of one or more acres (4047 m^2 or more) of total land area. Accordingly, it is subject to the requirement for a Section 402 National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges from the construction sites. Permit coverage for the project will be obtained either under the Illinois Environmental Protection Agency (IEPA) General Permit for Stormwater Discharges from Construction Site Activities (NPDES Permit No. ILR10) or under an individual NPDES permit. Requirements applicable to such a permit will be followed, including the preparation of a Stormwater Pollution Prevention Plan (SWPPP). Such a plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges from the construction site and shall describe and ensure the implementation of practices which will be used to reduce the pollutants in discharges associated with construction site activity and to assure compliance with the terms of the permit.

The project may require a Supplemental Waste Stream Permit, issued by IEPA, to allow a licensed disposal facility to accept any non-hazardous special waste generated by the project, such as petroleum-contaminated soils that do not include raw fuel or very high concentrations of lead. A Resource Conservation and Recovery Act (RCRA) Waste Stream approval may also be required from the IEPA should the presence of waste materials classified as hazardous be identified as a result of the preliminary site investigation sampling, or be encountered during remedial work conducted by IDOT for the project, or subsequently during construction.

For the proposed closure of Union Avenue at the 75th Street rail corridor, the City of Chicago would determine whether the road closure will be processed as a permanent road closure, thereby allowing the City to retain future rights to the land, or if the road closure will be presented to the City Council as a Vacation, thereby turning the land over to the railroad. A final decision on this issue is anticipated during the Phase II design.

The proposed temporary and permanent CSX railroad tracks would be located east of the existing CSX railroad tracks through Forest Hill Junction. The permanent alignment would require 1.17 acres of right-of-way currently owned by the City of Chicago immediately adjacent to the CSX right-of-way. The temporary alignment would require use of an additional 4.85 acres of City property, which would be provided temporarily under a construction easement from the City of Chicago. For the permanent use area, the City and CSX will coordinate to determine how to convey property to CSX or if a permit can be issued. The final decision on this issue is anticipated during the Phase II design.

Once the project reaches the construction phase, following Phase II final design, the individual construction contractors will also be required to obtain a number of permits from the City of Chicago. These could include tree removal permits, pavement opening permits, public way use permits, temporary street or lane closure permits, sewer permits, and similar permits depending on the specific contractor activities.

3.16 Construction Impacts

Construction of the entire 75th Street CIP is expected to take five or more years overall and include several different construction contracts. Specific elements of the construction are described in Section 2.6.1. Individual construction contracts in specific areas are likely to last one to two years. As is common for construction work of this type, extensive construction activity at a specific rail construction site is frequently limited to several shorter periods of days or weeks during that overall period as the construction proceeds down the tracks. However at locations of major bridge work the construction would be confined to the immediate bridge area for longer periods. Further information on the anticipated construction phasing can be found in Section 2.6.3 of this document.

The following sections discuss the short-term impacts that would be expected to occur during construction of the Build Alternative. There would be no project-related construction impacts with the No-Build Alternative.

3.16.1 Noise and Vibration

The construction of the proposed project could result in minor temporary noise and vibration increases within and adjacent to the project area. The noise and vibration would be generated primarily from trucks and heavy machinery used during construction. Any anticipated increases in noise and vibration would likely be confined to normal working hours, which are generally considered to be "noise and vibration tolerant" periods. However, specific construction operations required to connect the new rail lines to the existing rail lines may need to be performed outside of normal working hours to minimize disruption to rail operations. Construction contractors will need to be aware of local noise ordinances to assure compliance with applicable Cook County, Chicago, and Hometown regulations.

At Forest Hill Junction, a pair of temporary tracks is proposed during construction to allow the existing mainline tracks to be removed and the CSX flyover structure to be constructed in their place. These temporary tracks would be located east of the current CSX alignment between 79th Street and Marquette Road, approximately 60 to 80 feet closer to residential receptors. The noise and vibration exposure levels would be increased at these areas during the flyover construction period due to the operation of trains on these closer tracks. The temporary tracks are expected to be in use for about a year. Stakeholders expressed concern about noise impacts from these temporary tracks at the CAG meeting of January 12, 2012.

Potential noise increases during construction were assessed by using the CREATE methodology which took into account the reduced distance between each noise receptor within the screening distance of the temporary tracks. The results showed that moving the tracks closer to the residences would raise the noise levels at the residences in the vicinity of the 71st Street at-grade crossing due to the horn noise and to the residences in the vicinity of the Forest Hill Junction diamond crossing due to pass-by noise (see Appendix E – Noise, Tables E-9, E-10, and E-11). Barriers were evaluated for these areas; however they would not be cost-effective (see Appendix E – Noise, Table E-12).

The potential for vibration impacts due to trains operating on these temporary tracks at Forest Hill Junction was assessed using the CREATE methodology discussed in Section 3.7.2. All trains were assumed to operate at the existing design speed on the temporary tracks. Residences in the same vicinity as described above would have increased ground-borne noise and ground-borne vibration. There are no practical measures available to minimize the vibration or ground-borne noise caused by heavy freight trains. The heavy axle loads associated with freight locomotives are outside the range of applicable design parameters for vibration reduction measures applied on lighter rail systems and, as a result, typical vibration control measures are not effective for the heavy diesel locomotive-hauled trains operating in the corridor. In the rest of the study area, train traffic during construction is not anticipated to be substantially increased or moved closer to sensitive receptors at any location.

3.16.2 Air Quality

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 would be short-term, occurring only while demolition and construction work is in progress.

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 contractor would be required to submit a Dust Control Plan for approval prior to beginning construction. This plan would be reviewed and updated as required. The contractor would also be required to adhere to all federal, state and local laws pertaining to dust control. The contractor would maintain the construction site to minimize dust conditions that would adversely affect construction or railroad operations, including equipment operation and worker safety.

The contractor would be required to maintain the construction site to minimize spreading of dust to adjacent land and property owners including homes and businesses. The contractor would also ensure that the operating safety of adjacent highways and roadways is not adversely affected by spreading of dust from the construction site.

Dust or dirt from the construction site which accumulates on adjacent public or private streets, highways, or roads would be swept or washed off the roadway surface. Special care would be taken during sweeping or washing of the roadway surface to adequately expose traffic markings and striping. Water would not be used to limit the spread of dust or dirt when it may create a hazardous or objectionable condition such as electrification, ice, flooding, or pollution, or contribute to inferior quality construction.

The contractor shall immediately advise the railroad project engineer of any pending or actual exceptions taken by inspectors, citations issued or legal action taken by government agencies concerning cleanliness, sweeping, and dust control. Complaints made directly to contractor by neighbors, businesses and others in vicinity of construction would be handled in the same manner.

3.16.3 Community Disruption

Nearly all construction for rail track and signal work would take place on railroad property, and would not be highly visible or noticeable by the community. Delays due to construction could cause some blockages of existing at-grade rail crossings, but these should be of limited duration and occurrence. Bridge work would result in temporary street closures, as discussed in Section 3.16.4.

Access would be maintained to all properties during construction. Access for emergency service providers would be maintained at all times.

The principal area where substantial construction would take place off of existing railroad right-of-way would be in the residential neighborhood immediately south of Hamilton Park. Construction of the flyover structure to connect the Metra SWS to the Rock Island District (RID) Line would require approximately one year, and would require some limited closures of 73rd Street, 74th Street, Parnell Avenue, and Normal Avenue. There would be regular construction traffic on these streets throughout the construction period. Access would be maintained to all properties during the construction period.

3.16.4 Transportation Impacts

Temporary street closures could be required at many locations to remove, rehabilitate, raise, or install railroad bridges. The method of construction will be determined during Phase II design, and these methods will determine the duration of the closures.

Major bridge work is anticipated at the 11 locations as shown in Figure 2-31. At many of these locations, new structures are being constructed to accommodate new or realigned tracks. This could require street closures of up to three months at minor streets such as Peoria Street, Morgan Street, Aberdeen Avenue, and 78th Street. At busier streets such as Halsted Street, Damen Avenue, Vincennes Avenue, Western Avenue, 69th Street, and 79th Street, efforts would be made to keep at least one direction of traffic open and work would be completed during off-peak hours as much as possible. Union Avenue will be closed permanently.

At 12 of the viaducts where only sidewalk, lighting and ADA ramp improvements are proposed, disruptions should be minor and of shorter duration, and it is unlikely that construction would require closing more than one lane at a time. (See Table 2-8 for a listing of viaducts where only sidewalk, lighting, and ADA ramp improvements are anticipated.)

At the remaining 14 viaducts, minor bridge rehabilitation would generally allow one lane of traffic to remain open in one direction at a time. Low volume streets could be closed for one to two weeks in order to accelerate the construction activities. For higher volume collector and arterial streets, such

as Kedzie Avenue or Ashland Avenue, it may be advantageous to complete some work overnight to reduce traffic impacts. Flaggers could be used to maintain two-way traffic operations if necessary.

At 71st Street, the roadway would need to be closed for approximately one week to install the grade crossing for the temporary tracks, one week to remove the existing tracks, and one week to set the new bridge span in place after it is constructed. The installation of the temporary tracks and removal of the existing tracks would likely occur sequentially, but the new bridge would be installed later. After the new bridge is set in place, the temporary grade crossing would be removed, resulting in another one-week closure. 71st Street would then be lowered by a little over three feet in the vicinity of the existing crossing, which would flatten the roadway profile and provide additional vertical clearance under the new rail bridge. The roadway construction would limit traffic to one lane in one direction only for approximately two months. It is expected that 69th Street would be the official detour route given its proximity to 71st Street. However, signage should be used to alert motorists to the closure from locations beyond the immediate vicinity of the closure as well. Examples include westbound 71st Street at the Dan Ryan Expressway and northbound Western Avenue or Columbus Avenue at 79th Street.

Signed detour routes would be posted when any streets are closed, and all detour routes would be coordinated with emergency service providers. Roadway Traffic Management Plans would be prepared for each construction contract to address local access, any needed roadway detours, and access for emergency services

Similar levels of Metra train service for the SWS Line would be maintained during construction. Freight rail operations would be adjusted by the operating railroads as needed to allow construction within their areas of operation.

3.16.5 Erosion and Stormwater

The Build Alternative would involve the construction of several earthen embankments – principally in the north-south CSX corridor through Forest Hill Junction and in the 75th Street corridor just west of the start of the flyover structure to the RID Line - and would include activities that clear existing vegetation from portions of the right-of-way, exposing bare soil that would be subject to erosion. Since the project would disturb more than one acre of total land area, a National Pollutant Discharge Elimination System (NPDES) permit would be required. See Section 3.15, Permits/Certifications for additional information. This permit would require the construction contractors to prepare and follow a Stormwater Pollution Prevention Plan (SWPPP) that would specify the specific erosion and sediment control measures that will be used at each construction site for each phase of the work. The permit would require that all of the control measures be regularly inspected and maintained and repaired or replaced as needed to function properly.

Provisions would be made in the SWPPP to contain the waste and washout from concrete trucks at the construction sites. These facilities will be designed to prevent such discharges from reaching the normal stormwater drainage systems.

These measures should eliminate or substantially reduce any adverse effects to stormwater drainage from the construction sites.

3.16.6 Parks

There would be limited construction activities within small areas of Hamilton Park and Leland Giants Park. In both cases, new embankment retaining walls would be constructed on railroad property, but construction activities would require that some park land be cleared and used for access to the construction site. In both parks, the affected area would be about 15 feet in width along the outer park boundary. In Hamilton Park, the work would take place along about 60 feet of the park boundary, while in Leland Giants Park construction would extend along the northern park boundary approximately 370 feet, and would likely include a noise barrier atop the retaining wall. The work would be performed under construction permits from the Chicago Park District. See Sections 3.13.2.3 and 3.13.2.4 for further details. The construction areas would be fenced off, and the remainders of both parks would be available for use during the construction periods, and general access to the parks would not be affected. Construction activities are estimated to take several months in each park.

3.16.7 Nuisance Species

It is not uncommon for construction projects that involve substantial amounts of clearing of existing structures and vegetation in urban areas to cause the relocation of large numbers of rodents and other nuisance species as they attempt to find new habitat. This has been a major concern expressed by the community throughout the public outreach process. At each of the CAG meetings and public meetings, participants told of problems they have experienced with rodents and other nuisance species invading their neighborhoods when the railroads cleared overgrown vegetation. For those construction contracts within this project that would have structure demolition components, the contractors would be required to engage nuisance species control experts to control those species. See Section 3.21 for additional details.

3.17 Indirect and Cumulative Effects Analysis

3.17.1 Introduction and Background

Transportation projects can result over time in changes to an area's built and natural environments beyond the direct impacts of the project. These further impacts are known as indirect and cumulative effects. This indirect and cumulative effects analysis (ICEA) has been prepared in accordance with guidance presented in Council on Environmental Quality's (CEQ) *Considering Cumulative Effects Under the National Environmental Policy Act* (1997), FHWA's *Secondary and Cumulative Impact Assessment in the Highway Project Development Process*, and other professional guidance publications on the assessment of indirect and cumulative effects.[90]

Indirect effects are caused by the project and occur later in time or are farther removed in distance.

The CEQ defines direct effects as those caused by the action and occur at the same time and place.[91] Direct effects of the proposed project have been assessed in the previous chapters of this FEIS. Indirect effects are defined as environmental impacts caused by the Build Alternative that occur later in time or are farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.[92] Indirect impacts typically result from a project's potential to change existing land use and induce growth. While transportation projects may not directly result in development, they can induce development by improving accessibility or decreasing travel time to an area. An example of this would be new residential or commercial development resulting from a transportation improvement such as a new transit station stop or new highway. Another example includes changes in the use of a community facility such as a park based on the improved access or visibility.

Cumulative effects, as defined by CEQ, result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

Cumulative effects, as defined by CEQ, result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.[93]

Cumulative effects take into account the direct and reasonably foreseeable indirect effects of the project within the context of all other major actions in the vicinity that have either already been completed, are currently being undertaken, or will occur in the reasonably foreseeable future. While a project's direct impacts by

themselves may not be significant, they may over time and in combination with the effects of other reasonably foreseeable actions result in environmental impacts.

3.17.2 Methodology

The indirect and cumulative effects were assessed in light of the information presented in previous sections of the FEIS, which identify existing conditions and potential direct impacts of the project. Indirect and cumulative impacts can be both positive and negative. Based on the information from the direct impact analysis, it was determined that some resource categories would not experience indirect and cumulative effects and therefore were not carried forward for further analysis. Table 3.17-1 identifies the resource categories considered, the Build Alternative's direct impacts, both positive and negative, and the rationale for including or excluding them from further ICEA evaluation. Resource categories which could be subject to indirect and/or cumulative effects were evaluated further.

Table 3.17-1: ICEA Resource Matrix

EIS Resource Section/ Subsection	Build Alternative Direct Impacts	Rationale for Including/Excluding from ICEA	Potential for Indirect/Cumulative Effects
Social/Economic Characteristics: Demographics	No Impact	Project is not anticipated to induce substantial development or redevelopment that would affect population.	No Indirect/Cumulative Effects.
Social/Economic Characteristics: Economics	Minimal loss in tax base. Creation of temporary construction jobs	Project is not anticipated to induce substantial development or redevelopment. In addition to direct construction jobs, construction spending would generate some temporary indirect and induced jobs. The Build Alternative, in combination with the other CREATE projects would improve shipping efficiency through the Chicago region and is expected to contribute to economic growth on a regional and national level.	Evaluated Further
Social/Economic Characteristics: Land Use	Full acquisition of 40 parcels and partial acquisition of 2 parcels for right-of-way.	Build Alternative may make some of the currently vacant or underutilized industrial properties within the study area marginally more desirable for freight-related businesses but would be unlikely to induce substantial new development of additional warehousing or intermodal transfer facilities.	No Indirect/Cumulative Effects
Social/Economic Characteristics: Neighborhoods	Displacement of 16 residential structures and one institutional use. Increased noise and vibration. Visual impacts. Viaduct improvements.	Increase in noise and vibration, and visual impacts could result in impacts such as reduced neighborhood desirability and reduced property values. Viaduct improvements would also improve neighborhood appearance.	Evaluated further

EIS Resource Section/ Subsection	Build Alternative Direct Impacts	Rationale for Including/Excluding from ICEA	Potential for Indirect/Cumulative Effects
Social/Economic Characteristics: Community Facilities and Services	Displacement of one community facility Closure of Union Ave. viaduct would change access to Leland Giants Park from the north.	Road closure at Union Ave. viaduct would not significantly impede access to public facilities or affect response times of emergency vehicles. Closure of Unions Ave. viaduct would reduce pedestrian access to Leland Giants Park from the north, making users more likely to use other nearby parks. Project would not induce growth that would overburden community facilities or service providers.	No Indirect/Cumulative Effects
Transportation	Eliminate traffic delays at 71st St. Increase in traffic at remaining at-grade rail crossings within the study area. Union Avenue viaduct street closure would shift vehicular traffic to adjacent street(s). Improved rail capacity would result in an overall 21% increase in freight traffic over the No-Build Condition. (The 21% increase includes all projects that are part of the CREATE program) Approximately 30 Metra SWS trains would shift to the Rock Island District (RID) Line. Improvements at 36 existing viaduct locations.	The CREATE Program would reduce overall vehicle delay due to rail conflicts at grade crossings and improve traffic operational efficiency throughout the region. Proposed grade separations would eliminate road/rail crossing conflicts, improving safety for motorists, pedestrians, and bicyclists. Passenger rail service would also be improved through the CREATE Program. The Build Alternative would not induce development or growth that would add vehicular traffic to the study area's road system. Increase in freight rail traffic is not anticipated to substantially increase intermodal activity that would result in increase in truck traffic on local roads. Changes to highway-rail grade crossings would shift vehicular traffic. Increase in freight traffic would affect at-grade rail crossings.	Evaluated further
Agriculture	No Impact	Study area is in an urban setting and does not contain agricultural land or would lead to a loss of agricultural land outside the study area.	No Indirect/Cumulative Effects
Cultural Resources	No Adverse Impact	Project would not induce growth or development that would overburden use of cultural sites, nor create conditions that would reduce use of sites.	No Indirect/Cumulative Effects
Air	Reduction in locomotive emissions for all criteria pollutants except CO. However, emissions of CO would be lower for the Build Alternative than for the No-Build Alternative. 20% reduction in fuel consumption compared with the No-Build.	The Build Alternative would result in fewer slow moving or idling trains and vehicles. The project would also decrease the amount of time it takes trains to move through the corridor resulting in positive benefits such as less locomotive emissions, mobile source, and greenhouse gas emissions. Project would not induce growth or development that would notably increase vehicular traffic within the study area and increase vehicular air emissions.	Evaluated Further

EIS Resource Section/ Subsection	Build Alternative Direct Impacts	Rationale for Including/Excluding from ICEA	Potential for Indirect/Cumulative Effects
Noise and Vibration	1,359 residences above the FTA Cumulative Noise Level Increase Threshold: 1,092 moderate and 267 severe Three institutional uses would be moderately impacted: Leland Giants Park, Fernwood Parkway Park, and Smith Playlot Park. 7 institutional uses would experience interior impacts. 756 ground-borne vibration impacts. 77 ground-borne noise impacts.	The Build Alternative noise and vibration analysis takes into account the cumulative noise/vibration impacts from other projects that are part of the CREATE program. Any additional increase in train traffic from other non-CREATE projects is anticipated to be minimal and would not contribute to additional cumulative noise/vibration effects. Noise and Vibration impacts from freight movement would extend beyond immediate project study area.	Evaluated Further
Energy	Reduced fuel consumption	Project would substantially reduce slowing conditions and idling of rail traffic which would result in more efficient rail operations. As a result, rail fuel usage and energy consumption would be reduced. Project would not induce growth or development that would increase vehicular traffic and fuel consumption.	No Indirect/Cumulative Effects
Natural Resources	No Impact	No federally/state listed endangered or threatened species or known critical habitat areas within the project corridor. Since the majority of study area is developed, no habitat loss is anticipated.	No Indirect/Cumulative Effects
Wetlands and Water Resources	No Impact	There are no remaining streams, wetlands or other natural water bodies within the study area.	No Indirect/Cumulative Effects
Floodplains	No Impact	The project is not within FEMA 100-year flood zone.	No Indirect/Cumulative Effects
Special Waste	Potential hazardous waste sites have been evaluated. Appropriate mitigation action will be taken, if required, as part of the Build Alternative.	N/A	No Indirect/Cumulative Effects
Special Lands	FTA Cumulative Noise Level Increase Threshold exceeded at three parks: Leland Giants Park; Fernwood Parkway Park; and Smith Playlot Park. Temporary construction activity would occur in Hamilton and Leland Giants Parks.	The proposed closure of the Union Avenue viaduct in the Build Alternative could indirectly increase the use of Hamilton Park. Closure of Union Avenue would reduce pedestrian access to Leland Giants Park from the north, making users more likely to use nearby alternatives such as Hamilton Park. The minimal increase in users would not overburden the use of the sites; indirect impacts are not anticipated. Project would not induce growth or development that would overburden use of the sites.	No Indirect/Cumulative Effects

EIS Resource Section/ Subsection	Build Alternative Direct Impacts	Rationale for Including/Excluding from ICEA	Potential for Indirect/Cumulative Effects
Visual Resources	New rail infrastructure and improvements would alter views in parts of the study area including a portion of Hamilton Park, homes adjacent to new flyover, residences along the south half of the 75th Street Corridor, homes adjacent to Forest Hill Junction and residences near the east side of existing CSX railroad tracks. Improvements to viaducts would improve visual quality of adjacent neighborhoods.	Indirect effects to visual resources are typically related to growth and development. The Build Alternative would not induce growth or substantial development that would further alter the visual character of the area. The other foreseeable planned development/ redevelopment projects would result in some changes to the visual landscape. As many of these projects are infill, they are not anticipated to result in changes that are out of context with the existing urban landscape.	No Indirect/Cumulative Effects

Based on the evaluation of potential indirect and cumulative effects, the following resources were evaluated further in the ICEA: economics, neighborhoods, transportation, and noise/vibration.

3.17.2.1 Geographic Area and Time Frame

An ICEA must take into account the geographic extent of indirect and cumulative effects as well as the timeframe of potential effects. The geographic focus of the ICEA is the study area boundary as identified in the direct impact analysis, but impacts along the rail lines outside the direct study area are also addressed for transportation and noise/vibration. Cumulative economic impacts are addressed on a regional level. The analysis of indirect effects takes into account existing and future conditions. The cumulative impact analysis considers past, present, and reasonably foreseeable future conditions. The time-frame for analysis starts when past conditions began to change the status of the resource, in this case, the railroads began operation in the area in the mid-nineteenth century and were the impetus for changes in the area. For the purpose of this analysis, the foreseeable future conditions were evaluated for the 2029 project horizon, which represents the extent of the freight train forecast for the Build Alternative.

3.17.2.2 Past Actions, Existing Conditions and Trends

The study area has an extensive transportation network that includes four freight rail carriers, two passenger carriers, and two active intermodal yards used for freight transfer. The study area is characterized as urban with limited undeveloped land. Approximately seven percent of existing land within the study area is characterized as vacant. The majority of these vacant lots are located directly adjacent to the rail alignments. Land use within the study area is largely residential with commercial, transportation, and industrial/manufacturing uses generally located near the rail alignments. The boundaries of nine community areas and the City of Hometown fall within the study area. The railroad alignments, which pre-dated the communities, generally function as the boundaries of the community areas. Residential and other uses in close proximity to the rail alignment experience noise and vibration from existing rail traffic. Existing rail congestion results in train delays, train idling, noise, and vehicular delays.

Historically, the rail alignments and the railroad industry played a crucial role in the development of the area. The rail right-of-way guided the location of industry and residences.[94] As railroad tracks were laid and service was provided to the area starting in the 1850s, new residents arrived to follow the job opportunities provided by the railroad industries as well as the Chicago Union Stockyard to the north.[95] Residential neighborhoods were developed adjacent to the rail alignment to provide housing for employees of the nearby railroads. Passenger rail connections to downtown Chicago also made the area a desirable place to live. After World War I, the area experienced an influx of European immigrants, and the stockyards and railroads continued to be major employers within the area. In 1916, the existing railroad lines to the east and west of the Hamilton Park area were raised on embankments, as they currently exist today.[96] Freight transit uses such as Rockwell Yard, and the Forest Hill intermodal facility have been long-standing within the area and Landers Yard was actively used throughout the 1930s. Starting in the 1940s and 1950s, a demographic shift began as African Americans from the South and other parts of Chicago began moving to neighborhoods within the study area, with the greatest shift in population occurring between 1960s and 1980s.[97]

During the first half of the century the study area flourished economically, with thriving commercial and industrial activity. The second half of the century brought economic disinvestment and decline in some parts of the study area, such as in the neighborhoods of West Englewood, Englewood, and Auburn Gresham. Neighborhoods were affected by the closing of the Union Stockyards, the Chicago Transit Authority bus barn in West Englewood, and loss of railroad jobs.[98] Certain neighborhoods saw drastic decrease in population such as Auburn Gresham, as residents moved out to suburbs to seek jobs. Manufacturing has historically been the leading industry within the study area, providing the greatest number of jobs. The shift from manufacturing to service industries has impacted the study area, as higher-paying manufacturing jobs were lost and replaced by lower-paying service jobs. Currently, the leading industries for the demographic study area are retail, followed by health care/social assistance, and manufacturing.

Attempts at redevelopment and revitalization have occurred within the study area, spearheaded by local community groups and economic development agencies such as Greater Auburn Gresham Development Corporation, the Greater Southwest Development Corporation, and the Faith Community of St. Sabina's Employment Resource Center. The efforts of these organizations have resulted in some new housing, retail development, and recreational facilities within the study area.

Table 3.17-2 identifies the population changes that have occurred within the study area and the projected population changes. Examining population change identifies if there is a trend occurring within the study area. The study area has experienced a decrease in population over the last twenty years. Population forecasts prepared by CMAP show an increase in study area population of 6.8 percent between 2010 and 2030. The forecast is projecting a reverse in the trend that has occurred over the last twenty years.

Table 3.17-2: Population Trends

Area	U.S. Census 1990	U.S. Census 2000	U.S. Census 2010	% Change 1990 to 2000	% Change 2000 to 2010	CMAP Projected % Change 2010-2030
Demographic Study Area	159,044	155,046	138,838	-2.5%	-10.5%	+6.8
City of Chicago	2,783,726	2,896,016	2,695,598	+4.0%	-6.9%	+9.5
Cook County	5,105,067	5,376,741	5,194,675	+5.3%	-3.4%	+12.0

Source: U.S. Census 1990, 2000, 2010. CMAP C11Q3 data.

** % changed calculated from CMAP C11Q3 data, which is based on U.S. Census PUMS data. To identify population change for the study area, CMAP subzones were overlaid with U.S. census tracts found within the demographic study area. The CMAP subzones which fell within the demographic study area boundaries were summed and compared to determine total population change from 2010 to 2030.*

3.17.2.3 Other Actions within the Study Area (Current and Reasonably Foreseeable Future Actions)

Cumulative effects consider past, current, and reasonably foreseeable future actions. Table 3.17-3 identifies current and reasonably foreseeable future actions considered for evaluation of cumulative effects. These include proposed land developments, and passenger and freight rail transportation projects. Roadway projects were also evaluated but found not to be applicable, as none were proposed that would increase capacity. Reasonably foreseeable actions are those actions that are likely to occur in the future based on available information, which included CMAP's *GO TO 2040* Plan and the 2010-2015 Transportation Improvement Program (TIP), and information from community officials and the Chicago Plan Commission. CMAP's *GO TO 2040 Plan* includes a list of projects in a fiscally-constrained budget that are likely to be funded and implemented before 2040, as well as a broader list of projects that could be implemented with an unconstrained budget. The projects identified as "unconstrained" in CMAP's *GO TO 2040 Plan* were reviewed but were not included in Table 3.17-3, as they were not considered to be reasonably foreseeable in the current fiscal environment.

Table 3.17-3: Current and Reasonably Foreseeable Future Actions

Other Projects	Description	Location	Relationship to CREATE 75th Street CIP	Status
Transportation- Passenger Rail				
Metra Rock Island District (RID) Line Improvements (constrained)	Addition of a third track between Gresham Junction and a point north of 16th Street Junction to accommodate expansion of existing service and addition of SouthEast Service (SES) and SouthWest Service (SWS) to the RID Line. Includes CREATE Project P1 (i.e., Englewood Flyover), new signals, new or rehabbed bridges, and improvements to Metra's 47th Street Yard.	Metra RID Line	Proposed third track would increase capacity to improve service for the proposed SWS after connection to the RID Line to LaSalle Street Station.	SES alternatives analysis is complete. EA to be completed. CREATE P1 is under construction and scheduled for completion in early 2016.
CTA South Red Line Extension (constrained)	Extension of Red Line from 95th Street Station to 130th Street, with new stations at 103rd Street, 111th Street, 115th Street, and 130th Street.	From existing CTA Red Line Terminal at 95th Street, southwest along expressway to UP tracks, southeast to 119th Street, then southeast along CN tracks to 130th Street just west of I-94.	Route passes through study area. Could reduce bus traffic on 95th Street.	Alternatives Analysis is complete. EIS is in progress.
West Loop Transportation Center (constrained)	Expands capacity at Union Station for Metra and Amtrak through various projects. Would improve transfers between intercity rail, potential high-speed rail, commuter rail, rapid transit, and bus service.	Union Station and under Clinton Street between the Eisenhower Expressway and Lake Street in Chicago	Capacity at Union Station, where the Metra SWS currently terminates, would increase. However, SWS is proposed to be moved to LaSalle Street Station.	Recommended as a long-term option in Union Station Master Plan, Stage 1. Union Station Master Plan, Stage 2, underway to evaluate options in more detail..
Chicago to St. Louis High Speed Rail	Proposed increase in train speeds from Chicago to St. Louis. Tier 1 EIS/ROD selected the Metra RID Line as the preferred alternative through Chicago.	The Metra Rock Island District Corridor passes through the study area.	Additional tracks and increased capacity may be needed along the Rock Island District Line.	Tier 2 EIS underway.
Metra Auburn Park Station	New passenger rail station on Metra RID Line .	Near Auburn Park, Chicago	New passenger rail station within the study area.	Construction expected to begin in 2015 and be completed in 2016
UP-Villa Grove Subdivision Quiet Zone	Grade crossing modifications to create Quiet Zone.	Along UP Villa Grove Subdivision from 95th Street to 115th Street	Would reduce noise impacts within the study area.	Preliminary studies in progress by CDOT.
CREATE Program Projects*				
CREATE GS-11,	Grade separation of at-grade crossings.	Columbus Ave-GS-11 95th Street- GS-21a	Within Study Area	Phase 1 (preliminary engineering and

Other Projects	Description	Location	Relationship to CREATE 75th Street CIP	Status
				environmental clearance) underway
CREATE GS-21a	Grade separation of at-grade crossing.	Columbus Ave at BRC rail tracks	Within Study Area	Phase 1 study to be initiated when funding becomes available.
CREATE WA-10	New crossovers to create a connection between CN and CSX main lines.	Blue Island, IL	Impacts train volumes on the CN and CSX lines in the Build scenario.	Under construction
Transportation-Freight				
Norfolk Southern 47th Street Rail Yard Expansion	84-acre expansion of existing 140-acre rail yard.	Area bounded by Garfield Blvd, Stewart Avenue, 61st Street, and Wallace Avenue in Chicago	Could increase freight traffic on the Chicago and Western Indiana (CWI) rail line. Eliminating conflicts between Metra and freight on this line was included in the Purpose and Need Statement for the 75th Street CIP.	Property acquisition in progress. Project to be completed in 10 years or more.
Development				
City Lights Community Outreach Elderly Facility	City Lights Community Outreach Corporation is proposing to construct a four-story elderly supported living facility with 140 residential units and 36 accessory parking spaces	7411-7447 S. Halsted Street and 7436-7448 S. Emerald Avenue	Within Study Area	Approved
Gateway Park Container Storage Facility	Gateway Park, LLC is proposing to construct a container storage facility, a 16,000 square foot repair facility and 27 accessory parking spaces within the Manufacturing Planned Development No. 776	Generally located between S. Troy Street, W. 77th Street, Columbus Avenue, S. California Avenue and the Chicago and Western Indiana Railroad	Within Study Area	Approved

** Only CREATE Program projects which are located within the project limits or directly affect rail traffic within the project limits (Project WA-10) are listed in the table. However, all CREATE Program projects were considered when developing the CTCO Train Model forecast for the Build Alternative. The train forecasts take into account the cumulative effects of the entire CREATE program. Due to the extensive number of projects, only those which are located within the project limits are listed in the table. A complete list of the CREATE Program projects can be found at* http://www.createprogram.org/projects.htm.

3.17.3 Potential Indirect and Cumulative Effects

The following section presents a qualitative assessment of potential indirect and cumulative effects on resource categories identified for further evaluation. Analysis of indirect effects considers those effects resulting from the Build Alternative. The cumulative analysis considers the impacts of direct and indirect effects of the Build Alternative combined with the direct impacts of all past, present, and reasonably foreseeable major actions affecting each particular resource.

3.17.3.1 Economics

Indirect Effects - The Build Alternative would generate temporary direct construction jobs. The Build Alternative would also generate some additional indirect and induced jobs that would be created by firms that produce materials, equipment, and services needed for the construction project. The wages that these new workers receive would be funneled back into the economy when workers purchase goods and services, such as groceries, clothes, and housing, resulting in additional job creation.

Cumulative Effects - The Build Alternative would improve freight rail access to businesses, multi-modal yards, and switching yards, thus improving the flow of freight into and through the Chicago area. Improvements resulting from the Build Alternative in combination with the other projects that are part of the CREATE Program are anticipated to result in cumulative long-term national and regional economic benefits. As previously mentioned, the benefits of freight trade flows through the entire CREATE Program-designated corridors are estimated to result in approximately 5 million jobs, $782 billion in output, and $217 billion in annual wages nationwide. The CREATE Program would improve freight movement through the Chicago corridor resulting in potential benefits such as reduced transportation costs for shippers, which could reduce costs for businesses and consumers. Implementation of the CREATE Program would result in regional economic benefits estimated at approximately $3.9 billion over a 40-year period related to reduced travel times for rail passengers, reduced motorist delays, rail and highway safety, air quality improvements and construction related-benefits.

3.17.3.2 Neighborhoods

Indirect Effects - Implementation of the Build Alternative would result in the displacement of 17 residential structures and 1 community facility (i.e., church) within the neighborhood located immediately south of Hamilton Park, as a result of construction of a new Metra RID flyover structure. Direct encroachment by the new flyover may lead to indirect effects on this neighborhood such as reduced neighborhood desirability and reduced property values. The closer the property is to rail alignment the greater the nuisance effects such as noise, vibration, and visual intrusion. Although the majority of the project elements would not encroach further upon residential properties, homes adjacent to the rail line would experience an additional increase in noise and vibration from the increase in train volumes. Some residents would also experience visual impacts from new project elements, such as the construction of the Forest Hill flyover.

The value of property is influenced by a multitude of factors, such as location, physical amenities, and market conditions. Most of the homes were built around the railroad alignments and currently experience noise and vibration from passing trains. The values of these properties likely reflect their existing proximity to the rail lines and existing noise and vibration levels. The extent of a property value reduction resulting from an increase in train volumes, as well as encroachment, is difficult to predict, and would depend ultimately on the extent of increased noise, vibration, and visual impacts along with other market factors. Although research addressing the effects of freight volumes on

property values is limited, published research has shown that proximity to freight rail line, as well as an increase in freight traffic can have a negative effect on residential property values.[99] Some homes adjacent to the new Metra RID flyover would have a more noticeable impact due to the introduction of a new infrastructure and increased proximity to the rail line.

Other homes within the study area, however, stand to benefit from decreased noise and vibration impacts, as well as improved aesthetics, safety, and mobility resulting from the viaduct improvements. These improvements could improve neighborhood desirability and increase property values.

Cumulative Effects - Other reasonably foreseeable development projects consist of infill development and redevelopment activities and are not likely to cause a substantial change in type and intensity of land uses that would affect community neighborhood/cohesion. The Build Alternative would not result in cumulative effects on neighborhoods within the study area.

3.17.3.3 Transportation

Indirect Effects - The Build Alternative would eliminate the at-grade-crossing at 71st Street in order to reduce conflicts between vehicular and freight traffic. This would eliminate traffic delays at 71st Street and nearby roadways, as traffic from other nearby roadways would shift to use the new grade-separated crossing. It is estimated that approximately 20 percent more traffic would be drawn to 71st Street by elimination of the at-grade crossing. The Build Alternative would close the Union Avenue viaduct, which would shift approximately 700 vehicles per day to Halsted Street. These shifts in vehicular travel would not result in substantial indirect effects to businesses or community facilities. The Build Alternative would not induce development or growth that would add vehicular traffic to the study area's road system.

The Build Alternative would result in an overall 23 percent increase in freight train trips over the No-Build Condition by the Year 2029. (The 23 percent increase includes rail traffic of all projects that are part of the CREATE Program.) This increase in freight traffic would directly affect vehicular traffic at the remaining highway-rail grade crossings, which would experience increased delays due to a combination of higher train volumes, higher motor vehicle volumes, and longer average train lengths. Rail traffic associated with the Build Alternative would continue within the existing rail corridors beyond the limits of the 75th Street CIP study area. This increase in freight traffic could also indirectly affect at-grade crossings along the rail lines outside the study area. At-grade crossings beyond the project limits may experience similar delays.

The Build Alternative would shift the Metra SWS and approximately 4,400 riders per day from the CWI line to the RID Line. As discussed in Section 3.3, *Transportation*, this would mean that the SWS would then arrive in downtown Chicago at the LaSalle Street Station rather than its present terminal at Union Station. This could create a potential increase in rail/vehicular/pedestrian traffic around LaSalle Street Station resulting from the shift of Metra SWS. Conversely, a potential decrease in rail/vehicular/pedestrian traffic could occur at Union Station.

The 2002 *Chicago Union Station Capacity Study* recommended the relocation of a Metra service from Union Station to LaSalle Street Station as one alternative to accommodate Metra and Amtrak growth, and high speed rail development, by 2015.[100] High speed rail has not been implemented as quickly as the study projected, but congestion at Union Station remains a concern that limits future growth in passenger rail services. The relocation of the Metra SWS plus the addition of two run-through tracks and one stub-ended southbound station track (achieved by relocating Amtrak Mail and Express service) would create the capacity needed at Union Station to allow the expansion of other Metra and Amtrak services, as well as the substantial build-out of the Midwest Regional Rail Initiative high speed rail program. Metra has indicated that the RID Line and LaSalle Street Station have adequate capacity to accommodate the relocated trains from the SWS Line[58].

Cumulative Effects - There are no other major capital projects in the study vicinity that would have a marked effect on vehicular, pedestrian, or bus traffic, or change the intensity and density of land uses within the study area. The planned addition of a new Metra station on the RID Line could cause some minor changes local pedestrian flows, but these are not anticipated to be substantial. The CTCO Train Model forecasts for the Build Alternative have already taken into account all rail traffic from all of the other projects that are part of the CREATE program. Any additional increase in train traffic from other non-CREATE projects is anticipated to be minimal in comparison to the existing train volumes and would not contribute to cumulative effects.

The Build Alternative in combination with the other CREATE Program projects would result in positive cumulative effects on the region's transportation network. The Build Alternative would eliminate rail/rail and rail/roadway conflicts resulting in improvements to the efficiency of the region's transportation infrastructure. Cumulative benefits as a result of the CREATE Program include a reduction in overall motorist/vehicle delay due to rail conflict at grade crossings. Under the CREATE Program, 25 at-grade crossings would be eliminated. The elimination of road/rail crossing conflicts would improve safety as well as eliminate crossing delays for motorists, pedestrians, and bicyclists across the region. Additionally, the CREATE Program would eliminate existing freight and passenger train conflicts, which currently reduce reliability and constrain opportunities for additional Metra service as well as Amtrak service from southern Illinois and throughout the Midwest. The elimination of these conflicts would improve passenger rail service through reduced rail travel times.

3.17.3.4 Air

Indirect Effects - The proposed project would not cause nor contribute to any new localized violations, nor increase the frequency or severity of any existing NAAQS violations. In addition, fuel consumption under the Build Alternative would be reduced, resulting in a reduction of locomotive emissions compared to the emissions under the No-Build Alternative.

Cumulative Effects – The 75th Street CIP, in combination with other CREATE projects, would result in fewer slow moving or idling trains and vehicles. These projects would also reduce the amount of time it takes to move through both the 75th Street rail corridor and the region as a whole;

thereby reducing fuel consumption. Consequently, positive benefits including reduced locomotive emissions, mobile source air toxics and greenhouse gas emissions would result both in the study area and throughout the CREATE Program region. Emissions would likely be lower than present levels as a result of USEPA's national control programs, which include clean diesel technologies for locomotive engines and the use of ultra-low sulfur diesel fuel. In addition, the project(s) would not induce growth or development that would notably increase vehicular traffic within the study area, thereby increasing vehicular air emissions.

3.17.3.5 Noise/Vibration

Indirect Effects - As discussed in Section 3.7 Noise and Vibration, the Build Alternative would result in direct noise and vibration impacts as a result of increase in freight traffic and proximity of sensitive receptors to the rail lines. A total of 1,359 residential noise impacts – 1,092 moderate and 267 severe – have been predicted for the Build Alternative. Ground-borne vibration (GBV) impacts are projected to occur at 749 residences and 6 institutional uses. Ground-borne noise (GBN) impacts are projected to occur at 77 residences. The Build Alternative would not induce growth or substantial development that would further alter the noise/vibration character of the study area.

Rail traffic associated with the Build Alternative would continue within the existing rail corridors beyond the limits of the 75th Street CIP study area. Areas beyond the study area may experience an increase in noise and vibration resulting from the increase in freight traffic. Where sensitive receptors are located at a similar distance from the tracks, the increase in train traffic would likely result in similar noise impacts as identified for the Build Alternative.

Cumulative Effects - The noise/vibration impact analysis is based on the projections of train operations produced by the CTCO Train Model. Train operations for the proposed project and all of the other CREATE component projects were included in the Build scenario of the Train Model, and thus the direct noise impacts addressed in Section 3.7 Noise and Vibration include noise/vibration impacts from all trains in the CREATE Program within the project limits. Any additional increase in train traffic from other non-CREATE projects is anticipated to be minimal and would not contribute to additional cumulative noise/vibration effects.

3.17.4 Conclusion

Indirect impacts typically result from a project's potential to change existing land use and induce growth. Implementation of the Build Alternative is not anticipated to induce development or growth or alter the existing development pattern within the study area. Indirect effects from the 75th Street CIP are related to impacts resulting from increased rail traffic volumes and new rail flyover construction. Potential indirect effects associated with the 75th Street CIP are reduced neighborhood desirability and reduced property values resulting from noise, vibration, and visual impacts.

CEQ regulations require consideration and discussion of possible mitigation measures for all adverse impacts, including indirect and cumulative effects. Measures have been evaluated and proposed to mitigate impacts of noise, vibration, and visual effects as part of the direct impact analysis. The

implementation of mitigation measures for direct impacts would minimize indirect impacts on neighborhoods. However, according to the evaluation of mitigation measures it will not be feasible to mitigate all noise/vibration and visual impacts; therefore some residents would be impacted by reduced neighborhood desirability and reduced property values. Other neighborhoods and residences would experience decreased noise/vibration levels and would benefit from the Build Alternative.

Increases in freight volumes would result in roadway congestion at highway-rail grade crossings within and outside the project study area in both the Build and No-Build scenarios. Although congestion may occur at some intersections, one of the goals of the CREATE program is to eliminate congestion and conflict points between rail traffic and roadway traffic, including auto, pedestrians, buses, and bicyclists at major intersections. Under the CREATE Program, a number of at-grade crossings would be eliminated which would result in a substantial community benefits such as improved safety and mobility.

The Build Alternative, in combination with other CREATE Program projects, would result in cumulative benefits such as air quality improvements, regional transportation efficiencies, and regional economic benefits. The CREATE Program projects would result in regional air quality benefits including reduced locomotive, mobile source, and greenhouse gas emissions. CREATE Program project improvements would also reduce energy consumption and fuel usage. The Build Alternative, in combination with other CREATE Program projects, would reduce slowing conditions and rail idling thereby improving the flow of freight and commodities into and through the Chicago area. Since Chicago is an integral component of the national rail system, these local improvements would contribute to cumulative long-term economic growth by improving national and regional shipping efficiency.

3.18 Short-Term Uses versus Long-Term Productivity

This section discusses the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity with the proposed project in place.

The proposed project would be constructed entirely within an urbanized area that has been developed for many decades. There would be no impacts to any undeveloped lands in a natural state. Typically, short-term uses of the environment are those associated with the construction of a proposed project. The principal short-term uses of the environment would therefore be the materials, energy, and manpower necessary for the construction of the proposed rail improvements.

Construction of a flyover in the vicinity of Hamilton Park would convert a number of existing residential and vacant uses to a rail infrastructure/transportation use. Development of the flyover constitutes a long-term land use commitment of these parcels, thereby rendering the land's use for other purposes infeasible. The acquisition of private property for the project would also reduce property tax revenue, although this effect would be relatively minor (see Section 3.2.3.6 for further details).

The proposed project is anticipated to be a long-term use that would provide benefits to the entire Chicago region. The 75th Street CIP is one of the most critical elements of the overall CREATE Program. It is estimated that the CREATE Program as a whole would result in regional economic benefits of approximately $3.9 billion, due principally to reduced travel times, reduced motorist delay, rail and highway safety improvements, air quality improvements, and construction-related benefits.[101] The project would greatly improve the efficiency of rail transport of freight through the Chicago region. The improved transportation efficiency is anticipated to assist the state in retaining its existing economic base and employment and in maintaining and enhancing economic development opportunities within the region. The proposed project, as part of the CREATE Program, would thus contribute to the sustainability of the region.

The proposed flyover and elimination of congested rail chokepoints, such as Forest Hill and Belt Junctions, would improve passenger rail service by eliminating conflicts between freight rail and Metra SouthWest Service. Travel speeds would be increased and delays would be reduced through the elimination of rail-rail conflicts. An existing vehicle-rail conflict would be eliminated through the construction of a grade separation at 71st Street. Grade-separating 71st Street would improve safety, save motorists time, and reduce vehicle fuel consumption. Local mobility improvements at area viaducts would improve physical connections between neighborhoods and also improve safety for motorists, bicyclists, and pedestrians traveling through the area. Also, although the viaducts will still require regular maintenance (lighting, vegetation, etc.), most of the improvements to the viaducts proposed here as part of the Build Alternative are substantial capital projects in themselves. These capital improvements would long outlast the period of construction, and would contribute long enough to be considered productive over the long term. (In fact, many of the viaducts that are proposed for improvement have been in service for over 90 years.)

Freight rail transport is considered to be an energy efficient mode of goods movement, offering significant benefits in fuel consumption and emissions. Diesel fuel consumption and idling due to rail congestion would be substantially reduced as a result of the proposed improvements. Other positive long-term environmental benefits of the proposed project include reductions in pollution from locomotive emissions and reduced highway vehicle delay.

The 75th Street CIP is included in both the Chicago Metropolitan Agency for Planning's (CMAP) *GO TO 2040* - Comprehensive Regional Plan for the Chicago region,[102] and in the FY 2010-2015 Transportation Improvement Program (TIP).[103] Together, these two documents represent the results of a comprehensive, region-wide planning process that considers the need for present and future transportation improvements to support the present and future regional land use, economic development, and environmental goals. As such, the use of resources for construction of the proposed project and the local short-term impacts of that construction are considered a reasonable investment given the major long-term economic and environmental benefits of the project.

3.19 Irreversible/Irretrievable Commitment of Resources

The principal resources that would be committed to this project with the implementation of the Build Alternative are the materials that would be used to construct the project and the fossil fuels used during that construction. Principal construction materials used would include cement, aggregate, sand, steel, earthen fill, ballast stone, and asphalt. Although there could be some use of recycled materials, the percentage would be small and so this commitment of resources is generally considered to be irretrievable. None of the raw materials required for construction are in short supply and the quantities required for this project are not such that future availability would be affected.

The proposed project will require an "Irreversible" or "Irretrievable" commitment of resources. This means that the project will use a range of natural, physical, human, and fiscal resources, and these resources will not be available for any other use over the life of the project.

Human resources, or labor, would also be required for the fabrication of materials and the construction of the project. Input received from local elected officials and the public during this project has indicated that the potential commitment of human resources to this project is a benefit.

Only a limited amount of land that is not already dedicated to railroad or roadway use would be required for this project. Approximately 1.8 acres of land currently in residential or institutional use would be acquired. In addition, approximately 0.9 acres of vacant residential land and 14.0 acres of vacant industrial land would be acquired for the project.

Approximately 8% of the Study Area land is currently vacant, and most of the right-of-way required for the project will be taken from these vacant parcels.

There would also be a substantial irreversible commitment of federal and state funds for the right-of-way acquisition and construction of the project over the several-year construction period. The national and regional economic benefits in freight transportation efficiency and the local benefits in improved safety and mobility are expected to outweigh the commitment of all of the natural, physical, human, and fiscal resources required for the project.

3.20 Summary of Impacts

Table 3.20-1 presents a brief overall summary comparison of the potential impacts and benefits of the Build Alternative and compares these to the No-Build Alternative. Project-specific measures to mitigate these and other identified impacts of the Build Alternative are presented in the following Section 3.21, *Environmental Commitments*.

Table 3.20-1: Summary of Environmental Consequences

Resource Category	Build Alternative	No-Build Alternative
Physical Characteristics		
New track added (miles, net) – new construction	29.44	0
New track added (miles, net) – realignment	10.77	0
Rail flyovers added (number)	2	0
Viaducts with major improvements (number)	36	0
Private property to be acquired (acres)	15.4	0
Public right-of-way to be permanently used (acres)	1.3	0
Total estimated project cost (Year of Expenditure)	$952 - $984 M [a,b]	$10.4 M [c]
Socioeconomics		
Total parcels to be acquired (number)	42	0
Residential parcels to be acquired - occupied (number)	15	0
Residential parcels to be acquired - unoccupied (number)	1	0
Vacant parcels to be acquired (number)	25	0
Institutional parcels acquired (i.e., church)	1	0
Dwelling units displaced (number of households)	27	0
Occupied dwelling units displaced	26	0
Unoccupied dwelling units displaced	1	0
Commercial establishments displaced (number)	0	0
Transportation		
Metra SWS travel times through study area	10 min, 16 sec	12 min, 36 sec
Amtrak Cardinal travel times through study area	8 min, 0 sec	10 min, 20 sec
Metra SWS terminus in downtown Chicago	LaSalle Street Station	Union Station
Average daily freight trains moved through study area (number)	152	124
Annual freight cars moved through study area (number)	4,184,749	3,412,184
Rail grade crossings eliminated (number)	1	0
Gate-down time at 71st Street crossing (minutes per day)	0	207
Local streets closed (number)	1	0
Viaducts with major improvements (number)	36	0

Resource Category	Build Alternative	No-Build Alternative
Cultural Resources and Special Lands		
National Register-eligible historic properties affected (number)	0	0
Public parks with increases in noise above the FTA threshold (number)	3	1
Public parkland to be acquired (acres)	0	0
Nature/Forest preserves, nature trails affected (number)	0	0
Properties protected by Section 6(f) affected (number)	0	0
Archaeological sites/resources affected (number)	0	0
Air Quality		
Project in Conformity with State Implementation Plan	Yes	N/A
Air quality impacts	No	No
Noise		
Residences above the FTA moderate impact threshold (number)	1,092	1,009
Residences above the FTA severe impact threshold (number)	267	90
Institutional facilities above FTA moderate impact threshold (number)	3	1
Institutional facilities above FTA interior impact threshold (number)	7	7
Vibration		
Properties with ground-borne vibration levels above the FTA threshold (number)	755	28
Properties with ground-borne noise levels above the FTA threshold (number)	77	58
Energy		
Total rail fuel usage (gallons/day)	4,311	5,420
Natural Resources		
Forest areas affected (acres)	0	0
Neighborhood trees removed (number)	43	0
Protected species affected	No	No
Water Resources		
Wetlands affected	No	No
Streams or surface waters affected	No	No
Floodplain affected	No	No
Water wells affected (number)	0	0

Resource Category	Build Alternative	No-Build Alternative
Special Waste		
High-risk sites potentially affected (number)	7	0
Medium-risk sites potentially affected (number)	34	0
Low-risk sites potentially affected (number)	48	0
Visual Resources		
Viaducts with major improvements (number)	36	0
Rail flyovers added (number)	2	0

[a] The "total estimated project cost" includes right-of-way costs, planning and design costs, and construction costs.
[b] The year of expenditure (YOE) costs include the effects of inflation.
[c] The No-Build Alternative includes the Phase I cost of the project (planning and preliminary engineering).

3.21 Environmental Commitments

This section presents the specific environmental mitigation measures to which the project sponsors commit to offset the impacts of the project that cannot be avoided. These commitments are discussed in additional detail in the preceding sections addressing each particular resource. In addition to these project-specific mitigation commitments summarized in this section, all construction will comply with applicable local ordinances, as well as federal and state laws. Environmental issues addressed by such ordinances and laws include, but are not limited to, practices such as the control of dust at construction sites and stormwater management.

3.21.1 Right-of-Way Acquisition

Under the Build Alternative, a total of 26 *occupied* residential dwelling units (comprised of 8 occupied single-family dwellings and 18 dwelling units in 7 multi-family buildings) and one church (I Care Christian Ministries) are proposed to be acquired. IDOT, CDOT, and/or the lead participating railroad will complete the acquisition of private property in accordance with the federal *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*[104] and the *IDOT Land Acquisition Manual.*[105] Just compensation will be provided for property to be acquired. Fair market value is accepted as the standard for determining just compensation. The fair market value will determined by appraisers hired by the organization responsible for the property acquisition. Under the Uniform Act, in addition to just compensation, displaced residents are entitled to benefits to minimize hardships of relocation such as acquisition and relocation assistance designed to help residents and businesses with reimbursement claims and the lease or purchase of new locations. Relocation advisory assistance will be provided to owners and renters of displaced properties.

3.21.2 Environmental Justice

As discussed in Section 3.2.7, impacts associated with the Build Alternative, whether beneficial or adverse, would be predominantly borne by minority and low-income populations. Under the Build Alternative, disproportionate adverse noise, vibration, and visual impact on Title VI and Environmental Justice populations as defined by Title VI of the Civil Rights Act of 1964 and EO 12898 would remain even after mitigation. As a result, additional practicable mitigation and enhancement measures (those not considered under the current IDOT or CREATE Program policies) that could minimize impacts or provide offsetting benefits to the affected communities and individuals were evaluated under the flexibility provided by the FHWA's Environmental Justice Order 6640.23A in order to address concerns for equity and in consideration of the disproportionate impacts of the project.

Input about these additional measures and offsetting benefits was gathered from the involved agencies, the CAGs, local officials, residents of the study area, and other project stakeholders. The feedback received from all parties demonstrated support for implementation of all of the additional mitigation measures.

IDOT, FHWA, and the participating railroads are committed to providing the additional Noise Barrier O and mortgage assistance to eligible property owners. IDOT, CDOT, and the participating railroads will commit to further exploring additional job training and education opportunities during Phase II final design and Phase III construction (See Section 3.2.7.2 for more details).

Other mitigation measures were evaluated including a quiet zone on the UP Villa Grove Subdivision, bus stop improvements, sidewalk improvements, bicycle facility improvements, remnant and vacant parcel improvements, and streetscape improvements. However, these measures are outside the jurisdiction of FHWA and IDOT and will require coordination with other agencies such as CDOT and CTA. Although FHWA and IDOT cannot commit to implementing these measures, they do commit to coordinating with the responsible agencies during Phase II (final) design to advance the planning and design of mitigation measures. It is important to note that the intent of the additional mitigation measures is that the 75th Street CIP project would provide capital funding only (i.e., no maintenance and operational funding would be included). The responsible agencies would need to commit the resources required to perform the work to plan, design, operate and maintain any associated infrastructure. These actions would need to occur during the Phase II (final) design process so that the required funding could be procured for their construction. These measures—which are intended to address noise impacts, visual impacts, and community impacts, as well as local mobility needs—are detailed in Section 3.2.7.

While the implementation of these additional mitigation measures is desirable, IDOT's and FHWA's decision to move forward with the project would not change if the additional mitigation measures outside of their control are not implemented. Consequently, if these additional mitigation measures are not implemented by the responsible external agency, it would not affect the commitments stated in the Final EIS and would not create the need to update the Preferred Alternative.

3.21.3 Traffic during Construction

Construction activities for the Build Alternative have the potential to affect traffic on project area roadways, particularly at the 36 existing viaduct locations proposed for improvement. A Traffic Management Plan will be required for each major construction contract. IDOT, CDOT, and/or the lead participating railroad will develop the plan in coordination with the relevant public agencies and local officials, and will cover maintaining access to local residences and businesses, coordination with emergency service providers, and coordination with transit agencies where necessary to ensure access for local users throughout the full period of construction.

3.21.4 Air Quality during Construction

IDOT, CDOT, and/or the lead participating railroad will submit a Dust Control Plan for approval prior to beginning construction; adhere to all federal, state and local laws pertaining to dust control; maintain the construction site to minimize dust conditions that would adversely affect construction or railroad operations, including equipment operation and worker safety; maintain the construction site to minimize spreading of dust to adjacent land and property owners including homes and businesses;

ensure that the operating safety of adjacent highways and roadways is not adversely affected by spreading of dust from the construction site.

3.21.5 Noise and Vibration

IDOT, CDOT, and/or the lead participating railroad will assure compliance with applicable Cook County, City of Chicago, and City of Hometown regulations. To reduce noise and vibration impacts during the period of construction, the use of pile-driving, if determined to be necessary, will adhere to all applicable City of Chicago ordinances for noise and vibration. IDOT, CDOT, and/or the lead participating railroad will develop contract documents that will require the contractor to coordinate with local schools to schedule pile driving activities so as to not interfere with State of Illinois mandated testing periods. Schools in the vicinity of potential pile driving activities currently include Southside Occupational Academy High School (7342 S. Hoyne Avenue), St. Rita High School (7740 S. Western Avenue), and Stagg Elementary School (7424 S. Morgan Street).

The following maintenance procedures will be accomplished by the rail industry to mitigate vibration impacts through minimizing vibration sources: regularly scheduled rail grinding, wheel-truing programs, vehicle reconditioning programs, and the use of wheel-flat detectors.

The noise and vibration analysis for this project may need to be reassessed if: a) the project is revised in a manner in which impacts of the project may change due to the project revisions (e.g., a new track alignment is moved closer to a receptor), or b) the CREATE Program's train model is updated due to projects being removed from or added to the CREATE Program.

Based on the preliminary design, IDOT and/or the lead participating railroad are likely to implement four noise barriers, benefiting 189 residences and one park: Barrier G (benefitting NEA R10), Barrier H (benefitting NEA R11), Barrier M (benefitting NEA R14/15), and Barrier N (benefitting NEA R17). A fifth barrier is likely to be implemented to mitigate impacts to low-income and minority populations. This barrier, Barrier O (benefitting NEA R18) will benefit 57 residences. The final decision on implementation of recommended noise mitigation measures will be made upon the completion of the project design and the public involvement process.

The noise analysis area for the 75th Street CIP overlaps with the noise analysis area for the CREATE EW3 Project. Due to this overlap and the resulting consistency in the noise analysis results, noise abatement is currently recommended for both projects to mitigate predicted impacts to low-income and minority populations. It is likely that the EW3 project will implement noise abatement in this area prior to 75th Street CIP. For this reason, IDOT and FHWA solicited the viewpoints of benefited receptors in the area of Barrier O as part of the EW3 Project. The feedback received during this process indicated that the affected residents desired the implementation of Barrier O. Based on the analysis and the preliminary design, Barrier O is likely to be implemented as part of the EW3 project. If it subsequently develops during the final design of the EW3 project that constraints not foreseen in the preliminary design occur, or public input substantially changes, the abatement measure may need to be modified or removed from the EW3 project plans. A final decision on the implementation of

Barrier O will be made upon completion of the EW3 project's final design and corresponding public involvement process.

3.21.6 Visual Resources

The Metra Rock Island connection flyover bridge would require the acquisition of 20 residential parcels in the area immediately south of Hamilton Park, but the permanent right-of-way would not require the full use of all of these parcels. Based on the Phase I (preliminary) design, there would be a total of 1.39 acres of parcel remnants adjacent to the proposed flyover. IDOT, CDOT, and/or the lead participating railroad will landscape these parcels to screen the view of the rail flyover structure, thus minimizing the visual impacts. The parcels could also be landscaped by a public or private organization using project funds, transferred to the City of Chicago, or to an adjacent property owner through the City of Chicago's adjacent neighbors program, or used for other community purposes. Details will be determined through the CSS process in Phase II (final) design.

IDOT, CDOT, and/or the lead participating railroad will also landscape along the east side of the CSX railroad tracks to minimize visual impacts where the new rail flyover would be constructed. Trees will be planted along the eastern side of the CSX right-of-way and/or on adjacent City of Chicago property parallel to the new flyover structure.

Many design details (e.g., color, texture, public art) could still be changed or added in the final engineering phase of the project. Because the 75th Street CIP is designated as a CSS project, IDOT will continue to seek community input at meetings through the Phase II design process. Some type of aesthetic treatment for the walls could potentially be used to minimize the visual impacts in some locations. The public will have the opportunity to provide input about various design details during the Phase II design of the project. Potentially, funding could be designated for new or replacement murals, or other public art, as a mitigating action.

3.21.7 Preliminary Site Investigations

IDOT, CDOT, and/or the lead participating railroad will complete a Preliminary Site Investigation (PSI) in the vicinity of the 52 sites in 15 general areas ranked as having a moderate or high Risk Finding as identified by the Preliminary Environmental Site Assessment (PESA) and the 2014 PESA Update. The purpose of the PSI is to clarify the risks presented at sites where a maximum depth of excavation stipulation may be necessary to protect worker safety or where potentially impacted soil could require special handling or disposal. The PSIs will be conducted prior to the completion of Phase II design and prior to excavation or disturbance of soils for construction. Required remediation, if needed, will also be completed by the responsible agency.

3.21.8 Tree Replacement

It is estimated that approximately 43 trees in the residential neighborhood south of Hamilton Park would need to be removed in order to construct the proposed Metra connection to the RID Line. To mitigate for this impact, IDOT, CDOT, and/or the lead participating railroad will replace all public

street trees, all landscape trees (i.e., trees planted intentionally, rather than volunteer growth), and all other trees of over six-inch diameter at breast height (i.e., 4.5 feet above ground level) on a one-for-one basis per IDOT policy. Replacement trees will be planted in appropriate street locations within the immediate neighborhood where the tree removals take place, or on the unused portion of parcels acquired for the project. The locations of all tree replacements will be coordinated with the City of Chicago Bureau of Forestry during Phase II design. This requirement does not apply to trees on existing railroad property that are removed in order to construct the 75th Street CIP.

Trees removed for construction in other areas may also be replaced in consultation with local stakeholders during final Phase II design. Tree and vegetation replacement in the construction areas within Hamilton and Leland Giants Parks is addressed in Section 3.21.7.

3.21.9 Control of Nuisance Species

For all construction contracts, the contracting entities will comply with City of Chicago municipal ordinance 13-32-325. This ordinance requires contractors to complete rodent surveys, and abatement where applicable, in order to obtain a permit for the demolition of any building or structure. Additionally, contractors will control nuisance species, such as rodents, during the initial land-clearing phase of the work and as needed through the completion of construction in order to protect adjacent residential areas.

3.21.10 Hamilton Park and Leland Giants Park

New retaining walls could be constructed on railroad property along the east property line of Hamilton Park, just north of 74th Street and along the north and east property line of Leland Giants Park, just south of 75th Street. Permits will be obtained from the Chicago Park District to allow for construction of the new retaining walls. One condition of the construction permits will be the development and implementation of a landscaping plan to restore the affected areas of the parks.

Coordination will continue during Phase II (design) with the IHPA and Chicago Park District to develop an appropriate landscaping plan in the affected area of Hamilton Park, as well as to coordinate the aesthetic treatment of the exposed face of the new retaining wall at Hamilton Park.

3.21.11 Damen Avenue Bridge Façade

Although the Illinois Historic Preservation Agency has determined the bridge to not be eligible for listing on the National Register, they recognized that the structure has aesthetic merit. IDOT, CDOT, and/or the lead participating railroad will continue coordination with the IHPA during Phase II design to ensure the Damen Avenue viaduct Art-Deco façade and railing that currently exists will be replaced in-kind and replicated to the extent feasible.

3.21.12 Consultation with Local Stakeholders

IDOT and the CREATE Partners will work with local stakeholders during the Phase II design to provide them with opportunities for input on various design features and other aspects of the work affecting the neighborhoods.

3.21.13 Final Bridge Plans

During the Phase II design, the individual railroads or their consultants/contractors will coordinate the development of all bridge plans with the IDOT Bridge Office to allow for all required reviews and will obtain the required permits.

3.21.14 Permits/Certifications

IDOT, CDOT, and/or the lead participating railroad will obtain a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges, and will prepare the required Stormwater Pollution Prevention Plan (SWPPP) prior to construction. The permit will require that all of the control measures identified in the SWPPP be regularly inspected and maintained and repaired or replaced as needed to function properly. Provisions will be made in the SWPPP to contain the waste and washout from concrete trucks at the construction sites. These facilities will be designed to prevent such discharges from reaching the normal stormwater drainage systems.

Additionally, following Phase II final design, IDOT and/or the lead participating railroad will also be required to obtain a number of permits from the City of Chicago. These could include tree removal permits, pavement opening permits, public way use permits, temporary street or lane closure permits, sewer permits, and similar permits depending on the specific contractor activities.

Endnotes:

[1]The census tracts were also chosen to maintain consistency in boundaries from decade to decade. The US Census Bureau tries to minimize changes to census tract boundaries. However, census tract boundaries can change from decade to decade as a result of changes in population.

[2] Chicago Tribune. "*Neighborhood Population Drain"*. February 18, 2011.

[3] Persons displaced were estimated by multiplying the total dwelling units (26) by the average household size of 3 persons for the demographic study area.

[4] Residential listings were reviewed for zip codes in which the property acquisition would occur including 60621 and 60620. The following listing sites were reviewed: Realtor.com, Ziprealty.com, Zillow.com, Trulia.com and Remax.com on November 27, 2011.

[5] Illinois Department of Commerce and Economic Opportunity: Markets and Resources in Illinois, http://www.commerce.state.il.us/NR/rdonlyres/4435918B-C67A-49B8-A525-93FDC19881E7/0/MarketsandResources.pdf, accessed November 23, 2010.

[6] Illinois Department of Commerce and Economic Opportunity: Illinois Transportation Infrastructure, http://www.commerce.state.il.us/NR/rdonlyres/0310733D-3D5C-4193-B089-B5AA8D6C2DD7/0/Transportation.pdf , accessed November 23, 2010.

[7] CREATE Program Final Feasibility Plan Amendment 1. Modified January 2011.

[8] Greater Auburn Gresham Development Corporation: About Us. http://www.gagdc.org/About-us/Greater-AuburnGresham-Development-Corporation.html, accessed on March 2, 2011.

[9] *CREATE Program: Benefits http://www.createprogram.org/factsheets/emp_benefits.pdf* (Accessed January7, 2012).

[10] *The $3.9 billion represent the value of 2003–2042 benefits, in 2003 dollars, using a 5.875 percent public real discount rate. CREATE Program Final Feasibility Plan Amendment 1.* Modified January 2011.p. B-2.

[11] The local tax base consists of ten taxing authorities with a combined tax rate of 4.931%.

[12] Chicago Park District. *Playgrounds*. http://www.chicagoparkdistrict.com/facilities/playgrounds/, accessed on January 3, 2014.

[13] Chicago Public Schools. *Stats and Facts*.http://www.cps.edu/About_CPS/At-a-glance/Pages/Stats_and_facts.aspx, accessed on August 15, 2013.

[14] Oak Lawn-Hometown School District 123.*Hometown School*. http://www.d123.org/hometown/index.asp, accessed on November 22, 2010.

[15] Oak Lawn-Hometown School District 123. *Schools.* http://www.d123.org/Schools.cfm, accessed on August 15, 2013.

[16] SOS Children's Villages International. *What We Do*.http://www.sos-childrensvillages.org/What-we-do/Pages/default.aspx, accessed on November 22, 2010.

[17] SOS Children's Villages Illinois. *Our History*. http://www.sosillinois.org/WhoWeAre/OurHistory/tabid/94/Default.aspx, accessed on November 22, 2010.

[18] Faith Community of St. Sabina. *About Us.* http://www.saintsabina.org/index.php?option=com_content&view=article&id=69&Itemid=113, accessed May 23, 2011.

[19] Chicago Public Library. *Thurgood Marshall*.http://www.chipublib.org/branch/details/library/thurgood-marshall/p/History/, accessed November 22, 2010.

[20] Advocate Christ Medical Center. *About Us.* http://www.advocatehealth.com/cmc/body.cfm?id=14, accessed November 22, 2010.

[21] City of Chicago Fire Department. *Fire Stations*. http://www.cityofchicago.org/city/en/depts/cfd/dataset/fire_stations.html , accessed November 22, 2010.

[22] City of Chicago Police Department. *Police Stations.* http://www.cityofchicago.org/city/en/depts/cpd/dataset/police_stations.html, accessed November 22, 2010.

[23] Hometown Police Department. *Contact Us*. http://hometownpd.com/contact.html, accessed November 22, 2010.

[24] Hometown Fire Protection District. *Fire Department Headquarters*. http://usfiredept.com/hometown-fire-protection-district-10850.html, accessed November 22, 2010.

[25] Illinois Department of Transportation, "*FY 2012-2016 Proposed Rail Improvement Program"* Summer 2011

[26] City of Chicago, "*Cityspace: An Open Space Plan for Chicago"* January 1998. P107-108.

[27] City of Chicago Department of Housing and Economic Development, "*Chicago Sustainable Industries"* March 2011.

[28] City of Chicago, "*Chicago Climate Action Plan"*, http://www.chicagoclimateaction.org/pages/introduction/10.php , accessed November 15, 2010.

[29] Chicago Metropolitan Agency for Planning, "*GOTO2040"*, www.cmap.illinois.gov, accessed November 15, 2010.

[30]Cook County. Bureau of Community Development, "*Cook County Draft Consolidated Community Development Plan 2010-2014"*, http://co.cook.il.us/portal/server.pt/community/community_development%2C_bureau_of/326 , accessed November 15, 2010.

[31] Cook County Bureau of Community Development and Department of Economic Development, "*Comprehensive Economic Development Strategy Report 2009*", http://cookcountygov.com/taxonomy/CommunityDevelopment/General%20Information/cc_CEDS_2009.pdf , (November 15, 2010).

[32] Greater Auburn-Gresham Development Corporation, *"Quality of Life Plan May 2005"* , http://www.gagdc.org/uploads/gagdc/documents/AuburnGreshamNCP_Plan05.pdf, accessed November 22, 2010.

[33] Federal Highway Administration *"FHWA Actions to Address Environmental Justice in Minority Populations and Low Income Populations (FHWA Order 6640.23A),"* June 14, 2012

[34] Council on Environmental Quality, *"Environmental Justice Guidance Under the National Environmental Policy Act, Text of EO 12898 with Proposed Guidance on Terms in the Executive Order"*, December 10, 1997. P 25.

[35] US Census 2010. Occupancy status was reviewed for Census Tract 6813, Block Group 1, Block 1013, 1014, 1015, 1016, 1017.

[36] *CREATE Noise and Vibration Assessment Methodology*. Rep. June 2014. Web. <http://createprogram.org/tiger3_files/Noise_Vibration_Assessment_Methodology.pdf>.

[37] US Department of Transportation, Federal Railroad Administration, *"Guide to the Quiet Zone Establishment Process,"* September 2013.

[38] In the United States freight railroad companies are classified based on operating revenue (Class I, Class II, Class III). The Surface Transportation Board defines Class I railroads as those carriers with operating revenues of at least $433.2 million. The seven Class I freight railroads in the United States are: BNSF Railway, CSX Transportation, Grand Trunk Corporation, Kansas City Southern Railway, Norfolk Southern Combined Railroad Subsidiaries, Soo Line Railroad, and Union Pacific Railroad.

[39] Email correspondence from David Kralik, Department Head Long Range Planning, Metra. March 26, 2012.

[40] The same exhibit is shown as Figure 1-4 in the Purpose and Need Chapter, but is repeated here for the reader's convenience.

[41] Existing passenger train volumes compiled on 7/29/2010 based on Amtrak and Metra online schedules. All freight volumes, and future year volumes based on CTCO Train Model, 2011.

[42] Chicago Transportation Coordination Office. Train Model Output. 27 May 2011. Raw data.

[43] "Grand Crossing Project Fact Sheet." CREATE Program, 10 Mar. 2011. Web. 21 Nov. 2011. <http://www.createprogram.org/factsheets/P4.pdf>.

[44] IDOT. "Cook County Highways." *T2 GIS Data*. Illinois Technology Transfer Center, 2009. Web. 09 Feb. 2011. <http://www.dot.state.il.us/gist2/016.html>. The year traffic volumes were collected varies for different street segments, but data are mostly from 2006 and 2007.

[45] "MapViewer." *Getting Around Illinois*. Illinois Department of Transportation. Web. 21 Nov. 2011. <http://gettingaroundillinois.com/MapViewer.aspx>.

[46] *Metra SouthWest Service Schedule*. Chicago: Metra. 16 Oct. 2011. Web. 21 Nov. 2011. <http://metrarail.com/content/metra/en/home/maps_schedules/metra_system_map/sws/schedule/_jcr_content/pdfLink/file.res/SWS_Schedule_Effective10162011.pdf>.

[47] *Cardinal and Hoosier State Schedule*. Washington, DC: Amtrak. 7 Nov. 2011. Web. 21 Nov. 2011. <http://www.amtrak.com/servlet/BlobServer?blobcol=urldata&blobtable=MungoBlobs&blobkey=id&blobwhere=1249233274357&blobheader=application%2Fpdf&blobheadername1=Content-disposition&blobheadervalue1=attachment;filename=Amtrak_P50.pdf>.

[48] Illinois Commerce Commission. Crossings Impacted by CREATE. 8 July 2003. Raw data.

[49] Note that the observed gate-down time at 71st Street on October 20, 2010 was 246 minutes for the 24-hour period. It is not known if this was a typical day or not, but it seems likely that the calculated values using the ICC method underestimates actual gate-down times.

[50] Projected traffic volumes were reviewed and approved by CMAP.

[51] *State of the System Report*. Rep. Metra, 30 Mar. 2012. Web. 12 Apr. 2012.

[52] Metra. 2006 Origin-Destination Survey. Feb. 2010. Raw data. Chicago.

[53] Metra. Trip Purpose of SWS Riders whose Destination is in the CBD. 27 Jan. 2011. Raw data. Trip_purpose_SWS CBD Destinations.xls, Chicago.

[54] Haton, Kathleen E. "FOIA Response No 12-106 Auburn Park Station Construction (Jacobs Engineering).pdf." Letter to Mr. John J. Wirtz, PE, PTOE. 9 May 2012. MS.

[55] The online schedule for the CTA Red Line is headway-based. The frequency is estimated by dividing the time period by the average headway. For example, if trains come every 8 to 12 minutes per the schedule, the average headway is 10 minutes. Frequency = (120 minutes / 10 minute headway) = 12 trains in two hours.

[56] *Metra Rock Island District Schedule*. Chicago: Metra, 2011. 3 Apr. 2011. Web. 21 Nov. 2011. <http://metrarail.com/content/metra/en/home/maps_schedules/metra_system_map/ri/map/_jcr_content/download/file.res/Rock%20Island%20Schedule%20Effective%20April%203%2c%202011%20%28Revised%20Public%29.pdf>.

[57] *Red Line 87th Station Timetable*. Chicago: Chicago Transit Authority. 11 Nov. 2011. Web. 21 Nov. 2011. <http://www.transitchicago.com/assets/1/redline_schedules/87th.pdf>.

[58] Metra, Donald A. Orseno, Chief Operations Officer. "LaSalle Street Station Capacity CREATE /P2 & P3 Project." Letter to Mr. David Grewe. 1 Oct. 2012. MS. N.p.

[59] Metra, Division of Capital and Strategic Planning. Proximity of SouthWest Service Rider Destinations to Union and LaSalle Street Stations, ALL MODES OF EGRESS. Jan. 2011. Raw data. Chicago.

[60] *Chicago Bike Map*. Chicago Department of Transportation, Spring, 2013. Print.

[61] *Chicago Streets for Cycling Plan 2020*. Chicago Department of Transportation, 2012. Web. 5 Nov. 2013. <http://www.chicagobikes.org/public/SFC.php>.

[62] *National Register of Historic Places Registration Form*, Illinois Historic Preservation Agency, March 17, 1995.

[63] Chicago Park District website, http://www.chicagoparkdistrict.com/index.cfm/fuseaction/parks.detail/object_id/F3BD2D1D-91E8-48B9-89D6-A67F222D6341.cfm, accessed October 26, 2011.

[64] Chicago Metropolitan Agency for Planning, Program & Resources, Conformity Analysis, http://www.cmap.illinois.gov/conformity-analysis, accessed 5/26/11.

[65] USEPA, Nonroad Engines, Equipment, and Vehicles, Locomotives http://www.epa.gov/oms/locomotives.htm, accessed 6/1/2011.

[66] FHWA, Air Quality, Transportation & Toxic Air Pollutants, http://www.fhwa.dot.gov/environment/air_quality/air_toxics/, accessed 5/26/11.

[67] CMAP Annual Report, Fiscal Year 2012, http://www.cmap.illinois.gov/annual-reports, accessed 8/23/13.

[68] Donovan, John M. "Transportation Improvement Program Amendment Chicago Metropolitan Area." Letter to Charles Ingersoll. 7 August 2013. *TIP Schedule and Approvals*. CMAP, http://www.cmap.illinois.gov/documents/20583/1307820/08-02-13_TIP_Approval.pdf/ab713ab3-1a59-4182-9987-56a26e958637, accessed 8/23/13.

[69] USEPA, Transportation Conformity, *Transportation Conformity Guidance for Qualitative Hot-spot Analysis in $PM_{2.5}$ and PM_{10} Non-Attainment and Maintenance Areas* (EPA 420-B-06-902), http://www.epa.gov/otaq/stateresources/transconf/policy/420b10040-appx.pdf, accessed 6/2/2011.

[70] Parsons, *Technical Memorandum - Locomotive and On-Road Vehicle Class-Specific MSAT Emissions Trends Data Incorporating County-Specific Baseline Emissions Estimates – CREATE Grand Crossing Rail Project*, August 2013, transmitted to Jacobs by Adin McCann, HNTB on 8/27/13.

[71] USEPA, Climate Change Science Facts, April 2010, http://www.epa.gov/climatechange/downloads/Climate_Change_Science_Facts.pdf, accessed 12/29/2011.

[72] Harris Miller Miller & Hanson Inc. *Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06)*. Rep. Federal Transit Administration, Office of Planning and Environment, May 2006. Web. <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>.

[73] *CREATE Noise and Vibration Assessment Methodology*. Rep. June 2014. Web. <http://createprogram.org/tiger3_files/Noise_Vibration_Assessment_Methodology.pdf>. Tables 4-1, 4-2, 4-3, 4-4.

[74] FTA *Noise and Vibration Impact Assessment*, May 2006, Noise Impact Criteria, page 3-5.

[75] Chicago Transportation Coordinating Office, Rail Traffic Controller computer model, output dated April 28, 2011.

[76] IDOT Memorandum, IDOT BDE Natural Resources Unit, June 23, 2010.

[77] Illinois State Geological Survey, http://runoff.isgs.uiuc.edu/website/ilwater/viewer.htm, accessed January 18, 2011.

[78] "Illinois Floodplain Maps", http://www.illinoisfloodmaps.org/effective.aspx?county-cook, accessed October 12, 2010.

[79] Illinois Environmental Protection Act (415 ILCS 5/3.475) and Illinois DOT Bureau of Design And Environment Manual, Chapter Twenty-Seven - Environmental Surveys (updated September 2010)

[80] "FHWA | Environmental Review Toolkit | Section 4(f) | Overview." *Section 4(f) Program Overview*. Federal Highway Administration. Web. 21 Sept. 2011. <http://environment.fhwa.dot.gov/4f/index.asp>.

[81] "Land and Water Conservation Fund Act of 1965, Public Law 88-578 Title 16, United States Code Selected Relevant Parts – State Assistance Program." National Parks Service. Web. 21 Sept. 2011. <http://www.nps.gov/lwcf/lwcf_act.pdf>

[82] "Open Space Lands Acquisition and Development Program (OSLAD) & Land and Water Conservation Fund (LWCF)." Department of Natural Resources, 2011. Web. 21 Sept. 2011. <http://dnr.state.il.us/ocd/newoslad1.htm>.

[83] Illinois Department of Natural Resources. *Illinois Outdoor Recreation Grant Programs OSLAD/LWCF 2011 Local Participation Manual*. State of Illinois, Feb. 2011. Web. 21 Sept. 2011. <http://www.dnr.state.il.us/ocd/OS-LW2011Man.pdf>.

[84] Note that Dan Ryan Woods is larger than Hamilton Park, but only 18.1 acres are within the study area.

[85] "Hamilton Park." *Chicago Park District: Hamilton Park*. Chicago Park District. Web. 18 Feb. 2011. <http://www.chicagoparkdistrict.com/index.cfm/fuseaction/parks.results.cfm>.

[86] Corusi, Corina, and J. T. Garofalo. "Property Information Report: Hamilton Park." *Historic Architectural/Archeological Resources Geographic Information System (HAARGIS)*. Illinois Historic Preservation Agency, 23 Nov. 1994. Web. 18 Feb. 2011. <http://gis.hpa.state.il.us/hargis/Reports/Reports.aspx?RefNumVariable=201147&FormType=Short>.

[87] US Government Printing Office. *23 CFR § 774.15*. 27 Feb. 2011. Web. 25 Apr. 2012. <http://www.gpo.gov/fdsys/pkg/CFR-2011-title23-vol1/pdf/CFR-2011-title23-vol1-sec774-15.pdf>.

[88] The Olmsted Brothers was a landscape design firm formed in 1898 by John Charles Olmsted and Fredrick Law Olmsted, Jr.

[89] *Visual Impact Assessment for Highway Projects*. Washington, DC: U.S. Dept. of Transportation, Federal Highway Administration, Office of Environmental Policy, 1981. Print.

[90] *Considering Cumulative Effects Under the National Environmental Policy Act*, Council on Environmental Quality, January 1997.

Secondary and Cumulative Impact Assessment in the Highway Project Development Process, Federal Highway Administration, Project Development Branch, April, 1992. http://environment.fhwa.dot.gov/projdev/tdm2_c_imp.asp

Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process, Federal Highway Administration, Environmental Guidebook. http://environment.fhwa.dot.gov/guidebook/qaimpact.asp

Bureau of Design and Environment Manual, 2010 Edition, Illinois Department of Transportation. Chapter 22, General Environmental Procedures, Section 22-6.02, Indirect and Cumulative Environmental Impacts.

Consideration of Cumulative Impacts in EPA Review of NEPA Documents, U.S. Environmental Protection Agency, Office of Federal Activities, EPA 315-R-99-002, May, 1999. http://www.epa.gov/Compliance/resources/policies/nepa/cumulative.pdf

[91] Council on Environmental Quality (CEQ) regulations (40 CFR § 1508.8)

[92] Council on Environmental Quality (CEQ) regulations (40 CFR § 1508.8)

[93] Council on Environmental Quality (CEQ) regulations (40 CFR § 1508.7)

[94] Encyclopedia of Chicago Economic Geography. http://encyclopedia.chicagohistory.org/pages/409.html (Accessed on December 10, 2011)

[95] Encyclopedia of Chicago. West Englewood. http://www.encyclopedia.chicagohistory.org/pages/1337.html (Accessed on December 10, 2011)

[96] *Hamilton Park National Register of Historic Places Registration Form*. United States Department of the Interior, National Park Service. March 1995.

[97] Encyclopedia of Chicago. Englewood. http://www.encyclopedia.chicagohistory.org/pages/1337.html (Accessed on December 10, 2011)

[98] Encyclopedia of Chicago. West Englewood. http://www.encyclopedia.chicagohistory.org/pages/1337.html (Accessed on December 10, 2011)

[99] Simons, S. and Jaouhari, A.(2004) *The Effects of Freight Railroad tracks and train Activity on Residential Property Values*. Appraisal Journal, summer.

[100] HDR, and CANAC. *Chicago Union Station Capacity Study*. Rep. 2002. Print.

[101] CREATE Program Final Feasibility Plan Amendment 1. Modified January 2011

[102] *Go to 2040 Comprehensive Regional Plan*. Full Version. Chicago: Chicago Metropolitan Agency for Planning, Oct. 2010. Print.

[103] "Transportation Improvement Program." Chicago Metropolitan Agency for Planning. Web. 08 Mar. 2011. <http://www.cmap.illinois.gov/tip>.

[104] Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, CFR 49, Part 24.

[105] Illinois Department of Transportation, Land Acquisition Policy Procedure Manual and Revisions, November, 2011; http://www.dot.state.il.us/landacq/lappm.html.