Section

4 AFFECTED ENVIRONMENT

4.0 Affected Environment

This section describes the existing environmental conditions in the Springfield Rail Improvements Project area. The Springfield project area is defined as the area of potential impact by the project alternatives carried forward for further study (i.e., the Preferred Alternative and Alternative 2B). The project area for the retained alternatives is about four blocks wide (about 1,000 feet) along the 10th Street railroad corridor (two blocks on either side of the existing railroad tracks). The project area also includes the grade separations on 19th Street at South Grand Avenue and Ash Street, and 15th Street and North Grand Avenue. The project area extends about 4 miles from Stanford Avenue north to Sangamon Avenue. Environmental resources and issues of the affected environment are land use, social and economic conditions, energy, agriculture, cultural resources, natural resources, air quality, noise and vibration, water quality and resources, floodplains, wetlands, special waste, and special lands.

4.1 Existing Land Use

The project area lies within Sangamon County and Springfield. Land uses in Springfield are generally mixed around the railroad, with a high concentration of government buildings and commercial businesses in the downtown as well as a Springfield train station. Notable land uses within the project area are commercial and residential along with community and government facilities. The concentration of Abraham Lincoln historic sites, government institutions, and research and conference facilities generates high levels of tourist activity throughout Springfield. Abraham Lincoln historic sites within Springfield consist of the Abraham Lincoln Presidential Library, Lincoln Home, Lincoln Tomb, Lincoln Depot (Great Western Railroad Depot), Lincoln Pew, and the Old State Capitol. Only the Lincoln Depot is in the project area along the 10th Street rail corridor. Table 4-1 summarizes the land uses adjacent to the retained alternatives, and Exhibit 4-1 depicts the listed land uses within the project area.

Table 4-1. Land Uses Within the Project Area

Land Use	Percent of Land Within Project Area
Residential	27.8
Commercial	21.3
Industrial	0.3
Institutional/Government	18.4
Farmland	3.1
Railroad	5.5
Roadway	23.6

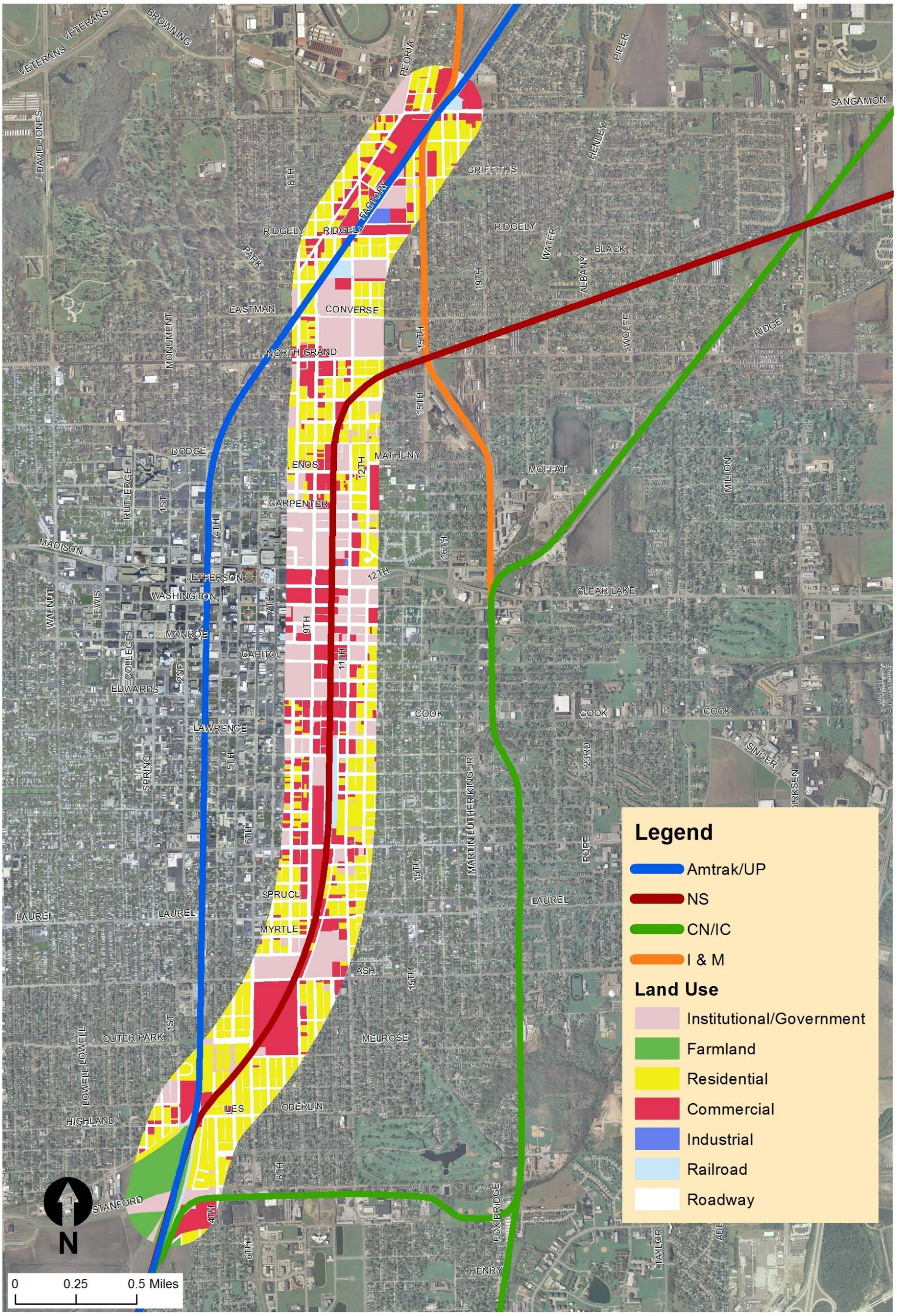


Exhibit 4-1. Existing Land Use

The Springfield-Sangamon County Regional Planning Commission (SSCRPC) serves as the joint planning body for Springfield and Sangamon County and as the Metropolitan Planning Organization for the Springfield Metropolitan Planning Area (MPA). The Springfield Metropolitan Planning Area (MPA) lies within Sangamon County and is comprised of the cities and villages of Springfield, Chatham, Clear Lake, Curran, Grandview, Jerome, Leland Grove, Riverton, Rochester, Sherman, Southern View, Spaulding, and surrounding unincorporated areas. The SSCRPC is currently developing a regional long range comprehensive plan that is intended to provide planning and land use guidance through the year 2030. The SSCRPC prepared the Springfield Comprehensive Plan 2020, which was adopted by Springfield in 2001 and amended in 2002, 2003, and 2007 (SSCRPC, 2007).

4.2 Socio-economic and Environmental Justice Population Characteristics

4.2.1 Population and Population Distribution

Table 4-2 lists the 2010 and 2000 population data for the project area and Springfield. The table also includes the percentage of change in population between the 2000 census and 2010 census. The project area and Springfield experienced a population growth between the 2000 census and the 2010 census.

Table 4-2. Populations and Households

	Project Area 10th Street Corridor	Springfield
Land Area (square miles)	1.9	54
Total Population 2010	9,367	116,250
Total Population 2000	8,337	111,454
Percent Change 2000-2010	12.4	4.1
Population Density per square mile	4,930	2,152
Total Households 2010	3,842	50,714

Source: U.S. Census Bureau, Census 2000 and Census 2010

4.2.2 Demographics

The demographics within the project area and Springfield is predominantly white, as illustrated in Table 4-3 below. Within the project area, minority populations are concentrated within Springfield.

Table 4-3. Population by Racial Composition (2010)

	Project Area 10th Street Corridor		City of Springfield	
	Total	Percent	Total	Percent
White	6,016	64.2	88,092	75.8
Black or African American	2,781	29.7	21,510	18.5
American Indian or Alaska Native	31	0.3	239	0.2
Asian	60	0.6	2,555	2.2
Native Hawaiian or Other	0	0.0	25	0.0
Some Other Race	78	0.9	766	0.7
Two or More Races	401	4.3	3,063	2.6

Source: U.S. Census Bureau, 2010 Census, block level

4.2.3 Economics and Employment

Springfield had a lower unemployment rate in 2010 than the national unemployment rate of 9.6 percent. The unemployment rate within the project area was about 70 percent higher than Springfield as a whole. Details of the 2010 labor force are shown in Table 4-4.

Table 4-4. Labor Force Estimates for 2010

	Project Area 10th Street Corridor	Springfield
Labor Force (civilian)	14,147	61,366
Employed	12,303	56,468
Unemployed	1,844	4,898
Unemployment Rate (percent)	13.7	8.1

Source: U.S. Census Bureau, American Community Survey, 2006-2010

Employment in Sangamon County is predominately wholesale and retail trade, health care and public administrations professions (Illinois Department of Employment Security, 2011). Springfield is the state capital and state government is the largest employer for the county. Health care accounts for five of the top 10 employment providers in Sangamon County. Regional health care in Sangamon County serves over 1.6 million people in over 40 counties throughout the state. Within the City of Springfield the one square mile Medical District has over two million square feet of hospital space. Tables 4-5 and 4-6 detail the employment by industry and the top employers within Sangamon County in 2009. Not only do the types of businesses across the project area vary, the geographic diversity of the employment areas in the project area vary, as illustrated in Exhibit 4-2.

Table 4-5. Employment by Industry Category for Sangamon County for 2009

	Number of Firms	Number of Workers	Percent of Workers
Agriculture, Forestry & Hunting	33	242	0.2
Mining and Utilities	20	593	0.5
Construction	650	3,539	2.8
Manufacturing	146	3,287	2.6
Wholesale & Retail Trade, Transportation & Warehousing	1,032	16,063	12.7
Finance, Insurance, Real Estate & Management	555	7,794	6.2
Information, Professional & Technical	711	7,735	6.1
Administrative Support and Other Services	865	9,744	7.7
Educational Services	83	9,231	7.3
Health Care & Social Assistance	408	17,389	13.8
Accommodations, Food & Entertainment	562	9,648	7.7
Public Administration	162	40,706	32.3
Unclassified	32	33	0.0

Source: Greater Springfield Chamber of Commerce, 2010.

Table 4-6. Major Employers in Sangamon County (November 2009)

Company	Product	Number Employed
State of Illinois	Government	17,300
Memorial Health System	Health Care	5,899
St. John's Hospital	Health Care	3,267
Springfield Public Schools	Education	2,240
University of Illinois Springfield	Education	2,092
Springfield Clinic, LLC	Health Care	1,847
Illinois National Guard	Government	1,819
City of Springfield	Government	1,726
SIU School of Medicine	Education/ Health Care	1,661
AT&T	Telecommunications	1,254

Source: Greater Springfield Chamber of Commerce, 2010.

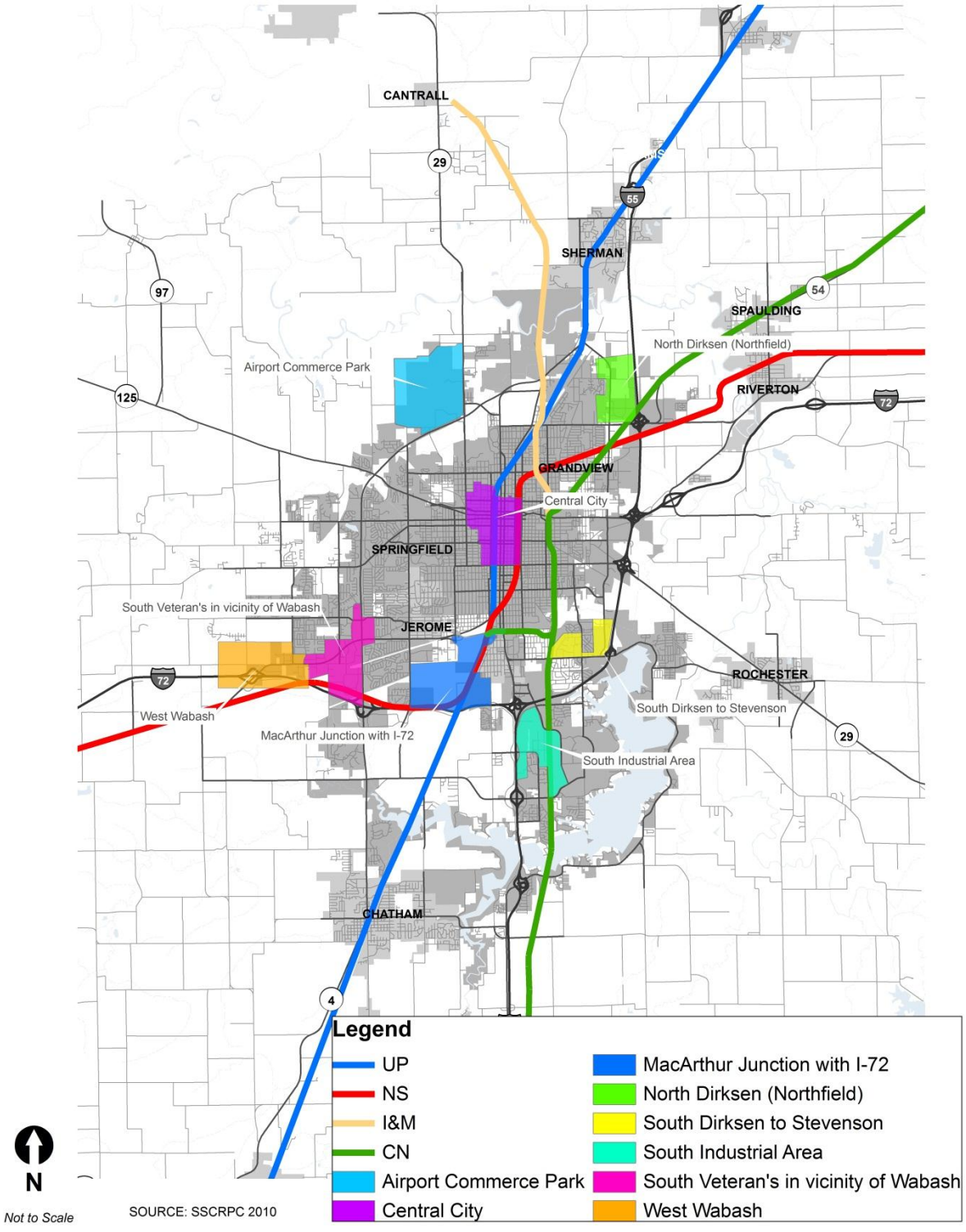


Exhibit 4-2. Economic Activity Centers

Springfield has been evolving from having a single central urban core of economic activity to having multiple areas of concentrated economic activity. These economic activity centers serve many functions and support a broad array of land uses, ranging from residential to commercial to industrial and governmental activities. Many of these corridors function as essential parts of commercial districts, providing a marketplace of goods and services that serve users ranging from the local neighborhoods to regional populations.

4.2.4 Income and Wages

Table 4-7 shows the median income per household in the project area and Springfield in 1999 dollars and inflation-adjusted 2010 dollars. The projected median income in Springfield was expected to rise by about 18 percent between 2000 and 2009. The actual increase in median income (about 20 percent) for the city was slightly higher than the projection. Since the American Community Survey eliminate the need for the decennial census long-form questionnaire, the 2010 census does not provide income estimates. Median income in the project area was lower than Springfield median income.

Table 4-7. Median Household Income

	Project Area 10th Street Corridor	Springfield
Median Household Income (1999 dollars)	$29,250(1)	$39,388
Median Household Income (2009 inflation adjusted)	$30,476(2)	$47,209
Percent Change in Median Household Income	4.2	19.9

(1)Block Group Level

(2)Census Tract Level

Source: U.S. Census Bureau, American Community Survey (2006-2010) and the Census 2000

4.2.5 Environmental Justice and Title VI

Executive Order 12898 (EO 12898), *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994), directs FRA to identify and address any disproportionate and adverse impacts on minority and/or low-income populations that could result from the implementation of the Preferred Alternative proposed in Volume II of the Environmental Impact Statement. In addition, this environmental justice analysis was prepared pursuant to the U.S. Department of Transportation (DOT) Order 5610.2(a), Final DOT Environmental Justice Order, issued May 2, 2012.

The DOT Environmental Justice Order 5610.2(a) is a key component of DOT's June 21, 1995 Environmental Justice Strategy (60 FR 33896). The Order reaffirms a process by which DOT and its Operating Administrations will integrate the goals of the Executive Order into their operations. This is to be done through a process developed within the

framework of existing requirements, primarily the National Environmental Policy Act (NEPA), Title VI of the Civil Rights Act of 1964 (Title VI), the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (URA), the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and other DOT applicable statutes, regulations and guidance that concern planning; social, economic, or environmental matters; public health or welfare; and public involvement.

The Order is an internal directive to the various components of DOT and does not create any right to judicial review for compliance or noncompliance with its provisions. However, it directs federal agencies to "promote nondiscrimination in federal programs substantially affecting human health and the environment, and provide minority and low-income communities access to public information on, and an opportunity for public participation in matters relating to human health or the environment." The EO directs agencies to use existing laws to ensure that when they act:

- They do not discriminate on the basis of race, color, or national origin;
- They identify and address disproportionately high and adverse human health or environmental efforts of their actions on minority and low-income communities; and
- They provide opportunities for community input during the National Environmental Policy Act (NEPA) process, including input on potential efforts and mitigation measures.

EO 12898 also requires federal agencies to work to ensure greater public participation in the decision-making process. For the Preferred Alternative, this requirement has been satisfied by the review process under the National Environmental Policy Act (NEPA).

This report analyzes the Preferred Alternative's potential effects on minority and low-income populations, to determine if disproportionately high and adverse impacts on those populations would result. This environmental justice analysis assesses the potential environmental and health effects of the Preferred Alternative on minority and low-income populations.

EO 12898 does not define the terms "minority" or "low-income." However, guidance provided by the Council on Environmental Quality (CEQ) describes the terms in the context of an environmental justice (EJ) analysis. These definitions are unique to EJ analysis and are the basis for the methodology that follows:

- Minority Individual – A minority individual is classified by the U.S. Census Bureau as belonging to one of the following groups, American Indian or Alaskan Native, Asian or Pacific Islander, Black and Hispanic.
- Minority Populations – According to the CEQ guidelines, minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is

meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. The established screening criteria for this Volume II analysis were minority populations of the affected area which exceeded 50 percent.

- Low-income population – Low-income populations are identified where individuals have incomes below the U.S. Department of Health and Human Services poverty guidelines. A low-income population is either a group of low-income individuals living in proximity to one another or a set of individuals who share common conditions of environmental exposure or effect.

- Adverse Impact – The totality of meaningful individual or cumulative human health or environmental effects, including interrelated social and economic effects.

- Disproportionately High and Adverse Impact – An impact that is predominantly borne by a minority population and/or low-income population or, suffered by the minority population and/or low-income population and that is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

Title VI of the Civil Rights Act of 1964 and related statutes provide that no person shall on the ground of race, color, national origin, age, gender, disabilities, or religion be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal funds. This Environmental Justice analysis utilized key efforts to ensure, demonstrate, and substantiate compliance with Title VI in conjunction with Environmental Justice requirements. These efforts included identifying socio-economic and environmental impacts, determining whether the potential for disproportionate or discriminatory impacts were adequately addressed, and soliciting adequate involvement from the public.

Detailed information regarding minority and low-income populations in the project area was compiled from the *2010 Census* and the *American Community Survey 2006-2010* data. An Environmental Justice Analysis Technical Report was prepared for this project and can be referenced in Appendix. C.

Table 4.8 summarizes the percent of each race for the blocks located in the study area and in Springfield. Exhibit 4-3 depicts the racial composition within the study area and Springfield as depicted in this exhibit, the composition of the study area is predominantly white. Of the minority population, black or African American is the predominant race within the project area and Springfield. The "Other Race" category reflects individuals who reported themselves as "some other race alone" and "two or more races." Minority populations other than black or African American (American Indian and Alaskan native, Asian American, native Hawaiian and other Pacific Islander, and other) in the study area and Springfield comprised about six percent of the total population.

Table 4-8. Race and Ethnic Characteristics in 2010 by Percent

	Race Characteristics						Ethnic Characteristics
Area	White	Black or African American	American Indian and Alaska Native	Asian American	Native Hawaiian and Other Pacific Islander	Other	Hispanic or Latino
Study Area	64.2	29.7	0.3	0.6	0.0	5.2	2.1
City of Springfield	75.8	18.5	0.2	2.2	0.0	3.3	2.0

Source: U.S. Census Bureau, 2010 Census, block level.
See Appendix A for individual block data.

Table 4-8 also summarizes the percent of Hispanic or Latino populations in the study area and Springfield. Both geographies were comprised of about two percent of this ethnicity.

Refer to Appendix C for detailed census block data of individual blocks in the study area.

Information regarding income and poverty levels was compiled at the census tract level from the *2006-2010 American Community Survey*. Table 4-9 summarizes the median household income and the percent of individuals below the poverty level in the study area and Springfield. Median household income in the project area (average of all tract values) was $16,733 lower than the median household income for all of Springfield. The number of individuals in the study area who reported income below the census poverty level was 9.8 percent higher than those in Springfield as a whole.

Table 4-9. Median Household Income and Poverty Status in 2010

Area	Median Household Income ($)	Population below Poverty Level (%)
Project Area	30,476	26.0
City of Springfield	47,209	16.2

Source: U.S. Census Bureau, *American Community Survey, 2006-2010*, tract level.
See Appendix A for individual tract data.

Refer to Appendix C for detailed Census tract data of individual tracts in the project area.

Based on the census data gathered for racial and ethnic populations, and poverty, an overall characterization of the project area was calculated and compared to Springfield. Table 4-10 summarizes the percent of racial minorities, Hispanic or Latino, and low-income populations of the study area and Springfield. The study area had higher populations for both percent racial minority and low-income, but the percent of Hispanic or Latino population was identical for both geographies.

Appendix C lists the racial and ethnic characteristics of the 325 individual census blocks in the project area. Of the 325 blocks, 75 blocks have minority populations greater than 50 percent. These 75 blocks represent communities of concern within the project area.

Table 4-10. Racial and Ethnic Minorities, and Low-Income Populations

Area	Percent Racial Minority	Percent Hispanic or Latino	Percent Low-Income
Project Area	35.8	2.1	26.0
City of Springfield	24.2	2.0	16.2

Source: U.S. Census Bureau, *2010 Census* (block level) and *American Community Survey, 2006-2010* (tract level). See Appendix A for individual tract and block data.

Exhibit 4-3 depicts the location of racial minority communities of concern in the study area and the surrounding city. The majority of these minority population blocks are located in the central portion of the study area between North Grand Avenue and Ash Street and east of the NSRR and east of the NS Railroad corridor, although most are not directly adjacent (about 500 feet away).

Exhibit 4-4 depicts the blocks having greater than 50 percent black or African American populations, and Exhibit 4-5 depicts the blocks having greater than 50 percent of minorities other than black or African American. These exhibits illustrate the majority of racial minority composition as black or African American within the study area and the Springfield. Only two blocks having populations of minorities other than black or African American greater than 50 percent area located within the study area. These two blocks have total populations of only 1 and 3, and are located on the fringe of the study area.

Exhibit 4-6 depicts the census blocks within the project area and Springfield having greater than 50 percent Hispanic or Latino populations. Of the 325 total census blocks within the project area, no blocks have Hispanic or Latino populations greater than 50 percent.

Exhibit 4-7 depicts census tracts within the project area and Springfield having greater than 50 percent low-income populations. No tracts have low-income populations greater than 50 percent. Therefore, Environmental Justice populations of minorities exist in the study area based on the CEQ definitions and the Tier 2 screening criteria.

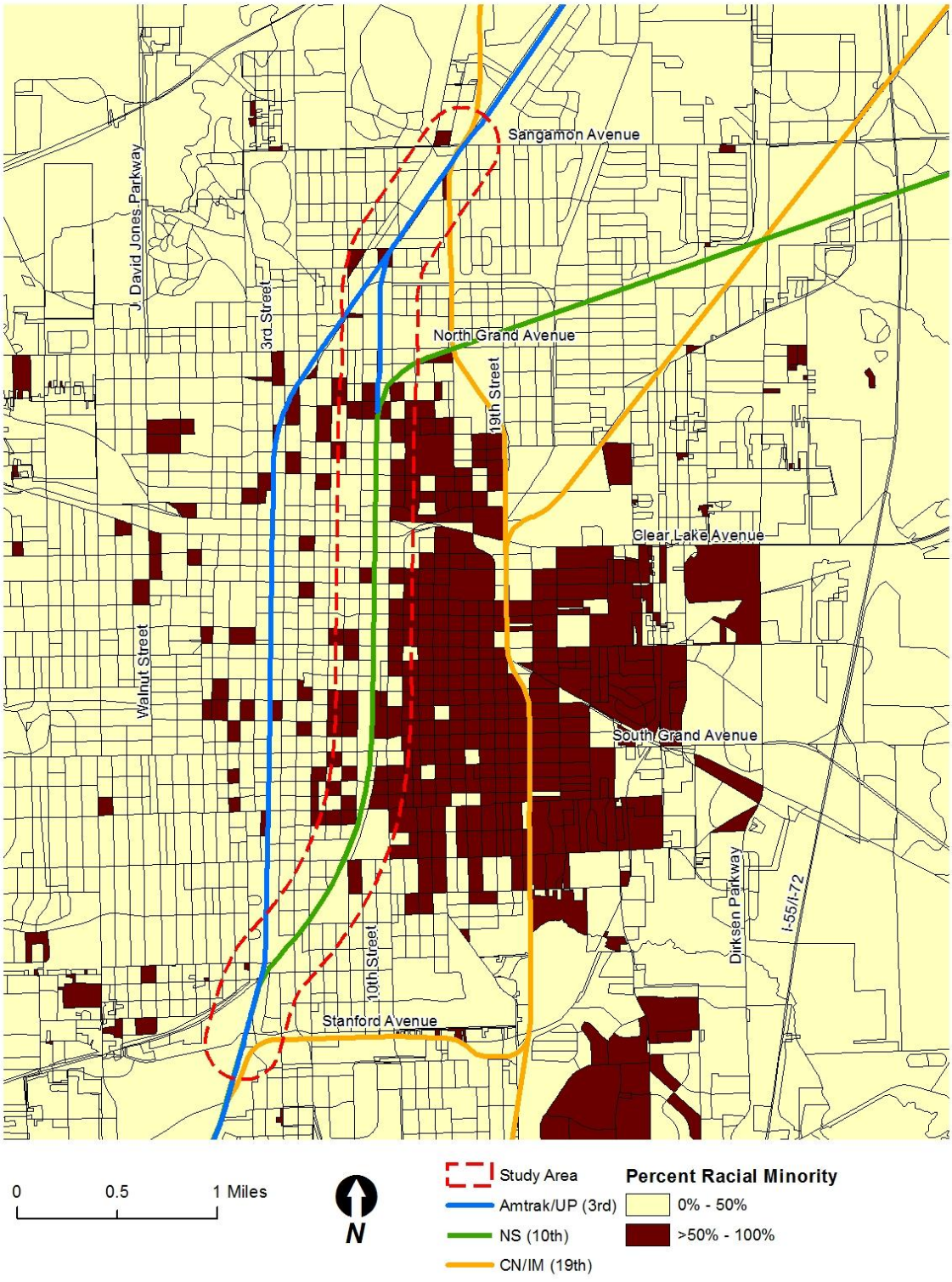


Exhibit 4-3. Racial Minority Percentages by Census Block

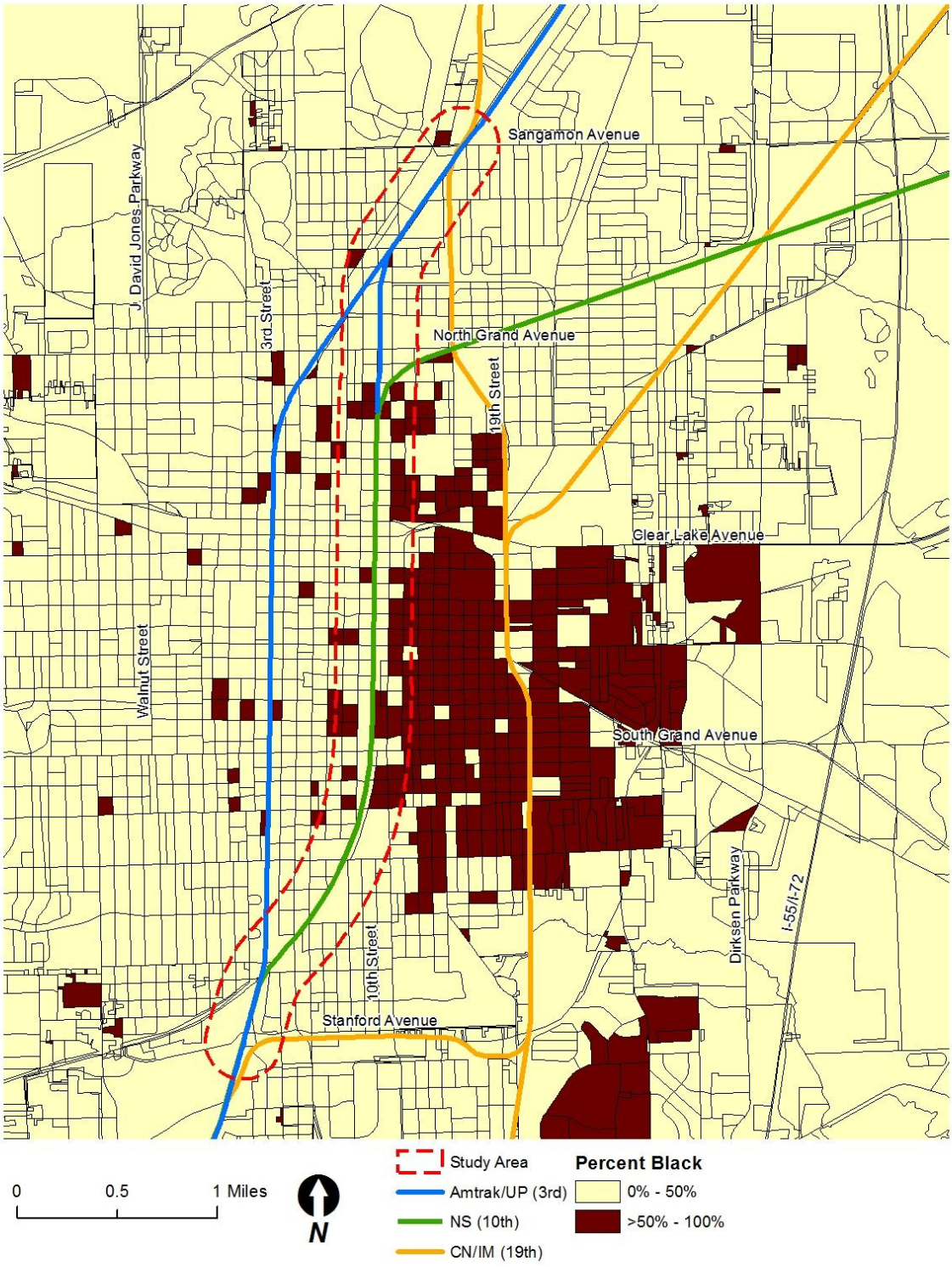


Exhibit 4-4. Black Population Percentages by Census Block

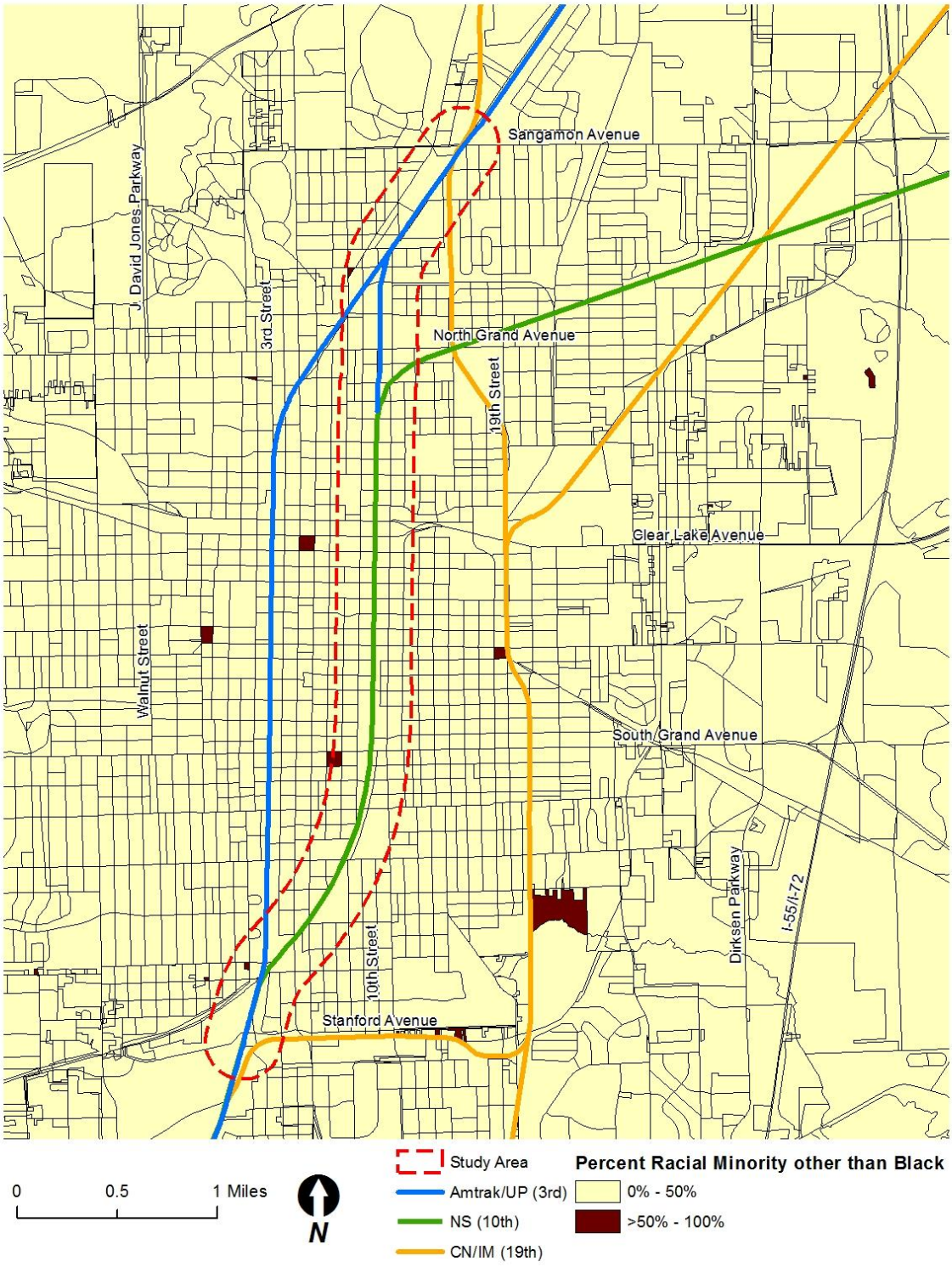


Exhibit 4-5. Racial Minorities other than Black Percentages by Census Block

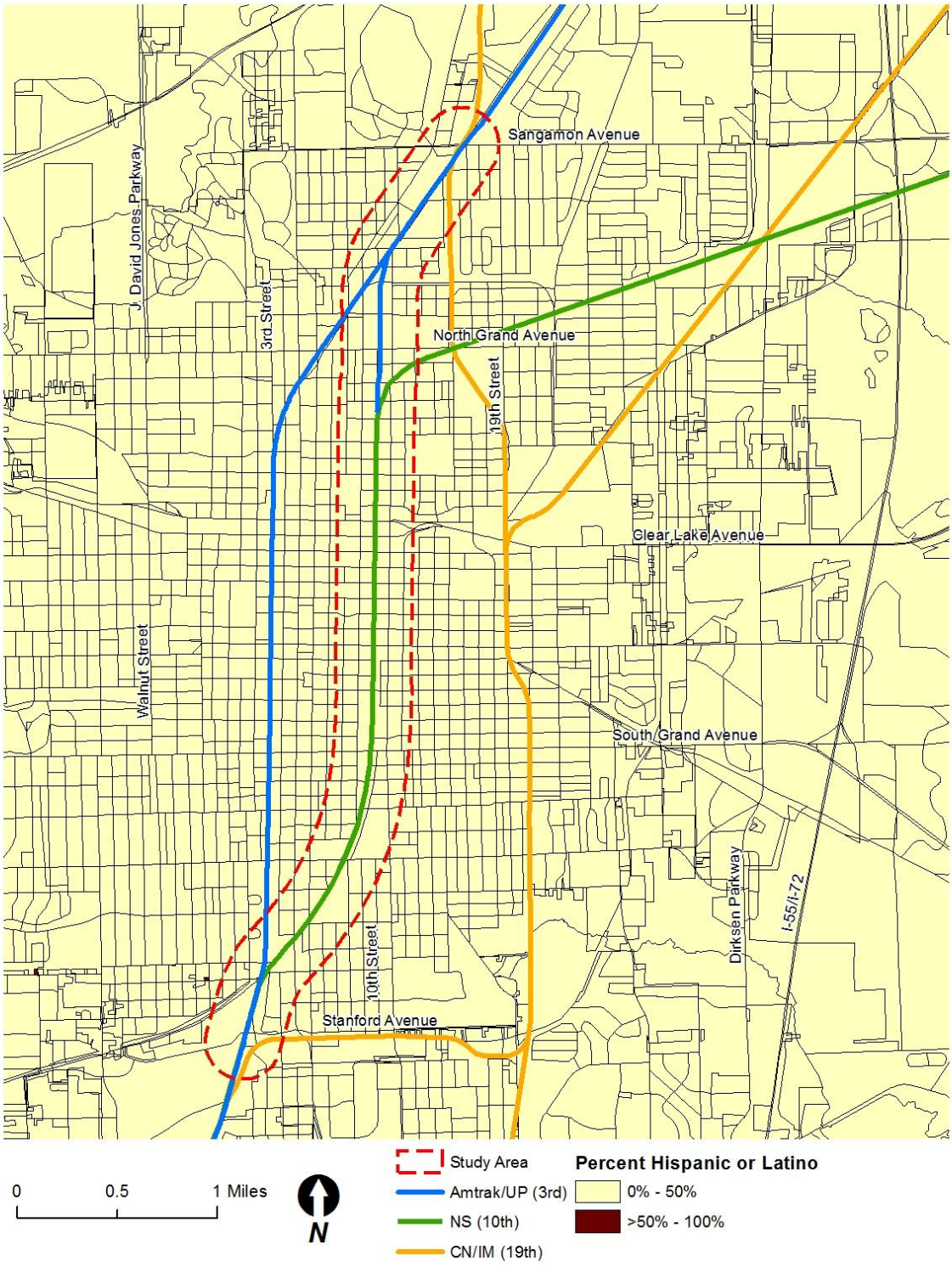


Exhibit 4-6. Hispanic or Latino Minority Percentages by Census Block

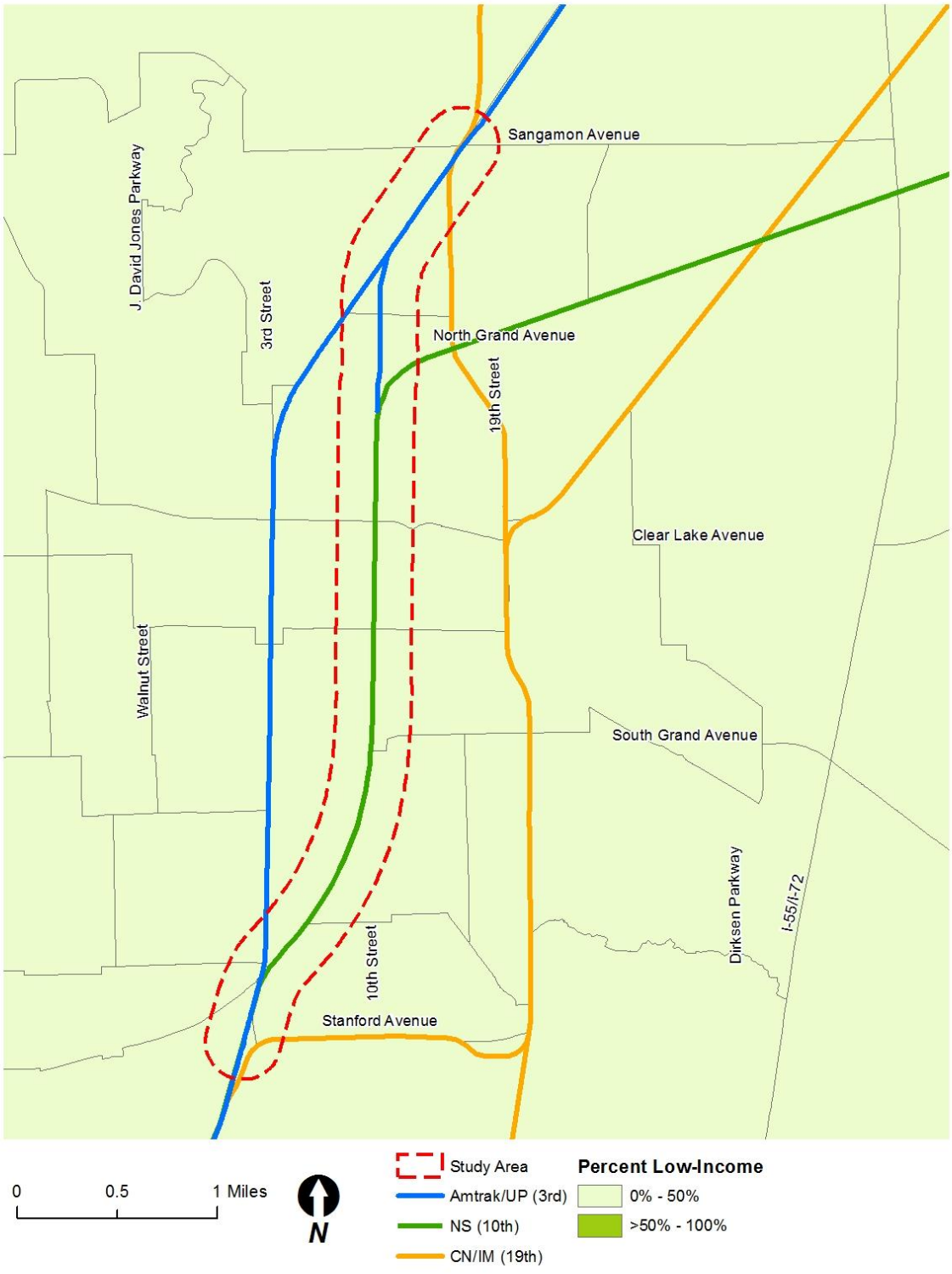


Exhibit 4-7. Low-Income Percentages by Census Tract

4.2.6 Transportation Network

Overall, the Springfield area has a well-developed transportation system, including interstates and other roads into Springfield and streets within Springfield (see Exhibit 4-8). Thirty-five intrastate and 74 interstate trucking companies serve Springfield, and the city currently supports 41 truck terminals. These are primarily located along I-55 and I-72 and are not affected by the project.

A number of streets, primarily east-west streets, cross the three railroad corridors. These streets, along with their functional classification and traffic are shown in Table 4-11.

Greyhound Lines provides bus service to and from Springfield. Their station is located on Dirksen Parkway and is not affected by the project. Because of its tourism industry, Springfield supports a large number of non-resident travelers, most of whom arrive by auto, with a smaller number coming by bus, air, and rail.

Within Springfield, public bus services are provided by the Springfield Mass Transit District (see Exhibit 4-9). Nine regular bus routes operate Monday through Saturday between 6:00 a.m. and 6:00 p.m. The central transfer point (where passengers may transfer between busses that serve different areas) consists of an area in downtown Springfield near 5th and Capitol Streets. East-west bus routes frequently enter and exit the transfer point by way of at-grade crossings of the 3rd and 10th Street rail corridors at Jefferson, Washington, Adams, Monroe, and Capitol.

Five railroads serve Springfield and Sangamon County. These include the Norfolk Southern, the Canadian National-Illinois Central, Kansas City Southern, the Illinois Midland, and the Union Pacific. Passenger rail service is provided by Amtrak trains operating on UP tracks, which operates from Chicago to St. Louis and beyond on the UP rail line which runs along 3rd Street. See Section 2.2 for details related to these corridors and their association with the project purpose and need.

The Abraham Lincoln Capital Airport (SPI) is a joint civil-military public airport in the northwest portion of Springfield. It is not in the project area, nor are its customers affected by rail operations.

4.2.7 Communities, Facilities, and Services

The project area affects neighborhoods associated with five neighborhood associations including Pillsbury, Downtown Springfield, Iles Park, Harvard Park, and Springfield South Corridor (see Exhibit 4-10).

Schools, fire stations, and hospitals serve the daily needs of residents within the project area (Exhibit 4-11).

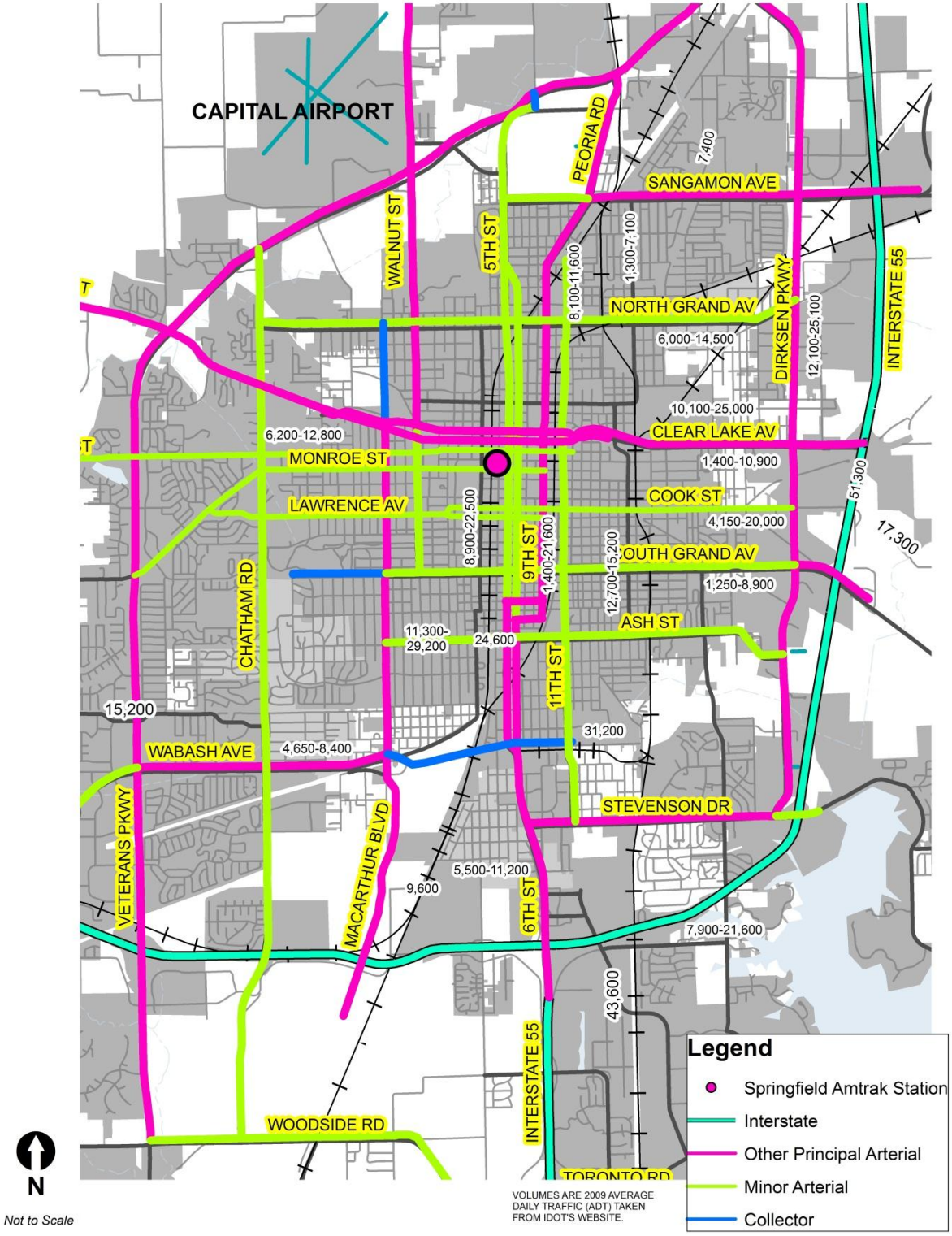


Exhibit 4-8. Roadways

Table 4-11. Streets Crossed by Rail Corridor

Railroad	Crossing Number	Cross Street	Roadway Classification	2009 ADT
UP	294287N	Sangamon	Principal Arterial	GS
UP	294289C	Ridgely	Collector	1,400
UP	294291D	9th	Principal Arterial	GS
UP	294292K	8th	Local	1,850
UP	294293S	Eastman/Converse	Collector	2,150
UP	294294Y	North Grand	Minor Arterial	14,500
UP	294295F	6th	Minor Arterial	2,600
UP	294297U	5th	Minor Arterial	4,050
UP	294299H	4th	Collector	1,200
UP	294300A	Dodge	Collector	GS
UP	294301G	Union	Local	950
UP	294302N	Carpenter	Minor Arterial	11,500
UP	294303V	Madison	Principal Arterial	13,700
UP	294305J	Jefferson	Principal Arterial	13,100
UP	294306R	Washington	Minor Arterial	2,000
UP	294308E	Adams	Local	3,050
UP	294310F	Monroe	Minor Arterial	4,950
UP	294311M	Capitol	Collector	GS
UP	294312U	Jackson	Local	1,500
UP	294313B	Cook	Minor Arterial	7,100
UP	294314H	Lawrence	Minor Arterial	5,700
UP	294315P	Canedy	Local	650
UP	294316W	Scarritt	Local	600
UP	294317D	Allen	Local	1,100
UP	294318K	South Grand	Minor Arterial	20,000
UP	294319S	Cedar	Local	375
UP	294320L	Laurel	Collector	7,600
UP	294321T	Ash	Minor Arterial	8,900
Total	**28**			**130,525**

Railroad	Crossing Number	Cross Street	Roadway Classification	2009 ADT
NS	479305Y	Dirksen	Principal Arterial	GS
NS	479307M	Wolfe	Collector	2,000
NS	479308U	Albany	Collector	3,300
NS	479309B	19th	Minor Arterial	6,200
NS	479313R	North Grand	Minor Arterial	9,900
NS	479312J	13th (Reservoir)	Local	900
NS	479319G	11th (Division)	Minor Arterial	6,000
NS	479320B	Enterprise	Local	1,150
NS	479322P	Enos	Collector	800
NS	479323W	Miller	Local	500

NS	479324D	Carpenter	Minor Arterial	7,700
NS	479325K	Reynolds	Local	700
NS	479327Y	Madison	Principal Arterial	11,000
NS	479328F	Jefferson	Principal Arterial	10,600
NS	479329M	Washington	Minor Arterial	1,700
NS	479330G	Adams	Local	2,250
NS	479331N	Monroe	Local	2,450
NS	479332V	Capitol	Collector	1,600
NS	479334J	Jackson	Local	350
NS	479336X	Cook	Minor Arterial	GS
NS	479337E	South Grand	Minor Arterial	GS
NS	479338L	Laurel	Collector	5,500
NS	479340M	Ash	Minor Arterial	7,400
NS	479342B	6th	Principal Arterial	GS
NS	479343H	5th	Principal Arterial	GS
Total	**25**			**82,000**

Railroad	Crossing Number	Cross Street	Roadway Classification	2009 ADT
CN	295585S	Dirksen	Principal Arterial	GS
CN	295584K	Keys	Local	200
CN	328469Y	North Grand	Minor Arterial	9,900
CN	313631S	Clear Lake		
CN	295603M	Washington	Local	100
CN	295604U	Adams	Local	1,400
CN	295605B	Capitol	Local	1,650
CN	295606H	Jackson	Local	1,750
CN	295607P	Edwards	Local	650
CN	295608W	Cook	Minor Arterial	GS
CN	295609D	Clay	Local	800
CN	295610X	Stuart	Local	850
CN	295611E	South Grand	Minor Arterial	14,600
CN	295612L	Cedar	Local	350
CN	295613T	Laurel	Collector	4,750
CN	295614A	Ash	Minor Arterial	7,900
CN	295616N	Truman	Local	100
CN	294963G	4th	Collector	GS
CN	294964N	5th	Principal Arterial	GS
CN	294965V	6th	Principal Arterial	GS
CN	328454J	11th	Minor Arterial	11,500
CN	328455R	15th	Local	400
CN	294966C	Fox	Collector	1,200
Total	**23**			**56,900**

Railroad	Crossing Number	Cross Street	Roadway Classification	2009 ADT
I&M	169957M	Griffiths	Collector	1,950
I&M	169959B	Converse	Collector	1,850
I&M	169960V	North Grand	Minor Arterial	9,900
I&M	169961C	Moffat	Local	1,700
I&M	169962J	Carpenter	Minor Arterial	7,200
I&M	295588M	Mason	Local	30
Total	**6**			**22,630**

Springfield is considered a premier health care and medical center within central Illinois. The city has three major hospitals and over 40 clinics. These health centers include: St. John's Hospital, Prairie Heart Institute, Carol Jo Vecchie Women's and Children Center, Southern Illinois Trauma Center (located at both St. John's Hospital and Memorial Medical Center), St. John's College Department of Nursing, Memorial Medical Center and the Springfield Clinic. The State of Illinois created the Mid-Illinois Medical District to support the advancement of health service and serves within medical facilities in a one-square-mile area of Springfield (Benson and Fulgenzi, 2009).

St. John's Hospital, one ambulance service, and three fire stations are less than six blocks from the NS corridor (10th Street). One hospital, one ambulance service, and one fire station are between the 3rd and 10th Street corridors (Lewis and Bergeron, 2010). Emergency vehicles going to or from these facilities must frequently cross the rail lines. Seven schools are less than six blocks from the NS corridor (10th Street). Six blocks were selected as an average maximum distance that students would walk to school. Three schools are between the 3rd and 10th Street corridors. Many students attending each of these schools must cross the rail lines.

The Illinois EPA headquarters is at 1021 North Grand Avenue East. The Illinois EPA is an Illinois agency whose mission is to safeguard environmental quality, consistent with the social and economic needs of the state, so as to protect health, welfare, property, and the quality of life. The agency's primary function is to enforce the environmental laws of the state.

The Salvation Army is at 221 N. 11th Street. The Salvation Army is an evangelical Christian church known for charitable work. This parcel is the site for their Main Thrift Store and Adult Rehabilitation Center. Currently, the Salvation Army has plans to move to a recently purchased location at 100 N. 9th Street.

The Planned Parenthood Springfield Health Center at 1000 E. Washington Street is a provider of sexual and reproductive health care, education, and information. Their services include family planning, abortion and birth control services, HIV and other STD testing, and men and women's health services.

The Springfield Park District provides year-round community recreational programs at its 30 public parks. Park resources are discussed in Section 4.15.

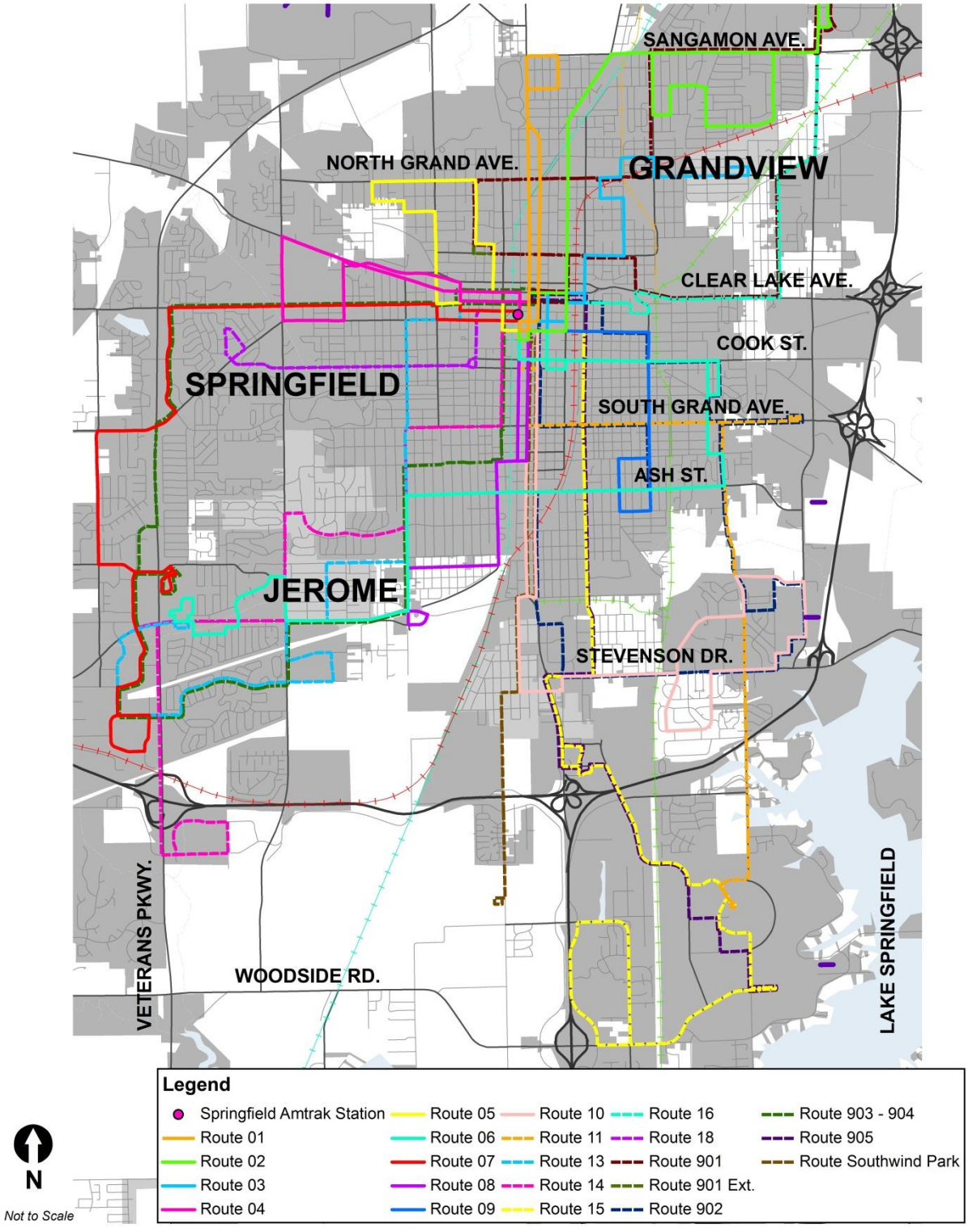


Exhibit 4-9. Bus Routes

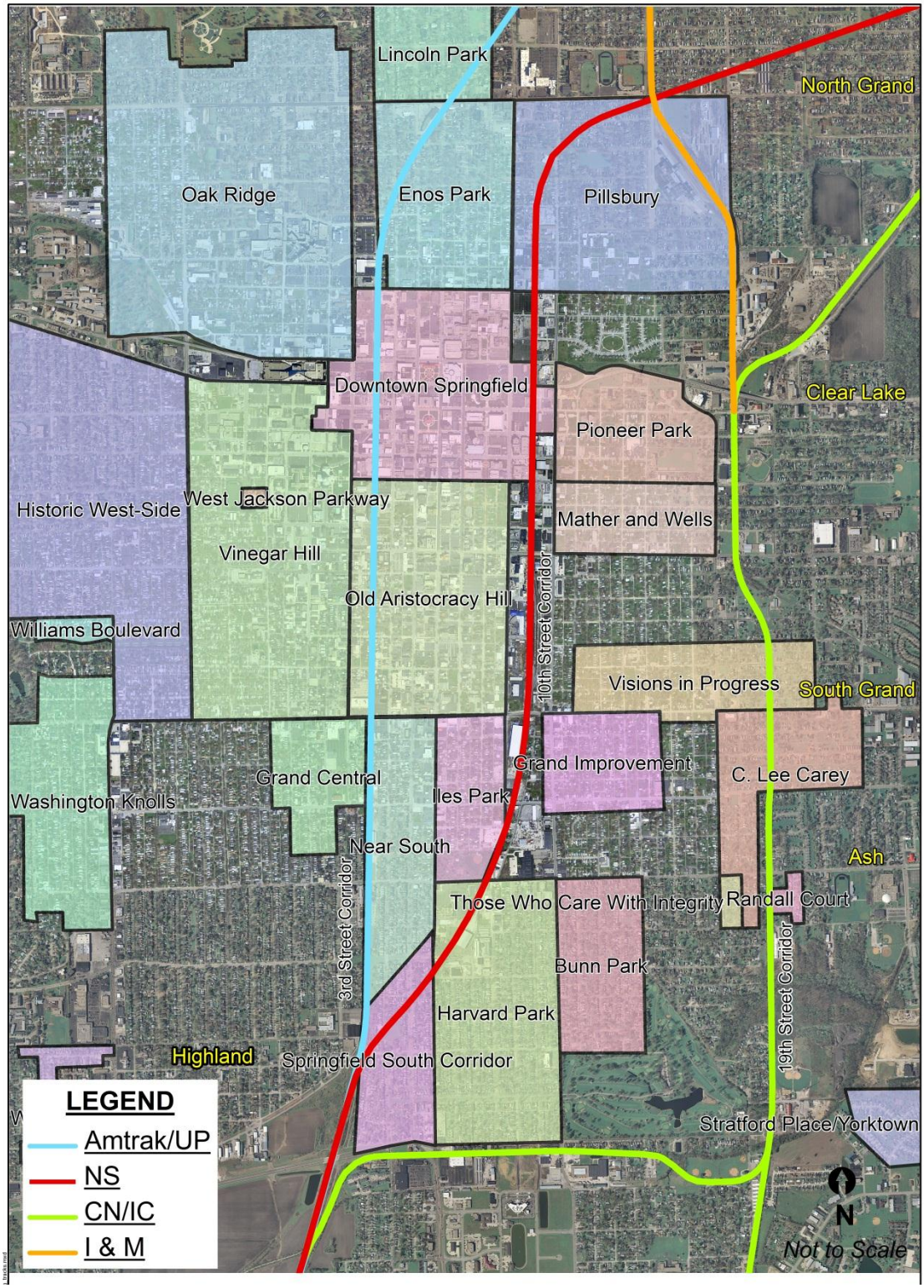


Exhibit 4-10. Neighborhood Associations

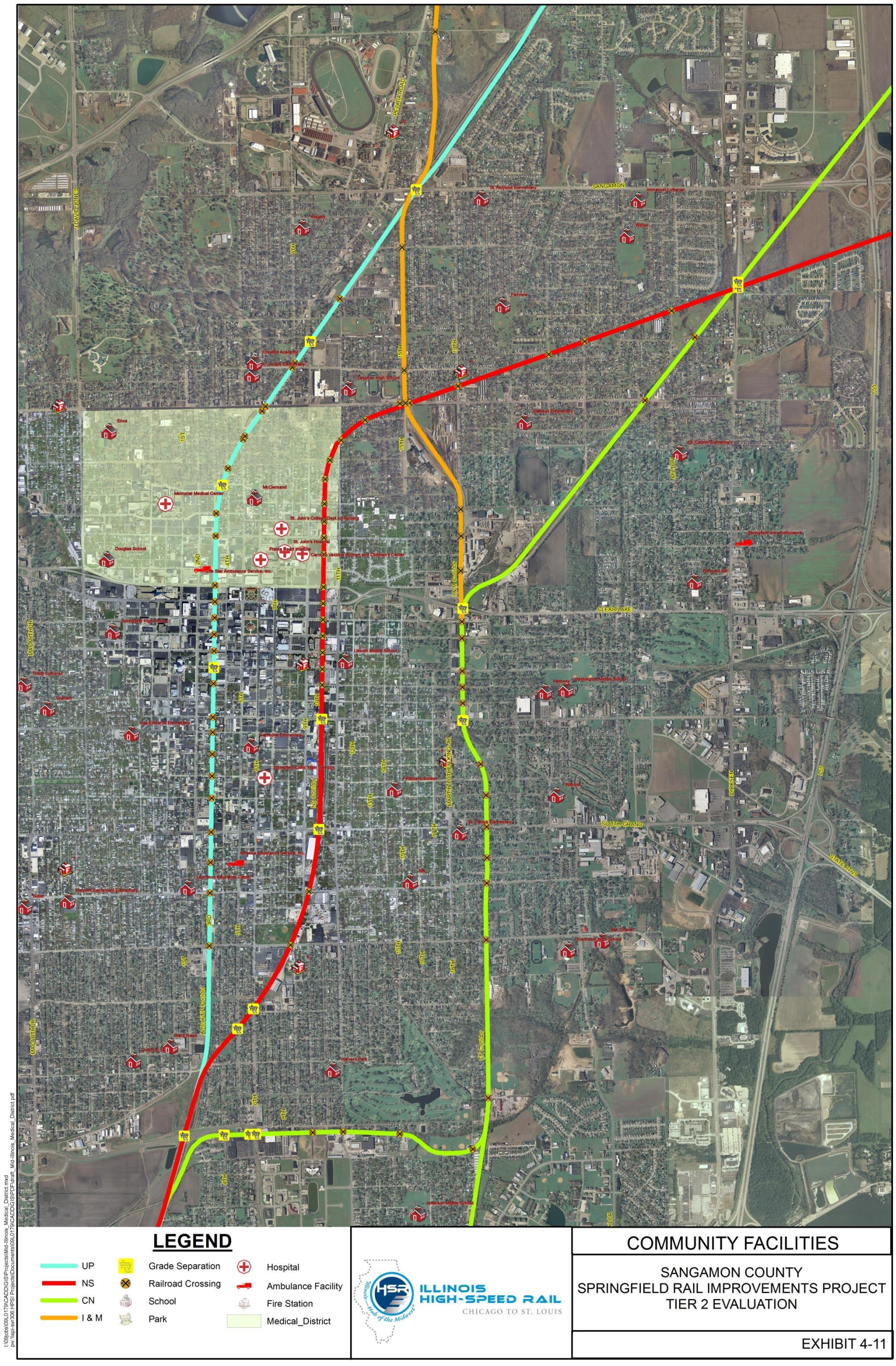


Exhibit 4-11. Community Facilities

A number of Sangamon County municipal streets have sidewalks on one or both sides of the roadway, although many municipal and unincorporated areas lack sidewalks or have sidewalks in need of repair. Almost all of the streets in the project area have sidewalks as they approach the rail corridors. The greater Springfield area currently has about 35 miles of bikeway, consisting of about 21 miles of trail and 14 miles of bike lanes or wide shoulders. Existing trails and routes are shown in Exhibit 4-12. None of the existing trails cross the rail corridors in the project area at-grade.

4.3 Energy

Transportation energy consumption within the project area occurs with rail, bus, and automobile. Travel by automobile is generally the most prevalent mode of transportation in the project area. The vehicle delays noted in the project purpose and need results in wasted automobile energy consumption as vehicles idle at crossings. Reduced delays would result in a reduction of wasted energy consumption.

4.4 Agriculture

The State of Illinois is primarily an agricultural state. Eighty-two percent of Sangamon County is farmland used for the production of crops or livestock, (USDA NRCS, 2004). Prime farmland is defined by the USDA as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. Nearly 83 percent of Sangamon County meets the requirements for prime farmland.

The project area is primarily urban, supporting government offices and attractions, commercial and industrial businesses, and residential neighborhoods; however, about 3 percent of the project area is in agricultural production.

The small area of farmland is located at the southern portion of the project area and is currently for sale for business development.

4.5 Cultural Resources

Cultural resources include historic, architectural, and archaeological sites and structures within the project area. Section 106 of the National Historic Preservation Act of 1966 (as amended) and Section 707 of the Illinois State Agency Historic Resource Preservation Act requires federal and Illinois state agencies to consider the effects of their projects on historic, architectural, and archaeological resources that are either listed in or have been determined to be eligible for listing in the National Register of Historic Places.

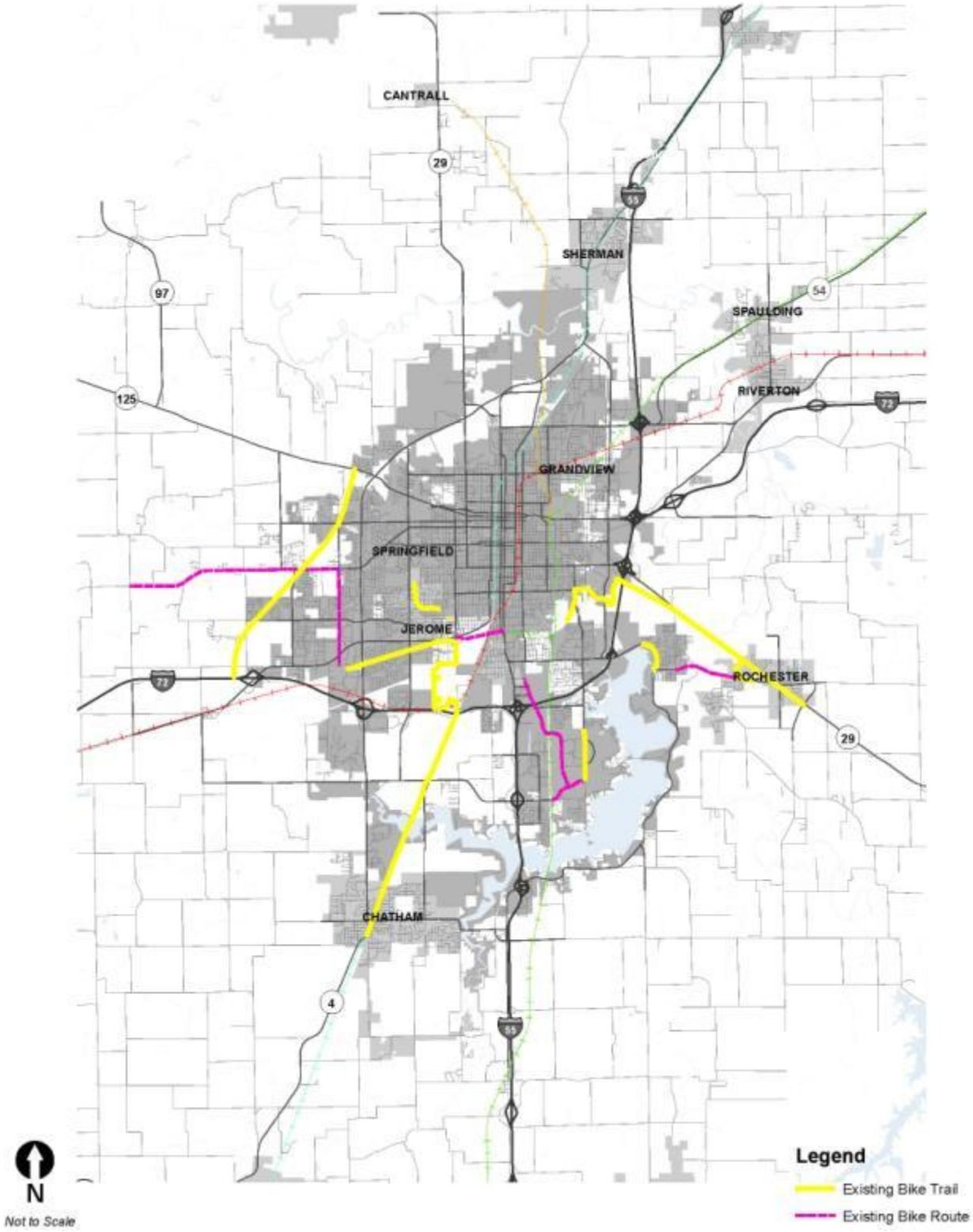


Exhibit 4-12. Bike Trails

The National Register of Historic Places (NRHP), which is administered by the National Park Service, recognizes historically significant buildings, structures, sites, objects, and districts. Eligibility to the National Register is based on four broad criteria that are defined by the National Park Service and used to guide the evaluation process. These criteria state that:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant to our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or may be likely to yield, information important in prehistory or history (36CFR60.4 Criteria for Evaluation).

Three properties listed on the National Register are within the project area, mostly in urban Springfield (Exhibit 4-13).

A Phase I cultural (historical and archaeological) resource evaluation was conducted for the Area of Potential Effects, for the Preferred Alternative and Alternative 2B. The Area of Potential Effects (APE) includes properties within two blocks of the existing 10th Street tracks and within two blocks of the proposed grade separations on the 19th Street track and at the NS grade separation on North Grand Avenue.

The results of the resource review are documented in a technical report titled *Phase I Cultural Resources Evaluation: Springfield Rail Improvements Project, Springfield, Sangamon County, Illinois* (Fever River Research, 2011). Correspondence on the eligibility for inclusion in the NRHP for directly affected properties from the Illinois Historic Preservation Agency (IHPA) is included in Appendix A.

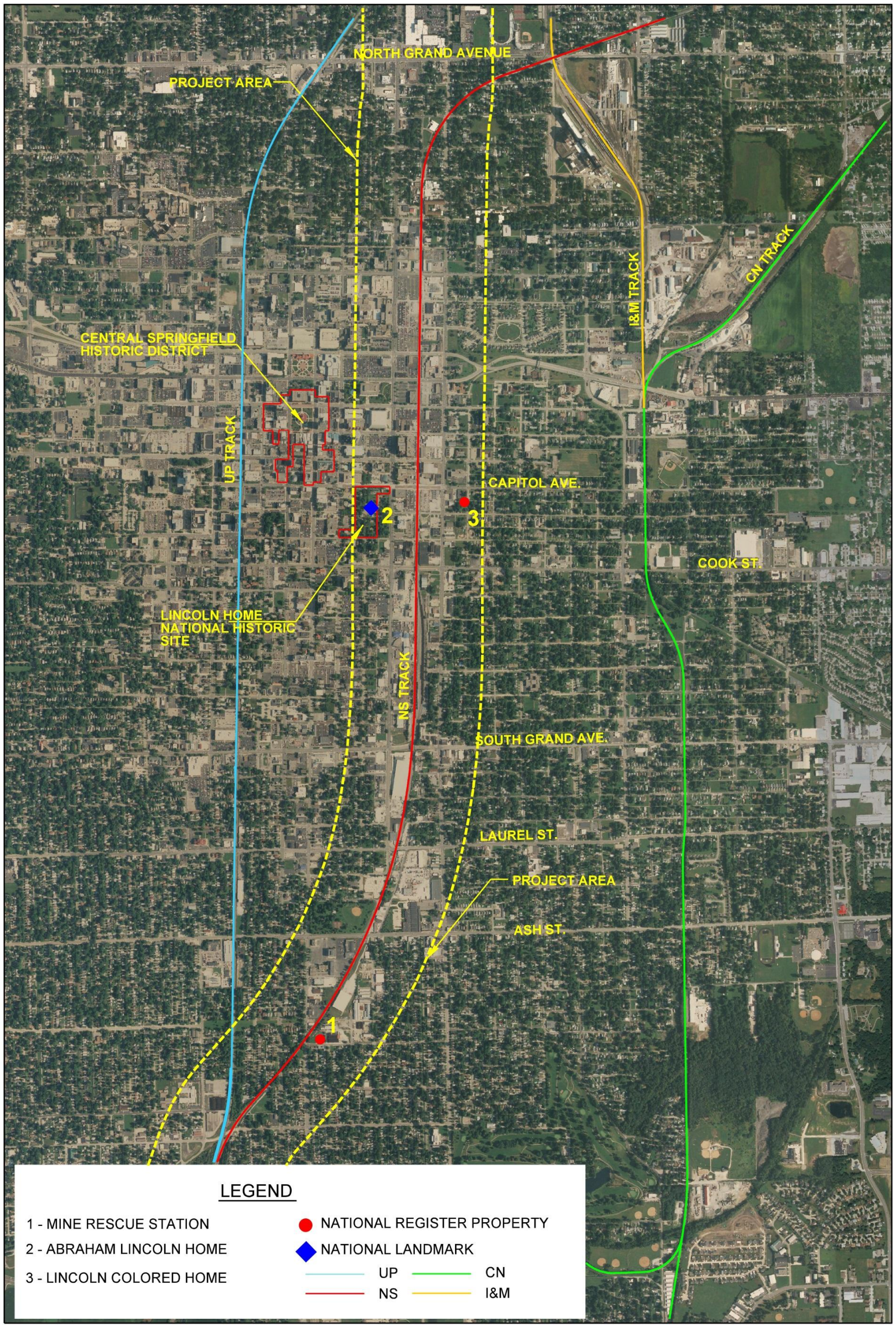


Exhibit 4-13. National Register Sites within the Area of Potential Effect (APE)

4.5.1 Historic Resources in the Area of Potential Effect

Fifty-six properties identified as architecturally notable are within the APE along the 10th Street corridor (Table 4-12). These resources are also shown in Exhibits B-1 and B-2 in Appendix B.

One National Register property is also a National Historic Landmark. This property is the Abraham Lincoln Home at the corner of the 8th and Jackson streets (see Exhibit 4-9). It is the centerpiece of the Abraham Lincoln Home National Historic District, which covers much of the two-block area bounded by Capitol, Edwards, 7th and 9th streets and is administered by the National Park Service. The historic district lies on the western edge of the APE. The Lincoln Home itself is nearly two blocks west of the NS tracks.

Aside from the Lincoln Home, the two other National Register properties along the 10th Street corridor are the Lincoln Colored Home at 427 South 12th Street and the Mine Rescue Station at 609 East Princeton Avenue. The Lincoln Colored Home is well removed from the NS tracks, being on the eastern edge of the APE. The Mine Rescue Station, however, is situated a short distance from the railroad, close to the 6th Street viaduct.

There are 14 properties listed on the National Register as contributing properties to the Lincoln Home National Historic Site. All are former residences and six of the 14 are in the APE. The contributing buildings to the historic district presently are utilized for interpretive purposes and administrative office space.

Eight potentially eligible properties (designated as City Landmarks) lie within the APE. Six of these are within the east half (east of 8th Street) of the Lincoln Home neighborhood and are contributing resources to the National Historic District. Another is the Lincoln Colored Home, which—as noted above—also is listed on the National Register of Historic Places. The two remaining in the APE are the Old Southtown Marque at 1110 East South Grand Avenue and the Claus Grocery Store at 1700 South 11th Street. Both of these properties lie at least one block east of the 10th Street tracks.

There are 34 residences within the APE that are thought to predate 1861. Eleven of these properties are in the Lincoln Home National Historic Site itself, while three more lie in close proximity to it. Thirteen others are on the 800-1200 blocks of South 11th and 12th streets. Another concentration of pre-1861 residences lies on the southern end of the Pillsbury neighborhood. Although many of the pre-1861 homes in the 10th Street corridor outside of the Lincoln Home area have poor integrity, they nonetheless represent the earliest generation housing in their respective neighborhoods (and indeed are amongst the oldest surviving in Springfield) and may offer significant data regarding construction methods and materials.

One property in the APE has been previously identified as being potentially eligible for listing on the National Register, this being the old store building at 622 South 8th Street. Other potential candidates for National Register eligibility are present within the APE as indicated in Table 4-12.

Table 4-12. NHRP and NHRP-Eligible Resources within the APE - 10th Street Corridor (1)

Exhibit ID	Resources	Address	National Register	Preliminary National Register Eligible
1	Illinois State Fairgrounds	Sangamon & Peoria Rd.	X	
2	Ridgely Interlocking Tower(2)	1501 Percy Avenue		X
3		1120 East Ridgely		X
4	Lanphier HS Gymnasium	1121 East North Grand		X
5	[Brick Italianate Commercial]	1001 North 9th		X
6	Springfield Furniture Factory(2)	819 North 11th		X
7	Concordia Seminary	North 12th & Enos		X
8	[Queen Anne Cottage]	1021 East Phillips		X
9	[Frame Queen Anne Cottage]	919 North 9th		X
10	[Frame House]	901 North 9th		X
11	[Frame House]	809 North 9th		X
12		1105 East Miller		X
13		1106 East Miller		X
14		1122 East Miller		X
15	Municipal Substation	1013 East Reynolds		Not Eligible
16		1121 East Reynolds		X
17		801 East Miller		X
18	St. John's Hospital	800 East Carpenter		X
19	GIPS Co. General Warehouse	217 North 9th		X
20	Great Western RR Depot(2)	East Monroe & 10th		X
21	Fireproof Storage House No. 3(2)	1000 East Monroe		Not Eligible
22	Lincoln School	1115 East Capitol		X
23	Lincoln Colored Home	427 South 12th	X	
24		1201 East Edwards		X
25	Sacred Heart Rectory	722 South 12th		X
26	Sacred Heart RC Church	South 12th & Lawrence		X
27	Morse, James, House	818 East Capitol		Contributing Resource (3)
28	Abraham Lincoln Home	South 8th & Jackson	X	
29	Charles Arnold House	810 East Jackson		Contributing Resource (3)
30	Cook House	508 South 8th		Contributing Resource (3)

Table 4-12. (continued) NHRP and NHRP-Eligible Resources within the APE - 10th Street Corridor (1)

Exhibit ID	Resources	Address	National Register	Preliminary National Register Eligible
31	Henson Robinson House	520 South 8th		Contributing Resource (3)
32	Solomon Allen Barn	530 South 8th		Contributing Resource (3)
33	[Frame Queen Anne House]	814 East Edwards		X
34		810 East Edwards		X
35	[Frame Queen Anne House]	802 East Edwards		X
37	[Italianate Frame House]	718 South 8th		X
38		612 South 8th		X
39		805 South 12th		X
40		809 South 12th		X
41		902 South 12th		X
42		920 South 11th		X
43		1019 South 11th		X
44		1104 South 11th		X
45		1122 South 11th		X
46		1124 South 11th		X
47		1209 South 12th		X
48		1219 South 12th		X
49	Old Southtown Theater Marquee	1110 East South Grand		X
50	[Victorian Frame House]	1314 South 8th		X
51	Claus Grocery Store	1700 South 11th		X
52	First Brethren Church	2117 South Yale		X
53	Iles Park Shelter	East Ash & 6th		X
54	Peabody Coal Company Office(2)	2135 South 9th		Not Eligible
55	Weaver Building	2150 South 9th		X
56	Mine Rescue Station(2)	609 Princeton Avenue	X	

1) The Area of Potential Effect represents two blocks on either side of the tracks.

2) Denotes properties within or adjacent to NS right-of-way.

3) A Contributing Resource to the Abraham Lincoln Home National Register Historic District.

A Phase I cultural resource evaluation was conducted for the retained alternatives along the APE of the 10th Street corridor. Architectural and historic structures within the APE of the retained alternatives are shown in Exhibits B-1 and B-2 of Appendix B. A total of 56 architecturally notable properties are within the corridor for the Preferred Alternative and Alternative 2B. FRA has made a preliminary determination of eligibility for surveyed properties as shown in Table 4-12. This determination is pending IHPA's concurrence.

4.5.2 Archaeological Resources

The archaeological investigations undertaken in the APE in the past have been centered in the Lincoln Home National Historic Site, which has been scene of extensive archaeology since the middle 1950s. In 1985, archaeological investigations were conducted adjacent to the Lincoln Home in conjunction with the restoration then being undertaken. Subsequent investigations in the neighborhood have been driven by the National Park Service's ongoing restoration program, which is directed at restoring the streetscape and surviving homes on the 400 and 500 blocks of South 8th Street to their circa 1860 appearance. The National Park Service's Midwest Archaeological Center excavated on multiple lots during the 1980s and 1990s. Since that time, archaeological investigations occurred within the historic district—beginning with the Sprigg Site in 1997 and with the Aitken Barn at the DuBois Site in the winter of 2009-2010. Eighteen of the lots in the neighborhood have been investigated to some extent to date. None of these lots are in the APE. Furthermore, there are no known/previously identified archaeological sites within the APE.

No archaeological surveys or testing were conducted as part of this project because these areas are on private property. As right-of-way is purchased for construction, archaeological surveys will be conducted, as necessary, per a Programmatic Agreement with the SHPO. However, some general assessments can be made regarding the potential for archaeological resources in the APE based on prior experience. Springfield is a mature urban center with nearly 200 years of Euro-American settlement. Previous investigations have amply demonstrated the presence of significant historical archaeological resources with good integrity in the city. That this has been illustrated in residential areas like the Lincoln Home neighborhood is perhaps not that surprising. However, it also was proven in the Abraham Lincoln Presidential Library investigations, where multiple components were documented with good integrity—despite successive rebuilding episodes on their respective lots. This illustrates the high potential for significant archaeological resources being present elsewhere in the Central Business District along 3rd Street and adjoining areas comprising early Springfield. The resources along the 10th Street corridor were developed later in time (early 1900s) and are much less concentrated than those in the 3rd Street corridor; therefore, there is a much lower probability for significant findings along the 10th Street corridor.

4.6 Natural Resources

4.6.1 Ecological Resources

4.6.1.1 Vegetation and Habitat

Sangamon County is part of the Grand Prairie Natural Division of Illinois. There are no native prairies or sensitive vegetation habitats within the Preferred Alternative and Alternative 2B. The Preferred Alternative and Alternative 2B are almost entirely in an urban setting along an existing railroad corridor. The vegetative communities off the railroad right-of-way include primarily non-native grasses, mostly residential lawns. The existing railroad right-of-way consists of non-native grasses as well, and also shrubs and trees common to the area. Common species include: silver maple, slippery elm, box elder, hackberry, wild cherry, blackberry, multi-flora rose, poison ivy, foxtail, and common fescue. About 3 percent of the project area is cropland, located at the southern end of the 10th Street corridor near Stanford Avenue. Natural areas within the project area are non-existent (Illinois Department of Natural Resources, 1996).

Railroad rights-of-way and their associated vegetative cover can provide habitat for many wildlife species. The linear characteristics of a rail line offers not only localized habitat value, but also continuity of open space, linking diverse habitat features. This linkage can be important, especially where the right-of-way passes through predominantly agricultural or urban areas that otherwise offer limited habitat value and diversity. However, FRA has regulations for vegetation control of track. The railroad right-of-way has a cleared portion of trackbed and track and brush and trees are controlled to prevent overhang and intrusion into the track area. The railroad right-of-way is also periodically sprayed with a contact herbicide to control vegetation growth.

4.6.1.2 Forest

As discussed in Section 4.5.2.2 above, contiguous forested habitat is not present within the project area. Individual trees are present along the Preferred Alternative and Alternative 2B in residential yards, along streetscapes and in city parks. Typical dry to mesic tree species include shagbark hickory, white ash, white oak, red oak, black oak, sugar maple, shadbush, blue beech, hop hornbeam, redbud, black cherry, sassafras, slippery elm, bitternut hickory, bur oak, basswood, hackberry, black walnut, and Ohio buckeye. Typical mesic to wet tree species include American elm, slippery elm, hackberry, swamp white oak, bur oak, green ash, shingle oak, box elder, red mulberry, paw paw, silver maple, pin oak, honey locust, sycamore, sandbar willow, black willow, and cottonwood.

4.6.1.3 Birds

Bird species composition in the project area is expected to be fairly typical of the urban areas of Illinois. H. David Bohlen, *A Study of the Birds of Sangamon County, Illinois*, *Illinois State Museum*, lists 355 species of song birds, aquatic birds, game birds, and raptors known or likely to occur within or passing through the project area.

4.6.1.4 Mammals

The Illinois Natural History Survey lists 47 species of mammals (including those species that are threatened or endangered) known or likely to occur in the Lower Sangamon River Sub-basin (INHS, 2001). The 47 species represent about 80 percent of the mammal species that currently inhabit Illinois. Mammals such as mice, moles, voles, rats, squirrels, rabbits, raccoons, fox, and deer are likely to occur within the project area. Many mammal species are generalists that use a variety of habitat types and have adapted to living in landscapes that have been altered by human activity. Larger mammals that now commonly inhabit agricultural and urban areas include the Virginia opossum, eastern cottontail, fox and gray squirrels, coyote, red fox, raccoon, striped skunk, and white-tailed deer. Several small mammals, including the eastern mole, northern short-tailed shrew, thirteen-lined ground squirrel, deer mouse, and prairie and meadow voles, can occupy fence rows, pastures, and hay fields as well as maintained areas such as highway and railroad rights-of-way, cemeteries, parks, and lawns. Some bats, especially big brown and little brown bats, roost primarily in buildings and other small mammals such as the white-footed mouse sometimes enter buildings in search of food and shelter.

4.6.1.5 Reptiles and Amphibians

The Illinois Natural History Survey lists 16 amphibian species and 29 reptile species that are known or likely to occur within the Lower Sangamon River Sub-basin (INHS, 2001). Common amphibians typically occurring in the project area are the American toad, cricket frog, spring peeper, and bullfrog. Common reptiles typically occurring in the project area include the Eastern box turtle, common kingsnake, and the common garter snake. Most amphibian and reptile species are not restricted to a single habitat type. Reptiles are usually found in close proximity to aquatic habitats because they can find abundance of prey in these productive habitats.

4.6.1.6 Invasive Species

An invasive species is typically a non-native species whose introduction causes or is likely to cause economic or environmental harm or harm to human health, for example, by:

- Out-competing native species for resources and pollinators
- Altering the ecology of natural areas
- Weakening or damaging equipment and infrastructure
- Spreading pathogens and parasites

By reproducing rapidly, invasive species spread over large areas of the landscape and have few, if any, natural controls, such as predators or diseases, to keep them in check.

Common invasive species found in Illinois and possibly in the project area include: Narrow-leaved cattail, Multiflora rose, Japanese honeysuckle, garlic mustard, common reed, common chickweed, and Norway rat.

4.6.2 Threatened and Endangered Species

The Federal Endangered Species Act (ESA) of 1973, as amended, was passed in an attempt to control the loss of at-risk birds, mammals, reptiles, mussels, fish, amphibians, invertebrates, and plants. Section 7 of the ESA requires the projects being authorized, funded, or carried out by federal agencies demonstrate that the action would not jeopardize the continued existence of any listed species or modify their critical habitat. If federally listed species are known to exist on a proposed site, the lead federal agency initiates Section 7 consultation with the US Fish and Wildlife Service (USFWS) to ensure that the species and /or critical habitat would not be adversely affected by the project. The FRA fulfilled their Section 7(a)(2) obligations through early coordination with USFWS and by utilizing their technical assistance website tool to identify endangered, threatened, proposed and candidate species, and proposed and designated critical habitat within the project area.

Federally-listed species included within Sangamon County are listed below. There are no Candidate species or designated Critical Habitat occurring within the vicinity of the project area.

- Mammals
  - Indiana Bat (M*yotis sodalis*) – Endangered
- Plants
  - Eastern Prairie Fringed Orchid (*Platanthera leucophaea*) – Threatened
- Invertebrates
  - Sheepnose Mussel (*Plethobasus cyphyus*) - Endangered

The Indiana Bat hibernates during winter in caves or occasionally in abandoned mines. During the summer they roost under the peeling bark of dead and dying trees in hardwood forests. They prefer hunting flying insects along rivers, lakes, or open grasslands and croplands.

The Eastern Prairie Fringed Orchids prefer mesic prairies and wetlands such as sedge meadows, marsh edges, even bogs. It requires full sun for optimum growth and flowering and a grassy habitat with little or no woody encroachment. A symbiotic relationship between the seed and soil fungi, called mycorrhizae, is necessary for seedlings to become established. This fungi helps the seeds assimilate nutrients in the soil.

The Sheepnose Mussel prefers living in the coarse sand and gravel bottoms of larger freshwater rivers and streams. They are usually found in shallow areas with moderate to swift currents.

The Illinois Endangered Species Protection Act (IESPA) of 1972 (as amended) is similar to the ESA but is implemented at the state level. The state act protects state-listed animals and plants from unauthorized actions. This act requires agencies of the state and local governments to enter into a consultation process with the Illinois Department of Natural Resources to evaluate whether actions authorized, funded or implemented by these entities are likely to jeopardize the continued existence of state-protected species or are likely to result in the destruction or adverse modification of designated essential habitat of any listed species.

Through scoping with the Illinois Department of Natural Resources (IDNR), the following list was developed that included state threatened and endangered species potentially occurring in central Illinois (see Appendix A):

- **Birds**
  - Northern Harrier *(Circus cyaneus)* - Endangered
  - Peregrine Falcon *(Falco peregrinus)* - Threatened
  - Least Bittern *(Ixobrychus exilis)* - Threatened
  - Loggerhead Shrike *(Lanius ludovicianus)* - Endangered
  - Black-crowned Night Heron *(Nycticorax nycticorax)* - Endangered
- **Mammals**
  - Franklin's Ground Squirrel (*Poliocitellus franklinii*) - Threatened
- **Reptiles**
  - Kirtland's Snake (*Clonophis kirtlandi*) - Threatened
  - Ornate Box Turtle (*Terrapene ornate*) - Threatened
  - Lined Snake (*Tropidoclonion lineatum*) - Threatened
- **Plants**
  - Virginia Bunchflower (*Melanthium virginicum*) - Threatened
  - Heart-leaved Plantain (*Plantago cordata*) - Endangered
  - Tubercled Blossom (*Epioblasma torulosa*) - Threatened

No further consultation has occurred for this project with USFWS or IDNR (Illinois Endangered Species Protection Board, 2011).

4.6.2.1 Threatened and Endangered Species Preferred Habitat

Birds

The Northern Harrier prefers open county, like grasslands, steppes, wetlands, meadows, pastures, croplands, and riparian woodlands.

The Peregrine Falcon prefers perching or nesting on tall structures near water such as bridges, skyscrapers, water towers, ledges of rocky cliffs, and power pylons.

The Least Bittern prefers dense emergent vegetation in freshwater marshes and occasionally saltwater or brackish marshes. Sometimes they are seen on the edges of mud flats in the marsh or on the edges of canal banks.

The Loggerhead Shrike prefers open woodlands, meadows, and grassy pastures that are well-grazed or mowed. They are often seen perched on dead branches, utility wires, or fences. Usually found nesting in dense trees or shrubs.

The Black-crowned Night Heron prefers fresh and salt-water wetlands, mudflats, ponds, rivers, reservoirs, and mangroves. They ambush prey at the water's edge mainly at night or early morning. Often found nesting or roosting in nearby trees or bushes during the day.

Mammals

The Franklin's Ground Squirrel prefers tallgrass prairie, weedy fields, wastelands, and railroad beds overgrown with weeds. They also may be found in fence rows, old fields, roadsides (if not mowed frequently), cemetery prairies, and ditch banks. They spend the majority of their time in their burrows, and hibernate about seven months a year.

Reptiles

The Kirtland's Snake prefers moist, open meadows, and wet prairies. Some of the largest known populations exist in parks and other urban settings in open grassy areas with a nearby water source, such as a creek, pond, or ditch. They may also be found under objects such as boards, logs, rocks, leaves, and even in rodent or crayfish burrows in wet grasslands, along ditches, ponds, lakes, creeks, and swamps.

The Ornate Box Turtle prefers mesic woodlands and grasslands.

The Lined Snake prefers prairies, grasslands, pastures, woodland edges, and even parks, city lots, cemeteries, and backyards.

Plants

The Virginia Bunchflower prefers wet areas of meadows, prairies, and savannas.

The Heart-leaved Plantain prefers swamps, floodplains, and streambanks shaded by mesic hardwood forests and are often found growing in rock crevices or gravel bars in shallow streams in heavily wooded areas.

Tubercled Blossoms prefer living in the sand or gravel bottoms of free-flowing, clean water streams and rivers.

4.6.2.2 Potential for Habitat or Species Presence in the Project Area

Since no suitable habitat exists in the project area for any of the species mentioned above, no additional studies are anticipated.

There were no reports of occurrences from the Illinois Department of Natural Resources or the USFWS regarding previous sightings or the potential for suitable habitat for any of the state or federally threatened or endangered species (see Appendix A).

However, public comments were received about the state threatened Franklin's Ground Squirrel (*Spermophilus franklinii*) as potentially occurring within the project area.

A local environmental group (Friends of the Sangamon Valley) reported that the Franklin's ground squirrel is known to occur on abandoned railroad right-of-way on the far west side of Springfield. The preferred habitat at this location consists of abandoned, undisturbed railroad ballast for denning, with non-native grasses adjacent to the railroad embankment and large agricultural fields in close proximity for forage.

The project area was field surveyed in August 2010 for similar, suitable habitat, and evidence of any active colonies. No suitable habitat or colony activity was observed. This is likely as a result of the active nature of the railroad line and the high disturbance from roadways, residents, and railroad right-of-way spraying for weed and brush control. No federal considerations are required for this state-threatened species during subsequent phases of this project.

4.6.3 Natural Areas

According to the Illinois Natural Heritage Database, there are no Illinois Natural Area Inventory (INAI) sites within the project area.

4.7 Air Quality

4.7.1 Air Quality Conformity

Air quality refers to the condition of the atmosphere and the relative level of pollution in the air. Transportation sources produce several pollutants that can degrade the atmosphere. As required by the Clean Air Act (CAA) and the 1990 Clean Air Act Amendments, the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for six major air pollutants. These six criteria air pollutants are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO2), particulate matter (PM10 and PM2.5), ozone (O3), and sulfur dioxide (SO2). Areas in which air pollution levels persistently exceed the NAAQS may be designated as "nonattainment." States with a nonattainment area must develop and implement a State Implementation Plan (SIP) containing policies and regulations that would bring about attainment of the NAAQS. Areas that had been designated as nonattainment but that have attained the NAAQS for the criteria pollutant(s) associated with the nonattainment designation, would be designated as maintenance areas.

The CAA requires federal agencies to ensure that their actions conform to the appropriate SIP. Conformity regulations apply to federal actions occurring in air basins designated as nonattainment for criteria pollutants or in attainment areas subject to maintenance plans. Federal actions occurring in areas that are in attainment with criteria pollutants are not subject to the conformity rule. No portion of Sangamon County is within a designated nonattainment area or maintenance area.

4.7.2 Mobile Source Air Toxics

In addition to the criteria pollutants for which there are NAAQS, the USEPA regulates mobile source air toxics (MSATs). MSATs are compounds, such as benzene and other hydrocarbons, emitted from highway vehicles and nonroad mobile sources (e.g., trains) which are known or suspected to cause cancer and other serious health and environmental effects. The CAA identified 188 air toxics, also known as hazardous air pollutants. The USEPA identified a group of 93 compounds emitted from mobile sources, and identified a subset of this list of 93 that are considered the seven priority MSATs. These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, napthlalene, and polycyclic organic matter. No federal ambient standards currently exist for MSATs.

4.7.3 Ambient Air Quality

The Illinois EPA and contributing local agencies maintain air quality monitors throughout Illinois. Monitors for sulfur dioxide, carbon monoxide, ozone, and particulate matter (PM2.5) are established in Springfield. Table 4-13 lists the last three years of monitored data for Springfield. No exceedances of the NAAQS were reported for Springfield in years 2007, 2008, and 2009 (Illinois Environmental Protection Agency, 2008-2010).

Table 4-13. Air Quality Monitor Data for Springfield, Illinois (2007-2009)

Ozone	Number of Days Greater Than			Highest Samples (ppm)					
				1-hr			8-hr		
Year	0.12 ppm(1)	0.08 ppm(2)	0.075 ppm(3)	1st	2nd	3rd	1st	2nd	3rd
2007	0	0	2	0.093	0.090	0.079	0.081	0.079	0.075
2008	0	0	0	0.073	0.073	0.071	0.064	0.061	0.059
2009	0	0	0	0.072	0.068	0.067	0.064	0.064	0.062
Particulate Matter ($PM_{2.5}$)	Number of Samples		98th Percentile Value	Highest Samples ($\mu g/m^3$)				Annual Arithmetic Mean	
Year	Total	>35$\mu g/m^3$							
2007	102	0	34.3	34.6	34.3	34.3	32.0	13.0	
2008	112	0	24.1	29.9	27.3	24.1	23.8	11.0	
2009	115	0	21.7	23.0	22.4	21.7	21.5	10.6	
Carbon	Number of Samples			Highest Samples (ppm)					

Monoxide		1-hr	8-hr	1-hr Average			8-hr Average		
Year	Total	>35 ppm	>9 ppm	1st	2nd	3rd	1st	2nd	3rd
2007	8707	0	0	3.0	2.9	2.8	2.0	1.4	1.3
2008	8716	0	0	2.5	2.2	2.1	1.5	1.4	1.3
2009	8650	0	0	4.5	2.0	1.7	1.2	1.2	1.2
Sulfur Dioxide	Number of Samples			Highest Samples (ppm)					
		3-hr	24-hr	3-hr Average		24-hr Average		Annual Arithmetic Mean	
Year	Total	>0.5	>0.14	1st	2nd	1st	2nd		
2007	8672	0	0	0.122	0.120	0.053	0.051	0.003	
2008	8707	0	0	0.117	0.095	0.049	0.037	0.003	
2009	8707	0	0	0.032	0.021	0.005	0.005	0.001	

(1) USEPA revoked the one-hour ozone standard (0.12 parts per million (ppm)) in 1997.

(2) Although the current eight-hour ozone standard is 0.075 ppm, nonattainment designations currently only exist for the 1997 ozone standard (0.08 ppm).

(3) Two days having greater than the 0.075 ppm standard is acceptable since the fourth-highest daily maximum eight-hour concentration is used.

The Air Quality Index (AQI) is the national standard method for reporting air pollution levels to the general public. The AQI uses a single number and a short descriptor to define the air quality. The AQI is based on the short-term federal NAAQS, episode criteria, and significant harm levels for six of the criteria pollutants, namely ozone, sulfur dioxide, carbon monoxide, particulate matter (PM10), particulate matter (PM2.5), and nitrogen dioxide. The AQI number ranges from 0 to 301 and above and the corresponding descriptor categories are: Good (0-50), Moderate (51-100), Unhealthy for Sensitive Groups (101-150), Unhealthy (151-200), Very Unhealthy (201-300), and Hazardous (301 and above). The Springfield, Illinois, sector (meaning the Springfield metropolitan area), had greater than 73 percent days in the Good air quality category for years 2007, 2008, and 2009; and no days in the sector were worse than the Moderate air quality category.

4.8 Noise/Vibration

In accordance with Federal Transit Administration (FTA) and Federal Railroad Administration (FRA) guidelines, a noise impact assessment was conducted for the proposed project. This section presents background information on noise and vibration, the criteria used to assess noise and vibration impact along with the methodology used to characterize the existing noise and vibration conditions for the project area in accordance with FTA and FRA guidelines. More information can be found in the noise and vibration technical report (Harris Miller Miller & Hanson, 2011) prepared for this project.

4.8.1 Noise and Vibration Impact Criteria

Noise and vibration impact for this project is based on the criteria as defined in the FTA guidance manual Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06,

May 2006). The FRA has adopted the criteria and methodology used in the FTA guidance manual for use on freight rail projects.

4.8.1.1 Rail Noise Criteria

FTA noise impact criteria are founded on well-documented research on community reaction to noise and are based on change in noise exposure using a sliding scale. Although higher rail noise levels are allowed in neighborhoods with high levels of existing noise, smaller increases in total noise exposure are allowed with increasing levels of existing noise. The FTA Noise Impact Criteria place noise sensitive land uses into the three categories as indicated in Table 4-14.

Table 4-14. FTA Land Use Categories

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor $L_{eq}(h)^{*(1)}$	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 $L_{dn}^{(2)}$	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 $L_{eq}(h)^{*}$	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.
* L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.		
1) $L_{eq(h)}$ represents the noisiest level of sound measured during the sampling period. 2) L_{dn} represents the cumulative noise exposure levels for a 24-hour period (day-night).		
Source: FTA, May 2006		

The day-night average sound level (Ldn) is used to characterize noise exposure for residential areas (Category 2). For other noise-sensitive land uses, such as outdoor amphitheaters and school buildings (Categories 1 and 3), the maximum one-hour Leq during the operating period is used. Leq is the average noise level for the sampling period, and Leq(h) is the peak level of that same period of sampling.

There are two levels of impact included in the FTA criteria. The interpretation of these two levels of impact is summarized below:

- Severe Impact: Project-generated noise in the severe impact range can be expected to cause a significant percentage of people to be highly annoyed by the new noise and represents the most compelling need for mitigation. Noise mitigation would normally be specified for severe impact areas unless there are truly extenuating circumstances which prevent it.

- Moderate Impact: In this range of noise impact, the change in the cumulative noise level is noticeable to most people but may not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific

factors must be considered to determine the magnitude of the impact and the need for mitigation. These factors include the existing level, the predicted level of increase over existing noise levels, the types and numbers of noise-sensitive land uses affected, the noise sensitivity of the properties, the effectiveness of the mitigation measures, community views, and the cost of mitigating noise to more acceptable levels.

According to FTA guidance, historically significant sites fall into noise-sensitive categories according to their land use activities. Sites where outdoor interpretation is important fall into Category 1. Buildings in commercial or industrial areas that are significant for a particular style of architecture or for their designers are not intrinsically noise-sensitive. They may be protected under other legislation (Section 4(f) of the Department of Transportation (DOT) Act of 1966 and Section 106 of the National Historic Preservation Act of 1966), but do not fall into any of the land use categories associated with noise sensitivity.

The noise impact criteria are summarized in graphical form in Chart 4-1. This chart shows the existing noise exposure and the additional noise exposure from the rail project that would cause either "moderate" or "severe" impact. The future noise exposure would be the combination of the existing noise exposure and the additional noise exposure caused by the proposed rail project. Chart 4-2 expresses the same criteria in terms of the increase in total or cumulative noise that can occur in the overall noise environment before impact occurs.

Chart 4-1. FTA Project Noise Impact Criteria

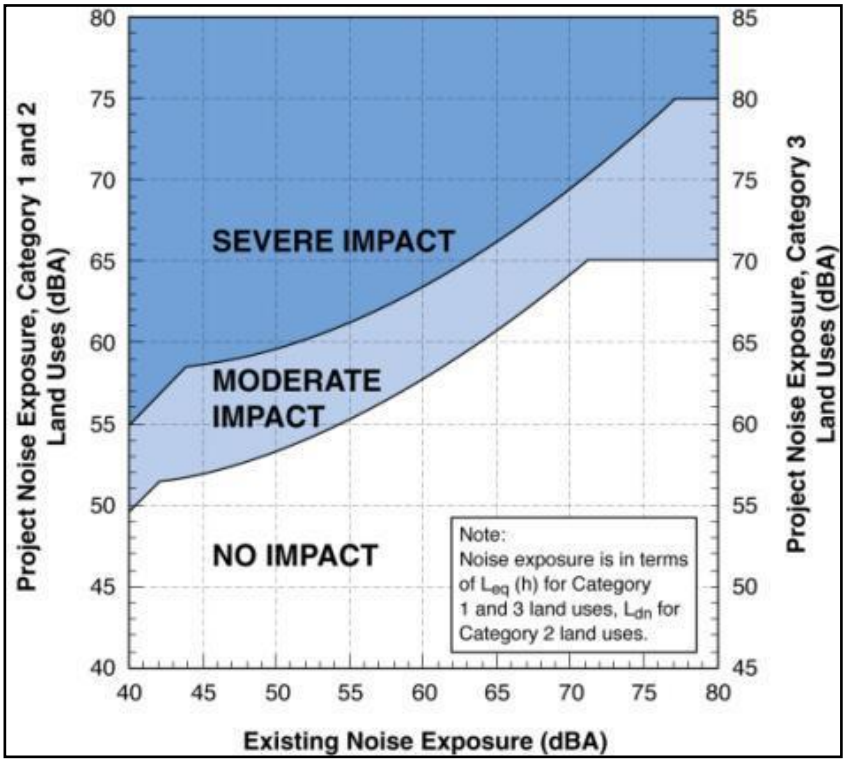
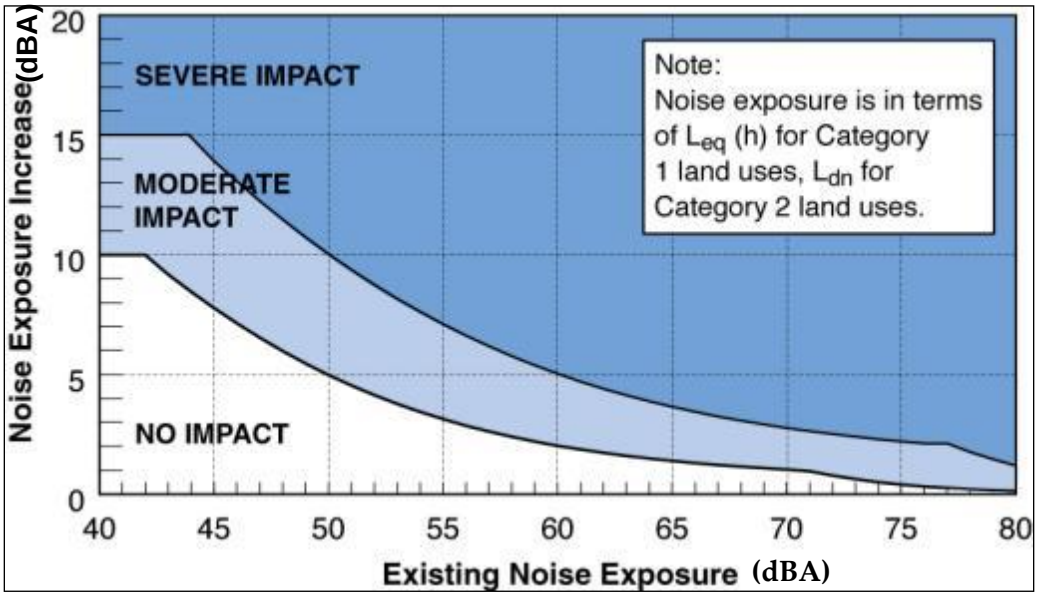


Chart 4-2. Increase in Cumulative Noise Exposure Allowed by FTA Criteria



4.8.1.2 Rail Ground-Borne Vibration Criteria (GBV)

The FTA GBV impact criteria are based on land use and operational frequency, as shown in Table 4-15 and are given in terms of the maximum root mean square amplitude (RMS) vibration level for an event. There are some buildings, such as medical facilities, concert halls, recording studios and theaters that can be very sensitive to vibration but do not fit into any of the three categories listed in Table 4-15. Because of the sensitivity of these buildings, they usually warrant special attention during the environmental assessment of a rail project. Table 4-16 gives criteria for acceptable levels of GBV for various types of special buildings.

It should be noted that Table 4-15 and Table 4-16 include separate FTA criteria for ground-borne noise; the "rumble" that can be radiated from the motion of room surfaces in buildings as a result of GBV. Although expressed in dBA, which emphasizes the more audible middle and high frequencies, the criteria are set significantly lower than for airborne noise to account for the annoying low-frequency character of ground-borne noise. Because airborne noise often masks ground-borne noise for above ground (i.e., at-grade or elevated) transit systems, ground-borne noise criteria are primarily applied to subway operations where airborne noise is not a factor. For above-grade rail systems, ground-borne noise criteria are applied only to buildings that have sensitive interior spaces that are well insulated from exterior noise.

Table 4-15. FTA Ground-Borne Vibration and Ground-Borne Noise Impact Criteria

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 micro-inch/sec)			Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibrations would interfere with interior operations.	65 VdB[4]	65 VdB[4]	65 VdB[4]	N/A[4]	N/A[4]	N/A[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB[(6)]	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)] "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
[(2)] "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.
[(3)] "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.
[(4)] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would 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.
[(5)] Vibration-sensitive equipment is generally not sensitive to ground-borne noise.
[(6)] VdB represents vibration velocity levels in decibels.

Source: FTA, May 2006

Table 4-16. Ground-Borne Vibration and Noise Impact Criteria for Special Buildings

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/sec)		GBN Impact Levels (dB re 20 micro Pascals)	
	Frequent Events[1]	Occasional or Infrequent Events[2]	Frequent Events[1]	Occasional or Infrequent Events[2]
Concert Halls	65 VdB[(4)]	65 VdB	25 dBA	25 dBA
TV Studios	65 VdB	65 VdB	25 dBA	25 dBA
Recording Studios	65 VdB	65 VdB	25 dBA	25 dBA
Auditoriums	72 VdB	80 VdB	30 dBA	38 dBA
Theaters	72 VdB	80 VdB	35 dBA	43 dBA

[(1)] "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.

[(2)] "Occasional or Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.

[(3)] If the building would rarely be occupied when the trains are operating, there is no need to consider impact. As an example, consider locating a commuter rail line next to a concert hall. If no commuter trains would operate after 7 p.m., it should be rare that the trains interfere with the use of the hall.

[(4)] VdB represents vibration velocity levels in decibels.

Source: FTA, May 2006

4.8.1.3 Construction Noise Criteria

Construction noise criteria are based on the guidelines provided in the FTA Guidance Manual. These criteria, summarized in Table 4-17 below, are based on land use and time of day and are given in terms of Leq for an 8-hour work shift.

Table 4-17. FTA Construction Noise Criteria

Land Use	Noise Limit, 8-Hour	
	Daytime	Nighttime
Residential	80	70
Commercial	85	85
Industrial	90	90
Source: FTA, May 2006		

4.8.2 Existing Conditions

4.8.2.1 Existing Noise Environment

The existing noise environment in Springfield varies depending on proximity to rail lines and frequency of rail traffic. Sources of existing noise include local roadway traffic, local community noise, air traffic, and freight and passenger trains. The majority of the land use within the study area is Category 2, which includes all residential land use, along with hotels and other land use with nighttime sensitivity. There are scattered Category 3 land uses, including primarily churches and schools.

To establish a base of existing environmental noise levels for the project noise impact assessment, a series of noise measurements was conducted within the study area. Existing ambient noise levels in the project area were characterized through direct measurements at selected sites along the project corridors during the period from March 29 through April 2, 2010. The measurements consisted of long-term (24-hour) and short-term (60-minute) monitoring of the A-weighted sound level at representative noise-sensitive locations. Twelve long-term and seven short-term noise measurements were conducted. The locations were selected to be representative of the noise environment in general and especially at locations most likely to be impacted by train noise. At each site, the measurement microphone was positioned to characterize the exposure of the site to the dominant noise sources in the area. Larson Davis noise monitors models 820 and 870 were used for gathering noise data. The noise measurement locations are shown in Exhibit 4-14.

The results of the existing ambient noise measurements, presented in Table 4-18, serve as the basis for determining the existing noise conditions at all noise-sensitive receptors along the proposed rail alignment. For each site, the table lists the adjacent corridor(s), site location, measurement details, and the measured noise level. The results at each site are further described below. For each of the short-term measurement sites the measured Leq was used to estimate the Ldn by subtracting 2 decibels according to methodology in Appendix D: Determining Existing Noise, in the FTA guidance manual. The short-term sites are designated as (ST) in Table 4-18.

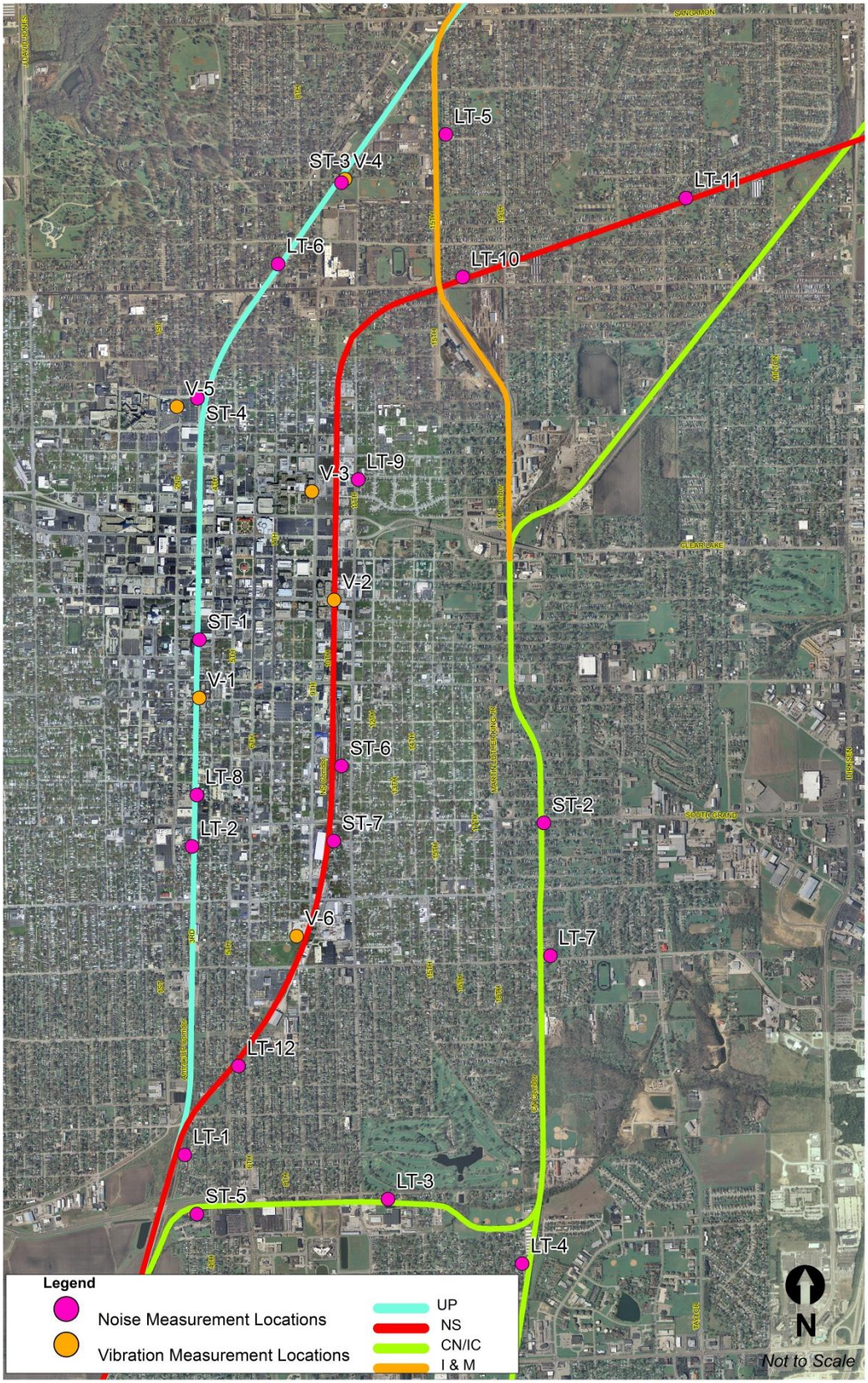


Exhibit 4-14. Noise and Vibration Locations

Table 4-18. Summary of Existing Ambient Noise Measurement Results

Site No.	Corridor	Measurement Location Description	Start of Measurement		Distance to Existing Track (ft)	Meas. Duration (hrs)	Noise Exposure[1] (dBA)	
			Date	Time			Ldn	Leq
LT-1	UP/NS	2553 Burton St	3-29-10	12:00	178	24	65	--
LT-2	UP	232 Pine St	3-29-10	13:00	42	24	76	--
LT-3	CN	1140 Stanford Ave	3-29-10	15:00	70	24	56	--
LT-4	CN	2949 Foxbridge St	3-29-10	16:00	144	24	63	--
LT-5	I&M	1819 Fairfield St	3-30-10	14:00	163	24	63	--
LT-6	UP	1307 Peoria St	3-30-10	15:00	41	24	75	--
LT-7	CN	2107 Ash St	3-30-10	17:00	198	24	71	--
LT-8	UP	1137 4th Court	3-30-10	18:00	40	24	78	--
LT-9	NS	1104 E Mason St	3-31-10	16:00	439	24	72	--
LT-10	NS/I&M	1516 Wieland Ave	3-31-10	16:00	46	24	81	--
LT-11	NS	2330 Ramsey Ave	3-31-10	19:00	51	24	80	--
LT-12	NS	2331 6th St	3-31-10	20:00	82	24	67	--
ST-1	UP	Central Baptist Church	3-30-10	11:43	41	1	56	58
ST-2	CN	S Grand Ave and McCreery Ave	3-31-10	9:50	58	1	61	63
ST-3	UP	Black St and 11th St	3-31-10	16:39	92	1	72	74
ST-4	UP	Dodge St and 3rd St	4-1-10	10:55	168	1	69	71
ST-5	CN	Scope Daycare	4-1-10	12:16	151	1	53	55
ST-6	NS	Barrett St and Kansas St	4-1-10	16:26	187	1	57	59
ST-7	NS	Pine St and 10 ½ St	4-2-10	9:44	115	1	64	66

1. For sites ST-1 through ST-7, the Leq measurements (highlighted in yellow) were used to estimate the Ldn at all locations using methodology in Appendix D of the FTA guidance manual for estimating noise exposure. This approach tends to be conservative and underestimate the existing noise levels, which can result in higher levels of noise impact for a project.

Site LT-1: 2553 Burton Street. The Ldn measured over a 24-hour period in the backyard of this single-family residence was 65 dBA. Freight and passenger trains on both the UP and NS rail lines contributed to the noise environment at this location. Local roadway traffic on Burton Street and residential community activity also contributed to the noise level.

Site LT-2: 232 Pine Street. The Ldn measured over a 24-hour period in the backyard of this single-family residence was 76 dBA. UP rail traffic and local roadway traffic on Pine Street, 3rd Street, South Grand Avenue, and Cedar Street contributed to the noise environment at this location. Residential community activity also contributed to the noise level.

Site LT-3: 1140 Stanford Avenue. The Ldn measured over a 24-hour period in the back-yard of this single-family residence was 56 dBA. Local roadway traffic on Stanford Avenue and 11th Street and residential community activity contributed to the noise environment at this location. Although the site was located adjacent to the CN railroad, rail traffic did not contribute to the noise level as no train pass-bys occurred.

Site LT-4: 2949 Foxbridge Street. The Ldn measured over a 24-hour period in the front yard of this single-family residence was 63 dBA. Local roadway traffic on Foxbridge Street and rail traffic on the CN line contributed to the noise environment at this location. Residential community activity also contributed to the noise level.

Site LT-5: 1819 Fairfield Street. The Ldn measured over a 24-hour period in the back yard of this single-family residence was 63 dBA. Local roadway traffic on Fairfield Street and rail traffic on the I&M line contributed to the noise environment at this location. Residential community activity also contributed to the noise level.

Site LT-6: 1307 Peoria Road. The Ldn measured over a 24-hour period in the front yard of this single-family residence was 75 dBA. Local roadway traffic on Peoria Road, North Grand Avenue, and Eastman Avenue contributed to the noise environment at this location. UP rail traffic and residential community activity also contributed to the noise level.

Site LT-7: 2107 Ash Street. The Ldn measured over a 24-hour period on the property of this single-family residence was 71 dBA. Local roadway traffic on Ash Street and rail traffic on the CN line contributed to the noise environment at this location. Residential community activity also contributed to the noise level.

Site LT-8: 1137 4th Court. The Ldn measured over a 24-hour period on the property of this single-family residence was 78 dBA. Freight and passenger trains on the UP rail line and local roadway traffic on 4th Street and 4th Court contributed to the noise environment at this location. Residential community activity also contributed to the noise level.

Site LT-9: 1104 East Mason Street. The Ldn measured over a 24-hour period on the property of this multi-family residence was 72 dBA. Local roadway traffic on Mason Street, 11th Street, and Reynolds Street contributed to the noise environment at this location. NS rail traffic and residential community activity also contributed to the noise level.

Site LT-10: 1516 Wieland Avenue. The Ldn measured over a 24-hour period on the property of this single-family residence was 81 dBA. Rail traffic on both the NS and I&M lines contributed to the noise environment at this location. The noise environment was also added to by local roadway traffic on North Grand Avenue, Wieland Avenue, 16th Street, and other nearby local roads. Residential community activity and industrial activity also contributed to the noise level. This site is across from Lanphier High School.

Site LT-11: 2330 Ramsey Avenue. The Ldn measured over a 24-hour period in the back-yard of this single-family residence was 80 dBA. NS rail traffic and local roadway traffic on Ramsey Avenue contributed to the noise environment at this location. Residential community activity also contributed to the noise level, including outdoor activity at Learning Nook Preschool (approximately 300 feet away).

Site LT-12: 2331 6th Street. The Ldn measured over a 24-hour period in the backyard of this single-family residence was 67 dBA. Rail traffic on the NS line and local roadway traffic on 6th Street contributed to the noise environment at this location. Residential community activity also contributed to the noise level.

Site ST-1: Central Baptist Church – 501 South 4th Street. The Leq measured over a one-hour period on the property of this church was 58 dBA, resulting in a predicted Ldn of 56 dBA. Local roadway traffic on Jackson Street, 3rd Street, and 4th Street contributed to the noise environment at this location. The site was adjacent to the UP rail line, but no train pass-bys occurred during the measurement. Urban community activity also contributed to the noise level.

Site ST-2: South Grand Avenue and McCreery Avenue. The Leq measured over a one-hour period at this intersection was 63 dBA, resulting in a predicted Ldn of 61 dBA. Local roadway traffic on South Grand Avenue and residential community activity contributed to the noise environment at this location. The site was adjacent to the CN rail line, but no train pass-bys occurred during the measurement.

Site ST-3: Black Street and 11th Street. The Leq measured over a one-hour period at this intersection was 74 dBA, resulting in a predicted Ldn of 72 dBA. Local roadway traffic on 11th Street and passenger trains on the UP rail line contributed to the noise environment at this location.

Site ST-4: Dodge Street and 3rd Street. The Leq measured over a one-hour period at this intersection near Memorial Medical Center was 71 dBA, resulting in a predicted Ldn of 69 dBA. Freight train traffic on the UP rail line and local roadway traffic on 3rd Street and Dodge Street contributed to the noise environment at this location. Residential community and hospital activity also contributed to the noise level.

Site ST-5: Scope Daycare – 2715 South 4th Street. The Leq measured over a one-hour period on the property of this daycare and school was 55 dBA, resulting in a predicted Ldn of 53 dBA. The noise environment at this location was contributed to by local roadway traffic on Stanford Avenue and 4th Street. There were no train pass-by events during the measurement period.

Site ST-6: Barrett Street and Kansas Street. The Leq measured over a one-hour period at this intersection was 59 dBA, resulting in a predicted Ldn of 57 dBA. NS rail yard traffic, local roadway traffic on 11th Street, and residential community activity contributed to the noise environment at this location.

Site ST-7: Pine Street and 10 ½ Street. The Leq measured over a one-hour period at this intersection was 66 dBA, resulting in a predicted Ldn of 64 dBA. NS trains and rail yard traffic, local roadway traffic on 10 ½ Street and 11th Street, and residential community activity contributed to the noise environment at this location.

4.8.2.2 Existing Vibration Environment

The existing vibration environment in Springfield varies depending on proximity to rail lines and frequency of rail traffic. To characterize existing vibration levels, vibrations from freight and Amtrak trains were measured on the UP and NS rail lines. Vibration levels were also measured at several vibration-sensitive locations, including the Dana Thomas House, St. John's Hospital and Memorial Medical Center to determine the potential for vibration impact from increased rail traffic. Measurements were made using PCB 393A and 393C accelerometers and a TEAC LX-110 digital recorder. The vibration measurement locations are shown in Exhibit 4-14. The existing vibration locations are shown in Table 4-19 and described in detail below.

Vibration levels for a number of trains were measured in Springfield. The measured data are consistent with the typical locomotive vibration level versus distance curve in the FTA guidance manual.

Site V-1: Dana Thomas House – 301 East Lawrence Avenue. Vibration levels were measured on the sidewalk next to this National Historic Landmark at four distances from the UP tracks at 45 feet, 75 feet, 105 feet, and 130 feet. The edge of the building sits 105 feet from the existing tracks.

Site V-2: Lincoln Depot – 10th Street and Monroe Street. Vibration levels were measured in the parking lot of this National Historic Landmark at three distances from the existing NS tracks at 30 feet, 55 feet and 70 feet. The edge of the building sits 30 feet from the tracks.

Site V-3: St. John's Hospital – 800 East Carpenter Street. Vibration levels were measured from the building edge of this hospital at 450 feet from the existing NS tracks.

Site V-4: Black Street and 11th Street. Vibration levels were measured in a field by this intersection at five distances from the existing UP tracks at 60 feet, 85 feet, 110 feet, 135 feet, and 160 feet.

Site V-5: Memorial Medical Center – 701 North 1st Street. Vibration levels were measured from the building edge of this hospital at 595 feet from the existing UP tracks.

Site V-6: Oak Street and 8th Street. Vibration levels were measured on a concrete lot by this intersection at five distances from the existing NS tracks at 45 feet, 75 feet, 95 feet, 120 feet, and 145 feet. This site is adjacent to Iles Park.

Table 4-19 Existing Vibration Measurement Locations (1)

Site No.	Corridor	Measurement Location Description	Date
V-1	3rd	Dana Thomas House - 301 East Lawrence Avenue	3-29-10
V-2	10th	Lincoln Depot - 10th Street and Monroe Street	3-30-10
V-3	10th	St. John's Hospital - 800 East Carpenter Street	3-31-10
V-4	3rd	Black Street and 11th Street	3-31-10, 4-1-10

V-5	3rd	Memorial Medical Center - 701 North 1st Street	4-1-10
V-6	10th	Oak Street and 8th Street	4-1-10
(1) Vibration measurements were taken from multiple locations at each site; therefore, the measurement data is not included in this table.			

4.9 Water Quality/Resources

4.9.1 Surface Water Resources

The project area is within the Lower Sangamon River Sub-basin of the larger Sangamon River Drainage Basin (see Exhibit 4-15) (McConkey, et. al, 2011). This basin forms the largest watershed of any tributaries to the Illinois River. The Sangamon River Basin ultimately drains an area of 5,419 square miles to the Mississippi River via the Illinois River (IEPA, 2011).

The surface water resources closest to the project area are Lake Springfield, the Sangamon River, Spring Creek, and Sugar Creek. The surface water resources and 100-year floodplains near the project area are shown on Exhibit 4-16. None of these surface water resources are within the project area; however, treated surface water from the project area eventually flows into the Sangamon River via Sugar Creek and Spring Creek.

The Sangamon River and tributaries drain most of Sangamon County, including the project area, and the natural drainage is westward. It drains mostly rural agricultural lands in Sangamon County, and then drains north-northwest into Menard and Cass counties before joining the Illinois River north of Beardstown, Illinois. Sugar Creek and Spring Creek are two of its main tributaries.

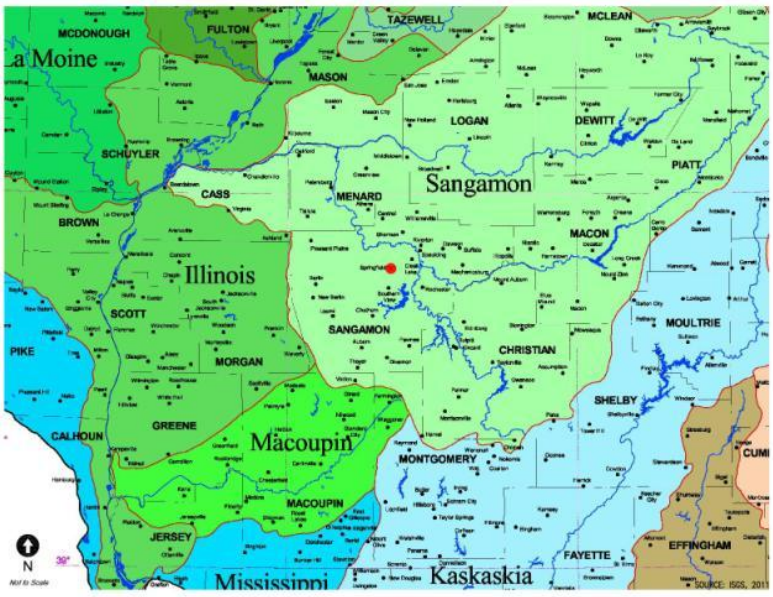


Exhibit 4-15. Watersheds

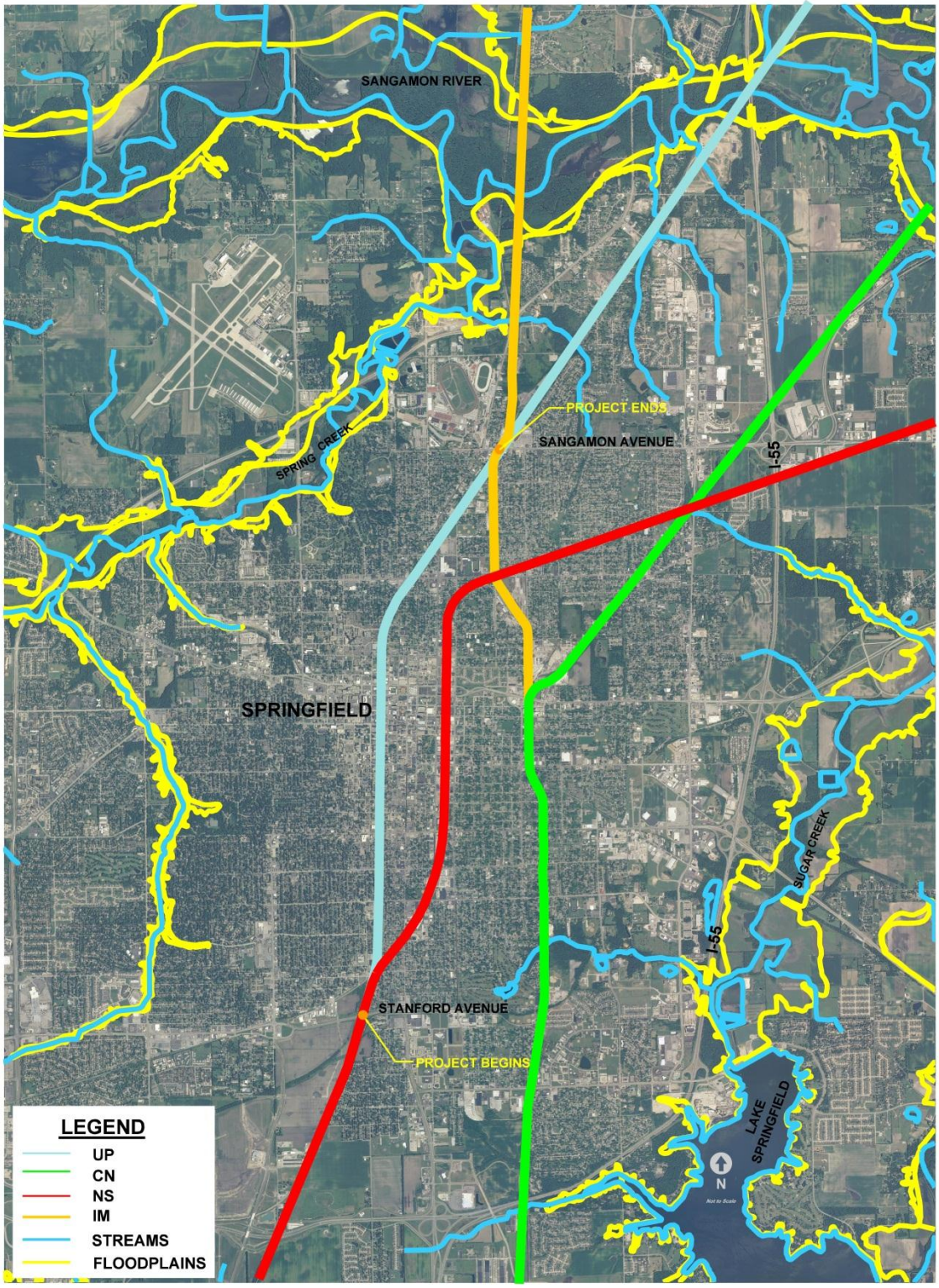


Exhibit 4-16. Streams and Floodplains

4.9.2 Water Quality

Water quality standards set by the Illinois Pollution Control Board (IPCB) are based on the degree to which a water feature provides the "designated use." The Illinois Environmental Protection Agency's Illinois Integrated Water Quality Report and Section 303(d) List - 2010 (IEPA, 2011) summarize water quality features of perennial streams within the project area. The IEPA report provides an evaluation of the water quality on the state's aquatic resources. This report describes water quality conditions in terms of degree to which the various waters attain their designated uses. For each designated use, an IEPA assessment concludes one of two possible use-support levels: "Fully Supporting" or "Not Supporting." Fully Supporting means that the designated use is attained; Not Supporting means the use is not attained. Waters in which at least one applicable use is not fully supported are called "impaired."

The Sangamon River did not support the designated uses of fish consumption and primary contact but did fully support aquatic life use. Causes for these impairments include elevated concentrations of polychlorinated biphenyls and fecal coliform. The sources for these pollutants are unknown. Spring Creek did not support the designated uses of aquatic life, fish consumption, and primary contact. Causes for these impairments are elevated levels of sedimentation/siltation, polychlorinated biphenyls, and fecal coliform. The sources for these pollutants are crop production, urban runoff/storm sewers, and other unknown sources. Sugar Creek did not support aquatic life use due to elevated levels of boron from industrial point source discharges.

Section 303(d) of the Clean Water Act requires states to submit to USEPA a list of water quality-limited waters (i.e., waters where uses are impaired), the pollutants causing impairment to those waters and a priority ranking for the development of Total Maximum Daily Load (TMDL) calculations. This list is often called the 303(d) List. Because of the impairments to the Sangamon River, Spring Creek, and Sugar Creek, these water bodies are included on the 2010 303(d) List.

4.9.3 Groundwater

Groundwater occurs in water-bearing units called aquifers. In Illinois, aquifers are sand-and-gravel aquifers, shallow bedrock aquifers, or deep bedrock aquifers. There are no shallow bedrock or deep bedrock aquifers in the project area (Brown, 2004). There are community water supply wells associated with the sand-and-gravel aquifer within the Sangamon River floodplain. At this time, there are no sole source aquifers in Illinois. No regulated groundwater recharge areas are within the project area.

4.10 Floodplains

Floodplains function as wildlife habitat, food chain support, nutrient retention and removal through plant uptake, erosion control through sediment trapping, and most importantly floodwater storage. Floodwater storage and erosion control are important functions that benefit human populations primarily during storms events. The dissipation of stormwater over floodplains reduces flow velocity and results in the

retention of waterborne silt. Floodplains also serve as important wildlife corridors for larger animal species such as white-tailed deer. Wildlife use the cover of riparian habitat along streams to roam within their home range. The deposition of nutrient rich silt is also a valuable resource to farmers for agricultural production. Impacts to floodplains have the potential to affect these resources and to alter the natural elevations of seasonal flooding.

Federal Emergency Management Agency (FEMA) mapping for the Springfield area was reviewed. There are no 100-year floodplains present in the project area.

4.11 Wetlands

There are nearly 13,000 acres of wetlands within Sangamon County that accounts for 2.3 percent of the total land cover in the county. A field reconnaissance survey to identify wetlands within the project area of the retained alternatives was conducted in accordance with the Corps of Engineers Wetlands Delineation Manual (1987) and Regional Supplement (2010) during the spring of 2011. Only areas that met the three parameters required by the manual, i.e., hydrophytic vegetation, hydric soils, and wetland hydrology, were identified as jurisdictional wetlands. The USFWS's National Wetlands Inventory (NWI) mapping depicts a couple of potential wetlands areas within the project area at the north and south limits of the corridor (see Exhibit 4-17).

One area, near Stanford Avenue is described by the NWI as a palustrine, forested, broad-leaved deciduous, temporarily-flooded area (PF01A). An adjacent area to the north is classified by the NWI as a palustrine, emergent/scrub-shrub, temporarily-flooded area (PEM/SS1A) (Cowardin, et al, 1979). The PF01A area extends about 860 feet along the existing railroad tracks, and the PEM/SS1A extends another 580 feet to the north. Both of these areas did not meet the hydric soils and hydrologic criteria for jurisdictional wetlands at the time of the survey.

One additional area, near Sangamon Avenue, is also depicted by the NWI as a PF01A, and is about 700 feet along the east side of the existing rail line. This area has been drained and developed for residential housing. Therefore, this area no longer meets the jurisdictional criteria for a wetland.

No jurisdictional wetlands or waters of the United States were identified within the project limits of the Preferred Alternative and Alternative 2B. The U.S. Army Corps has not commented on the retained alternatives of this document.

4.12 Utilities

In an urban area such as Springfield most streets include underground and aerial utility lines that include fiber, gas, water, telephone, electric, sewer, and communication lines in or adjacent to the street right-of-way. The railroad right-of-way contains communication lines for the rail companies and tenant fiber optic lines. These utility lines are owned by a variety of licensed and franchised utility companies. The water and

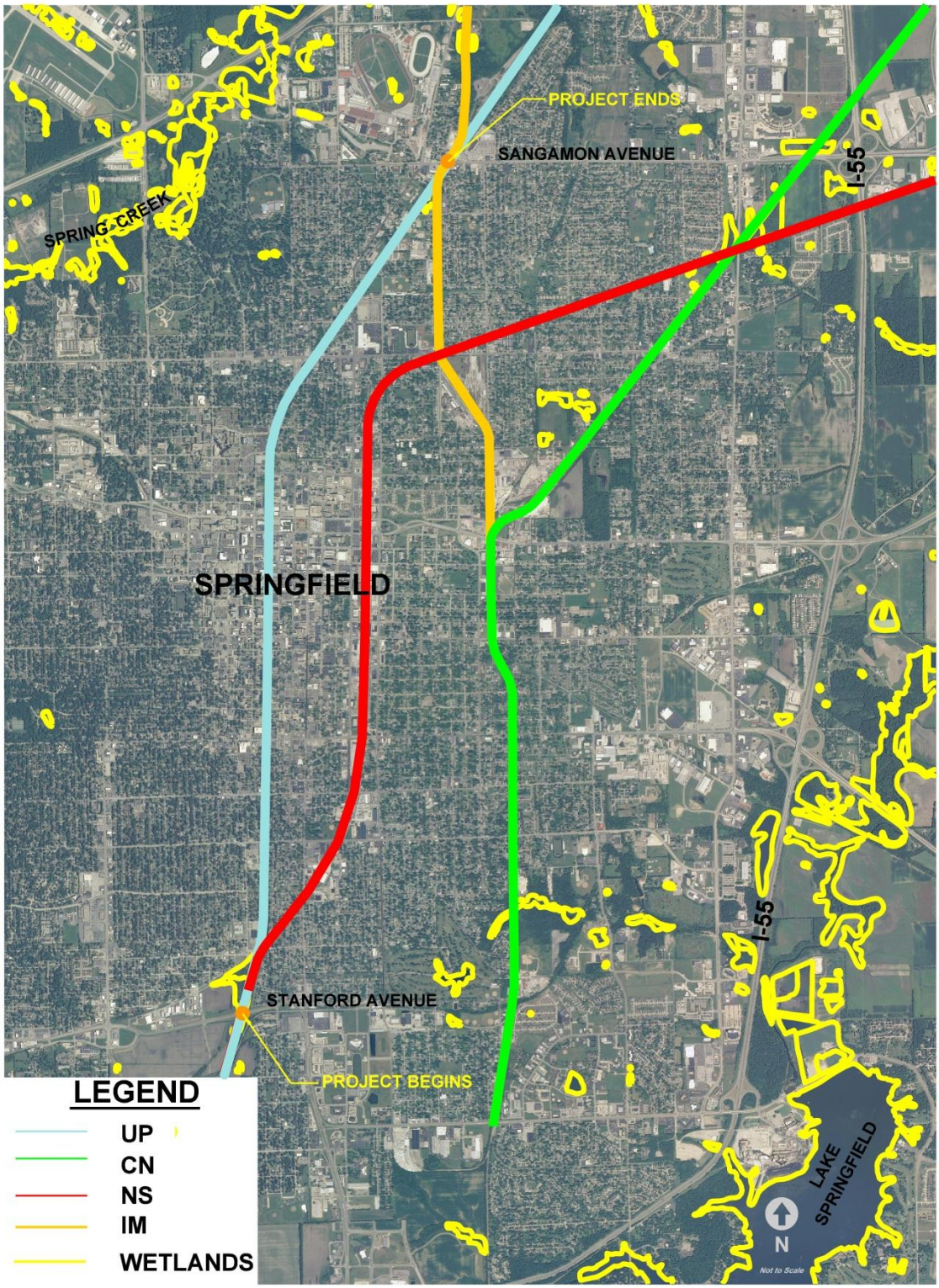


Exhibit 4-17. NWI Mapped Wetlands

electric lines are owned by the City's utility (CWLP). The storm sewers are owned by the City, and sanitary sewers are owned by the Springfield Metro Sanitary District. Gas lines are owned and operated by Ameren Inc.

Utilities may need to be relocated in areas of construction and at locations where right-of-way ownership may be transferred. The most costly utilities to relocate would be the fiber optic lines along the UP corridor and the large diameter storm sewer on Ash Street.

The existing storm sewers are typically three feet to 10 feet below ground level. Underpasses will likely require pump stations to remove storm water since the roadway elevation will be below the elevation of the sewers.

4.13 Visual and Aesthetic Quality

This section describes the existing visual and aesthetic environment of the project area of the Preferred Alternative and Alternative 2B. Visual and aesthetic resources are natural and cultural landscape features that people see and that contribute to the public's appreciative enjoyment of the environment. Visual and aesthetic resources along the 10th Street rail corridor were inventoried using aerial mapping, conducting field visits, reviewing various historical and local land use documents, and gathering public input.

The landscape of the project area is entirely urban and is located on mostly flat terrain. Three distinct landscape units comprise the existing visual landscape of the 10th Street rail corridor from Stanford Avenue to Sangamon Avenue. Generally, a typical urban residential viewshed occurs from Stanford Avenue to 6th Street and from Phillips to North Grand Avenue. A mixed residential/commercial/light industrial viewshed occurs from 6th Street to Cook Street and from Ridgely Avenue to Sangamon Avenue. The third viewshed comprised of a mixed inner urban setting occurs from Cook Street to Phillips Street and from North Grand Avenue to Ridgely Avenue. This visual setting located east of downtown Springfield is marked by government and community buildings, parking lots, commercial lots, and warehouses.

The project area has limited individual visual resources in terms of visual character, visual quality, and visually sensitive resources. Notable resources are historic or architectural buildings such as the Great Western Railway Station. These buildings are identified in Section 4.5.1 and depicted in Appendix B. No other sensitive visual resources were identified within the project area.

4.14 Special Waste

EDR DataMap® - Area Study reports from Environmental Data Resources, Inc. (EDR) were obtained in January 2010 for information on regulated environmental sites within the three railroad corridors (EDR, 2010). The EDR report summarizes publicly available information on sites listed in certain federal, state, and local regulatory databases and within search distances recommended by ASTM International Practice E 1527-05. The EDR Report includes a radius map that illustrates the approximate locations of the

reported sites relative to the railroad corridors. Appendix D includes the radius maps and summary of sites reported within the three railroad corridors.

Some of the databases list regulated environmental sites that may indicate potential hazardous or special waste within the corridors. Those databases are described below. Various other special waste sites were also reported. Records that do not indicate potential hazardous or special waste that may be encountered during construction were excluded from further consideration.

Databases consulted were:

- **Federal CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) –** This database contains information on potential hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons. CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

- **CERCLIS-NFRAP (No Further Remedial Action Planned) –** This database includes sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps would be taken to list the site on the NPL.

- **RCRA-LQG (Resource Conservation and Recovery Act – Large Quantity Generators) –** This database includes sites that generate, transport, store, treat and/or dispose of hazardous waste. Large quantity generators (LQG) generate over 1,000 kg of hazardous waste, or over 1 kg of acutely hazardous waste per month.

- **RCRA-SQG (Resource Conservation and Recovery Act – Small Quantity Generators) –** This database includes sites that generate, transport, store, treat and/or dispose of hazardous waste. Small quantity generators (SQG) generate between 100 kg of hazardous waste and 1,000 kg of hazardous waste per month.

- **ERNS (Emergency Response Notification System) –** This database records and stores information on reported releases of oil and hazardous substances.

- **SHWS (State Hazardous Waste Sites) –** This database includes state hazardous waste sites that may or may not be listed in the federal CERCLIS database.

- **SWF/LF (Solid Waste Facilities/Landfill Sites) –** This database includes solid waste disposal facilities or landfills.

- **LF (Landfill) SPECIAL WASTE –** This database includes landfills that accept non-hazardous special waste.

- **LUST (Leaking Underground Storage Tank) –** This database includes reported leaking underground storage tank incidents.

- **UST (Underground Storage Tank) –** This database includes registered underground storage tanks.

- **SRP (Site Remediation Program) –** This database identifies the status of all voluntary remediation projects administered through the site remediation program.

- **DRYCLEANERS –** This database includes dry cleaning facilities that are required to apply for a license through the Illinois Drycleaner Environmental Response Fund.

- **MGP (Manufactured Gas Plant) –** This database includes records of former manufactured gas plants that were used in the 1800s to the 1950s to produce a gas that could be used as fuel.

Based on a February 10, 2012, review, two CERCLIS sites are within or adjacent to the project area and are shown in Table 4-20.

Table 4-20. CERCLIS Sites within the Project Area

Site Name	Address	Distance from the Preferred Alternative and Alternative 2B
Nutronics, Inc.	1703 Peoria Road, Springfield, IL 62702	Adjacent to project area
Springfield Iron Company	NE corner of Ridgely and Factory Street, Springfield, IL 62794	Within project area

Table 4-21 contains the number of hazardous material sites that may indicate potential hazardous or special waste within the project area (10th Street corridor). Additional information on these sites can be referenced in Appendix C.

Table 4-21. Hazardous Materials Sites within Project Area (10th Street Corridor)

Number of Sites	Database
2	Federal CERCLIS
4	CERC NFRAP
1	RCRA-LQG
38	RCRA-SQG
3	ERNS
5	SHWS
4	SWF/LF
1	LF Special Waste
91	LUST
101	USTs
12	SRPs

Number of Sites	Database
2	Drycleaners
3	MGP

The two CERCLIS sites are Nutronics, Inc. and the Springfield Iron Company. Nutronics, Inc., located at 1703 Peoria Road, contains an abandoned brick building and was a metal plating and metal finishing facility, which primarily manufactured circuit boards. This site met the criteria for a time-critical removal action upon discovery by the Illinois EPA in March 2010. The site contained over 100 drums, vats, and other miscellaneous containers of hazardous wastes. The CERCLIS database lists Nutronics, Inc. as a removal-only site (no site assessment work needed). Removal action of the wastes was completed in July 2011.

The Springfield Iron Company historically occupied approximately 50 acres of property at the northeast corner of the intersection of Ridgely Avenue and Factory Street from 1871 to 1900. The facility manufactured steel rail, iron, fish plates, and track bolts. During the years of operation, four manufactured gas houses and at least one coal tar disposal area were present. In 2010, several areas located near the old facility were observed to have coal tar migrating to the surface. A preliminary assessment was completed in March 2012. The CERCLIS database listing for the Springfield Iron Company indicates that the site has been referred to removal – no further remedial action planned (NFRAP).

Most of the LUST sites have completed remediation activities; 14 LUST sites do not have No Further Remediation (NFR) letters issued, indicating that remediation activities have not been completed. The individual listing of an environmental site within the corridor does not necessarily indicate that contamination associated with that site would be encountered during construction. Additional information would need to be gathered to determine if a reported site may have produced contamination that may be encountered during the construction project. The other sites listed in Table 4-19 have been previously remediated and closed, or constitute newer facilities operating under current regulations and do not pose an unknown threat for contamination. Based on the information reviewed at this time, construction may encounter petroleum-contaminated soils at several locations within the corridor. Construction activities may require coordination with the responsible parties of the LUST sites and other reported sites concerning the disposal of excavated materials. However, these sites should not present major impairments to improvements within the project corridor.

4.15 Section 4(f)/6(f) and Parklands

4.15.1 Section 4(f) Resources

It is national policy that special effort should be made to preserve public park and recreation lands, wildlife and waterfowl refuges, and historic sites. 49 USC 303, commonly known as Section 4(f) of the Department of Transportation Act of 1966

(Public Law 89-665), provides that the Secretary of the U.S. Department of Transportation:

> . . . may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, recreation area, refuge, or site) only if:

1) there is no feasible and prudent alternative to using that land; and

2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

A *de minimis* finding also can be determined for minor impacts to Section 4(f) resources. For publicly owned public parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that will not adversely affect the activities, features, or attributes of the property. For historic sites, a *de minimis* impact can be determined if the project will have "no adverse effect" on the historic property. A *de minimis* impact determination does not require analysis to determine if avoidance alternatives are feasible and prudent, but consideration of avoidance, minimization, mitigation, or enhancement measures should occur.

For this project, impacts to Section 4(f) resources would require a separate Section 4(f) evaluation, which must be approved by the Federal Railroad Administration (FRA). This project did not require this evaluation. The Section 4(f) statute requires all possible planning to minimize harm, which should be determined through consultation with the official or agency owning or administering the land. The replacement of Section 4(f) land used for transportation projects is not required; however, mitigation measures can involve replacement of land and facilities of comparable value and function or monetary compensation which could be used to enhance the remaining land.

An inventory of parks within the project area was conducted based on mapping and coordination from the Springfield Park District. Three parks are within the project area (i.e, 11th and Black, Lanphier, and Iles Parks) (SSCRPC, 2009). Exhibit 4-18 depicts the locations of the parks within the project area.

Table 4-10 lists properties eligible for inclusion in the NHRP that are in the Area of Potential Effect of the Preferred Alternative and Alternative 2B (see Section 4.5.1).

The greater Springfield area currently has about 35 miles of bikeway, consisting of about 21 miles of trail and 14 miles of bike lanes or wide shoulders. Existing trails and routes are shown in Exhibit 4-12. Recreational trails are only protected if they are part of a park and not solely a transportation facility. The Preferred Alternative and Alternative do not cross any recreational trails that are part of a park.

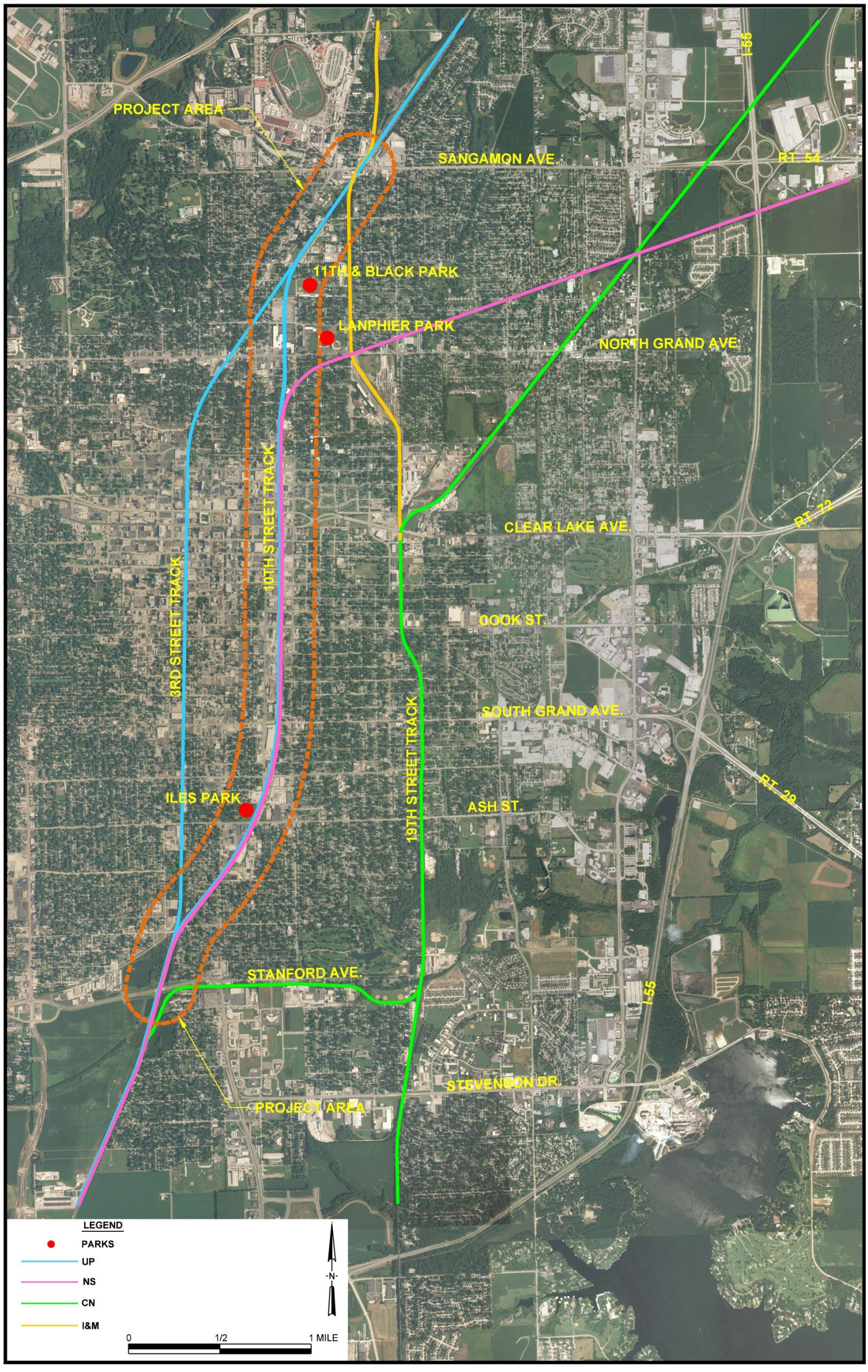


Exhibit 4-18. Section 4/6(f) Parks and Recreational Facilities

4.15.2 Section 6(f) Lands

In addition, 16 USC 4601-8(f)(3), commonly known as Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 (Public Law 88-578), requires that:

> . . . No property acquired or developed with assistance under this section or Section 1010 of the Urban Park and Recreation Recovery Act of 1978) shall, without the approval of the Secretary (Secretary of the U.S. Department of Interior), be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as this deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location. Impacts to Section 6(f) properties must be coordinated through the regional director of the National Park Service (NPS).

There are three known special lands within Springfield that have Land and Water Conservation (LAWCON) funds involved in their purchase or development. These include Cornell Avenue Park (presently Eisenhower Park), Indian Hills Park, and Union Square Park. None of these properties are within the project area affected by the Preferred Alternative and Alternative 2B.

4.16 Safety and Security

FRA has primary authority over railroad safety. FRA's regulations, which apply to all railroads, govern aspects of railroad safety, including rail operations, track, and signaling, as well as rolling stock, such as locomotives and freight cars (49 CFR Chapter II). The states also have an important role in rail safety, especially at highway/rail at-grade crossings. Other groups that establish standards and practices for the industry include the Association of American Railroads (AAR), the American Short Line and Regional Railroad Association (ASLRRA), and the American Railway Engineering and Maintenance-of-Way Association (AREMA).

4.16.1 Rail Operations Safety and Security

4.16.1.1 Train Operations

FRA's Track Safety Standards (49 CFR Part 213) are based on classifications of track that determine maximum operating speed limits, inspection frequencies, and standards of maintenance, among other issues. Higher track classes require more stringent maintenance standards to support higher allowable maximum operating speed. The existing passenger service is designated Class 4, allowing maximum speeds up to 79 mph. Existing maintenance and inspection requirements, as documented in the existing service plan, meet FRA Class 4 standards.

In the current security climate, rail line security continues to be a prominent concern. Access points are of particular concern. Each of the corridors through Springfield is accessible from many miles of arterial and secondary roadways where no security measures are practicable.

4.16.1.2 Passenger Areas

Passengers interact with the rail system at stations, on platforms, and within passenger trains. These facilities are susceptible to a range of safety and security threats ranging from personal accidents (e.g., slips or trips) to criminal activity (e.g., theft or terrorism in Passenger Areas). Platform areas add risks associate with moving trains and train boarding. Finally, once on the train, passengers are at risk for these same incidents.

Amtrak has previously reviewed the Springfield passenger station to ensure that appropriate safety measures, tailored to the specific setting, are in place. Each station and train includes a set of security infrastructure to deter or respond to safety or security incidents that may include:

- Lighting
- Fire/life safety systems
- Video cameras
- Public address systems

Amtrak, along with the Amtrak Police Departments, has a range of behind-the-scenes and front-line security measures in place to ensure passenger rail security. Among these security measures, some of which are conducted on an unpredictable or random basis, passengers may notice any of the following in stations or onboard trains:

- Uniformed police officers and Special Operations Units
- Random passenger and carry-on baggage screening and inspection
- K-9 units
- Checked baggage screening
- Onboard security checks
- Identification checks

These measures are customized to each setting based on reviews of potential incidents and occurrence risk.

4.16.2 Crossing Safety

4.16.2.1 Rail-Rail Crossings

The existing alignment utilized for passenger service from Chicago to St. Louis includes two locations in the Springfield project area where it crosses another rail line at-grade – the I&M crossing south of Sangamon Avenue and the NS crossing north of Stanford Avenue. The movement of rail traffic through these intersections, called interlocking, is governed similarly to a highway intersection. Traffic signals show a green light in one direction and a red light in another direction to eliminate conflicting movements.

Railroad interlockings differ slightly in that priority can be assigned by the interlocking controller.

A dispatcher controls the movement of both passenger trains and freight trains on the same track or tracks. Redundant safeguards are in place to avoid conflicting movements that could result in a collision. Nevertheless, the risk does exist for accidents to occur that could impact the safety of passengers aboard trains or train crews. Potential risks include two types of accidents: either a collision of two trains on the same track, or a derailed train on one track being struck by a moving train on the adjacent track. All such accidents are reported to FRA, who has jurisdiction over safety and maintains a database of such accidents.

4.16.2.2 Highway-Rail Crossings

There are two kinds of crossings: highway-rail and pedestrian-rail. Where a roadway, sidewalk, or pedestrian trail/bikeway crosses the track at the same elevation, this is called a "grade" crossing. Where a roadway, sidewalk, or pedestrian trail/bikeway passes over the tracks via an "overpass" bridge structure or passes under a railroad track via an underpass bridge structure, these crossings are referred to as "grade separated."

FHWA and FRA have regulatory jurisdiction over safety at crossings, pursuant to the Highway Safety Act of 1966 (HSA) (23 USC 401 et seq.). The HSA governs the distribution of federal funds to states aimed at eliminating hazards at highway-rail grade crossings. USDOT has issued regulations that address crossing safety and provides federal funding for the installation and improvement of warning devices through state departments of transportation. In addition to federal oversight and funding, states also monitor crossings and, in many cases, designate funding to complement the federal funds.

Jurisdiction over highway-rail grade crossings falls primarily to the states. This authority is set forth in the Railroad-Highway Grade Crossing Handbook (FHWA 2007a). Each state department of transportation is required to periodically inspect highway-rail grade crossings and to determine the adequacy of warning devices at each location, as well as to order safety improvements. USDOT oversees and approves the state determinations.

In Illinois, the Illinois Commerce Commission (ICC) has regulatory jurisdiction over safety at all public crossings (625 ILCS 5/18c-7401). No public road, highway, street, sidewalk, or pedestrian trail/bikeway shall be constructed across the track of any rail carrier at grade, nor shall the track of any rail carrier be constructed across a public road, highway, street, sidewalk, or pedestrian trail/bikeway at grade, without permission of the ICC.

The ICC also has the power to require the separation of grades at any proposed crossing where a public road, highway, street, sidewalk, or pedestrian trail/bikeway may cross the tracks of a rail carrier.

All warning signs or automatic warning devices installed at public crossings in Illinois must meet the minimum requirements of 92 Illinois Administrative Code 1535. In addition, all warning signs or warning devices installed at crossings must comply with FHWA's Manual on Uniform Traffic Control Devices (MUTCD) (23 CFR 646.214[b][1[). The MUTCD provides standards for the types of warning devices that must be installed at all highway-rail grade crossings (FHWA 2007b).

FRA regulations impose minimum standards for highway-rail grade crossings (49 CFR Part 234). FRA maintains information for each highway-rail grade crossing based on information provided by the states and the railroads. FRA and FHWA coordinate research efforts related to highway-rail grade crossing collisions and provide guidance and solutions to problems.

Information on the number and location of grade crossings in Springfield is available in Section 2.2.2.2.