# Chapter 3.0: Affected Environment and Environmental Consequences of Remaining Alternatives

*The East Side Highway study area was inventoried for environmental resources. The Environmental Inventory Map in Appendix A identifies all sensitive cultural, natural, physical, and socio-economic resources, and special waste sites in the study area. Resources potentially impacted by the proposed action or that require discussion pursuant to applicable laws and regulations are addressed in this Chapter and in Chapter 4 for the Preferred Alternative.*

## 3.1 Social and Economic

Social and economic analyses focus on a range of sub-topics that are important to the social and economic well-being of the area. These areas include: community characteristics and cohesion, Title VI and other protected groups, environmental justice, public facilities and services, change in travel patterns, relocations (business and residential), economic impacts, land use, growth and economic development, and pedestrian and bicycle facilities. Minimizing community disruption is an important factor in the development of roadway alternatives.

### 3.1.1 Demographics

#### *Who lives in the study area?*

The ESH study area is located in central McLean County, Illinois, east of the City of Bloomington and Town of Normal. The Villages of Towanda and Downs are located within the study area. With the majority of the study area located in unincorporated regions, a number of small rural agricultural communities are also located within the study area. These rural agricultural communities are Kerrick, Merna, Barnes, Bentown, Holder, Brokaw, Hendrix, Shamrock, Burns, Randolph, and Gillum.

Demographic characteristics are presented for the State of Illinois, McLean County, and the municipalities within and immediately adjacent to the study area as well as aggregated values for the study area.

### Population

**Table 3.1.1-1** shows population change between the years 2000 and 2010 for the state, county, and study area municipalities. Between 2000 and 2010, McLean County outpaced the State of Illinois in population increase by approximately 4:1 (12.7% vs. 3.3%). The municipalities of Normal (15.7%), Bloomington (18.2%), and Downs (29.5%) also experienced an increase in population while Towanda experienced a slight decrease in population by approximately 2.6 percent during the same time period. The municipalities of Downs and Towanda have considerably smaller populations than Normal and Bloomington, and therefore their growth rates are more sensitive to change than Bloomington or Normal. The boundaries of the Census tracts that are part of the study area have changed from 2000 to 2010. Therefore, the population change in the study area cannot be estimated.

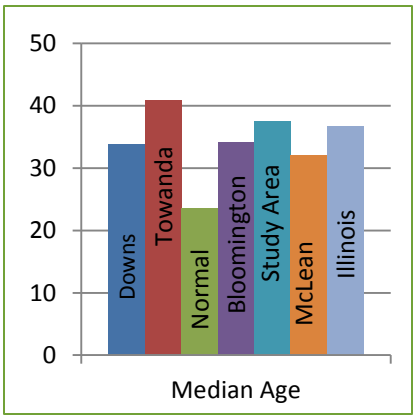
The town of Normal supports a large student population for Illinois State University. According to Illinois State University's Planning, Research and Policy Department, the student population per semester during 2010 averaged 20,762 students, showing stable enrollment as compared to 20,856 in 2009. Illinois Wesleyan University's Office of the Registrar reported an average student population of 2,066 and 2,094 in 2009 and 2010, respectively.

**Table 3.1.1-1: Population (2000-2010)**

| Location | 2000 Census Population | 2010 Census Population | % Change 2000-2010 |
|---|---|---|---|
| **State** | | | |
| Illinois | 12,419,293 | 12,830,632 | 3.3% |
| **County** | | | |
| McLean | 150,433 | 169,572 | 12.7% |
| **Municipality** | | | |
| Bloomington | 64,808 | 76,610 | 18.2% |
| Downs | 776 | 1,005 | 29.5% |
| Normal | 45,386 | 52,497 | 15.7% |
| Towanda | 493 | 480 | -2.6% |

*Source: U.S. Census Bureau, 2000 & 2010 Census*

### Age Composition

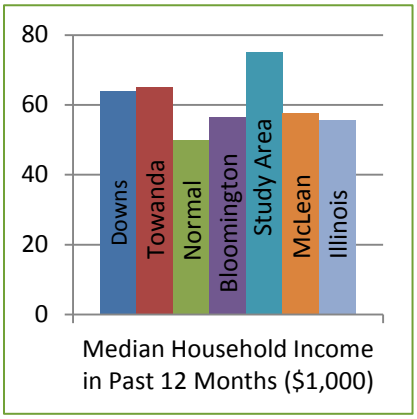


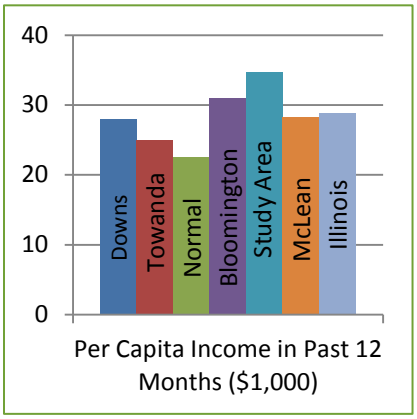

According to the 2010 Census, the median age of residents within the study area and its vicinity ranges from 33.8 years in Downs to 40.8 years in Towanda. These median ages are higher than the McLean County average of 32.1 years and (with the exception of Towanda) lower than the State of Illinois average of 36.6 years. To compare, the median age of residents within the Census block groups comprising the study area is 37.5 years.

The median age in Normal is 23.5 years. This average is below the median ages of both McLean County and the State of Illinois, and is likely due to the student population at Illinois State University.

**Table 3.1.1-2: Age Composition (2010)**

| Location | Population | Median Age |
|---|---|---|
| **State** | | |
| Illinois | 12,830,632 | 36.6 |
| **County** | | |
| McLean | 169,572 | 32.1 |
| **Municipality** | | |
| Bloomington | 76,610 | 34.1 |
| Downs | 1,005 | 33.8 |
| Normal | 52,497 | 23.5 |
| Towanda | 480 | 40.8 |
| **Census Block Group** | | |
| Study Area | 61,558 | 37.5 |




### Income

According to the 2006-2010 American Community Survey, the median household income within the study area and its vicinity ranges from $50,304 in Normal to $65,234 in Towanda (**Table 3.1.1-3** and bar chart).

Per capita income within the study area and its vicinity ranges from $22,515 in Normal to $31,046 in Bloomington. To compare, the median household and per capita incomes within the Census block groups comprising the study area are $75,309, and $34,737 respectively (**Table 3.1.1-3** and bar chart).

**Table 3.1.1-3** presents the income statistics within the study area and its comparable populations.

**Table 3.1.1-3: Income (2006-2010)**

| Location | Median Household Income in Past 12 Months | Per Capita Income in Past 12 Months |
|---|---|---|
| **State** | | |
| Illinois | $55,735 | $28,782 |
| **County** | | |
| McLean | $57,642 | $28,167 |
| **Municipality** | | |
| Bloomington | $56,510 | $31,046 |
| Downs | $63,984 | $28,054 |
| Normal | $50,304 | $22,515 |
| Towanda | $65,234 | $24,978 |
| **Census Block Group** | | |
| Study Area | $75,309 | $34,737 |

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

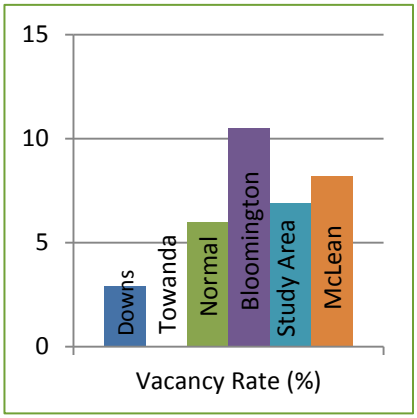
### Housing Characteristics

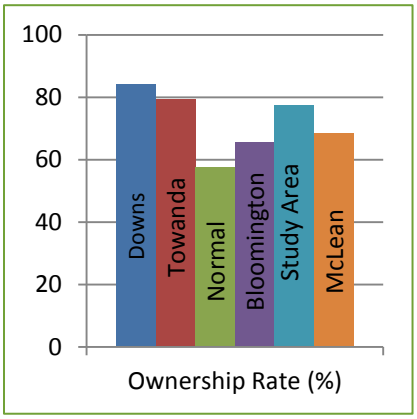
Vacancy and home ownership rates are one measure of the stability of a community. Bloomington has the highest vacancy rates in the study area, and the study area vacancy rates are consistent with those of the surrounding cities and McLean County (**Table 3.1.1-4** and bar chart).

Bloomington and Normal have lower home ownership rates than those of the county and state (**Table 3.1.1-4** and bar chart), which may be due to rental housing associated with Illinois State University and Illinois Wesleyan University.

The study area has the highest median home values as compared to McLean County and the surrounding municipalities (**Table 3.1.1-4** and bar chart).

**Table 3.1.1-4** presents the housing characteristics within the study area.



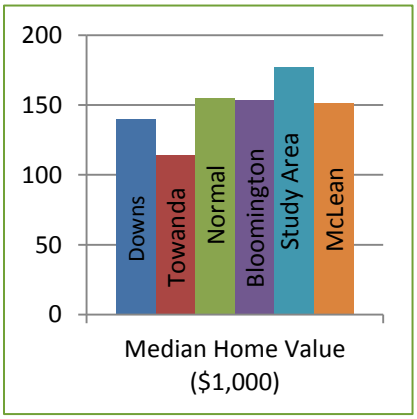




**Table 3.1.1-4: Housing Characteristic (2006-2010)**

| Location | Vacancy Rate | Ownership Rate | Median Home Value |
|---|---|---|---|
| **County** | | | |
| McLean | 8.2% | 68.3% | $151,700 |
| **Municipality** | | | |
| Bloomington | 10.5% | 65.6% | $153,500 |
| Downs | 2.9% | 84.0% | $139,800 |
| Normal | 6.0% | 57.6% | $155,200 |
| Towanda | 0.0% | 79.4% | $114,500 |
| **Census Block Group** | | | |
| Study Area | 6.9% | 77.4% | $177,531 |

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

Racial composition, poverty characteristics, elderly, and populations with disabilities within the study area and its vicinity are discussed in **Chapter 3.1.2**, Environmental Justice.

The Build Alternatives will not result in high or adverse impacts for the general population or to housing vacancy or ownership characteristics in the project study area.

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to the general population or to housing resulting from other unrelated planned and programmed projects associated with this alternative.

## Neighborhoods

### *What neighborhoods exist in the study area?*

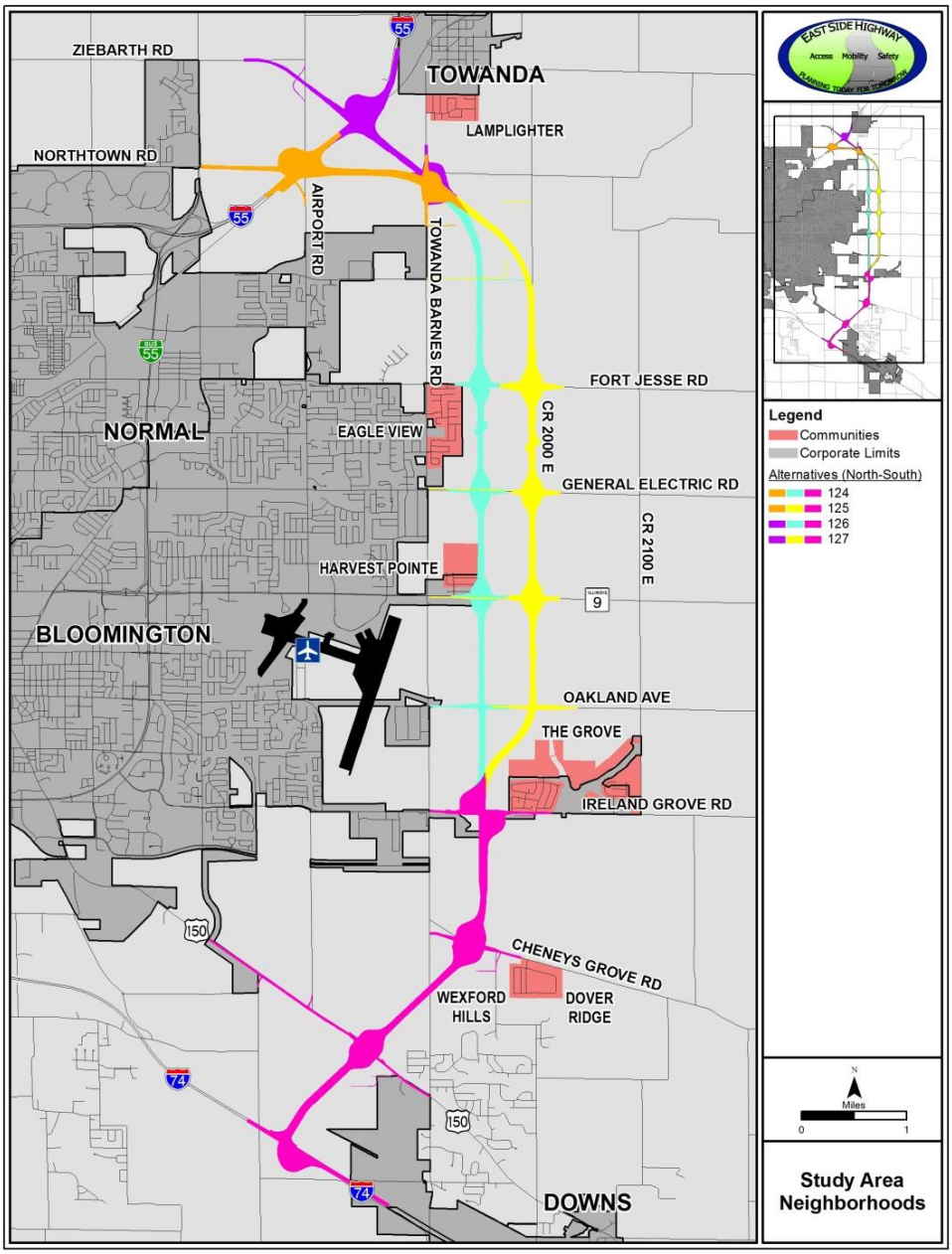
Neighborhoods can easily be found in larger cities; in rural areas neighborhoods are sparse. For the project study area, neighborhoods are defined as a non-linear cluster of residential developments located within the Bloomington-Normal area boundaries. Although there are several neighborhoods in the study area, only a few are in close proximity to the remaining four Build Alternatives. They are shown in **Figure 3.1.1-1**.

- **Lamplighter, outside Towanda:** Located east of Towanda Barnes Road and south of CR 1900 N bordering the village limits of Towanda, Lamplighter contains approximately 98 building lots and a park with a pond. Construction of this subdivision started in 1968.
- **Eagle View, Bloomington:** Located east of Towanda Barnes Road and south of Fort Jesse Road, Eagle View contains approximately 266 family homes. The neighborhood includes Eagle View Park, currently in development. The Eagle View neighborhood's infrastructure appears to be built to the limits of its development, per the neighborhood's site plan. Eagle View is in development; most of its lots are occupied by newer single family residential homes, and a small fraction of vacant lots are available for future development.
- **Harvest Pointe, Bloomington:** Located east of Towanda Barnes Road and north of Empire Road/IL Route 9, Harvest Pointe includes approximately 57 single family homes. Harvest Pointe is currently within its first and second phases of development. Its site plan shows potential future phases of the development extending north, and it is ultimately planned to have 730 total residential lots and a park on the west side of the development.
- **The Grove, Bloomington:** Located east of Towanda Barnes Road north of Ireland Grove Road, The Grove includes approximately 252 single family homes. The majority of lots in the current development phase are built out, but a few vacant lots remain. Future development phases of The Grove would expand to the north and east, with the Kickapoo Creek located at the center of the subdivision. According to its concept plan, The Grove could be built out to approximately one thousand (1,000) residential units. The Grove currently contains an 88-

acre stream restoration area, a grass turf trail next to Kickapoo Creek, and a new bridge over Kickapoo Creek. The area is planned to include a future 20-acre park in the south central portion of the subdivision.

- **Wexford Hills and Dover Ridge, Bloomington:** Located east of Towanda Barnes Road and south of Cheneys Grove Road, these two neighborhoods are parts of the same subdivision. The western portion of the subdivision is Wexford Hills whereas Dover Ridge comprises the eastern portion.

**Figure 3.1.1-1: Study Area Neighborhoods**



### *How are neighborhoods impacted by the alternatives?*

The alternatives were evaluated for any changes in community cohesion, travel patterns, and access.

**Community Cohesion**

Community cohesion is a social attribute that indicates a sense of community, common responsibility, and social interaction within a limited geographic area. It is the degree to which residents have a sense of belonging to their neighborhood or community or a strong attachment to neighbors, groups, and institutions as a continual association over time.

**Changes in Travel Patterns**

Changes in travel patterns can include introduction of interchanges, introduction of medians, alterations of intersections that restrict access to local roads, and/or closures of local roads.

**Community Cohesion**

The proposed project is a new alignment that travels through a primarily rural area near the urbanized Bloomington-Normal area and the communities of Towanda and Downs. Community cohesion would likely remain intact since the area is largely undeveloped. None of the remaining alternatives divide or isolate existing and developing residential areas.

**Travel Patterns and Access**

The ESH will change travel patterns in the area through the use of the new freeway network. Originally, Alternatives 125 and 127 were proposed with a design that would end through access of County Road (CR) 2000E at the ESH. Local residents commented on the design stating concern that ending the through connection to CR 2000 E would limit access to farm parcels. As a result, access roads along a portion of Alternatives 125 and 127 would be extended north to provide connectivity to any land locked farm parcels. This change is discussed further in **Chapter 3.2**, Agricultural Resources.

In order to maintain the accessibility of the existing local road network, the ESH would incorporate underpasses and overpasses. **Chapter 4** describes the Preferred Alternative and includes further details about the under and overpasses associated with the ESH.

Under Alternatives 124 and 125, Northtown Road/E 1800 North will be closed east of the ESH with a terminus at Towanda-Barnes Road. E 1800 North Road will remain in place east of the proposed terminus at the ESH. This change will affect travel patterns for nearby residents and agricultural operations.

Because the No Build Alternative would not include the ESH and its related improvements, it is assumed that there would be no impacts to community cohesion, travel patterns, or access as a result of other unrelated planned and programmed projects associated with this alternative.

None of the four remaining Alternatives would impact current or future development phases of the Lamplighter, Eagle View, The Grove or the Wexford Hills and Dover Ridge neighborhoods. However,

Alternatives 124 and 126 would displace five residences located in the eastern portion of the Harvest Pointe neighborhood; those alternatives would also displace or prevent construction of residences in a planned future phase of the subdivision.

Alternatives 125 and 127 would not impact the current or future development phases of the Harvest Point neighborhood as the alignment is to east of the neighborhood footprint.

## Jobs and Economics

### *What are the area's largest industries?*

**Why study the area's largest industries and employers?**

These are studied to evaluate if the project has negative employment and economic impacts by displacing the largest employers.

According to Woods & Poole Economics, McLean County's economic strengths and diversity largely follow state and national trends. County employment is concentrated in the Insurance, Auto Manufacturing & Related Industries, Colleges & Universities, and Agriculture & Food Processing sectors.

Major employers and businesses within the study area and its vicinity are shown in **Table 3.1.1-5**. The first and third largest employers are both in the insurance industry while the second largest employer is Illinois State University. The remaining major employers in the study area are a mix of health care, manufacturing, government, education, and management sector employers.

**Table 3.1.1-5: Major Employers in Study Area**

| No. | Business Name | Product or Service | Employees |
|---|---|---|---|
| 1 | State Farm Insurance Companies | Insurance | 14,935 |
| 2 | Illinois State University | Higher Education | 3,251 |
| 3 | Country Financial | Finance/Insurance | 1,955 |
| 4 | Unit 5 School District | Education | 1,674 |
| 5 | Advocate Bromenn Medical Center | Health Care | 1,347 |
| 7 | OSF St. Joseph Medical Center | Health Care | 1,028 |
| 8 | McLean County | Government | 806 |
| 9 | District 87 Schools | Education | 700 |
| 10 | AFNI, Inc. | Contact Center/Customer Management | 700 |

*Source: Bloomington-Normal Area Convention and Visitors Bureau. Accessed March 2014.*

### *What are the area's employment trends?*

According to the Illinois Department of Employment Security, unemployment rates in Bloomington and Normal were 7.4 and 7.5 percent, respectively, in 2013, which was consistent with the McLean County average (7.3%). In all cases, the unemployment rates are much lower than that of the State of Illinois (9.2%). Unemployment rates for Towanda and Downs were unavailable from the Illinois Department of Employment Security.

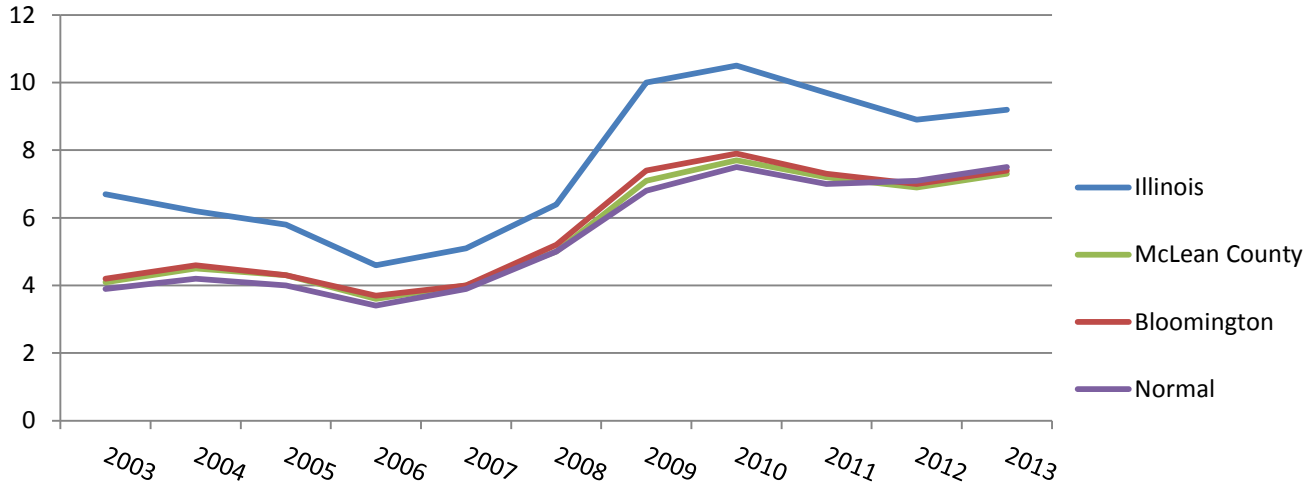
**Table 3.1.1-6** presents the unemployment rates in 2000, 2010, and 2013 in the study area municipalities, McLean County, and the State of Illinois. **Figure 3.1.1-2** shows unemployment rates from 2003 to 2013. McLean County, Bloomington, and Normal had lower unemployment rates than the state before and after the Great Recession (2007 -2009).

**Table 3.1.1-6: Unemployment Rates (2000-2013)**

| Location | 2000 Unemployment Rate | 2010 Unemployment Rate | 2013 Unemployment Rate |
|---|---|---|---|
| **State** | | | |
| Illinois | 4.5% | 10.5% | 9.2% |
| **County** | | | |
| McLean | 3.4% | 7.7% | 7.3% |
| **Municipality** | | | |
| Bloomington | 3.5% | 7.9% | 7.4% |
| Normal | 3.2% | 7.5% | 7.5% |

*Source: Local Area Unemployment Statistics, Illinois Department of Employment Security, 2014.*

**Figure 3.1.1-2: Unemployment Rates (%) (2003-2013)**




***Where are the areas targeted for economic development?***

Bloomington and Normal have the majority of economic development opportunities within the study area. Both cities offer various incentives for economic development, such as tax abatement and financing programs. State economic development funding and programs are also utilized in the area.

The Urban Area Land Use Plan in the McLean County Regional Comprehensive Plan, Map 7.7 (shown in **Figure 3.1-4** in the Land Use section in **Chapter 3**) shows that the metro area plans future development to occur east of Towanda Barnes Road between Ireland Grove Road and Fort Jesse Road in the vicinity of the ESH. The largest area of new development in this area would be between Ireland Grove Road and Empire Street/IL Route 9. **Figure 3.1-5** shows the year 2035 Land Use Plan for the City of Bloomington, and **Figure 3.1-6** in **Chapter 3** shows the year 2035 Land Use Plan for the Town of Normal. As shown in the figures, the Bloomington and Normal Comprehensive Plans include potential interchange development areas along the ESH corridor at the following seven locations (from south to north):

- US 150 (McLean County)
- Cheney's Grove Road/Towanda-Barnes Road (Bloomington)
- Ireland Grove Road (Bloomington)
- Empire Street/IL Route 9 (Bloomington)
- General Electric Road (Bloomington)
- Fort Jesse Road (Normal)
- Towanda Barnes Road (Normal)

## Property Acquisition

### *Will homes be displaced?*

The following section discusses single family, multi-family, and farmstead residential impacts. Residential impacts include the home and any residential outbuildings associated with the home such as garages, sheds, and barns. A displacement is defined as a particular building or property being within the new ROW required for the proposed improvement.

There are approximately 1,000 homes within one mile of the proposed ESH alternatives. Farm and non-farm residential displacements varied from 13 (Alternatives 125 and 127) to 21 (Alternatives 124 and 126) and were concentrated in two areas (see **Figures 3.1.1-3** and **3.1.1-4**):

1. Where ESH crosses US 150, all four alternatives displace two homes and one farm residence.
2. Where ESH crosses Empire Street/IL Route 9, Alternatives 124 and 126 will displace two Harvest Pointe subdivision residences and two farm residences (a total of four homes). The eastern Alternatives 125 and 127 would avoid the Harvest Pointe subdivision but displace two farm residences within the interchange area.

**Figure 3.1.1-3: Residential Displacements at U.S. Route 150**

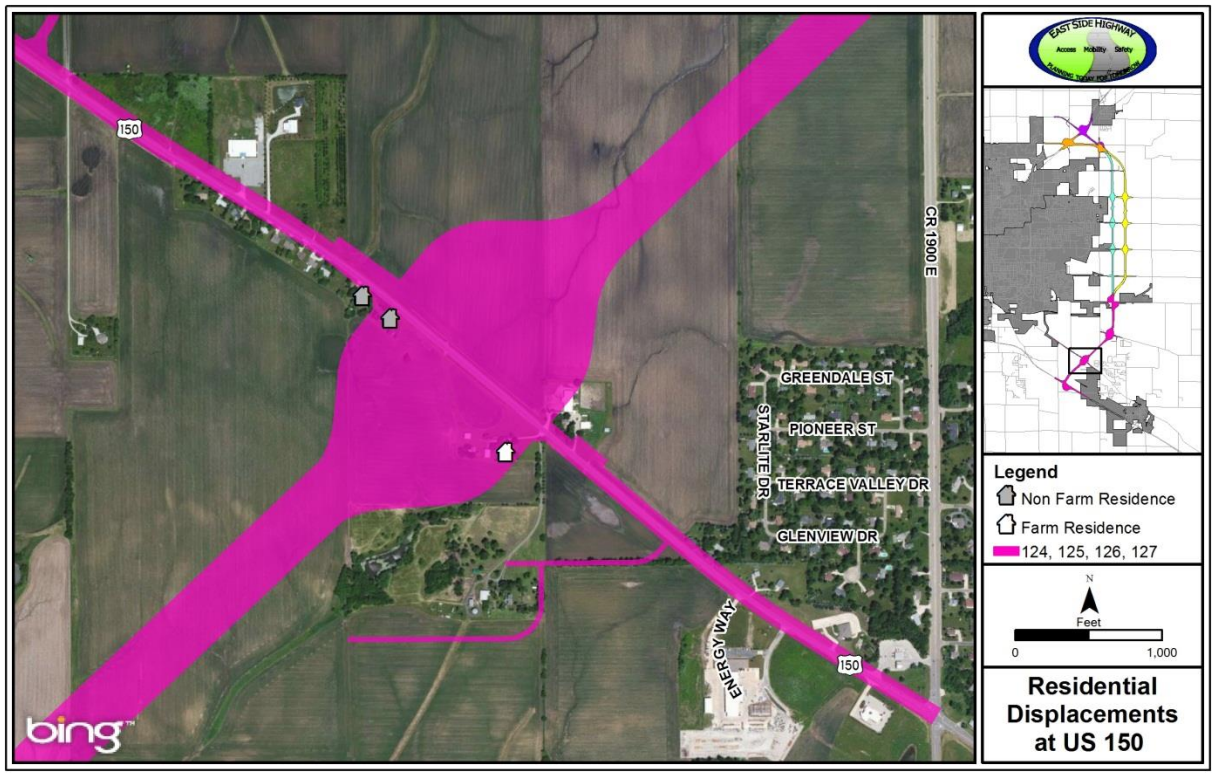
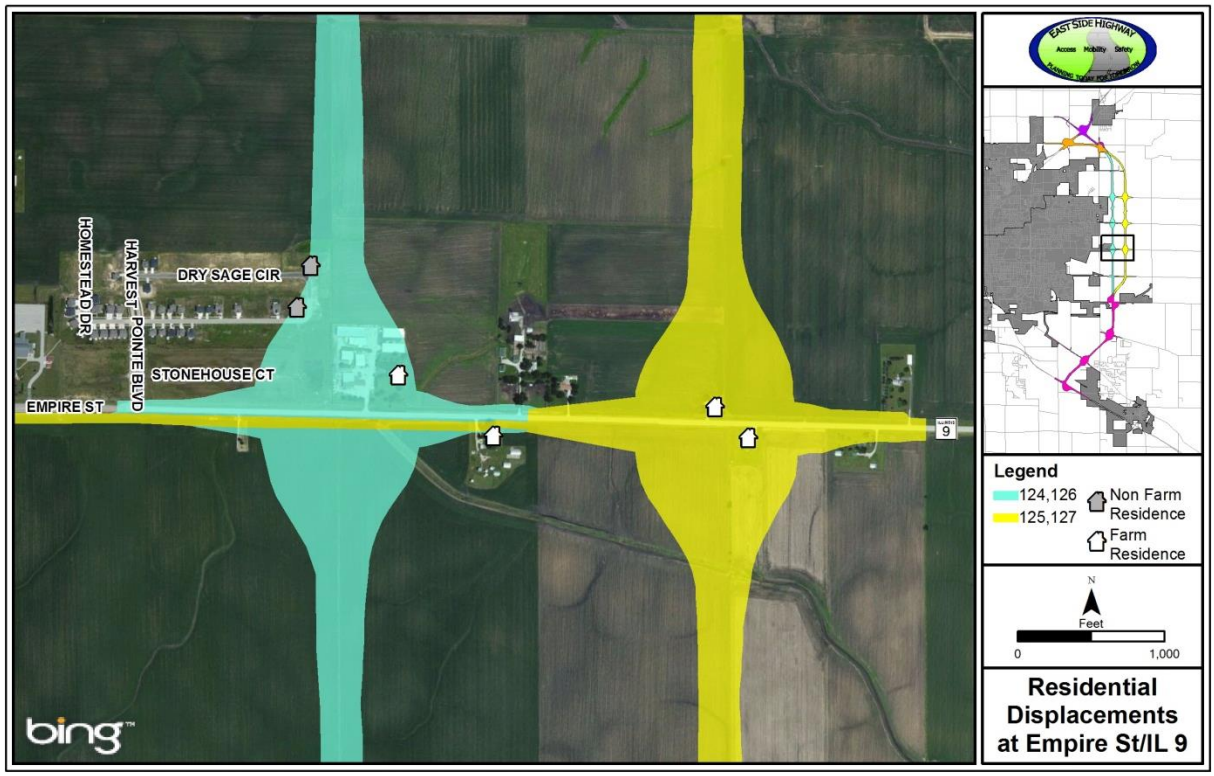


**Figure 3.1.1-4: Residential Displacements at Empire Street/IL Route 9**




### *Will businesses be displaced?*

Alternatives 124 and 126 would displace seven businesses at the ESH proposed interchange with Empire Street/IL Route 9 (shown in **Figure 3.1.1-5**). The displacements include a paintball range, a landscaping company, agribusiness, and a multimedia/satellite television company as well as one currently unoccupied commercial space within the Prairie Commercial Park. There are nearby available commercial and industrial spaces for relocation on Towanda Barnes Road, IL Route 9, and Hershey Road, which are suitable for the types of businesses that are being displaced. Alternatives 125 and 127 would not displace any businesses. The four remaining Alternatives would not impact parking areas for otherwise not impacted businesses.

Although the No Build Alternative would include other unrelated planned and programmed projects, it is assumed that it would not impact residences or businesses since it would not include the ESH and related roadway improvements.

**Figure 3.1.1-5: Commercial Displacements at Empire Street/IL Route 9**

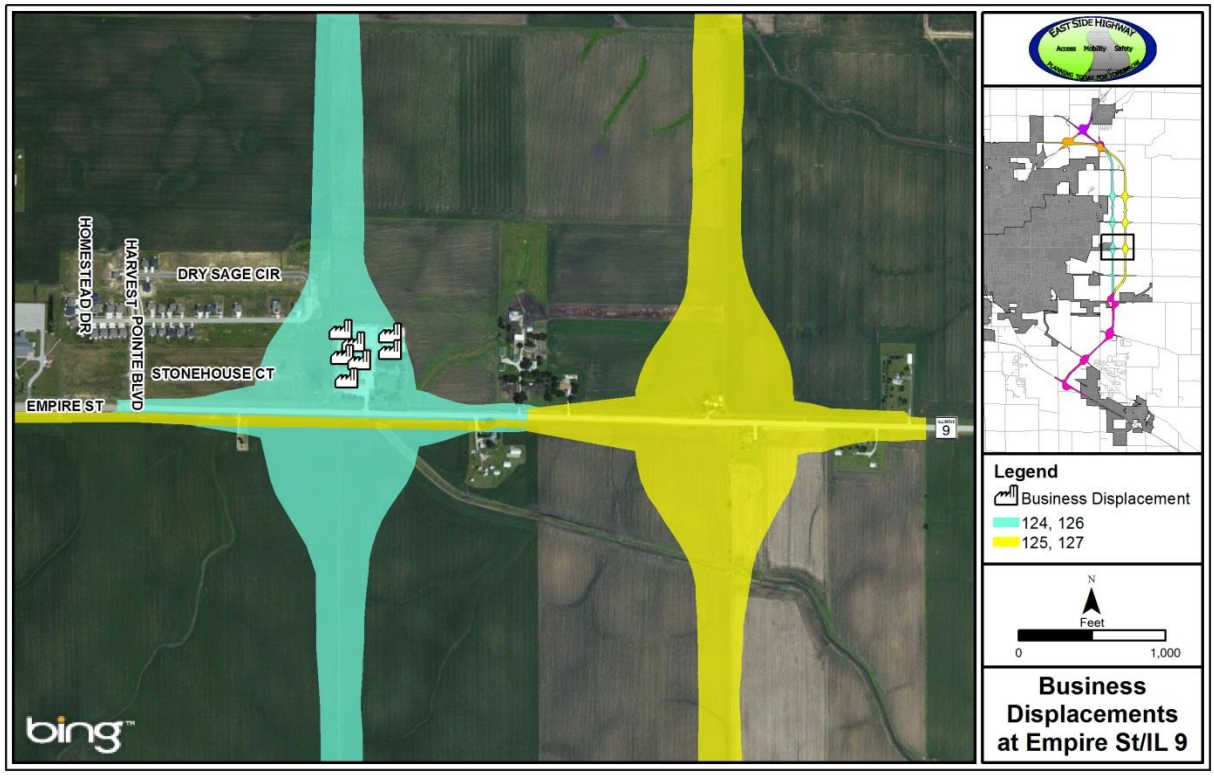



**Table 3.1.1-7** summarizes the number and type of displacements for each alternative.

**Table 3.1.1-7: Residential and Business Displacements**

| Alternative | Residential Displacements | Business Displacements |
|---|---|---|
| Alternative 124 | 21 | 7 |
| Alternative 125 | 13 | 0 |
| Alternative 126 | 21 | 7 |
| Alternative 127 | 13 | 0 |

### *How will IDOT purchase properties identified for displacement?*

Relocation assistance and compensation will be provided to any residence or business displaced, in accordance with applicable State and Federal regulations and guidelines.

IDOT will implement the provisions of the State of Illinois Relocation Assistance Plan in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended (Uniform Relocation Act). IDOT will provide just compensation for those properties that are displaced as a result right-of-way acquisition for the proposed project. Mitigation of displacements or displaced structures will be in the form of financial compensation for property loss and relocation expenses, as outlined in the Uniform Relocation Act.

Displaced residents and businesses will be given the opportunity to relocate in the same area if desired. Displaced farm residences may be relocated on site (i.e., onto property already owned by the resident). A March 2014 search for available homes for sale in the study area on the National Association of REALTORS® website revealed that there are 756 single-family homes and 33 multi-family properties available for sale within Bloomington, Normal, Towanda and Downs. Adequate replacement housing appears to be available for the displaced residences within the project area. IDOT will provide housing of last resort if comparable housing is not available at the time of displacement.

Businesses also may rebuild or relocate on site. For those that cannot relocate on site, there is available developable land near their existing locations to re-establish the business. A March 2014 search for available commercial properties for sale in the study area on the LoopNet® website revealed that there are 109 commercial properties available for sale within Bloomington, Normal, Towanda and, Downs. None of the build alternatives will affect Section 8 of the Housing Act of 1937, as amended or other publicly subsidized housing.

### *How will tax revenue change as a result of the displacements?*

Tax revenue would change due to the displacements of residences and businesses, and loss of farmland as a result of each of the four

**Just Compensation**

Just compensation is required to be paid when private property is acquired for public use. It is generally equal to the fair market value of the property.

**Uniform Relocation Act**

The Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Title 42 United States Code Sections 4601-4655, as amended) applies to all federal or federally assisted activities that involve the acquisition of real property or the displacement of residences and businesses.

**Fair Market Value**

Fair market value is the highest price estimated in terms of money that the property will bring, if exposed to sale on the open market, with a reasonable time allowed to find a buyer, buying with the knowledge of all of the uses to which is adapted, and for which it is capable of being used.

**Section 8 of the Housing Act of 1937**

Section 8 of the Housing Act of 1937, administered by the U.S. Department of Housing and Urban Development, provides rental housing assistance for low-income people, elderly, and people with disabilities. The public housing authority pays a housing subsidy to the landlord on behalf of the participating family. The family pays the difference of the remaining rent amount.

remaining alternatives. For each alternative, the total tax revenue loss was estimated to be the property tax amount in 2011 of displaced residences, businesses, and lost farmland. The percentage of tax revenue loss was computed dividing the total property tax revenue loss divided by the total property tax revenue collected by McLean County for that same year, which was $293,332,985.44.

**Table 3.1.1-8** summarizes the property tax revenue loss as a result of the residential and business displacements and lost farmland associated with each Build Alternative. As the table shows, the highest and lowest amount of property tax revenue would be lost under Alternatives 124 and 127, respectively, which is 0.04 and 0.03 percent of the total property tax revenue collected in McLean County.

**Table 3.1.1-8: 2011 Property Tax Revenue Loss for Each Build Alternative**

| Alternative | Total Property Tax Revenue Loss ($)[1] | Percentage of Property Tax Revenue Loss (%) |
|---|---|---|
| Alternative 124 | 107,513 | 0.04 |
| Alternative 125 | 102,196 | 0.03 |
| Alternative 126 | 105,588 | 0.04 |
| Alternative 127 | 99,830 | 0.03 |

*Source: McLean County, 2013.[1]*

*[1] Total property tax revenue loss includes tax that would not be collected by McLean County as a result of residential and commercial displacements and lost farmland. McLean County total property tax revenue in 2011 is $292,332,985.*

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to Section 8 or other publicly subsidized housing as a result of other unrelated planned and programmed projects associated with this alternative.

*[1] For the references section: McLean County, 2013. "Parcel Information Look-Up." http://www.mcleancountyil.gov/index.aspx?nid=112. Accessed March 19, 2013.*

## 3.1.2 Environmental Justice and Title VI

In February 1994, President Clinton issued Executive Order 12988, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requiring federal agencies to incorporate consideration of environmental justice into the NEPA evaluation process. The purpose of the order is to ensure that low-income, minority households, and/or minority business enterprises do not suffer a disproportionate share of adverse environmental impacts resulting from federal actions that are not offset by project benefits. U.S. DOT issued its Final Environmental Justice Order 5610.2(a) on May 2, 2012 to comply with EO 12898. On June 14, 2012 FHWA issued Order 6640.23A "FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations".

Environmental justice populations include minority and low-income populations. The Council on Environmental Quality (CEQ) defines minority as "individuals who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic" (The Federal Council on Environmental Quality, Environmental Justice Guidance under the National Environmental Policy Act", Appendix A, December 10, 1997). A low-income household is one that has a median household income below the U.S. Department of Health and Human Services poverty guideline as reported by the Census Bureau.

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving Federal financial assistance. Title VI protected groups discussed in this EA include elderly and populations with disabilities.

### *How were minority and low-income populations determined?*

The Federal Council on Environmental Quality's guidance document "Environmental Justice Guidance under the National Environmental Policy Act" provides two ways to identify the presence of minority and low-income populations:

1. (A) The minority population of the affected area exceeds 50 percent of the general population 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 and

**Minority Populations**

The U.S. Department of Transportation (USDOT) defines a minority as a person who is Black or African American, Hispanic or Latino, Asian American, American Indian/Alaskan Native, or Native Hawaiian/Other Pacific Islander.

2. The low-income population of the affected area should be identified with the annual statistical poverty thresholds from the Census Bureau's Current Population Reports, Series P-60 on Income and Poverty.

ESH minority populations were identified using option 1(B).

**Minority Populations**

Year 2010 U.S. Census data was used to determine minority populations in areas impacted by the alternatives. Minority populations were identified by comparing race and ethnicity data among Census block groups and municipalities within and adjacent to the study area and McLean County.

The municipalities within and adjacent to the study area are primarily composed of White population (average of 89%). Hispanic or Latino populations range from 0.6 percent in Towanda to 5.6 percent in Bloomington. Only Bloomington (25.4%) has a minority population higher than McLean County (18.1%). In all cases, the percentage of minority population is much lower than that of the State of Illinois (36.3%).

To compare, White and Hispanic or Latino populations within Census block groups comprising the study area are 82.4 percent and 4.3 percent respectively. The minority population of the same area is 19.9 percent. Racial and ethnic composition in the study area is an aggregated value; however, data from individual block groups and Census tracts were used to determine the percentage of minority populations in the study area. **Table 3.1.2-1** presents the ethnic composition within the study area.

**Table 3.1.2-1: Racial and Ethnic Composition (2010)**

| Location | Population | White[1] | Total Minority[2] | Hispanic or Latino | Black or African American[3] | Other Minorities[4] | % White[1] | % Total Minority | % Hispanic or Latino | % Black or African American | % Other Minorities |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **State** | | | | | | | | | | | |
| Illinois | 12,830,632 | 9,177,877 | 4,662,879 | 2,027,578 | 1,974,113 | 1,742,294 | 71.5% | 36.3% | 15.8% | 15.4% | 13.6% |
| **County** | | | | | | | | | | | |
| McLean | 169,572 | 142,940 | 30,737 | 7,434 | 14,531 | 12,717 | 84.3% | 18.1% | 4.4% | 8.6% | 7.5% |
| **Municipality** | | | | | | | | | | | |
| Bloomington | 76,610 | 59,353 | 19,469 | 4,308 | 9,050 | 8,570 | 77.5% | 25.4% | 5.6% | 11.8% | 11.2% |
| Downs | 1,005 | 957 | 54 | 9 | 26 | 25 | 95.2% | 5.4% | 0.9% | 2.6% | 2.5% |
| Normal | 52,497 | 44,660 | 9,184 | 2,133 | 4,918 | 3,124 | 85.1% | 17.5% | 4.1% | 9.4% | 6.0% |
| Towanda | 480 | 473 | 9 | 3 | 1 | 6 | 98.5% | 1.9% | 0.6% | 0.2% | 1.3% |
| **Census Block Group** | | | | | | | | | | | |
| Study Area[5] | 61,558 | 50,719 | 12,257 | 2,663 | 3,248 | 7,210 | 82.4% | 19.9% | 4.3% | 5.3% | 11.7% |

*Source: U.S. Census Bureau, 2010 Census*

*Notes: (1) Those reporting as exclusively White.*

*(2) Total Minority was defined as those reporting as Hispanic, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, or Two or More Races.*

*(3) Black or African American includes those reporting as both Hispanic and non-Hispanic Black or African America. Therefore, those people reporting as Hispanic Black or African American are also included in the Hispanic or Latino category.*

*(4) Other Minorities includes both Hispanic and non-Hispanic American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and Some Other Race.*

*(5) Racial and ethnic composition data in the study area are an aggregated value of the Census block groups in the study area; however, data from individual block groups and Census tracts were used to determine the percentage of minority populations in the study area.*

**Figure 3.1.2-1** shows the two minority populations that were identified in the study area, including:

- *Block Group 1, Tract 11.03, McLean County*: Block Group 1, Tract 11.03 is an area roughly bounded by Veterans Parkway, Empire St/IL Route 9, Hershey Road and Oakland Avenue in Bloomington. Eastland Mall and Central Illinois Airport are located adjacent to Block Group 1, Tract 11.03. Approximately, 43.2 percent of the population in Block Group 1, Tract 11.03 is classified as minority, which is higher than in Bloomington, Normal, Towanda, Downs, McLean County, and the State of Illinois.
- *Block Group 1, Tract 11.06, McLean County*: Block Group 1, Tract 11.06 is an area roughly bounded by Veterans Parkway, General Electric Road, Hershey Road and Oakland Avenue in Bloomington. Eastland Mall and Central Illinois Airport are located to the south of Block Group 1, Tract 11.06. Approximately, 44.3 percent of the population in Block Group 1, Tract 11.06 is classified as minority, which is higher than in Bloomington, Normal, Towanda, Downs, McLean County, and the State of Illinois.

**USDOT Low-Income**

The USDOT defines low-income as a person whose median household income is below the U.S. Department of Health and Human Service (HHS) poverty guidelines, which in 2012 were $23,050 for a family of four.

**IDOT Low-Income**

IDOT uses the U.S. Census – American Community Survey Census Poverty Level (CPL) as a basis for determining low-income status. The 2010 CPL for a family of four is $22,314.

### Low-Income Status

Year 2010 U.S. Census data were used to determine low-income populations in areas impacted by the alternatives. Low-income populations were identified using a combination of the U.S. Department of Health and Human Services (HHS) poverty guidelines or U.S. Census poverty statistics.

According to the 2006-2010 American Community Survey, the percent of low-income families within the study area and its vicinity ranges from 1.2 percent in Downs to 8.7 percent in Towanda (**Table 3.1.2-2** and bar chart).

The percent of low-income individuals within the study area and its vicinity ranges from 3.5 percent in Downs to 23.1 percent in Normal (**Table 3.1.2-2** and bar chart).

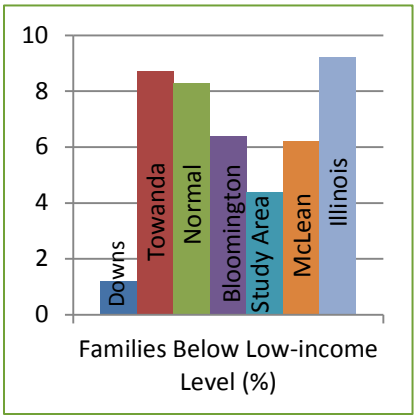
Normal's percentage of low-income individuals is much higher and could be due, in part, to the lower income for students attending Illinois State University. Census block group level data for individuals classified as low-income were not available at the time of study.

To compare, the percentages of low-income families within the Census block groups comprising the study area is 4.4%. This is notably lower than the McLean County and the State of Illinois (**Table 3.1.2-2** and bar chart). The percentage of families below low-income level is an aggregated value;

however, data from individual block groups and Census tracts were used to determine the percentage of families below the low-income level.

**Figure 3.1.2-1** shows the one low-income population that was identified: Block Group 2, Tract 21.01. Block Group 2, Tract 21.01 is an area roughly bounded by U.S. Route 51, Veterans Parkway, Norfolk Southern Railroad line/Capodice Road and Interstate 74 in Bloomington. The percentage of families classified as low-income, as defined by the U.S. Census, in Block Group 2, Tract 21.01 was 31.0 percent, which is significantly higher than in Bloomington, McLean County, or the State of Illinois.

**Table 3.1.2-2** presents the low-income status within the study area.



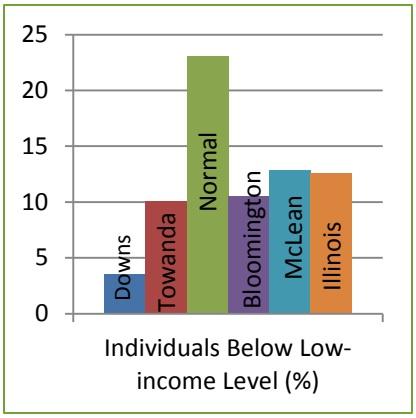




**Table 3.1.2-2: Low-Income Status (2006-2010)**

| Location | % Individuals Below Low-Income Level[1] | % Families Below Low-Income Level |
|---|---|---|
| **State** | | |
| Illinois | 12.6% | 9.2% |
| **County** | | |
| McLean | 12.9% | 6.2% |
| **Municipality** | | |
| Bloomington | 10.5% | 6.4% |
| Downs | 3.5% | 1.2% |
| Normal | 23.1% | 8.3% |
| Towanda | 10.1% | 8.7% |
| **Census Block Group** | | |
| Study Area | n/a | 4.4%[2] |

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

*Notes: (1) The 2010 Census Poverty Level for a family of four is $22,314. The Health and Human Services 2012 Poverty Guideline for a family of four is $23,050.*

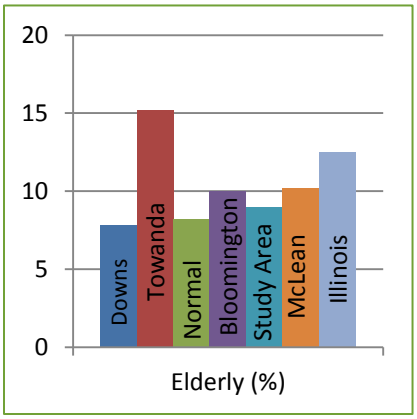
*(2) The percentage of families below low-income level is an aggregated value of the Census block groups in the study area; however, data from individual block groups and Census tracts were used to determine the percentage of families below the low-income level.*

### *How were elderly and populations with disabilities determined?*

In this EA, elderly populations and populations with disabilities are defined as Census blocks groups and Census tracts, respectively, having a proportion of elderly people or people with disabilities that is at least 20 percent higher than that of McLean County.

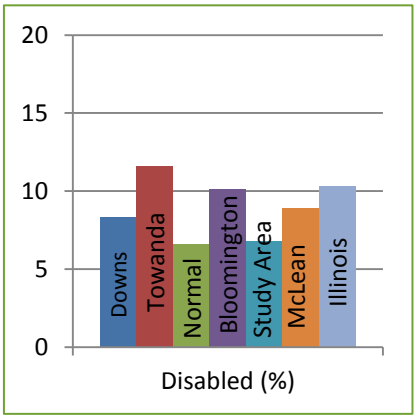
**Elderly Population**

Elderly population is defined as persons 65 years-old and older.




**Population with Disabilities**

Population with disabilities is defined as people with sensory, physical, mental, self-care, go-outside-home, and employment disabilities.




**Elderly Populations**

Year 2010 U.S. Census data were used to determine elderly populations in areas impacted by the alternatives. Elderly populations were identified by comparing elderly data among Census block groups and municipalities within and adjacent to the study area, McLean County, and the State of Illinois.

The percent of elderly within the study area and its vicinity ranges from 7.8 percent in Downs to 15.2 percent in Towanda (**Table 3.1.2-3** and bar chart).

To compare, the percentages of elderly persons within the Census block groups comprising the study area is 9.0 percent, lower than the McLean County and the State of Illinois, (**Table 3.1.2-3** and bar chart).

Since the percentage of elderly persons in the study area is lower than that in McLean County, elderly populations in the study area are not considered to be meaningfully greater than for the county as whole. Therefore, elderly populations, as defined for this analysis, do not exist in the study area.

**Populations with Disabilities**

Years 2008-2012 American Community Survey data were used to determine populations with disabilities in areas impacted by the alternatives. Disability data were not available to the Census block group level. Therefore, populations with disabilities were identified by comparing disability data among Census tracts and municipalities within and adjacent to the study area, McLean County, and the State of Illinois.

The percent of persons with disabilities within the study area and its vicinity ranges from 6.6 percent in Normal to 11.6 percent in Towanda (**Table 3.1.2-3** and bar chart).

To compare, the percentages of persons with disabilities within the Census tracts in the study area is 6.8 percent, lower than McLean County and the State of Illinois.

**Table 3.1.2-3** and the bar charts present the elderly and populations with disabilities within the study area.

**Table 3.1.2-3: Elderly and Populations with Disabilities within the Study Area**

| Location | Total Age 65+[1] | % Total Age 65+ | Total Persons with Disability[2] | % Total Persons with Disability |
|---|---|---|---|---|
| **State** | | | | |
| Illinois | 1,609,213 | 12.5% | 1,301,381 | 10.3% |
| **County** | | | | |
| McLean | 17,340 | 10.2% | 14,914 | 8.9% |
| **Municipality** | | | | |
| Bloomington | 7,695 | 10.0% | 7,694 | 10.1% |
| Downs | 78 | 7.8% | 74 | 8.3% |
| Normal | 4,327 | 8.2% | 3,470 | 6.6% |
| Towanda | 73 | 15.2% | 68 | 11.6% |
| **Census Block Group** | | | | |
| Study Area | 5,534 | 9.0% [3] | 5,186 | 6.8% [4] |

*Sources: U.S. Census Bureau, 2010 Census*

*Sources: [1] U.S. Census Bureau, 2010, [2] U.S. Census Bureau, 2008-2012 American Community Survey*

[3] *The percentage of elderly is an aggregated value of the Census block groups in the study area; however, data from individual block groups and Census tracts were used to determine the percentage of elderly in the study area.*

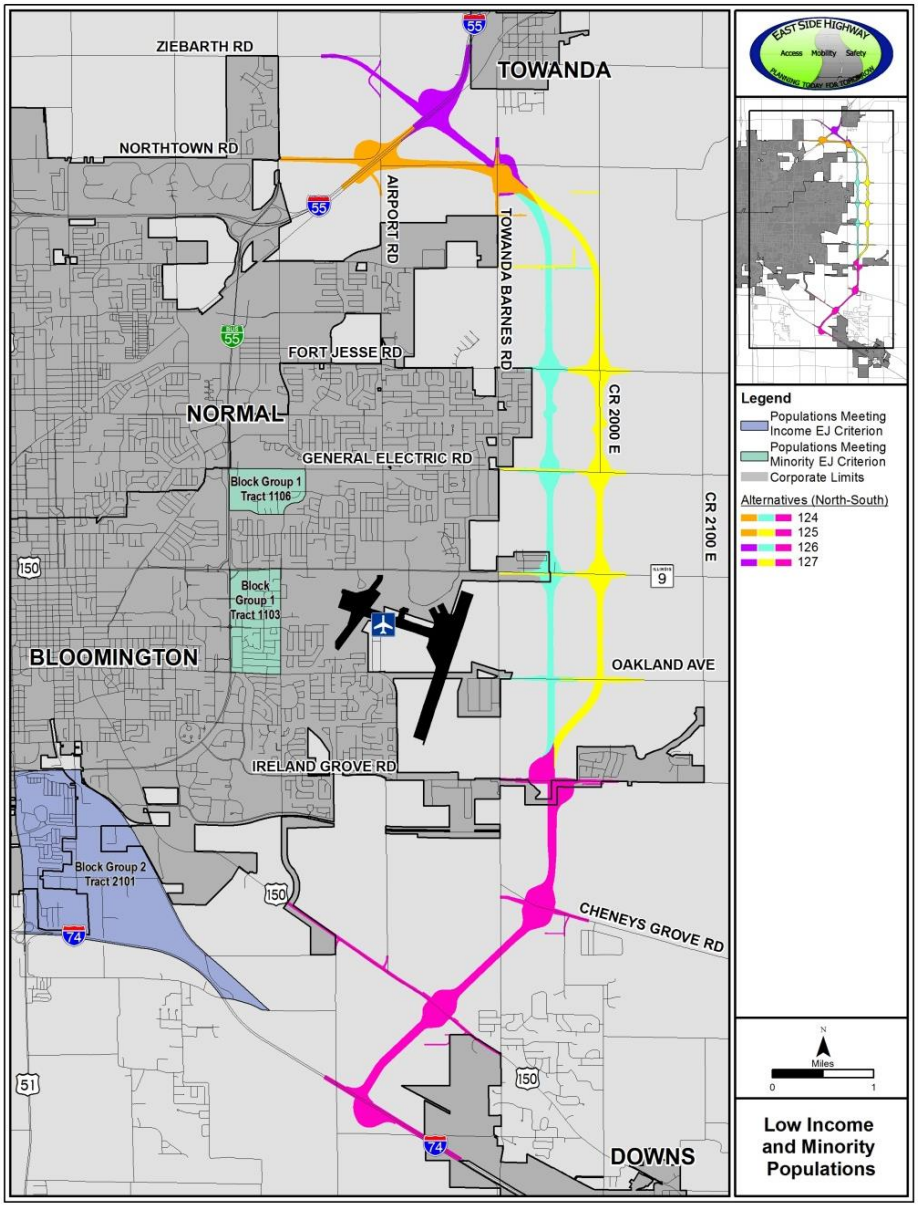
[4] *Data were only available to the Census tracts level. The percentage of persons with disabilities is an aggregated value of the Census tracts in the study area; however, data from individual Census tracts were used to determine the percentage of persons with disabilities in the study area.*

Since the percentage of persons with disabilities in the study area is lower than that in McLean County, populations with disabilities in the study area are not considered to be meaningfully greater than for the county as whole. Therefore, populations with disabilities, as defined for this analysis, do not exist in the study area.

### *How do the alternatives affect minority and low-income populations within the study area?*

Two block groups of minority populations (Block Group 1, Tract 11.03 and Block Group 1, Tract 11.06, McLean County) and one block group for low-income populations (Block Group 2, Tract 21.01, McLean County) were identified. The remaining ESH Alternatives are over one mile to the east of these blocks and will not impact these populations. Similarly, the No Build Alternative would not impose high or adverse impacts on minority and low-income populations as a result of other unrelated planned and programmed projects.

**Figure 3.1.2-1: Low-Income and Minority Populations**



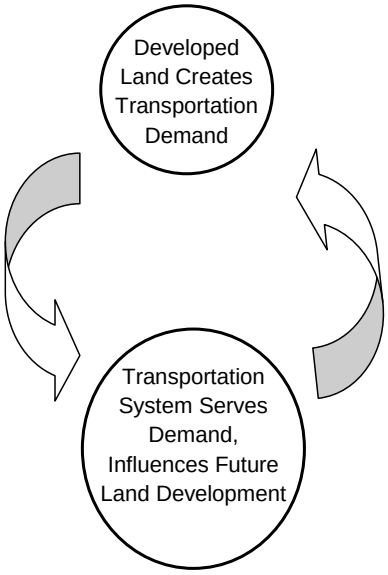
## 3.1.3 Land Use

### *How are land use and transportation connected?*

Land use patterns and transportation systems influence each other. Roads, trails, and transit systems provide vital transportation services to homes, businesses, schools, and other developed lands. In turn, developed land creates transportation demand that requires transportation service. Examples of transportation demand include travel between a home and a job or a home and school. Transportation systems can also influence the location and timing of future land development. Land uses that need dependable and efficient transportation access, such as industry or retail uses, may strategically locate new development near efficient transportation routes.

### *How is land use regulated?*

Within the ESH study area, land use planning is managed by the City of Bloomington, the Town of Normal, and McLean County. Each of these jurisdictions also has separate zoning ordinances and maps.




- *Land use is the development of land into uses like commercial, residences, schools, parks, and more.* Agencies with jurisdiction over the land (such as cities or counties) can create land use plans for future land use types, locations, and densities. The future land use plan reflects the community's development goals for the next twenty or thirty years. Future land use plans are used to project future population, as well as future utility and transportation demands.
- *Zoning is the classification of properties into land use types, and is the legal impetus for implementing land use plans.* Zoning for a municipality or county includes the zoning code (ordinance) and the zoning map.

**Examples of Land Use**

Land use is frequently categorized as:

* Residential
* Industrial
* Commercial
* Government/Institutional
* Parks
* Agricultural

The local planning department typically has an existing land use inventory and a future land use map to aid community growth patterns.

### *How has the region developed?*

The Bloomington-Normal urban area has experienced strong population growth and development since 1970. The majority of

**Bloomington-Normal's Growth Compared to Other Areas**

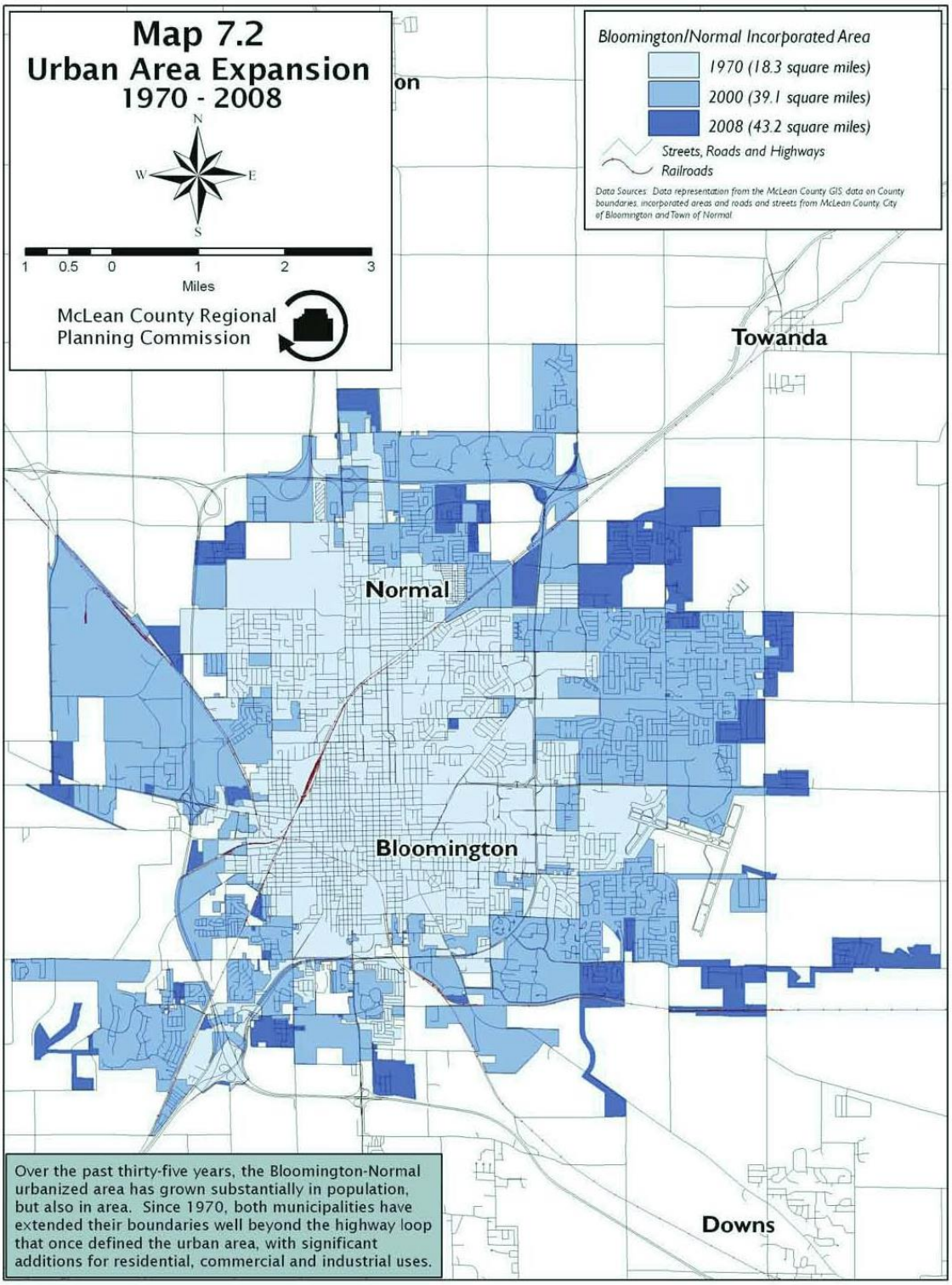
From 2000 to 2010, the area grew by over 19,000 people (12.7 %) and almost 1,100 jobs (1.0%) despite the Great Recession.

Between 2010 and 2035, the area is expected to grow by almost 47,000 people and almost 60,000 jobs (ACG: The al Chalabi Group, Ltd., 2014).

community growth has occurred to the east, with additional growth, primarily industrial and commercial, crossing I-55 to the west. Development on the east and north sides of the metro area have primarily been residential, with infill commercial growth on Veterans Parkway. Commercial and services to support the expanding residential areas have been developing as far east as Towanda-Barnes Road. The Great Recession in the 2000s slowed but did not stop growth, and Bloomington-Normal population and employment were impacted less during this time than other Illinois cities (ACG: The al Chalabi Group, Ltd., 2014).

**Figure 3.1.3-1** is a map of historical urban area expansion in the Bloomington-Normal area (McLean County Regional Comprehensive Plan, Map 7.2). The figure shows that the incorporated area for Bloomington-Normal grew by 114% between 1970 and 2000 (approximately four percent growth per year), with another ten percent growth between 2000 and 2008 (over one percent growth per year). The majority of this expansion area to the north and east is low-density residential development.

**Figure 3.1.3-1 1970-2008 Urban Area Expansion in the Bloomington-Normal Area**




*Source: McLean County Regional Comprehensive Plan, 2009*

### *What are the planning goals of the region?*

The McLean County Regional Comprehensive Plan calls for sensible growth with a renewed focus on alternative transportation, more efficient infrastructure, and an overall view towards environmental sustainability. The Comprehensive Plan states "Sensible growth recognizes the potential benefits of population and economic growth but sets high standards to preserve and enhance the community for both present and future generations by minimizing the economic and environmental costs of growth. It attempts to balance concerns for community, economy and environment. Sensible growth involves the building of livable communities that feature distinctive identities with pedestrian friendly design and many social and cultural amenities. It also involves promoting economic growth to provide the jobs and tax base that can help support these amenities. Sensible growth also occurs in harmony with the natural landscape and environment" (McLean County Regional Comprehensive Plan, 2009).

### *What are Existing Land Uses and Planning Goals for the Remaining Alternatives Area?*

Currently, the majority of the land near the remaining four alternatives is agricultural land, with urban development infiltrating the western study limits. Scattered farmsteads, homes, and commercial properties are within the ESH area. The Prairie Commercial Park is the largest existing commercial development in the area. Much of the study area is planned for urban development by the year 2035 by the City of Bloomington and Town of Normal.

Land development (following the area's land use plan) has been occurring in the eastern fringes of the Bloomington-Normal area. Several low-density residential sub-developments (Eagle View, the Grove, and Dover Ridge) have been built in the past ten years, and are all nearing full buildout. The residential growth is atypical of other areas in the state (see **Section 3.1.1** Demographics for information on population growth) and indicates the strength of the Bloomington-Normal area after the Great Recession.

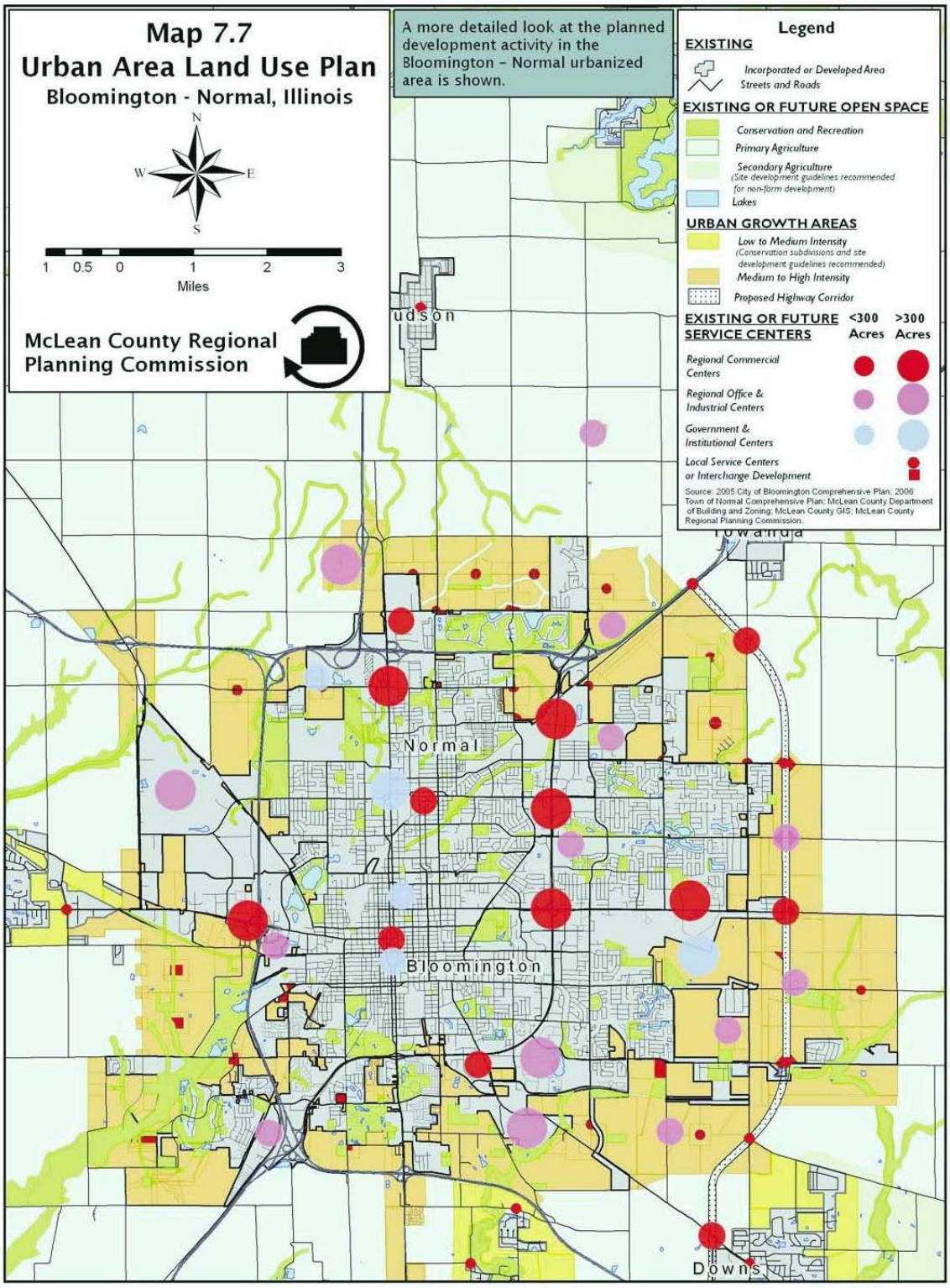
By the year 2012, much of the land west of Towanda-Barnes Road was developed, and development had started east of Towanda-Barnes Road. The majority of this new residential development east of Towanda-Barnes Road is low-density residential.

The Urban Area Land Use Plan in the McLean County Regional Comprehensive Plan, Map 7.7 (shown here as **Figure 3.1.3-4**) shows that the metro area plans future development to occur east of Towanda Barnes Road between Ireland Grove Road and Fort Jesse Road in the vicinity of the ESH. The largest area of new development in this area would be between Ireland Grove Road and IL 9/Empire Street**. Figure 3.1-5** is the year 2035 Land Use Plan for the City of Bloomington, and

**Figure 3.1.3-6** is the year 2035 Land Use Plan for the Town of Normal. As shown in the figures, the Bloomington and Normal Comprehensive Plans include potential interchange development areas along the ESH corridor at the following seven locations (from south to north):

- U.S. 150 (McLean County)
- Cheney's Grove Road/Towanda Barnes Road (Bloomington)
- Ireland Grove Road (Bloomington)
- Empire Street/IL Route 9 (Bloomington)
- General Electric Road (Bloomington)
- Fort Jesse Road (Normal)
- Towanda Barnes Road (Normal)

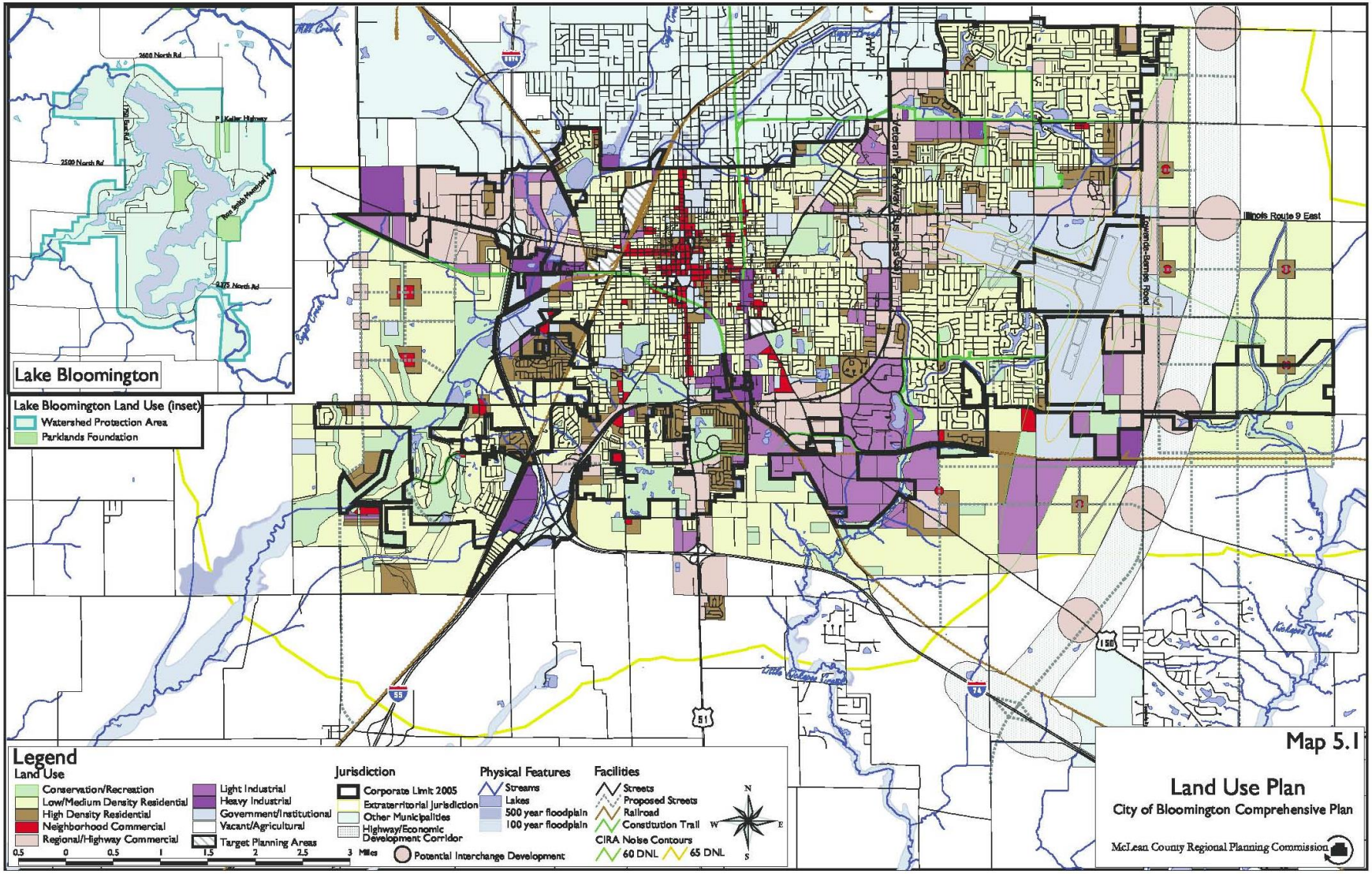
**Figure 3.1.3-4 Urban Area Land Use Plan**




McLean County Regional Comprehensive Plan

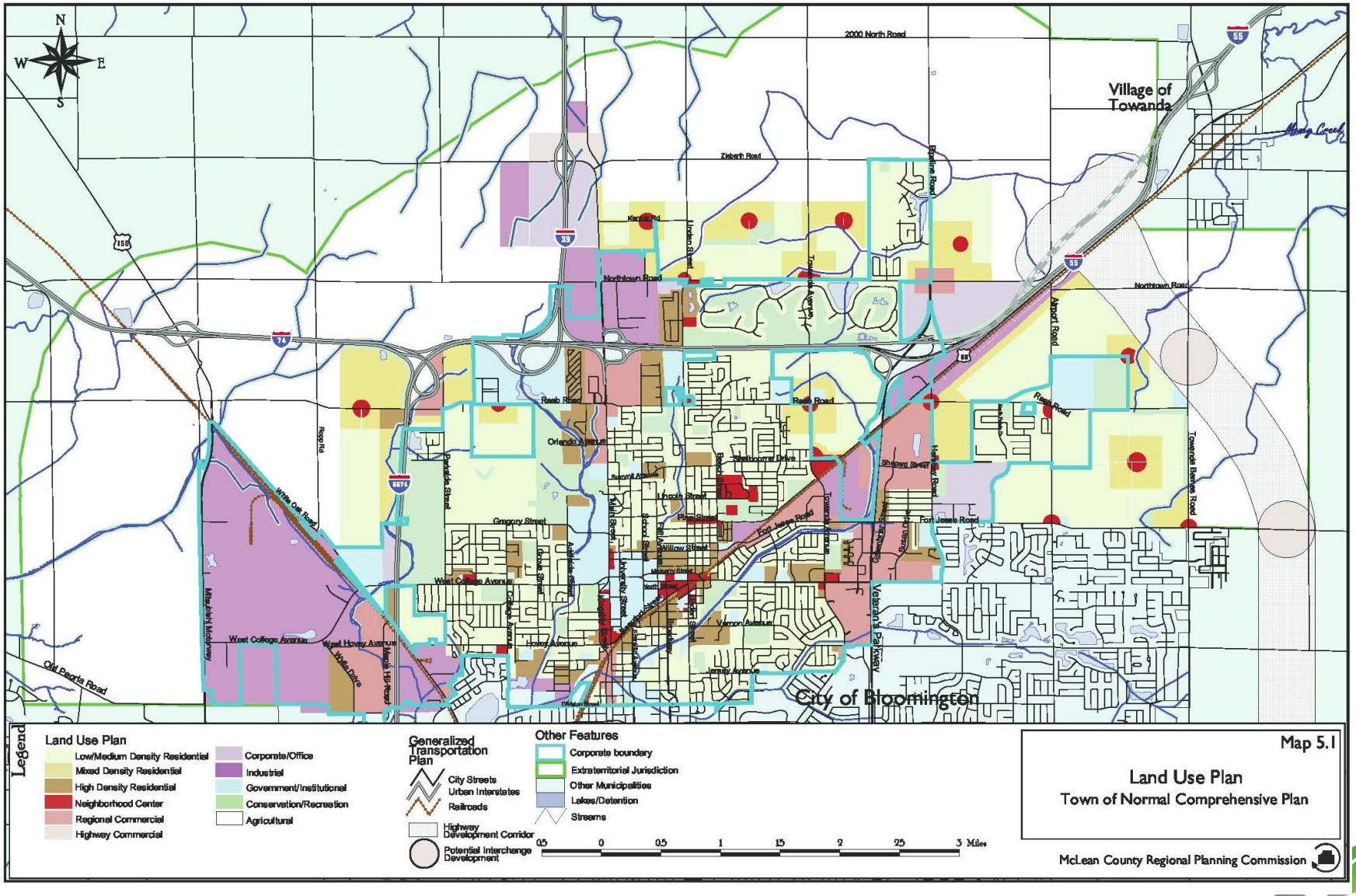
*Source: McLean County Regional Comprehensive Plan, 2009*

**Figure 3.1.3-5 2035 Land Use Plan for the City of Bloomington**




*Source: McLean County Regional Comprehensive Plan, 2009*

**Figure 3.1.3-6 2035 Land Use Plan for the Town of Normal**




*Source: McLean County Regional Comprehensive Plan, 2009*

### *How will the ESH Affect Land Use?*

All of the remaining ESH alternatives will provide access to planned land uses in the east side of the metro area. The inclusion of the ESH in the metro's eastern growth area could stimulate the planned growth to occur sooner than it would if the ESH were not built. Potential land use impacts per ESH alternative are listed below.

**Urban Sprawl**

Urban sprawl may be defined in different ways, such as:

- Urban development beyond existing boundaries
- Decreased development density over time
  - Large tracts are used where compact development could be substituted
- Decreased population density over time
  - Fewer people per acre

For the purpose of this study, *urban sprawl is defined as uncontrolled urban development beyond the planned growth boundaries identified in area comprehensive plans.*

The local and regional planning agencies responsible for comprehensive planning in this area developed area land use plans with conservation goals in mind, such as farmland preservation. The planned growth areas of Bloomington-Normal will accommodate projected area growth, and are not expected to cause urban decay.

**Alternative 124**

Alternative 124 is the alternative closest to Bloomington and Normal. When the planned 2035 land uses are developed, Alternative 124 will be located within the planned development on the east side of the metro area, and will terminate along Northtown Road in the planned north side development area in Normal. Approximately 6.3 miles of Alternative 124 will be within planned use areas; this is the highest amount of the four ESH alternatives. Of the four ESH alternatives, Alternative 124 would be most compatible with the future land use plans; a goal of the ESH is to provide access to planned growth areas, and Alternative 124 would serve the greatest amount of planned development on both sides of the roadway. This alternative is also the least likely to induce unplanned urban sprawl, due to its proximity to planned development.

Alternative 124 would locate four of the seven potential ESH interchange development areas within planned development boundaries (Projected commercial centers at US 150, Cheney's Grove Road, and Towanda-Barnes Road would be outside planned growth areas).

**Alternative 125**

Alternative 125 is within the fringes of the eastern future planned development area and, like Alternative 124, will also terminate along Northtown Road in the planned north development area. Approximately 5.4 miles of Alternative 125 will be within planned use areas; this is the second-highest amount of the four alternatives. Alternative 125 would be less compatible with planned land

uses than Alternative 124, as it is not within as much of the eastern growth area as Alternative 124 would be.

Alternative 125 would locate three of the seven potential ESH interchange development areas within planned development boundaries (Projected commercial centers at US 150, Cheney's Grove Road, Fort Jesse Road, and Towanda-Barnes Road would be outside planned growth areas).

**Alternative 126**

Alternative 126, like 124, is closer to Bloomington and Normal on the east side, but terminates on Ziebarth Road, north of the planned north Normal development area and Alternatives 124 and 125. Approximately 4.6 miles of Alternative 126 will be within planned use areas; this is the second-lowest amount of the four alternatives.

Alternative 126 would locate four of the seven potential ESH interchange development areas within planned development boundaries (Projected commercial centers at US 150, Cheney's Grove Road, and Towanda-Barnes Road would be outside planned growth areas).

**Alternative 127**

Alternative 127 is the easternmost ESH alternative. Approximately 3.8 miles of Alternative 127 will be within planned use areas; this is the lowest amount of the four alternatives. For this reason, Alternative 127 is least compatible with the region's land use plans of the four alternatives carried forward for detailed study. Alternative 127 is the most outside of future planned use areas but avoids existing residential and commercial areas.

**Table 3.1.3-1**
**Summary of Land Use Compatibility**

| Alternative | Percent of Alternative in Planned Use Areas | Length of Alternative in Planned Use Areas |
|---|---|---|
| 124 | 51% | 6.3 mi |
| 125 | 42% | 5.4 mi |
| 126 | 38% | 4.6 mi |
| 127 | 30% | 3.8 mi |

**Findings**

Assuming that all jurisdictions adhere to their future land use plans and unplanned growth is minimal, Alternatives 124 and 125 are the ESH alternatives most compatible with the region's current land use plans. Alternatives 124 and 125 would provide access to the greatest amount of future planned growth areas and the least amount of access to unplanned growth areas.

McLean County's, the City of Bloomington's, and the Town of Normal's Comprehensive Plans all show a highway corridor on the east side of Bloomington/Normal in their land use plans. McLean County, the City of Bloomington, and the Town of Normal have also adopted a joint resolution in

support of the further study of the long-range transportation needs on the east and south sides of the urbanized area. The comprehensive plan for the City of Bloomington (page 74) states that when the ESH preferred alternative is identified, Bloomington will update its comprehensive plan to include the ESH preferred alternative and amend land uses in the ESH area.

### *How do Land Use Impacts Affect Sustainability?*

**Farmland Preservation**

Farmland preservation is included in land use planning. The McLean County Regional Comprehensive Plan (Regional Plan) (November 2009, p. v) calls for "sensible growth with a focus on alternative transportation, more efficient infrastructure, and an overall view to environmental sustainability." The plan is a guide for sensible growth that includes local agriculture and farmland preservation strategies. As described on page 93 of the Regional Plan, "the consequences of less compact development often include a less pedestrian-friendly environment, greater per capita costs and corresponding increases in impact fees and/or taxes to provide services, and greater losses of farmland and open space." Planned development outside urban growth areas is expected to be limited due to county zoning requirements and the use of annexation agreements by Bloomington and Normal (Regional Plan, page 88).

The alternatives' compatibility with the land use plans contained in the Regional Plan, the City of Bloomington Comprehensive Plan, and the Town of Normal Comprehensive Plan was measured in the following ways:

- The Primary Agriculture area in acres between the boundaries of the 2035 Land Use Plans and each alternative
- The number of farm tracts between the 2035 Land Use Plan boundaries for Bloomington and Normal (per their comprehensive plans) and each alternative

The greater separation distance between an alternative and the planning boundaries, the greater is the potential for future impacts upon farmland, infrastructure, and the bicycle- and pedestrian-friendly environment. The 2035 Land Use Plan boundaries identify the planned extent of development and areas of primary agricultural production.

The remaining four alternatives were in closer proximity to the land use plan boundaries than previously identified alternatives. The agricultural area between the edge of the planned development and the proposed alternative ranged from 2,163 acres (Alternative 124) to 3,117 acres (Alternative 127). The number of farm tracts between the alternatives and the boundaries of the 2035 Land Use Plans indicates a similar pattern. **Figure 3.1.3-7** illustrates the 2035 Land Use Plan boundaries relative to the four alternatives and **Figure 3.1.3-8** illustrates the 2035 Land Use Plan boundaries relative to the four alternatives in the north study area, where the alternatives differ. The area between the 2035 Land Use Plan and the alternative is highlighted.

**Figure 3.1.3-7 2035 Land Use Plan Boundary**

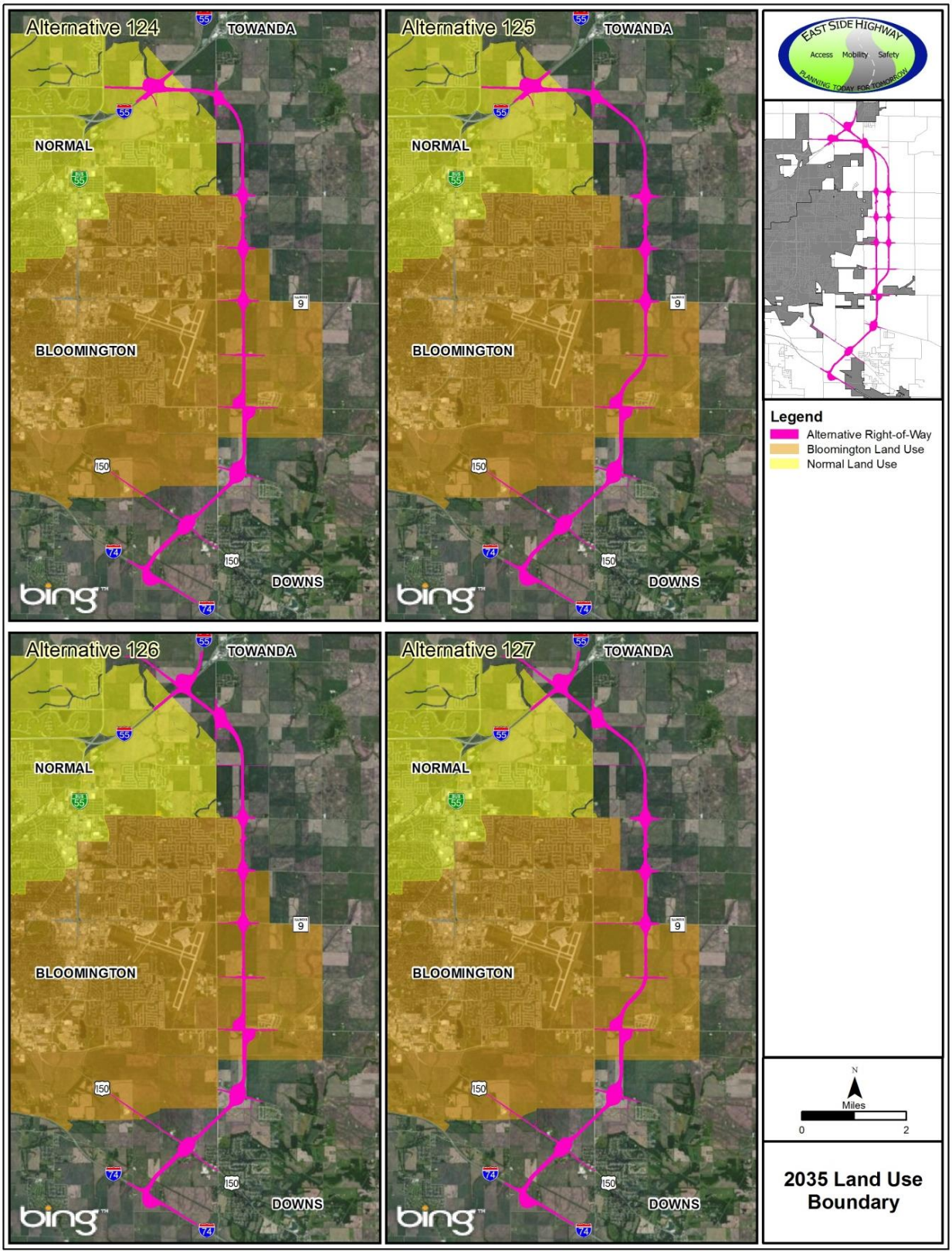
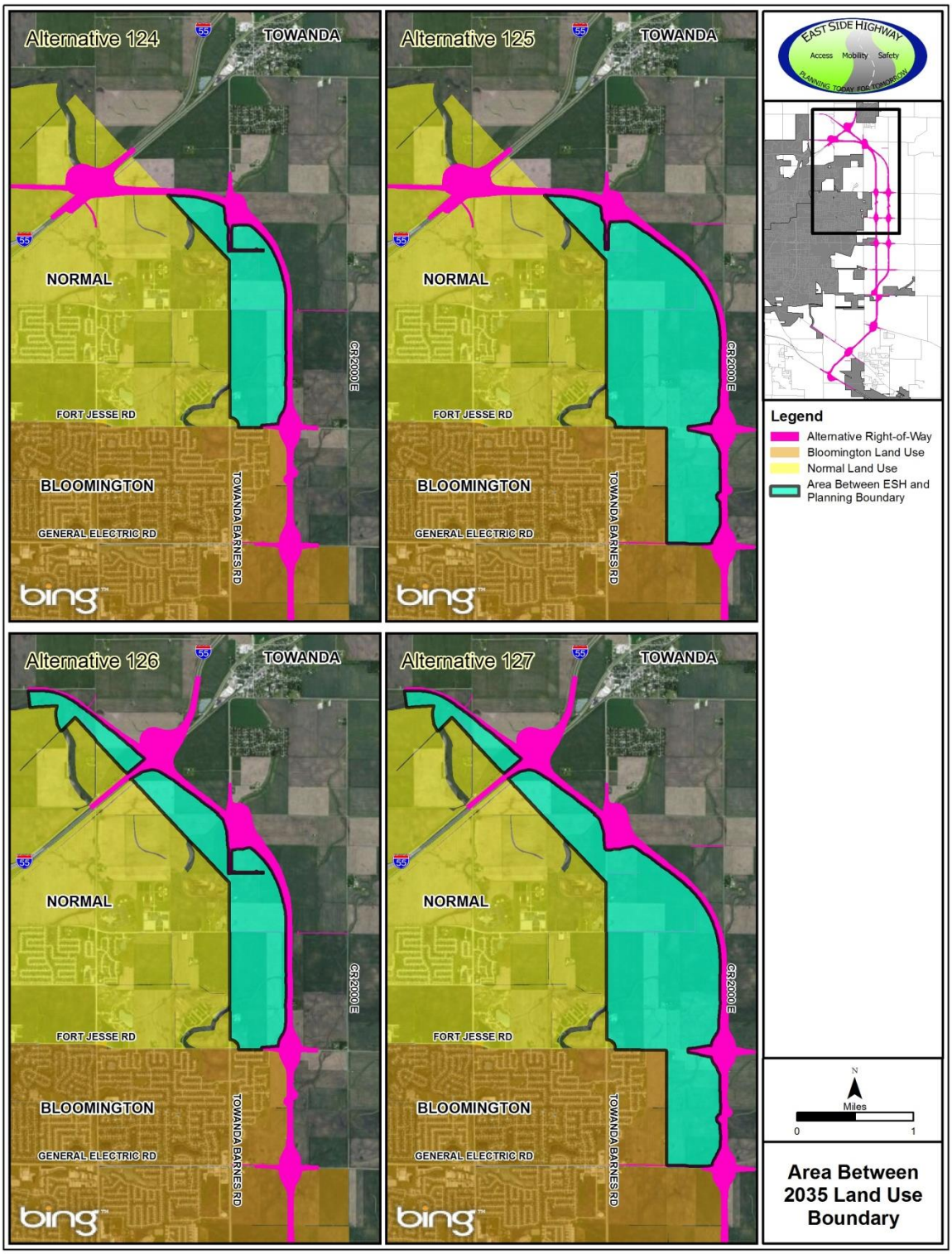


**Figure 3.1.3-8 Area between 2035 Land Use Plan Boundary**



## 3.1.4 Public Services and Facilities

### *What public facilities exist in the study area?*

**What are some examples of community facilities?**

Parks and schools are community facilities that play a large part in determining the quality of life in a community. Parks provide recreation and opportunities to connect with other community members; schools are a vital part of a thriving and cohesive community where children and adults come together.

#### Community Facilities

Community facilities in the study area include 26 parks, three golf courses, 18 educational facilities (including ten elementary schools, two middle/junior high schools, three high schools, one special education school and two alternative schools), one library, two cemeteries, and 24 places of worship.

#### Public Services

Public services in the study area include seven fire stations, two police stations and 19 civic buildings. There are no hospitals located in the study area; hospitals as well as additional emergency services are located in the urbanized Bloomington-Normal area.

#### Public Transportation

Public transportation facilities within the study area include the Central Illinois Regional Airport.

Additionally, the Bloomington-Normal Public Transit System (Connect Transit) provides bus transportation primarily within the City of Bloomington and Town of Normal with one route (Teal J Route) extending into the study area. The Teal J route operates between Veterans Parkway and Towanda-Barnes Road on Empire Street, except between Royal Pointe Drive and Airport Road where the route operates along Royal Pointe Drive, Clearwater Avenue, and Airport Road before returning to Empire Street. The Teal J Route then continues to operate between Empire Street and General Electric Road on Towanda-Barnes Road, and between Towanda-Barnes Road and Veterans Parkway on General Electric Road terminating at Eastland Mall and the Shoppes at College Hills. The Teal J Route also serves the Central Illinois Regional Airport. SHOW BUS also operates public transit service within the study area providing limited service to rural and small urban areas within McLean County as well as, three other central Illinois counties. The ESH Multi-modal Transportation Plan, which will be included in the Combined Design Report, discusses public transportation in the project area in further detail.

#### Utilities

Major utilities located within the study area include radio/microwave towers, electrical transmission lines, and oil and natural gas pipelines. Twelve radio/microwave towers were identified within the western and central portions of the study area. As shown in the Environmental Inventory Map in

**Appendix A**, four sets of electrical transmission lines traverse the study area. Two power substations were identified (one located at the intersection of Towanda-Barnes Road and CR 1150 North Road, and the second located south of the intersection of Hamilton Road and Mercer Avenue) within the study area. There are also five natural gas and two crude oil (one current and one planned) pipelines in the study area. The Environmental Inventory Map included in **Appendix A** depicts the location of the pipelines.

The Twin Groves Wind Farm (formally Arrowsmith Wind Farm) is located east of the study area. This electrical generation facility houses 240 wind turbine generators over approximately 21,000 acres of land and generates 1.3 billion kilowatt hours (396 megawatts) of electricity per year. An additional wind farm (White Oak Wind Energy Center) housing 100 wind turbines generating 150 megawatts is being proposed for construction northeast of the study area, between Towanda and Lexington.

### *How will public facilities be impacted?*

A public facility impact can be displacement, change in travel pattern, or change in access. Displacements were identified where structures were located within the new right of way required for the proposed improvement. A change in travel pattern can include introduction of interchange ramps, introduction of raised medians, alterations of intersections that restrict access to local streets, and/or local street closures. A change in public facility access can include driveway closures and directional restrictions.

Northtown Road will be closed east of the ESH and realigned to end at Towanda-Barnes Road. **Section 3.2** discusses access changes for farm vehicles along CR 2000 East and as a result of the closure of Northtown Road.

There will be no displacements of public facilities for the proposed project; however, there will be some changes in travel pattern and access to two public facilities. These facilities are two churches located on U.S. 150, the Victory Christian Center and the Jehovah's Witness East. The Victory Christian Center is located northwest of the proposed interchange at Morrissey Drive/U.S 150, whereas the Jehovah's Witness East is located southeast of the interchange immediately before U.S. 150 crosses Towanda Barnes Road.

#### School Bus Routes

School bus routes were reviewed for the affected school districts. School bus routes could be slightly affected by some of the local road access changes as discussed in **Section 3.1.1** Neighborhoods - Travel Patterns. However, none of those local road access changes are expected to cause more than minor inconveniences, which can be readily addressed by rerouting the affected school bus

routes, something which is normally done during each school year to adjust to changes in student residence locations.

**Public Transportation**

The Amtrak station in Normal and any railroad tracks associated with Amtrak will not be affected by the proposed project.

The alternatives will not interfere with access to or operations of the Central Illinois Regional Airport. The alternatives will remain at grade and will not create an obstacle to airplanes taking off and landing at the airport.

Bloomington-Normal Public Transit System (Connect Transit) bus routes were reviewed for the affected area. There are no existing or planned routes that extend into the study area.

**Utilities**

**Utility Infrastructure**

Utility infrastructure included electrical lines and facilities, pipelines and facilities, pump stations, communication infrastructure, and TV/Radio.

The number of utilities conflicts that would occur with each alternative was investigated, as well as impacted utility infrastructure. Alternatives 124 and 126 impact 33 electrical facilities and one pump station. The total cost to relocate the 33 electrical facilities impacted by Alternatives 124 and 126 is estimated at $3.5 million. Due to the close proximity of the two interchanges at Empire Street/IL Route 9 and Ireland Grove Road, it is not possible to modify the design in this section to completely avoid these impacts. In comparison, the total cost to relocate the five to six electrical facilities (mostly electrical transmission towers) impacted by Alternatives 125 and 127 is approximately $2.0 million.

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to public facilities resulting from other unrelated planned and programmed projects associated with this alternative.

## 3.1.5 Parks and Trails

*Community parks and recreation facilities improve and protect quality of life, can revitalize urban areas, and provide environmental benefits*.

### *What parks exist or are planned for in the study area?*

Parks and recreation facilities provide quality of life benefits. Locally-adopted plans have been developed by the City of Bloomington, the Town of Normal, and McLean County to proactively plan parks and recreation areas, based on population and use projections.

*Existing Parks*

The study area contains 27 existing parks (21 publicly owned and six privately owned) and outdoor recreation areas. The majority of existing parks (20 of 27) in the project area are neighborhood parks located west of Towanda-Barnes Road. See the Environmental Inventory Map in **Appendix A** for locations of these facilities.

None of the existing parks were funded using Land and Water Conservation Act of 1965 funds (Section 6(f) funds).

Facilities of note west of Towanda Barnes Road include:

- Outdoor recreational facilities are located at Normal Community High School, privately owned sports fields south of the Central Illinois Regional Airport, additional sports fields south of Ireland Grove at Towanda-Barnes Road, and the privately owned Links at Ireland Grove (golf course south of Ireland Grove Road).
- Neighborhood parks in this area include Eagle Crest Park, Northpoint Park, Hedgewood Park (privately owned), Tipton Park, Stevenson Park, Clearwater Park, Suburban East Park, Airport Park, Rollingbrook Park, Oak Ridge Park (privately owned), Gaelic Park, and Brookridge Park.
- Large or regional parks in this area include Boyd-Wesley Park (southwest of Towanda, between I-55 and Route 66), Walt Bittner Park on Towanda-Barnes Road, General Electric Park (privately owned) on General Electric Road, and McGraw Community Park on Airport Road.

Seven parks or recreation areas exist between Towanda Barnes Road and the eastern edge of the study area. These facilities include:

- Three parks east of Towanda-Barnes Road in Towanda (North Park, South Park, and Boyd-Wesley Park on U.S. Route 66).

- Downs has a community park and recreation facilities at its school, and the Towanda Elementary School also contains recreational facilities.
- There is also a park within The Grove subdivision on Ireland Grove Road (privately owned), east of Towanda-Barnes Road. This park is partially constructed; please see the park concept below, from The Grove's informational website, for additional details.

**Figure 3.1.5-1 The Grove Active Park Concept**


*Source: http://grove-kickapoo.com*

Many of the existing parks in the study area contain native Illinois plantings. All of the neighborhood parks contain playground equipment, and most have outdoor fields or facilities for soccer, softball, football, basketball, tennis, roller hockey, or baseball.

*Planned Parks*

The McLean County Regional Comprehensive Plan shows that approximately seven future public parks are planned in the ESH study area. Reference the future land use maps in **Section 3.1** for maps of these locations. The majority of planned parks are neighborhood parks. Some of the planned neighborhood parks are located within developing residential areas such as Eagle's Landing and Eagle Grove, and there are also planned parks within future planned residential areas south of Ireland Grove Road. The comprehensive plan does not include specific details of planned parks other than their potential locations; it should be acknowledged that the location of the planned future parks in the comprehensive plan are conceptual, and are subject to change.

### *What trails or other bicycle/pedestrian facilities exist or are planned for the project area?*

Pedestrian and bicyclist facilities include sidewalks, bicycle routes, and recreation trails. See the Environmental Inventory Map in **Appendix A** for a map of existing and planned trails in the ESH study area. The existing and planned trails are also discussed in the ESH Aesthetics and Sustainability Master Plan, which will be included in the Combined Design Report. The Constitution Trail is the major existing trail system in the ESH study area. Most existing trails within the study area are part of the Constitution Trail. The Constitution Trail was designated a Community Millennium Trail by the White House Millennium Council in 2000, and accounts for the majority of trails in Bloomington and Normal. There are thousands of trails across the United States which have been designated Community Millennium Trails. This is a commemorative designation, with no special protection. Beyond the ESH study area, major additions to the Constitution Trail are planned for the Bloomington-Normal Main Street Corridor and southwest Bloomington. Future plans promote trail connections to regional and state trails.

In addition, McLean County, the City of Bloomington, and the Town of Normal all have undertaken planning efforts to improve pedestrian and bicycling environments. Additional bicycle facilities are planned in the ESH study area to improve access to the Constitution Trail and overall connectivity. Such improvements within the ESH study area are located:

- Along local streets such as Northtown Road, Raab Road, and Parkside Road
- Along or to natural features including Kickapoo Creek, its tributaries, and Money Creek
- Along US Route 66
- Along the Norfolk Southern Railroad
- Adjacent to Towanda-Barnes Road

The ESH will supplement efforts to improve the pedestrian and bicycling environment by providing additional access and connections including the creation of a shared use path along the majority of the ESH, with access provided across the ESH at various intervals and on roadway bridge crossings. These improvements are discussed in greater detail in the following sections.

### *How could parks be impacted by the ESH?*

The remaining ESH alternatives will not directly impact or use property from existing or planned parks in the study area. The existing or planned parks nearest to the ESH build alternatives include:

- *The Grove Park* (partially constructed park adjacent to The Grove subdivision) is approximately 0.70 mile from Alternatives 124 and 126, and 0.20 mile from Alternatives 125 and 127. The ESH includes local street improvements on Ireland Grove Road adjacent to The Grove, but these street improvements end west of the Kickapoo Creek, or at the edge of the park.
- *Ireland Grove Sports Fields* are in the southwest quadrant of the Ireland Grove Road and Towanda Barnes Road intersection; the ESH improvements are projected to end at the east approach of this intersection and will not impact the sports fields.
- *Eagle View Park* (park under construction in the Eagle View neighborhood) is approximately 1,000 feet west of Alternatives 124 and 126, and approximately 0.65 mile west of Alternatives 125 and 127.
- *Boyd-Wesley Park* (existing park adjacent to U.S. Route 66, Towanda) is located between I-55 and US Route 66, and is adjacent to Alternatives 126 and 127. Alternatives 126 and 127 do not require right-of-way from the park. The park is approximately one mile northeast of Alternatives 124 and 125.

Functions of existing or planned parks are not anticipated to be impacted by the ESH. The four parks listed above may experience changed views due to the ESH, and vehicle traffic may be heard by park users. Traffic noise will be evaluated for the project area to determine the change in noise and overall traffic noise levels for existing, No Build, and Build conditions. Noise impacts to these parks will be identified as needed using typical IDOT highway traffic noise analysis methodology. See **Section 3.5** for the noise analysis and **Section 3.12** for the visual resources assessment.

The ESH project does not result in the use of publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites (see **Section 3.3** for information on historical sites). The ESH project also does not result in the use of any properties that were funded by the Land and Water Conservation Fund, referred to as Section 6(f) lands.

### *How will bicycle/pedestrian routes and access change due to the ESH?*

The ESH provides opportunities to create new trail routes to serve a growing eastern population. The east side of Bloomington-Normal has already experienced growth, with more planned growth for the future; because of this, there are existing and locally-planned trails in this area. These local trails would cross or intersect with the ESH. See the Environmental Inventory Map for a map of existing and planned trails by local agencies in the ESH study area.

A trails plan for the four ESH build alternatives was developed through collaboration with the public, members of the public in the Alternate Modes Focused Working Group (FWG), local officials, and state and Federal transportation officials. Local bicycle advocates provided valuable input and contributed to creating a functional trail plan for recreation and transportation.

The conceptual trails plan for the four ESH alternatives includes these components, as listed here and as seen in the Environmental Inventory Map in **Appendix A**:

- A new trail is planned parallel to the ESH from US 150 to 1800 North Road, regardless of the ESH alternative selected as the Preferred Alternative.
- The ESH will provide connections to local trails and planned trials by creating crossings and extensions at the following locations:
  - US Route 66: The ESH trail system will end in a connection to the US Route 66 Trail to provide trail continuity.
  - Towanda Barnes Road (north crossing): A path will be provided along Towanda Barnes Road and over the East Side Highway within the Towanda Barnes interchange area. The path provides a future connection with the proposed trails to the south and will provide the ability to expand to the north to connect to the City of Towanda.
  - Structures over the ESH that will include bicycle and pedestrian accommodation include Cheneys Grove Road, Ireland Grove Road, IL 9/Empire Street, General Electric Road, and Fort Jesse Road.
- Bicycle and pedestrian access across the ESH is needed to connect neighborhoods to create walkability and provide expected quality of life. The public and the local officials stated the local need for additional mid-block crossings of the ESH for connectivity for existing and planned growth areas and to reduce the barrier effect of the ESH. The ESH will include one mid-block trail crossing near the Eagle View subdivision, between General Electric Road and Fort Jesse Road.
- In order to work with the construction of future locally-planned planned trails, the ESH will be constructed to provide underpass culvert crossings at three locations:
  - Drainageway south of Cheneys Grove Road
  - The Norfolk Southern railroad tracks, south of Ireland Grove Road
  - Drainageway south of 1300 N. Road

- Extension of the Constitution Trail east along General Electric Road from Towanda Barnes Road to the East Side Highway path.
- Construction of a side path along U.S. 150/Morrissey Drive, from the East Side Highway path extending west.

The ESH trail system will include at-grade street crossings within interchange areas. Traffic controls at these crossings may include pedestrian signals, warning signs, and other indicators. Specific traffic control for the proposed trail improvements will be identified for the ESH preferred alternative.

In addition to the trail projects proposed as part of the ESH, opportunities for new or extended access beyond the ESH trail system, to be completed by others, are recommended for the Preferred Alternative. A listing of these projects is available in **Chapter 4**.

## 3.2 Agricultural Resources

*The production of crops, livestock, and dairy products (agricultural resources) is essential to maintaining human health and food sources. In addition, farm production is an important source of revenue in McLean County. Conversion of agricultural land to highway right-of-way can lead to reductions in agricultural production. Minimizing conversion of farmland to nonagricultural uses is required by the Federal Farmland Protection Policy and the Illinois Farmland Preservation Act.*

**Prime Farmland**

Prime Farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage.

### *What are the characteristics of area farms?*

Agriculture is the primary land use in McLean County and comprises approximately 90 percent of the land. Row crops account for more than 95 percent of the farmland use, with corn and soybeans being the primary crops accounting for 89 percent of farm revenue. The remaining agricultural land uses include pasture, seed farming, fruits, vegetables, livestock operations, and greenhouse operations.

### *How much of the area is Prime Farmland?*

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for agricultural products. Prime farmland in McLean County accounts for 75 percent of land (McLean County Regional Planning Commission, 2009).

**Centennial and Sesquicentennial Farms**

A Centennial Farm is an agricultural property that has been owned by the same family of descendants for at least 100 years. The Illinois Centennial Farms program honors generations of farmers who have worked to maintain family farms in Illinois. The Sesquicentennial Farms Program recognizes farms that have been held by descendants of the same family for 150 years or more.

### *What agricultural lands have special recognition or are protected?*

The restriction of non-farm development in areas of farmland is determined by local planning administrations to preserve and protect agricultural land from urbanization. Currently, McLean County does not have regulated farmland protection areas.

The Federal Conservation Reserve Program (CRP) encourages farmers to voluntarily plant permanent areas of grass and trees on land that needs protection from erosion, windbreaks, or in places where vegetation can improve water quality or provide food and habitat for wildlife. In return, they receive annual rental payments, incentive payments for certain activities, and cost-share assistance to establish the protective vegetation. McLean County has approximately 11,313 acres of land associated with CRP (USDA-FSA, 2009).

Centennial and sesquicentennial farms are recognized in the study area through the Illinois Department of Agriculture registry; however, there are no regulatory requirements for protecting these farms. McLean County currently has 280 registered centennial farms and 19 sesquicentennial farms. Each of the alternatives would affect five centennial or sesquicentennial farms. Centennial and sesquicentennial farms are shown on the Environmental Inventory Map in **Appendix A**.

### *How would agricultural operations or land be affected by each alternative?*

Farms can be affected in a variety of ways when a new road is constructed. Land and buildings can be acquired for road construction. Other effects include leaving small remnants of farm fields that are landlocked or too small to farm economically, severing farm fields, or making the remaining field more difficult to farm. **Table 3.2-1** describes all of these effects for the farms within the ESH alternatives.

**Table 3.2-1: Farm Operation Impacts**

| | Alternative 124 | Alternative 125 | Alternative 126 | Alternative 127 |
|---|---|---|---|---|
| **Total Affected Farms (number of tracts)** | 119 | 125 | 121 | 126 |
| **Farmstead Displacement (total number)** | | | | |
| ☐ Residences Displaced | 9 | 5 | 10 | 6 |
| ☐ Other Buildings Displaced[1] | 41 | 29 | 42 | 30 |
| **Farm Businesses Displaced (number)** | | | | |
| ☐ Total | 1 | 1 | 1 | 1 |
| ☐ Buildings Displaced | 2 | 2 | 2 | 2 |
| **Agricultural Soils** (total acres)[2] | 835 | 864 | 864 | 879 |
| ☐ Prime and Statewide Important Farmland (acres) | 820 | 864 | 857 | 888 |
| **Farm Operations Affected** | | | | |
| ☐ Cropland (acres) | 828 | 858 | 858 | 874 |
| ☐ Severed (number of tracts) | 9 | 8 | 14 | 12 |
| ☐ Otherwise Affected Farm Operations (number of tracts) | 102 | 114 | 100 | 109 |
| ☐ Severance Management Zones (acres) | 34 | 45 | 42 | 55 |
| ☐ Landlocked Parcels (number) | 3 | 6 | 4 | 7 |
| ☐ Uneconomical Remnants (number) | 22 | 20 | 22 | 20 |
| ☐ Farms Affected by Adverse Travel (number) | 8 | 7 | 11 | 9 |
| ☐ Total Adverse Travel Based on One Round Trip (miles) | 12.7 | 16.9 | 21.5 | 22.8 |
| **Average Annual Farm Revenue Lost** (thousands of dollars)[3] | 695 | 719 | 719 | 731 |

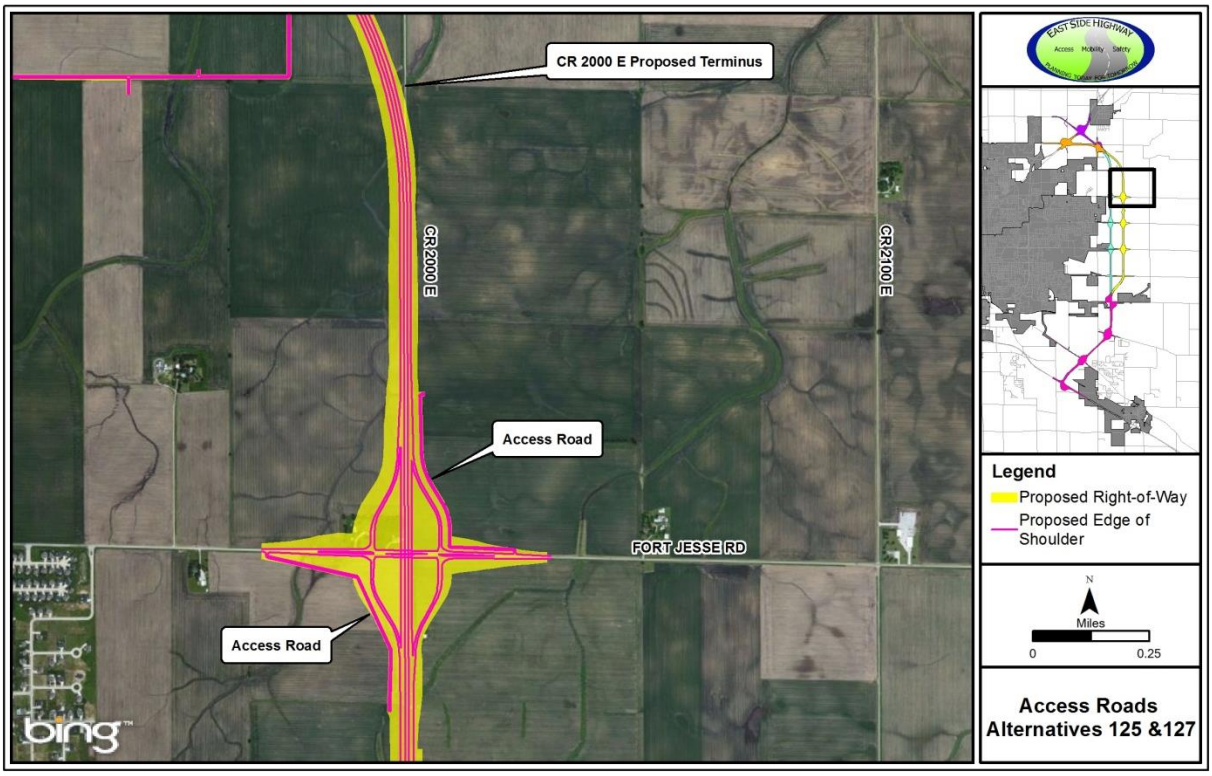
*Source: [Insert source for this table]*

*Notes:* [1] *Garages, barns, sheds.*
[2] *Soil areas do not include land within the proposed project right-of-way that is paved, riverine cover, wetland, and urban development.*
[3] *Revenue lost based on statistics from the Illinois Agricultural Statistics Service's 2012 Annual Bulletin.*

Under Alternatives 124 and 125, Northtown Road/E 1800 North will be closed east of the ESH with a terminus at Towanda-Barnes Road. E 1800 North Road will remain in place east of the proposed terminus at the ESH. This change will affect travel patterns for nearby residents and agricultural operations.

Originally, Alternatives 125 and 127 were proposed with a design that would end through access of County Road (CR) 2000E at the ESH. Local residents commented on the design, and many were concerned that ending the through connection to CR 2000 E would limit access to farm parcels. As a result, access roads along a portion of Alternatives 125 and 127 would be extended to provide connectivity to any land locked farm parcels as shown in **Figure 3.2-1**.

**Figure 3.2-1: Access Roads for Alternatives 125 and 127**




Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to agricultural resources resulting from other unrelated planned and programmed projects associated with this alternative.

### *What economic impact would the alternatives have on the region's agriculture?*

Farm acreage loss would reduce total revenue to existing operations. Farm production is an important source of total revenue generated in McLean County. The reduction in farm revenue may temporarily reduce the total county revenues. **Table 3.2-1** summarizes the lost revenue anticipated for each alternative. The total farm revenue in McLean County is $562,427,000. Lost revenue is about 0.1 percent of the total farm revenue in the county for each alternative.

### *What measures were used to minimize or resolve agricultural impacts?*

Land use in the study area is predominantly agriculture. Although the alternatives development and evaluation process minimized impacts to agricultural land, it would not be feasible to locate a rural roadway corridor that would not, to some extent, adversely affect farming operations or prime farmland and farmland of statewide importance. The following management and design practices minimize farmland conversion and include appropriate mitigation. These practices would be incorporated into the project final design to help minimize disruptions to agricultural activities and residences:

**Farmland of Statewide Importance**

Farmland of Statewide Importance is farmland other than Prime Farmland that is of statewide or local importance for the production of food, feed, fiber, forage, or oilseed crops, as determined by the appropriate state agency. Important farmland includes prime farmland soils with steep slopes or eroded farmland.

- Existing right-of-way was utilized where practicable and consistent with planned land uses. Design standards used to generate preliminary engineering for the alternatives minimized right-of-way requirements in sensitive areas.
- Alignments were located parallel to property lines where possible and diagonal severances were minimized to decrease the number of Severance Management Zones, severed farms and farm operations, and landlocked parcels.
- Alignments were designed to utilize frontage (or access) roads to decrease adverse travel, landlocked parcels, and severance of farm operations.
- Informational meetings with the Illinois Department of Agriculture (IDOA), local agricultural agencies, local farmers, and the Illinois Farm Bureau were held to obtain firsthand knowledge and awareness of both favorable and unfavorable impacts to agriculture.

**Severance Management Zone**

Severed farm operations occur when a new roadway divides a farm. Severances usually result in operational difficulties for the farm operator. Severance management zones are areas (measured in acres) within or adjacent to severed parcels used to measure the disruption to normal farming operations. Triangular shaped farmland remnants are the basis of many of the problems caused by diagonal land severance and right-of-way takings that are not square with the farmed acreage. Point rows, caused by angular field ends, harvest losses because of excessive turning, and overlapping application of herbicides are consequences leading to waste, additional expense, increased field work time, and additional use of fuel. Point rows are taken into account in the severance management acreage.

## 3.3 Historic, Cultural, and Archaeological Resources

*Cultural resources that are protected by Federal law include historic or archaeological features that are on or may be eligible for the National Register of Historic Places (NRHP). Historic resources include any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the NRHP. These resources are protected by Section 106 of the National Historic Preservation Act (NHPA), as amended (16 USC 470(f)), as well as Section 4(f) of the US DOT Act of 1966.*

### *Is the ESH near archaeological resources?*

Surveys were conducted, but only in high-probability archaeological areas, for the four ESH alternatives. No mounds or cemeteries are located in any of the alternatives and no archaeological studies are required to identify and evaluate sites eligible for the NRHP. None of the known archaeological sites requires preservation in place. Archaeological surveys outside of high-probability areas occurred only for the ESH Preferred Alternative (See **Chapter 4.3** for the archaeological survey for the ESH Preferred Alternative).

Correspondence with the following seven American Tribes associated with the study area was initiated to inform them of the proposed project and to seek their input as a consulting party:

- Kickapoo Traditional Tribe of Texas
- Kickapoo Tribe in Kansas
- Kickapoo Tribe of Oklahoma

**National Register of Historic Places**

The National Register coordinates the identification, evaluation, and protection of America's historic and archaeological resources. Properties eligible for the National Register must meet one or more of the following criteria:

- Criterion A: Property is associated with events that made a significant contribution to the broad patterns of our history; or
- Criterion B: Property is associated with the lives of persons significant in our past; or
- Criterion C: Property embodies 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
- Criterion D: Property has yielded, or may be likely to yield, information important in prehistory or history.

**Section 106**

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to take into account the effects of federally-funded projects on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the project.

- Iowa Tribe of Kansas and Nebraska[1]
- Iowa Tribe of Oklahoma
- Miami Tribe of Oklahoma
- Peoria Tribe of Indians of Oklahoma

The tribes did not identify any additional cultural resources in the study area.

### *Is the ESH near historic resources?*

**Section 4(f)**

Section 4(f) of the Department of Transportation Act (DOT Act) of 1966 states that the Federal Highway Administration (FHWA) and other DOT agencies cannot approve the use of land from public or private sites eligible for or on the NRHP unless there is no feasible and prudent alternative to the use of land, and the action includes all possible planning to minimize harm to the property resulting from use.

Photo logs of structures 50 years of age or older near the ESH alignments were compiled to determine if any structures may be eligible for inclusion in the NRHP. One structure within the study area, Duncan Manor, is currently listed on the NRHP. Duncan Manor (see below) is an Italianate residence listed in the NRHP for its significance in architecture and agriculture. Its present use is a residence. Duncan Manor is located on the west side of Towanda-Barnes Road, north of Northtown Road at 1002 Towanda Barnes Road.

Additional homes in the ESH study area are eligible for the NRHP. These homes are located on 2100 East Road and south of 1750 North Road at 17444 N 2100 East Road, on the east side of 1750 East Road and south of I-74 at 8841 N 1750 East Road, on the west side of Towanda Barnes Road and north of East Raab Road/East 1700 North Road at 4408 E Raab Road, on the south side of Ireland Grove Road and east of Kickapoo Creek Road at 5305 Ireland Grove Road, on the south side of Ireland Grove Road and east of 2100 East Road at 21229 E 1200 North Road, and on the north side of 1300 North Road and east of Towanda Barnes Road at 19580 E 1300 Road (Environmental Inventory Map included in **Appendix A**).

### *Will the ESH alternatives impact historic or archaeological resources?*

#### Historic Resources

Without visual screening there would be a potential for an adverse visual effect on Duncan Manor due to the project's proximity to the historic resource with Alternatives 126 and 127. These

[1] Advisory Council on Historic Preservation. "National Register Evaluation Criteria." http://www.achp.gov/nrcriteria.html. Accessed August 8, 2011.

alternatives would introduce new visual elements close to Duncan Manor that would detract from the character of this historic property. While there would be a potential for an adverse visual effect on Duncan Manor there would be no "use" of Duncan Manor by purchasing property from the site. Alternatives 126 and 127 extend through an agricultural field west of Duncan Manor. This field is not included in Duncan Manor's NRHP listing and is not part of the existing property. Alternatives 126 and 127 would be 240 feet southwest of the house (See **Chapter 4.3** for the effects on Duncan Manor for the ESH Preferred Alternative). Alternatives 124 and 125 would be over 1,500 feet south of the house. The State Historic Preservation Officer (SHPO) requested that the owners of Duncan Manor be contacted, informed about the proposed ESH, and given the opportunity to provide comments on the project. See Chapter 4.3.3 for information about coordination with the property owners of Duncan Manor.

*Duncan Manor, National Register Property*

The ESH alternatives will not impact the home on 2100 East Road at 17444 N 2100 East Road that is potentially eligible for the NRHP. This house is no longer within the project limits of the four remaining alternatives. Alternatives 124 and 126 are located 7,300 feet (1.38 miles) west of the house. A new access road to a farm field for Alternatives 124 and 126 is located 5,000 feet (0.95 miles) west of the house. Alternatives 125 and 127 are located over 5,100 feet (0.97 miles) west of the house. See **Chapter 4.3** for the effects by the ESH Preferred Alternative on the homes on the east side of 1750 East Road and south of I-74 at 8841 N 1750 East Road, on the west side of Towanda Barnes Road and north of East Raab Road/East 1700 North Road at 4408 E Raab Road, on the south side of Ireland Grove Road and east of Kickapoo Creek Road at 5305 Ireland Grove Road, on the south side of Ireland Grove Road and east of 2100 East Road at 21229 E 1200 North Road, and on the north side of 1300 North Road and east of Towanda Barnes Road at 19580 E 1300 Road.

*Home on 2100 East Road that may be eligible for the NRHP*

Because the No Build Alternative would not include the ESH and related roadway improvements, there would be no impacts to historic resources resulting from other unrelated planned and programmed projects associated with this alternative.

**Archaeological Resources**

Archaeological surveys were conducted in high-probability areas of the ESH alternatives. No mounds or cemeteries would be impacted by any of the ESH alignments. None of the known archaeological sites require preservation in place.

Because the No Build Alternative would not include the ESH and related roadway improvements, the No Build Alternative would have no impacts to archaeological resources potentially present in the study area resulting from other unrelated planned and programmed projects associated with this alternative.

## 3.4 Air Quality

*Air quality is important to protect public health from air pollutants. Air quality is protected by the Clean Air Act and air quality standards called National Ambient Air Quality Standards (NAACS) established by the U.S. Environmental Protection Agency (USEPA).*

### *How is air quality assessed?*

Predicted air quality resulting from a roadway project is compared to the NAACS established by the USEPA for the following six criteria pollutants: carbon monoxide (CO), lead, nitrogen dioxide, ozone, particulate matter ($PM_{2.5}$ and $PM_{10}$), and sulfur dioxide. These standards are set at levels designed to protect public health. If any of the standards are not met, the area is called "non-attainment" and air quality is required to be improved.

The pollutants most often associated with motor vehicles are CO, ozone, and $PM_{2.5}$ and $PM_{10}$. Ozone is not emitted directly from vehicles; however, the volatile organic compounds (VOCs) vehicles produce contribute to the creation of ground-level ozone.

**What are $PM_{2.5}$ and $PM_{10}$?**

The size of particles is directly linked to their potential for causing health problems. USEPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. USEPA groups particle pollution into two categories:

**$PM_{2.5}$**: "Fine particles," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries, and automobiles react in the air.

**$PM_{10}$**: "Inhalable coarse particles," such as those found near roadways and dusty industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter.

### *What is the current air quality in the study area?*

The study area meets the air quality standards for all six criteria pollutants. In fact, McLean County is listed as an attainment area for all criteria pollutants.

### *How could air quality be affected by the proposed alternatives?*

The following variables play the greatest role in determining differences in air quality for the various alternatives for a roadway project:

- vehicle miles traveled (VMT)
- congestion
- number of expected diesel trucks compared with passenger cars

- average vehicle age: older cars pollute more than newer cars
- types of fuel used

The estimated VMT, congestion, diesel trucks, average vehicle age, and types of fuel used under each of the Build Alternatives carried forward are nearly the same. It is expected there would be no appreciable difference in overall emissions among the four alternatives. Further information regarding air quality is contained in **Appendix B**.

## 3.5 Traffic Noise

*Noise is unwanted sound that can adversely affect normal activities. The Federal Highway Administration (FHWA) developed general highway traffic noise assessment procedures, which were adopted by the Illinois Department of Transportation (IDOT) to regulate noise.*

**Noise abatement**

Noise abatement is a set of measures to reduce traffic noise impacts. At a minimum, IDOT requires that noise barriers be considered for abatement where impacts are identified.

### *How is noise evaluated for highway projects?*

**Noise receptor**

IDOT defines a noise receptor as a worst-case location of a common noise environment (CNE), based on land use. Receptors are exterior areas of frequent human use, such as a porch, a backyard, or a bench. Receptors include undeveloped lands that have a valid building permit for development.

Highway noise depends on four main factors: the number of vehicles present, the speed of traffic, the number of large trucks present, and the distance from the highway of the noise receptor. Traffic noise is predicted for existing, future No Build, and future Build conditions (see **Chapter 2** for an explanation of the alternative conditions). If traffic noise impacts will result from the future Build condition, then methods to reduce noise, called noise abatement, are considered.

*Noise Barrier*
*(photo courtesy of IDOT)*

There are six steps in the highway traffic noise analysis:

1. *Identify Places with Similar Noise Characteristics:* Common Noise Environments (CNEs) are receptors grouped by similar land use, noise exposure, topography, and traffic characteristics. One representative worst-case receptor is selected per CNE.
2. *Select Noise Receptors:* Noise receptors are outdoor activity areas of noise sensitive land uses and are typically within 500 feet of the roadway edge.
3. *Monitor Existing Noise Levels at Selected Noise Receptors:* Existing noise levels are measured at selected locations. Typically, 25 to 50 percent of all studied receptors are monitored to ensure the noise model is accurate and to collect ambient noise levels in locations where roadway noise is currently not the major noise source.
4. *Model Noise Conditions:* Existing, future No Build, and future Build conditions for the roadway, traffic, receptors, and topography are modeled using the FHWA Traffic Noise Model 2.5 (TNM) for the Preferred Alternative only. Noise monitoring results are used to represent the existing and future No Build scenarios where traffic noise is not a major existing noise source.

**FHWA Noise Abatement Criteria (NAC)**

The NAC establish noise levels (L(eq)) where abatement needs to be evaluated. The NAC reflect noise levels that interfere with human speech, and are applied based upon land use.

See Figure 3.5-1 for some common indoor and outdoor sound levels.

**How are noise levels measured?**

Highway traffic noise is projected for an "hourly equivalent," meaning that the noise level is for the steady-state time period of one hour. The hourly equivalent combines all noise levels over the time period rather than only reporting the peak noise level.

Hourly equivalent noise is L(eq), and is measured in decibels (dB(A)).

5. *Compare Future Noise Levels at Receptors to Existing Noise Levels and to the Noise Abatement Criteria:* The predicted Build condition noise levels are compared to the existing noise levels and the FHWA Noise Abatement Criteria (NAC) to determine noise impacts. **Table 3.5-1** summarizes the acceptable noise levels for each type of land use in the study area.
6. *Noise Abatement Analysis for Impacted Receptors:* Noise abatement is evaluated where noise impacts are projected to occur to determine if noise abatement would be feasible to construct and reasonable with respect to cost and noise reduction effectiveness.

### *Where is traffic noise measured?*

Noise receptors were identified for all four ESH alternatives. A receptor is an outdoor area of frequent human use for land uses identified in the FHWA NAC (see **Table 3.5-1**). A receptor represents a larger CNE, or an area with similar land uses and noise characteristics (e.g., residences in the same area, next to a roadway). Each CNE contains a single receptor that represents the worst-case noise condition of all receptors in that CNE.

Thirty-three receptors were identified within the four ESH alternatives. The noise receptor locations representing all four ESH alternatives are shown in the Environmental Inventory Map in **Appendix A**.

**Table 3.5-1: NAC Land Use Categories in Study Area**

| Category | Noise Level L(eq) in dB(A) | Example Land Uses |
|---|---|---|
| B | 67 | Residential |
| C | 67 | Recreational areas, cemeteries, hospitals, medical facilities, parks, places of worship, schools, trails |
| E | 72 | Hotels, motels, restaurants, bars, offices |
| F | None | Agriculture, airports, emergency services, industrial, manufacturing, retail facilities, utilities, warehousing. |
| G | None | Undeveloped lands that are not permitted for development |

### *How much noise is currently in the study area?*

In 2012, noise monitoring was completed in the study area to determine existing noise levels and to ensure noise model accuracy. Noise monitoring was conducted at 15 of the 33 study area receptors or 45 percent of all receptors.

Nine of the fifteen receptors currently have traffic noise as the dominant noise source, as they are located near an existing roadway. Noise levels at these receptors ranged from 50 dB(A) to 61 dB(A).

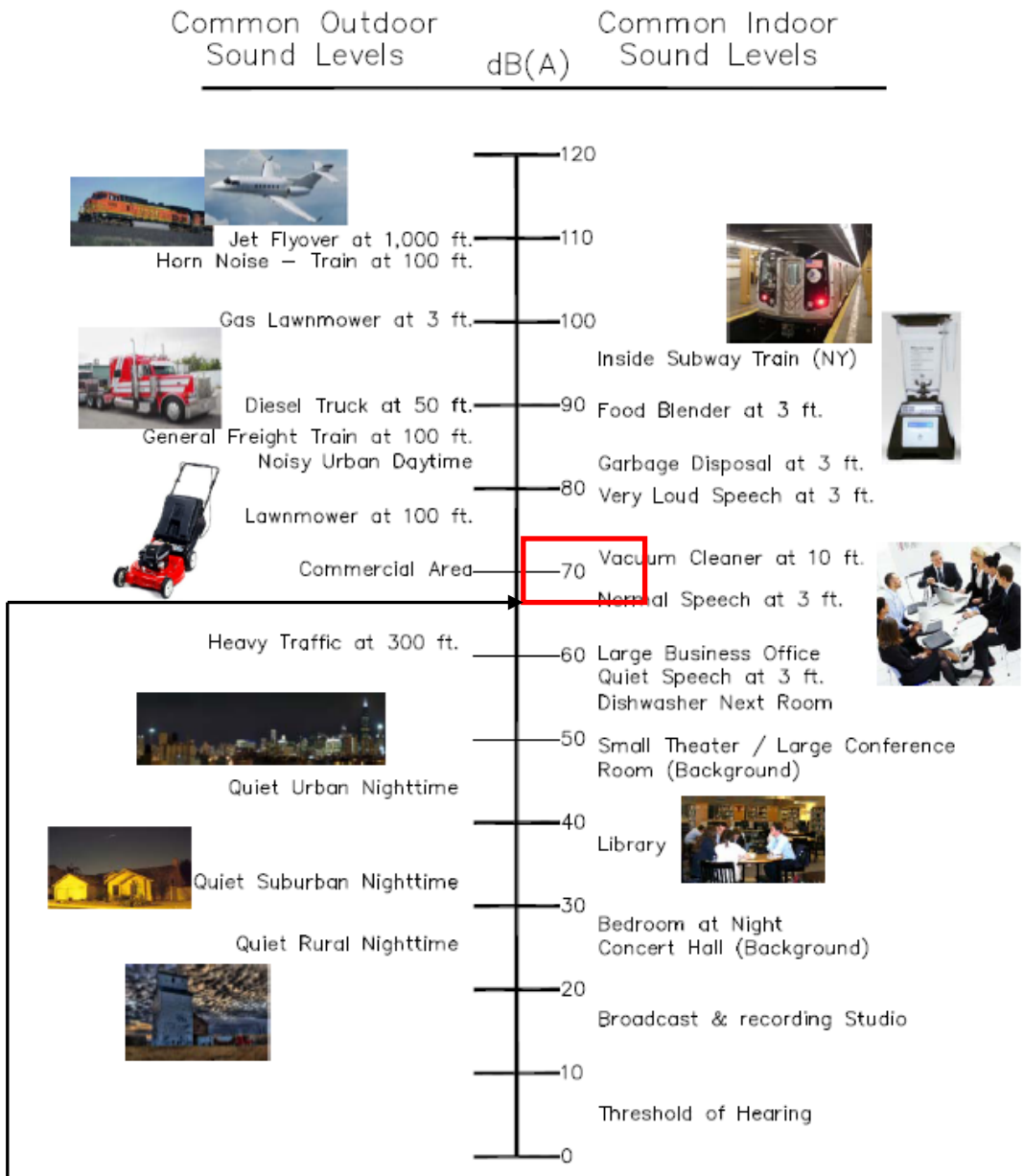
Monitored noise levels at the remaining six of the fifteen receptors were used to determine existing noise conditions, as these receptors were located where roads are currently not the dominant noise source. The noise levels at these six receptors ranged from 42 dB(A) to 56 dB(A).

- The quietest locations monitored were residential areas that ranged from 42 dB(A) to 49 dB(A) and included receptors R18, R24, R28, and R30. A noise level in this range is comparable to noise levels during a quiet urban night (see **Figure 3.5-1**). R18 and R24 were residential receptors in the subdivisions of Harvest Pointe and Eagle View, respectively. R28 and R30 were farm residences.
- The remaining two monitored receptors that did not have traffic noise as a dominant noise source included R15 and R27 (55 dB(A) to 56 dB(A)). A noise level in this range is comparable to quiet speech at a distance of three feet away. R15 was a home in the far northwest corner of The Grove subdivision that was more than 1,400 feet away from its closest traffic noise source, Ireland Grove Road. R27 is Duncan Manor, whose closest major traffic noise source is I-55, more than 1,300 feet away from the home.

### *How are noise impacts determined?*

The IDOT Highway Traffic Noise Assessment Manual (2011) states that a noise impact occurs when the NAC are approached, met, or exceeded for the future Build condition. The NAC are approached at a level of 66 dB(A) for residential locations, a level that is comparable to normal speech at a distance of three feet (see **Figure 3.5-1**). A noise impact can also occur if the noise levels increase by greater than 14 dB(A) from the Existing condition to the future Build condition.

**Figure 3.5-1: Common Indoor and Outdoor Sound Levels**




If **FUTURE BUILD CONDITION** noise levels in the study area are projected to be approaching or above this level (depending on land use), noise barriers along the ESH would need to be considered.

What is a perceptible change in sound?

- A **3-dB(A)** change is *barely* perceptible by the human ear.
- A **5-dB(A)** change is *readily* perceptible by the human ear.
- A **10-dB(A)** change is heard by the human ear as a *doubling* in sound.

### *What areas have the potential for noise impacts from the ESH?*

Traffic noise modeling and noise impacts were developed only for the receptors associated with the ESH Preferred Alternative (see **Chapter 4.3**, Environmental Impact Summary of the Preferred Alternative, for traffic noise predictions for the Preferred Alternative). In lieu of traffic noise modeling and predictions for the four alternatives carried forward, areas of potential noise impact were identified for each Build Alternative.

Most noise impacts (as defined by IDOT, see **Chapter 4.3**) occur within 500 feet of the edge of a roadway. Subdivisions such as The Grove, Harvest Pointe, and Eagle View are within 500 feet of an alternative. The subdivisions of Wexford Hills, Dover Ridge, and Lamplighter are over 500 feet away. To identify potential noise impact areas, IDOT identified the number of noise receptors within 500 feet of each of the four alternatives. The 33 receptors identified in the ESH study area, called "represented" receptors, were studied. The represented receptors used for this assessment are shown in the Environmental Inventory Map in **Appendix A**. Detailed maps of represented receptors at residential subdivisions in the project area are in Figures 3.5-2 through 3.5-4.

**Table 3-5.2** shows how many noise receptors are within varying distances of each Build Alternative. Noise impacts are more likely to occur for receptors located closely to the roadway.

**Table 3.5-2: Represented Noise Receptors near the Build Alternatives**

| | Alt. 124 | Alt. 125 | Alt. 126 | Alt. 127 |
|---|---|---|---|---|
| Receptors within 500 feet of Alternative | 138 | 116 | 141 | 120 |
| Receptors within 200 feet of Alternative | 57 | 51 | 59 | 54 |
| Receptors within 100 feet of Alternative | 45 | 43 | 46 | 45 |

The number of represented receptors is similar when measuring those within 100 feet and 200 feet of the Build Alternatives. Most of the receptors represent homes within the common sections of the alternatives from Ireland Grove Road to I-74. This area includes The Grove subdivision on Ireland Grove Road. Represented noise receptors in The Grove subdivision are shown in yellow in **Figure 3.5-2** below, with distances from the proposed road improvements shown at 100 feet (green), 200 feet (blue), and 500 feet (pink). As shown in the figure, the majority of The Grove receptors are at least 200 feet from the edge of the proposed roadway.

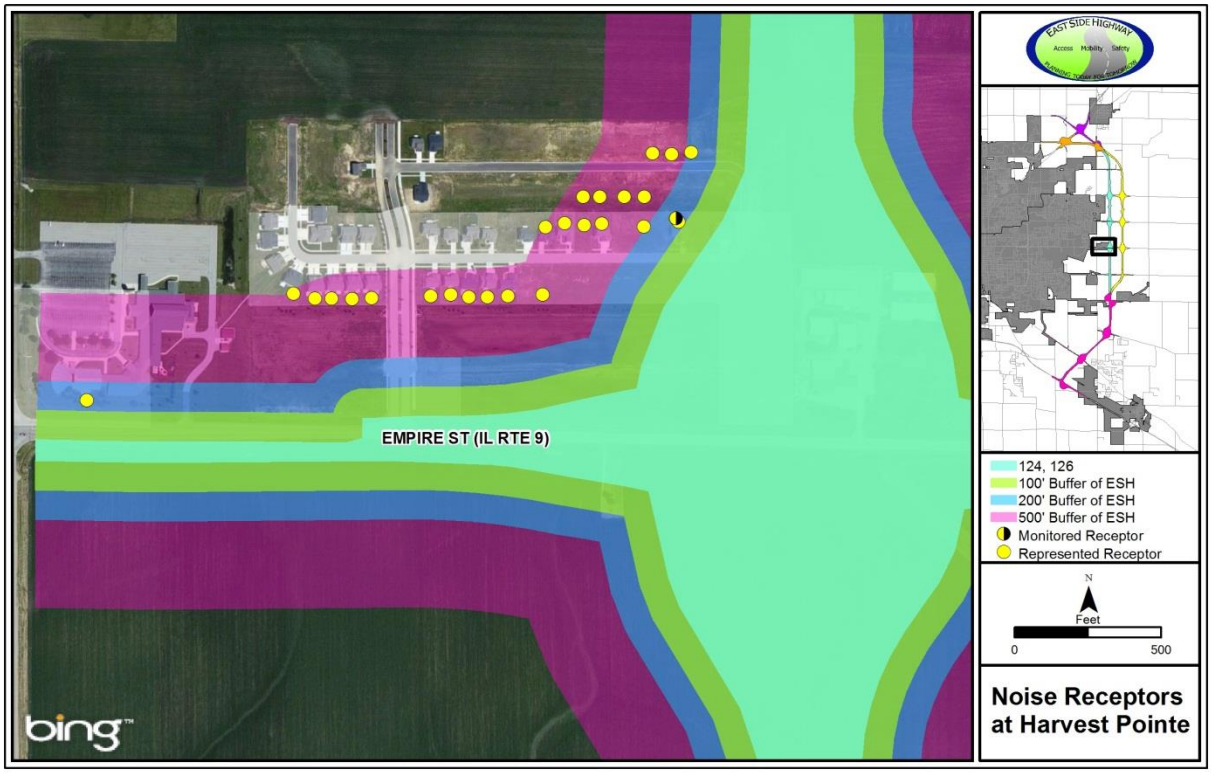
**Figure 3.5-2: Represented Noise Receptors at The Grove**

Alternatives 124 and 126 have higher numbers of receptors within 500 feet due to the location of two existing residential developments: Eagle View along Fort Jesse Road and Harvest Pointe along Empire Street (IL Route 9). These alternatives are closer to Bloomington-Normal and its rapidly developing residential areas. Represented noise receptors in the Eagle View subdivision are shown in yellow in **Figure 3.5-3**, with distances from the proposed road improvements shown at 100 feet (green), 200 feet (blue), and 500 feet (pink). As shown in the figure, the majority of Eagle View receptors are at least 200 feet from the edge of the proposed roadway.

**Figure 3.5-3: Represented Receptors at Eagle View**

Represented noise receptors in the Harvest Pointe subdivision are shown in yellow in **Figure 3.5-4**, with distances from the proposed road improvements shown at 100 feet (green), 200 feet (blue), and 500 feet (pink). As shown in the figure, the majority of Harvest Pointe receptors are located between 200 feet and 500 feet from the edge of the proposed roadway.

**Figure 3.5-4: Represented Receptors at Harvest Pointe**



## 3.6 Natural Resources

*The natural resources section describes the plants and animals located in the study area. Some of these resources are protected by state and federal regulations and are an important part of the natural environment.*

Historically, the land in the study area consisted of forests and prairies, which have been largely converted to agricultural uses. Money Creek, Kickapoo Creek, and their tributaries are the main river systems within the study area. This section of the EA discusses the plant communities (cover types), invasive species, wildlife, threatened and endangered species, and natural areas that occur within or adjacent to the project corridors.

### 3.6.1 Vegetation and Land Cover

#### *What types of vegetation (land cover) are located in the study area?*

There are seven land cover types within the project area. **Table 3.6-1** provides the approximate acreage of each that occurs within the ESH study area.

Agricultural land (82.8 percent of the study area) and developed land (13.9 percent of the study area) are the most prevalent types of land cover; however, they do not provide suitable habitats for many native plants and animals. The most important cover types in the project area for wildlife species are riparian areas, forests, prairies, and wetlands, which together represent approximately four percent of the project area. Prairie, which once dominated the landscape of the project area, is too small in acreage to be of much wildlife value.

Wetlands, because of their regulatory importance, are discussed in Section 3.10.

Riparian areas (vegetated areas adjacent to streams) consist primarily of grasses adjacent to channelized streams and their tributaries. Trees appear along segments of Money Creek, Little Kickapoo Creek, and Kickapoo Creek; however, these areas are limited in size and extent.

**Table 3.6-1: Land Cover Types within the Study Area**

| Vegetation/Land Cover Type | Size (Acres)[1] | Percentage of Total Land Cover[2] |
|---|---|---|
| Agriculture | 25,170 | 82.8 |
| Urban/Built-Up (developed land) | 4,212 | 13.9 |
| Forest | 778 | 2.6 |
| Prairie | 12 | < 1 |
| Riparian | 68 | < 1 |
| Wetlands | 5 | < 1 |
| Ponds | 160 | < 1 |
| **Total** | **30,400** | **100** |

*Sources: Murphy, 2011; Beas et al., 2012, and aerial review.*
*[1] Prairie and wetland areas were determined through a field investigation (Murphy, 2011; Beas et al., 2012).*
*The remaining land cover types determined from aerial review.*
*[2]Total may not equal 100 percent due to rounding.*

### *How is the natural quality of cover types (plant communities) determined?*

Prairies and wetlands were the only two cover types where natural quality was measured. The natural quality of prairies identified within the study area is presented below. Wetlands, because of their regulatory importance, are discussed in Section 3.10.

A system of letter grades was developed for prairies to express degrees of natural quality based on the level of disturbance (University of Illinois, 1978).

The grades go from A to E with A representing the highest quality prairie as described below:

Grade A: Relatively stable or undisturbed communities

Grade B: Lightly disturbed community

Grade C: Moderately to heavily disturbed community

Grade D: Severely disturbed community

Grade E: Very severely disturbed community

Prairies that are undisturbed contain a diversity of plants; as disturbance increases, this diversity is reduced.

There are three prairies in the study area considered somewhat degraded to heavily degraded with a natural quality rating of C+ to D. (Murphy, 2011) **Figure 3.6-1** and **3.6-2** depicts the location of these prairies adjacent to Old Route 66 southwest of Towanda and along an abandoned railroad line west of Downs.

### Prairie

The original tallgrass prairie has been converted into one of the most intensive crop-producing areas in North America. Less than 0.1 percent of the original tallgrass prairie remains in Illinois.

Approximately twelve acres of prairie were identified in three prairie remnants in the study area (Murphy, 2011). See **Figure 3.6-1** and **3.6-2** for the locations of the prairies. Prairies are located along roadsides and within abandoned and active railroad rights-of-way. All three sites were moderate to heavily disturbed and are described below:

- Site #1: Two small prairie remnants (representing 0.19 acres) occur 3 miles west of Downs. These represent dry-mesic to mesic prairie along an inactive railroad. Some areas were overgrown with woody vegetation reducing the natural quality to C- to D (Murphy, 2011).
- Site #2: A 1.7 mile stretch of remnant prairie occurs adjacent to Old Route 66 southwest of Towanda. This 7.2 acre prairie varies in topography and moisture available for plants. The prairie includes dry-mesic, mesic, and wet-mesic drainage conditions. The natural quality varied from C+ to D (Murphy, 2011).
- Site #3: This remnant prairie is adjacent to and north of Site #2, between Old Route 66 and the Union Pacific Railroad tracks. This prairie consists of approximately 4.9 acres of dry-mesic/mesic prairie to wet-mesic/wet prairie. The variable topography provided different drainage conditions over 1.05 miles, resulting in a variable natural quality graded from C+ to D (Murphy, 2011).

**Prairie Types**

There are three soil drainage groups for prairies in North America: wet, mesic, and dry.

**Wet**

In wet prairie, the soil is usually very moist most of the growing season and has poor water drainage. This can possibly contain a bog or fen, since it often has plentiful stagnant water.

**Mesic**

Mesic prairie has good drainage and moist to dry soil during the growing season. This type of prairie is the most often converted for agricultural usage; consequently it is one of the most endangered types of prairie.

**Dry**

Dry prairie has somewhat wet to very dry soil during the growing season because of good drainage conditions. Often, this type of prairie can be found on uplands or slopes.

*A dry mesic/mesic prairie to wet-mesic/wet prairie remnant along the south side of Old Route 66, immediately southwest of Towanda, Illinois (Murphy, 2011)*

**Why are prairies important?**

Illinois is known as the Prairie State. Before settlement, tallgrass prairie covered most of Illinois and helped form the valuable soils that support our current agricultural industries. Remnant prairies harbor unique species of plants that are found in few places outside of Illinois.

**Figure 3.6-1: Prairies within the Study Area (South)**

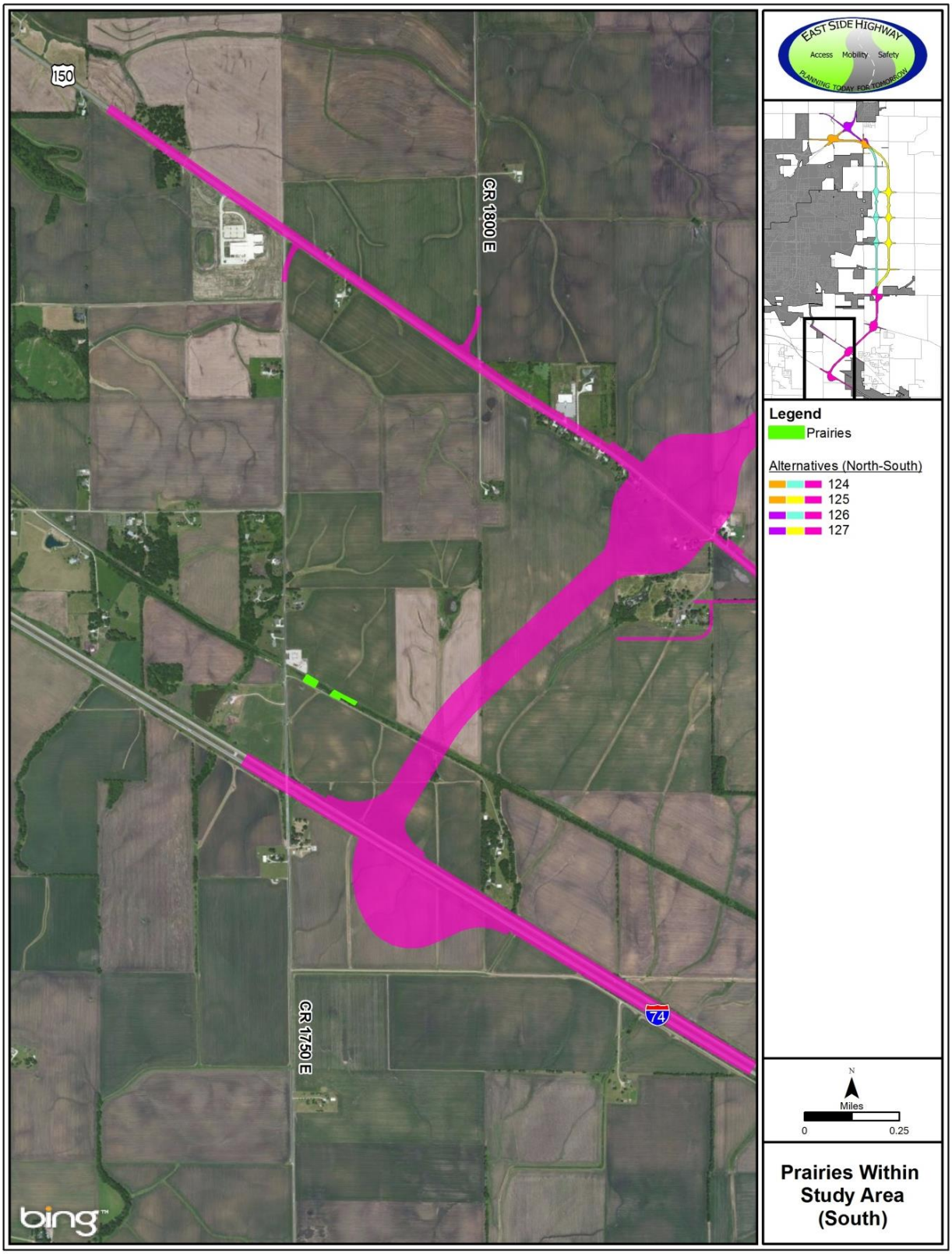
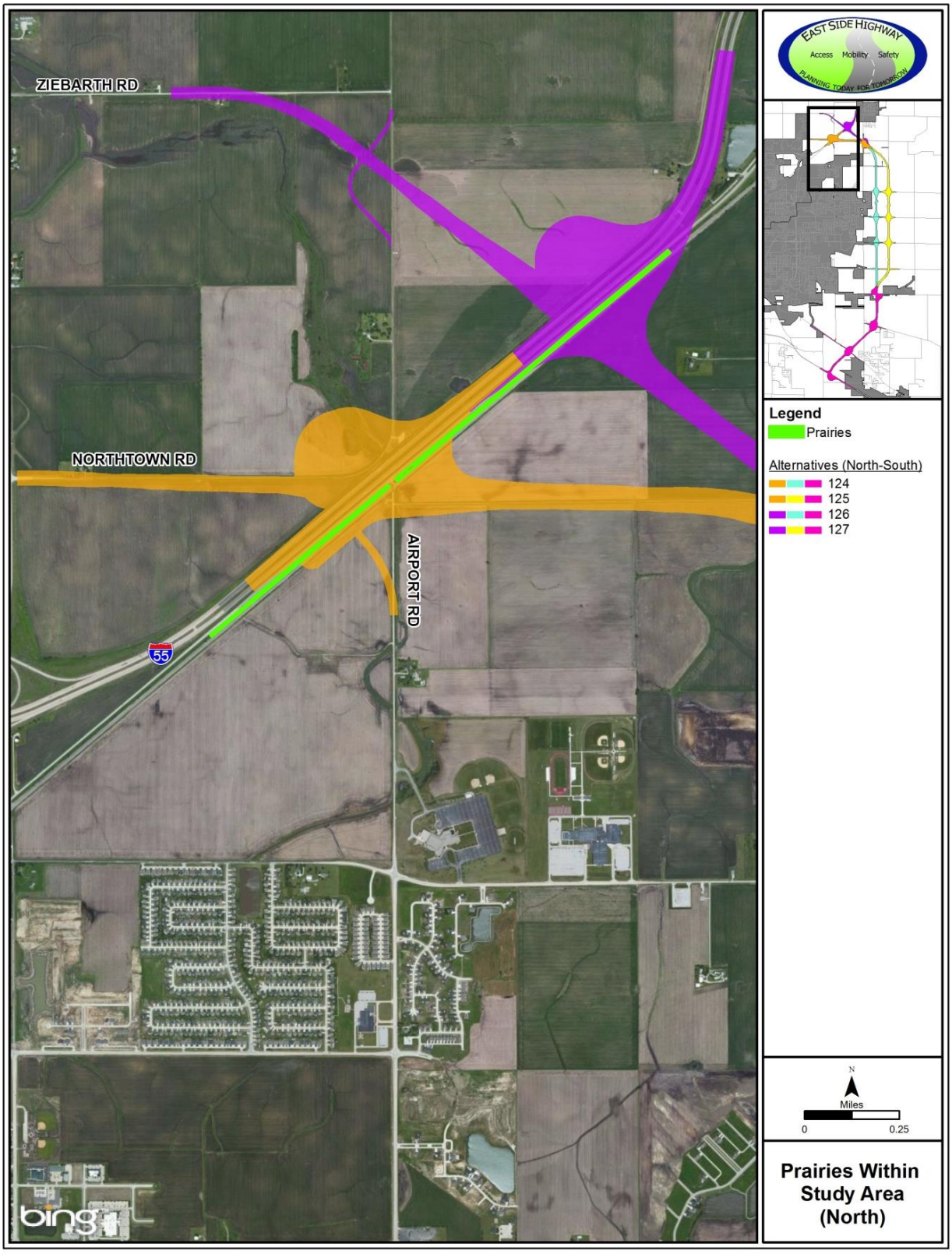


**Figure 3.6-2: Prairies within the Study Area (North)**



### *How will the alternatives impact various land cover types/vegetation types?*

Agriculture and urban/built-up (developed land) are the cover types most affected by the Build Alternatives. Detailed impacts to agricultural land are summarized in Section 3.2, Agricultural Resources. **Table 3.6-2** summarizes the approximate potential impacts to various land cover types for the remaining ESH Alternatives. None of the Alternatives would impact forested areas.

Alternative 127 would impact the most amount of agricultural land and the least amount of wetland area (0.0003 acres). Alternatives 124 and 125 would impact the most wetlands. Alternative 124 would impact the least amount of agricultural land.

**Table 3.6-2: Approximate Acres of Cover Type Impacted**

| VEGETATION/LAND COVER TYPE[1] | Alternatives | | | |
|---|---|---|---|---|
| | **124** | **125** | **126** | **127** |
| Agriculture | 820 | 864 | 857 | 888 |
| Urban/Built-Up (Developed land) | 186 | 187 | 193 | 191 |
| Forest | 0 | 0 | 0 | 0 |
| Prairie | 3.35 | 3.35 | 3.8 | 3.8 |
| Riparian | 6.36 | 7.02 | 8.9 | 9.1 |
| Wetland | 7.73 | 7.02 | 0.71 | 0 |
| Ponds (open water) | 0.50 | 0.50 | 0.50 | 0.50 |
| **Total** | **1024** | **1069** | **1064** | **1093** |

*Sources: Murphy, 2011; Beas et al., 2012; aerial review.*
*[1] Prairie and wetland area determined through field investigation (Murphy, 2011; Beas et al., 2012). The remaining land cover types determined from aerial review.*

There are two prairies affected by the proposed alternatives. Due to the linear nature of these prairies, extending along Old Route 66, impacts could not be avoided. Alternatives 124 and 125 affect both Site #2 and Site #3; Alternatives 126 and 127 only impact Site #3 as summarized below:

| | Total Acres | Acres Impacted by Alternatives 124 & 125 | Alternatives Impacted by Alternatives 126 & 127 |
|---|---|---|---|
| Site #2 | 7.2 | 2.0 | 0 |
| Site #3 | 4.9 | 1.5 | 3.8 |
| TOTAL: | 12.1 | 3.5 | 3.8 |

Alternatives 126 and 127 affect approximately 78 percent of Site 3, while Alternatives 124 and 125 impact 28 percent of Site 2 and 31 percent of site 3.

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to land cover types resulting from other unrelated planned and programmed projects associated with this alternative.

## 3.6.2 Wildlife Resources

***What types of wildlife are found in the study area?***

Approximately 96 percent of the project area is in agricultural land and urban/built-up lands (**Table 3.6-1**). Row crops and residential/commercial areas provide little habitat value to wildlife. Riparian areas, forests, prairies, and wetlands (approximately four percent of the project area) provide some wildlife habitat value, particularly to some wildlife species. The wildlife resource field surveys included studies of mammals, amphibians, reptiles, and birds.

**Birds**

Bird habitat in the study area is limited. During the 2012 surveys, 16 species of birds were recorded, none of which were federal or state threatened or endangered species. The loggerhead shrike, a state endangered species, has historically been observed adjacent to the study area. The closest record of an upland sandpiper, a state endangered species, is approximately four miles northeast of the study area. Potential habitat for these species consists primarily of open area with scattered shrubs and trees and native prairie and grasslands. However, the upland sandpiper may also inhabit some agricultural land. The potential habitat for these species within the alternatives is minimal.

**Partners in Flight** identifies bird species with declining populations.

Species of Greatest Conservation Need contains species that

- are threatened or endangered,
- have a global conservation rank
- are rare and/or have declining populations
- are native to Illinois
- are representative of a specific habitat
- have a significant portion of their entire population in Illinois, or
- have limited status information

In addition to a review of federal and state threatened and endangered species lists compiled and updated by the U.S. Fish and Wildlife Service (USFWS) and the Illinois Natural Heritage Database (Illinois Department of Natural Resources), watch lists by other conservation organizations were reviewed. These watch lists identify birds that are at risk due to loss of feeding and breeding areas. The following lists were reviewed with varying results:

- American Bird Conservancy (*ABC*) watch list; no observed species listed.
- Partners in Flight (*PIF*) species of concern list, 14 observed species listed.
- Illinois Conservation Species (*ICS*) list; two observed species listed.

### Neotropical Migratory Birds

Neotropical migratory birds are those birds wintering in the American tropics and breeding in the U.S. and Canada. The taking (killing), possession, transportation, sale, purchase, importation, exportation, banding, or marking of birds, or their parts, nests, or eggs of birds that are protected under the Migratory Bird Treaty Act of 1918 (50 CFR 22) is prohibited without a permit from the USFWS.

**Migratory Bird Treaty Act**

The Migratory Bird Treaty Act protects migratory birds and their eggs from being taken, killed, or possessed. Additional to the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act protects bald and golden eagles in the same manner.

Twelve species of neotropical migrants were identified in the study area.

The Dickcissel, eastern kingbird, eastern meadowlark, and grasshopper sparrow are listed PIF species. The Dickcissel and grasshopper sparrow are also listed as species in greatest conservation need in Illinois (ICF).

Breeding habitat for these species vary. The eastern kingbird is a savanna species and will primarily nest along woodland edges, in orchards, along tree lines and hedgerows adjacent to agricultural fields, and in open fields with scattered shrubs and trees. This species is also known to nest in trees and snags that overhang water, in forested river valleys, in golf courses, and in urban settings with trees and scattered open areas (Murphy, 1996).

Dickcissels and eastern meadowlarks generally prefer breeding in open areas with reasonable grass and broad-leaf plant cover. Individuals will nest in native prairies, restored grasslands, pastures, overgrown fields with shrubs, hay fields, fallow areas in croplands, and in weedy and grassy strips adjacent to agricultural fields, roadsides, and fence rows (Jaster et al., 2012; Temple, 2002).

Grasshopper sparrows are known to breed and nest in relatively open prairies and grasslands. This species commonly avoids habitat with heavy shrub cover and prefers areas with patches of bare ground (Vickery, 1996).

A total of 96.7 percent of the study area consists of agricultural and developed land. Suitable breeding habitat within the study area for the above listed species is minimal.

### Mammals

Field surveys for mammals were conducted within the study area for the federally endangered Indiana bat and the state threatened Franklin's ground squirrel. No Indiana bats or Franklin's ground squirrels were found in the study area; however, live mammal trapping, conducted for the Franklin's ground squirrels, in the study area yielded three thirteen-lined ground squirrels.

Two species of bats occur within the study area (Mengelkoch et al., 2011). A total of three adult and four juvenile big brown bats and one adult red bat were caught during the bat mist netting conducted within Downs, IL and southeast of Bloomington, IL.

Based on records of occurrence, approximately 16 species of mammals reside within McLean County. The majority of mammals residing within the study area are rodents. Plains pocket gophers, prairie voles, northern short-tailed shrews, white-footed mice, and southern bog lemmings are the most common and widespread rodents in McLean County. The most common mammal species is the Plains pocket gopher which lives in pastures, grasslands, and prairies with their burrows often located on embankments near roads. The coyote is the only carnivorous mammal within McLean County.

**Reptiles and Amphibians**

Based on records of occurrence, a total of 10 amphibian and 14 reptile species have been historically documented in McLean County (Illinois Natural History Survey [INHS] Amphibian and Reptile Collection Database, 2012). Amphibian and reptile habitat occurs mainly in the riparian corridors and wetlands in the study area.

### *How will the alternatives impact wildlife and their habitat?*

Wildlife would be impacted by construction and operation activities that reduce habitat, fragment existing habitats, or obstruct and eliminate wildlife travel corridors. The existing natural communities are currently fragmented by agricultural land, urban areas, roads, pipelines, electric transmission lines, and other development. Increased fragmentation of natural habitats from the proposed project would have a negative effect on wildlife species; although, some species benefit from the creation of additional habitat edges.

Loss of habitat within the proposed alternatives could also impact wildlife species by severing travel routes and increasing the potential for collisions with vehicles. None of the alternatives would impact forested areas. In addition, 96.7 percent of the study area is agricultural or urban/built up land and less than one percent of the cover type is riparian. Therefore, minimal to no loss of species groups is anticipated as a result of operations of the ESH.

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to wildlife and their habitat resulting from other unrelated planned and programmed projects associated with this alternative.

## 3.6.3 Threatened and Endangered Species

Information for federal and state listed threatened and endangered species potentially occurring in the study area was gathered using data from the USFWS, the Illinois Department of Natural Resources Illinois Endangered Species Protection Board, and field surveys by the INHS. Specific surveys within the study area were only conducted for the federally endangered Indiana bat, the state endangered loggerhead shrike and upland sandpiper, and the state threatened Franklin's ground squirrel.

### *What federal listed threatened and endangered species exist in the study area?*

**Table 3.6-3** lists federally threatened and endangered species in McLean County.

**Table 3.6-3: Federally Threatened or Endangered Species in McLean County**

| Species | Group | Habitat |
|---|---|---|
| **Endangered** | | |
| Indiana Bat | Mammal | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in small stream corridors with well-developed riparian woods, and upland forests. |
| **Threatened** | | |
| Eastern Prairie Fringed Orchid | Plant | Mesic to wet prairies |
| **Proposed as Endangered** | | |
| Northern Long-eared Bat | Mammal | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests and woods. |

*Source: USFWS, 2014*

### Indiana Bat

INHS conducted specific surveys to determine the presence/absence of Indiana bats within the study area, as records of its occurrence are documented in southern and central Illinois.

Habitat for the Indiana bat which includes stream corridors with well-developed riparian woods and upland forests are present within the study area. Mist-net surveys for the Indiana bat were conducted at two locations: along Little Kickapoo Creek and Kickapoo Creek. Ten bats (two species) were captured, none of which were Indiana bats. There are no stream corridors with well-developed riparian woods or upland forests impacted by the alternatives. Therefore, none of the alternatives have the potential to impact the Indiana bat.

*Indiana Bats*
*Photo By: USFWS; Andrew King*

### Eastern Prairie Fringed Orchid

The eastern prairie fringed orchid is listed as a federal threatened species (Illinois State endangered). The orchid has not been collected in McLean County (INHS Vascular Plant Collection Database, 2012). Habitat for the orchid, which includes mesic to wet prairie and wetlands, is present within the study area. However, the INHS survey of prairies and wetlands in the study area did not identify the presence of the eastern prairie fringed orchid. The proposed project will not impact the eastern prairie fringed orchid.

*Eastern Prairie Fringed Orchid Photo By: USFWS; Mike Redmer*

**Northern Long-eared Bat**

The USFWS proposes to list the northern long-eared bat as an endangered species throughout its range.

The northern long-eared bat ranges widely across the U.S., but is patchily distributed and rarely found in large numbers (Center for Biological Diversity [CBD], 2010). It occurs in eastern, midwestern (including Illinois), and some southern states (CBD, 2010). Thirty-six known hibernacula (mines and caves) for the northern long-eared bat are located in Illinois (USFWS, 2013).There are no known caves or mines in the study area. Therefore, overwintering of northern long-eared bats does not occur within the study area.

During mist netting conducted for the Indiana bat (see the Indiana bat discussion above) along Little Kickapoo Creek and along Kickapoo Creek, ten bats (two species) were captured, none of which were northern long-eared bats.

There are no stream corridors with well-developed riparian woods or upland forests impacted by the alternatives. Therefore, none of the alternatives have the potential to impact the northern long-eared bat.

### *What state-listed threatened and endangered species exist in the study area?*

**Table 3.6-4** lists state threatened and endangered species in McLean County. One state-listed species, the slippershell mussel, was identified during the 2011 surveys (Johnson, 2011).

**Table 3.6-4: State Threatened or Endangered Species in McLean County**

| Species | Group | Habitat |
|---|---|---|
| **Endangered** | | |
| Lake Sturgeon | Fish | Large river and lake systems |
| Upland Sandpiper | Bird | Native prairie and other open grassy areas |
| Loggerhead Shrike | Bird | Open areas with shrubby hedgerows |
| **Threatened** | | |
| Slippershell | Mussel | Creeks and the headwaters of large rivers in sand, mud, or fine gravel |
| Kirtland's Snake | Reptile | Prairie wetlands, wet meadows, and grassy edges of creeks, ditches, and ponds, usually in association with crayfish burrows |
| Least Bittern | Bird | Freshwater or brackish marshes with tall emergent vegetation |
| Mudpuppy | Amphibian | Lakes, ponds, rivers, and large creeks |
| Franklin's Ground Squirrel | Mammal | Tall grass, shrubland, and woodland edges |

*Source: Illinois Endangered Species Protection Board, Illinois Natural Heritage Database, 2013.*

### State-listed Plants

There are no state listed plants in McLean County. Botanical surveys were conducted by the Illinois Natural History Survey in 2011 and no listed plants were observed.

### State-listed Birds

Three state listed birds are known to occur in McLean County: the loggerhead shrike (endangered), the upland sandpiper (endangered), and the least bittern (threatened). None of the state-listed birds were observed during the field bird survey conducted by the Illinois Natural History Survey in 2011.

*Loggerhead Shrike*
*Photo By: Gerrit Vyn*

- **Loggerhead shrike – Illinois Endangered:** There are records for loggerhead shrike occurrence in the study area. Suitable habitat for this species which consists primarily of open area with scattered shrubs and trees is located within the study area. The loggerhead shrike may also inhabit some agricultural land. However, INHS did not observe the loggerhead shrike during the bird censuses.
- **Upland sandpiper – Illinois Endangered:** The closest record of upland sandpiper is approximately four miles from the study area. Suitable habitat for this species which consists primarily of native prairie and grasslands is located within study area. However, INHS did not observe the upland sandpiper during the bird censuses.
- **Least bittern – Illinois Threatened:** The closest record of the least bittern is approximately 6.5 miles from the study area. Suitable habitat for this species, which consists primarily of marshes, is located within the study area. However, INHS did not observe the least bittern during the bird censuses.

The potential habitat for these species within the alternatives is minimal (Johnson INHS, 2012).

### State-listed Mammals

Historic records indicate that only one state-threatened mammal, the Franklin Ground Squirrel, species is known to occur within McLean County.

*Franklin's Ground Squirrel*
*Photo By: University of Illinois at Urbana-Champaign*

- **Franklin's ground squirrel – State-threatened:** The closest record is 5.5 miles away from the project area.

Suitable habitat for the Franklin's ground squirrel is present within the study area between U.S. Route 66 and the Union Pacific Railroad tracks. Franklin ground squirrel surveys were conducted between U.S. Route 66 and the Union Pacific Railroad in 2011 and none were captured or observed.

### State-listed Fish

The lake sturgeon is the only state listed fish species in McLean County. Lake sturgeon prefer moderately clear, large rivers and lakes. They are most often found over firm sand, gravel, or rubble bottoms. No lake sturgeon were captured or observed during surveys. The alternatives do not cross a stream that would support the lake sturgeon.

### State-listed Amphibians and Reptiles

One state-threatened snake and one salamander are known to occur in McLean County. Neither are known to occur within the project study area.

- **Kirtland's Snake – Illinois Threatened:** Three occurrences of Kirtland's snake were recorded within McLean County within the last 25 years. The closest was 4.5 miles to the south of the project corridor. Suitable habitat for this species consists primarily of prairie wetlands, wet meadows, and grassy edges of creeks, ditches, and ponds, usually in association with crayfish burrows. Habitat for the Kirtland's snake is limited within the alternatives. Therefore, the alternatives will likely not impact the Kirtland's snake.


*Kirtland's Snake*
*Illinois Natural History Survey*

- **Mudpuppy – Illinois Threatened:** This is a large stout-bodied brownish gray, rust brown, or black salamander found in lakes, ponds, rivers, and large creeks (INHS, 2013). The last observed record in McLean County was from April 2013 and was six miles away. Suitable habitat for this species consists primarily of lakes, ponds, rivers, and large creeks. Habitat for the mudpuppy is limited within the alternatives. Therefore, the alternatives will likely not impact the mudpuppy.


*Mudpuppy*
*Illinois Natural History Survey*

### State-listed Mussels

The slippershell mussel is the only state listed mussel in McLean County. One specimen was found in Money Creek over one mile from the project alternatives in a field survey conducted by the Illinois Natural History Survey in 2011. The project alternatives do not cross Money Creek. Suitable habitat for this species consists primarily of creeks and the headwaters of large rivers in sand, mud, or fine gravel. Since the project alternatives do not cross Money Creek and due to the distance from the location where the slippershell was found the alternatives will likely not impact the slippershell.

### Summary

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to federal- and state-listed species resulting from other unrelated planned and programmed projects associated with this alternative.

In summary, botanical, wetland, bird, mammal, mussel, fish, and macroinvertebrate surveys were conducted in 2011 by the Illinois Natural History Survey and only one listed species was observed. This was the slippershell mussel which was found in Money Creek over a mile from the project. No impact is expected to the slippershell due to the distance from the alternatives where the slippershell was found and because the alternatives do not cross Money Creek. Coordination with the Illinois Department of Natural Resources occurred in July 2012. See **Appendix C** for documentation.

## 3.6.4 Protected Lands and Natural Areas

**Illinois Natural Areas**

Illinois Natural Areas are natural areas selected based on one, or any combination of the following criteria:

- Areas with high-quality natural plant communities (Grade A or B),
- Areas that possess habitat for endangered species,
- Areas that provide unique research and/or educational opportunities,
- Areas with outstanding geologic features, and
- Areas with outstanding aquatic features

### *What protected lands exist in the study area?*

Protected lands include forest preserves, nature preserves, and Illinois natural areas. All of these provide habitat for wildlife and protection for plant communities. No forest preserves, nature preserves or natural areas are located in the study area. Therefore, there would be no impact to protected lands.

## 3.6.5 Invasive Species

### *What are invasive species and are they present in the study area?*

Executive Order 13112 (Invasive Species) directs Federal agencies to expand and coordinate their efforts to combat the introduction and spread of plants and animals not native to the U.S. Approximately 30 percent of the state's flora is composed of introduced plant species. The U.S. Department of Agriculture Noxious Weeds List for Illinois contains several plant species that occur within the study area.

## 3.7 Water Resources and Aquatic Habitats

*Water resources are important environmental resources for maintaining fish, mussels, and other species in our streams as well as for recreational purposes. These resources are protected by the Clean Water Act and the Illinois Environmental Protection Act. Congress set a goal to "restore and maintain the physical, chemical, and biological components of the waters of the United States."*

### 3.7.1 Streams

#### *What streams are in the study area?*

There are five streams in the study area. Money Creek flows north into Lake Bloomington; Six Mile Creek also flows north into the Mackinaw River. Three streams, Sugar Creek, Little Kickapoo Creek, and Kickapoo Creek, flow south toward the Sangamon River. **Figure 3.7-1** depicts the locations of streams and their tributaries within the watersheds in the study area.

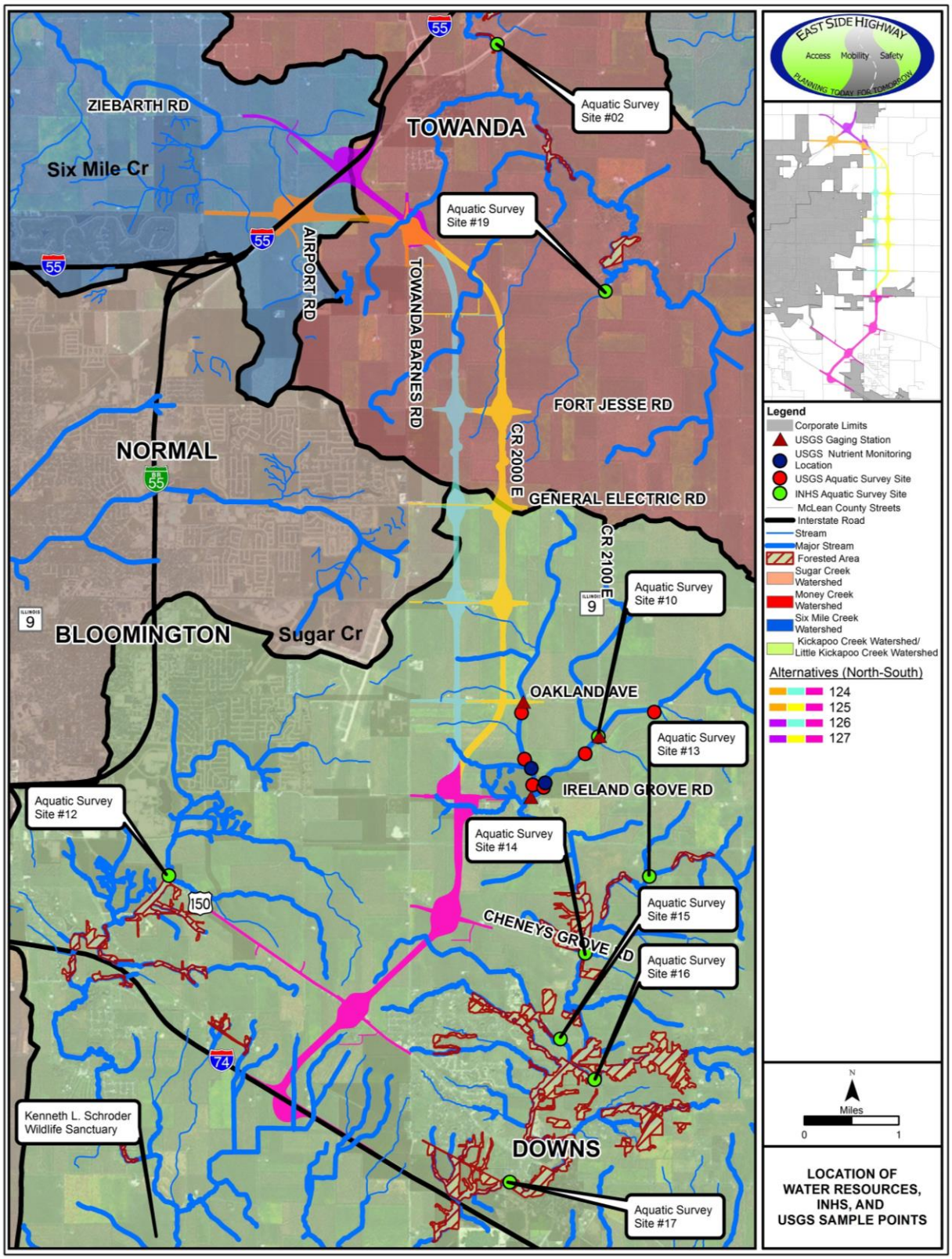
#### *What local conservation groups are active in the study area?*

There are several conservation groups and agencies concerned with preserving the environment in the study area: the Friends of Kickapoo Creek, Mackinaw River Partnership, the McLean County Soil and Water Conservation District (SWCD), Ecology Action Center, and McLean Natural Resources Conservation Services (NRCS). These groups provided additional monitoring data within the study area and identified environmentally sensitive areas within the study corridor.

Friends of Kickapoo Creek is a conservation group promoting environmental stewardship. The Mackinaw River Partnership is a local conservation group comprised of landowners, industries, local agencies, and civic leaders. The McLean County SWCD and NRCS organized a planning committee to address nutrient and sediment problems in Lake Bloomington. The result of the partnership was the Lake Bloomington Watershed Plan, which summarized baseline monitoring and environmental goals for the watershed. The Ecology Action Center is a not-for-profit group assisting residents in creating and strengthening a healthy environment.

These groups are working to restore, protect, and manage the streams and the natural resources in the surrounding areas of McLean County.

**Figure 3.7-1 Location of Water Resources and INHS/USGS Sample Points**



### *What are the important characteristics of the streams crossed by the alternatives of the ESH?*

The Illinois Natural History Survey (INHS) completed biological and chemical sampling on three streams in the study area. These streams were also described by their physical characteristics, such as flow or stream bottom. The INHS characterized nine sites on Kickapoo Creek and its tributaries, Little Kickapoo Creek, and Money Creek. Streams are typically described by the number and diversity of fish, mussels, and aquatic or benthic insects, which are important indicators of a stream's health. **Table 3.7-1** summarizes the physical and biological characteristics of the INHS sampling sites.

### *Flow and Drainage Characteristics*

The magnitude of stream flow is directly related to the size of the drainage area contributing runoff to the stream. Streams with larger drainage areas have greater flow. For each sample point, the upstream drainage area of the stream is identified. **Table 3.7-1** includes the upstream drainage areas for each INHS sampling point, which varied from 1.22 square miles to 45.4 square miles.

### *Dams and Wastewater Discharge*

There are two dams downstream of the study area. The dam on Money Creek is associated with Lake Bloomington, and the dam on Six Mile Creek is associated with the creation of Evergreen Lake.

Additionally, there was one wastewater treatment plant (WWTP), Bloomington-Normal Water Reclamation District WWTP, which discharges to Sugar Creek, downstream of the study area.

### *Stream Habitat*

INHS assesses aquatic habitat with two classification systems. The first classification system uses the United States Environmental Protection Agency (USEPA) method of determining a mean habitat score based on assigning a value to physical parameters of streams, such as channel structure/alteration, deposition, bottom substrate/instream cover, pool variability, stream bank (riparian) vegetation zone width, and bank stability as determined by two observers and then averaging the results. This is referred to as aquatic habitat

**Why use aquatic macroinvertebrates?**

Aquatic macroinvertebrates are good indicators of water quality as they occur in a stream and have limited mobility. As the number of species increases, the streams water quality is also increasing. Tolerance for dissolved oxygen levels, sediment, water pH, temperature, and chemical pollution affect the types of insects that can survive in a stream.

*Examples of macroinvertebrates*

**Hilsenhoff Family Level Biotic Index**

This is a measure of organic pollution in a stream based upon the types of macroinvertebrates present. For example, pollution intolerant macroinvertebrates indicate organic pollution is very low. The stream water quality can be rated from "excellent" to "very poor" based upon the aquatic macroinvertebrates present.

assessment in **Table 3.7-1**. Of the nine sites that were sampled, one stream, an unnamed tributary to Kickapoo Creek, was considered good quality habitat. The other eight locations were classified as fair or poor quality.

The second classification system uses the macroinvertebrates, such as aquatic insects, scuds, and sow bugs, to derive a score based on the average macroinvertebrate family organic pollution tolerance (Hilsenhoff, 1988), known as the Hilsenhoff Family-Level Biotic Index (see **Table 3.7-1**). Organic pollution was considered fair or poor for all nine sites. The best stream according to the Hilsenhoff Family Biotic Index was Kickapoo Creek at County Rd 1025 (Site 14), which was rated as fair.

**Table 3.7-1 Characteristics of Streams within the Study Area**

| Name | Flow Characteristics | Upstream Drainage Area (square mile)[1, 2] | Stream Bottom | Stream Width (feet) | Stream Depth (feet) | Stream Bank Vegetation | Aquatic Habitat Assessment[3] | Number of Fish Species Present | Number of Intolerant Fish Species | Dominant Fish Species | Number of Mussel Species Live | EPT Richness[4] | Hilsenhoff Family-Level Biotic Index[5] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Money Creek, at the old U.S. Route 66 bridge - Site #2 | perennial | 39.20 | silt, gravel, sand, cobble, rock | 33 | 2.5 | grasses, trees, herbaceous vegetation | fair | 17 | 1 | spotfin shiner (18%) redfin shiner (18%) bluntnose minnow (17%) | 5 | 11 | poor |
| Kickapoo Creek at Co. Rd. 2100E bridge - Site #10 | perennial | 7.20 | silt, gravel, sand, cobble, rock | 5.7 | 1.3 | grasses | poor | 13 | 2 | johnny darter (28%) bluntnose minnow (24%) | 0 | 2 | poor |
| Little Kickapoo Creek - Site #12 | perennial | 45.18 | Silt | 39 | 2.8 | grasses, trees, herbaceous vegetation | poor | 14 | 1 | bluegill (34%) largemouth bass (17%) | 0 | 2 | poor |
| Unnamed tributary [East Branch] Kickapoo Creek - Site #13 | perennial | 16.53 | silt, sand, gravel, cobble | 8.2 | 1 | grasses | fair | 9 | 2 | bluntnose minnow (35%) cheek chub (15%) | 0 | 8 | fairly poor |
| Kickapoo Creek, at Co. Rd. 1025 N Road - Site #14 | perennial | 36.50 | silt, sand, gravel | 24 | 2.8 | trees, grasses | fair | 9 | 2 | bluntnose minnow (53%) banded darter (31%) | 5 | 8 | fair |
| Unnamed tributary Kickapoo Creek at Co. Rd 950N - Site #15 | perennial | 1.22 | silt, sand, gravel | 3.3 | 1 | trees, grasses | fair | 3 | 0 | creek chub (71%) | 0 | 3 | poor |

| Name | Flow Characteristics | Upstream Drainage Area (square mile)[1, 2] | Stream Bottom | Stream Width (feet) | Stream Depth (feet) | Stream Bank Vegetation | Aquatic Habitat Assessment[3] | Number of Fish Species Present | Number of Intolerant Fish Species | Dominant Fish Species | Number of Mussel Species Live | EPT Richness [4] | Hilsenhoff Family-Level Biotic Index[5] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unnamed tributary Kickapoo Creek at Co. Rd 2100E - Site #16 | perennial | 1.89 | silt, sand gravel | 3 | 0.7 | trees, grasses | good | 7 | 0 | johnny darter (29%) creek chub (21%) | 0 | 7 | fairly poor |
| Kickapoo Creek, at Co. Rd. 2000E bridge - Site #17 | perennial | 45.40 | silt, sand, gravel, cobble, boulder | 39 | 2.5 | trees, grasses | poor | 16 | 2 | Sand shiner (24%) bluntnose minnows (22%) blackstripe minnow (8%) | 10 | 9 | poor |
| Money Creek, at Co. Rd. E 1750 N bridge - Site #19 | perennial | 3.72 | silt, sand, gravel, clay | 17 | 2 | grasses | poor | 11 | 1 | green sunfish (36%) creek chub (14%) hornyhead chub (14%) | 3 | 1 | poor |

*[1]-USGS Stream Stats. Available at: http://streamstatsags.cr.usgs.gov. Accessed on 2-27-2014*

*[2]-Healy, R.W., 1979. River Mileages and Drainage Areas for Illinois Streams-Volume II, Illinois Drainage Basin. USGS-Water Resources Investigation Report, 79-111.*

*[3] Mean habitat score is based on a USEPA methodology that assigns a value to 12 physical parameters of streams, such as channel structure/alteration, deposition, bottom substrate/instream cover, pool variability, riparian vegetation zone width, and bank stability. The scores are determined by two observers and then averaged. Scores greater than 130 indicate excellent condition; 129.9 to 110 good condition; 109.9 to 80 fair condition; and below 80 poor condition.*

*[4] EPT Taxa Richness is the number of Ephemeroptera (mayfly), Plecoptera (stonefly), and Trichopera (caddisfly) taxa in a sample. Values range from 0 to 12, with high values indicating less organic pollution. EPT are most diverse in natural streams and decline with increasing watershed disturbance.*

*[5] Based on Hilsenhoff's (1988) family level biotic index (cutoff points are: 0.00-3.75, Excellent-Organic pollution unlikely; 3.76-4.25, Very good-Possible slight organic pollution; 4.26-5.00, Good-some organic pollution probable; 5.01-5.75, Fair-Fairly substantial pollution likely; 5.76-6.50, Fairly Poor- Substantial pollution likely; 6.51-7.25, Poor-Very substantial pollution likely; 7.26-10.00, Very Poor*

*Source: Wetzel, M.J., Taylor, S.J., Taylor, C.A., Tiemann, J.S. & Cummings, K.S. (2011) A limited assessment of aquatic resources (fishes, unionid mussels, other aquatic macro-invertebrates, and water quality) associated with stream in the IDOT Bloomington East side highway project area, McLean County, Illinois. INHS Technical Report. Appendix 2*

*[4]Wetzel, M.J., Taylor, S.J., Taylor, C.A., Tiemann, J.S. & Cummings, K.S. (2011) A limited assessment of aquatic resources (fishes, unionid mussels, other aquatic macroinvertebrates, and water quality) associated with stream in the IDOT Bloomington East side highway project area, McLean County, Illinois. INHS Technical Report. Table 1.*

*Hilsenhoff, W.L. (1998). Rapid field assessment of organic pollution with a family-level biotic index. Journal of the North American Benthological Society. Vol. 7(1) pp 65-68.*

### *Why are the characteristics of the streams in study area important?*

Streams in the study area are an important water resource. Detailed biological and chemical data were collected to identify water quality conditions and biological characteristics. This information is used to assess potential impacts of a proposed East Side Highway.

#### Money Creek

Money Creek is a perennial stream flowing into Lake Bloomington. Money Creek drains in a northwesterly direction from the study area into the southern arm of Lake Bloomington and then flows west out of the north end of the lake for 2 miles before merging into the Mackinaw River. The remaining ESH alternatives would avoid the main stem of Money Creek; however, the remaining ESH alternatives do cross tributaries to Money Creek. Land use is primarily agricultural with some pasture and wooded areas. The stream varied in width from 11 to 33 feet in the areas sampled with a stream bottom composed of sand, silt, gravel, cobble, and rock.

There were two sampling locations on Money Creek three miles apart. **Table 3.7-1** summarizes the number of fish species and dominant fish species for both locations surveyed by the INHS. The INHS collected one pollution intolerant fish species, the hornyhead chub, at Site #2 near old US Route 66. See **Figure 3.7-1** for location of Aquatic Survey Sites. At the upstream site (Site #19), One pollution intolerant fish species, the hornyhead chub, was identified at this location. There were no threatened or endangered species identified at either site.

Mostly common mussel species were collected; however, one live specimen of the state-threatened slippershell mussel was found in Money Creek at county road E 1750 (Site #19).

*Money Creek (FS508-02), looking upstream*

Identifying mussel species is important because mussel diversity is an indicator of healthy fish populations and high quality of water.

*Slippershell mussel*

**Intolerant Fish Species**

Intolerant fish are those species that are most sensitive to chemical (pollution) or physical changes (temperature, dissolved oxygen) in their environment. Intolerant fish are generally indicative of high stream quality.

Of the 198 species found in Illinois, 47 are considered intolerant species.

**Table 3.7-1** lists the Hilsenhoff Family Level Biotic Index for Money Creek. Money Creek was rated "poor" which means fairly substantial pollution likely at the old U.S. Route 66 bridge and upstream at Site #19.

**EPT Richness**

EPT Richness is the number of mayflies, stoneflies, and caddisflies species in a sample. Values range from 0 to 11, with high values representing higher water quality.

Another method for describing water quality is based upon describing the presence of pollution intolerant insects. There are three groups of pollution intolerant insects that are described and referred to as EPT Richness. When there is greater watershed disturbance, the EPT Richness will be low as sensitive species do not survive in these areas. Very few pollution intolerant insects occurred at the upstream Site #19 on Money Creek (EPT Richness of 1). The downstream sampling site (Site #2), contained a large population (EPT Richness of 11) of pollution intolerant insects indicating good water quality. See **Table 3.7-1**.

Water quality samples were collected on Money Creek during 2011. These samples met the General Use Water Quality standards for all parameters with the exception of zinc. The two sample locations were above the chronic General Use Water Quality standard for dissolved zinc of 0.053 mg/L (in June 2011); however, both samples achieved the acute zinc water quality standard of 0.297 mg/L. For metals, there are both acute and chronic water quality standards. The acute standard applies to any sample collected while the chronic standard is applied to the average of four consecutive samples collected over a period of four days. As the sample represents a single result, the acute standard is applicable to these sampling results. In subsequent samples both the chronic and acute General Water Quality Standards for zinc were achieved.

**Biological Health of a Stream**

Determined by the quality and diversity of the life it contains. Typically, diversity is determined by the quantity of native species types adjusted for their tolerance to pollution.

Also, one sample collected at the upstream station (Site #19) in October 2011 did not achieve the dissolved oxygen General Use Water Quality standard of 3.5 mg/L for the August to February period. Two other samples, collected at different time periods, met the water quality standards for dissolved oxygen, which is an important factor in maintaining aquatic life. All other General Use Water Quality standards were achieved. The Illinois Environmental Protection Agency (IEPA) has determined that Money Creek fully supports aquatic life and aesthetics at Station DKP-02, while other uses have not been assessed. Money Creek has been rated at "C" for Diversity and Integrity by the Illinois Department of Natural Resources (IDNR).

### Kickapoo Creek

Kickapoo Creek drains in a southwesterly direction from the study area into Salt Creek, which then flows into the Sangamon River. Kickapoo Creek is a perennial stream and varies from 6 to 39 feet wide at the INHS sampling sites. This stream is not crossed by the remaining ESH alternatives; however tributaries to the Kickapoo Creek are crossed.

**Perennial Streams**

Perennial streams are important because they flow year round during years of normal rainfall, which provides annual habitat for a variety of fish, mussels, and aquatic macroinvertebrates. Intermittent streams do not flow for weeks or months during the year, and seasonal streams typically only have flow during or shortly after rainfall events.

INHS completed stream surveys at three sites on Kickapoo Creek and three sites on tributaries to Kickapoo Creek. Kickapoo Creek and its tributaries flow through agricultural and residential areas. Stream bank vegetation consists of grasses and some trees. **Table 3.7-1** summarizes the number of fish species and dominant fish species per location surveyed by the INHS. Two pollution intolerant species, the striped sucker and banded darter, were present in the tributary of East Branch Kickapoo Creek at CR 2150 E (Site #13). The banded darter, although pollution intolerant, can inhabit lower-quality streams and is not necessarily indicative of high stream quality because banded darters are common in urbanized streams in Illinois (Wetzel and Phillips, 2009). The banded darter and hornyhead chub were intolerant species found in Kickapoo Creek at CR 1025N (Site #14). Dominant species at other sites were common and some are widespread. No threatened or endangered species were identified.

**Biologically Significant Stream**

A stream or river that has a high diversity of aquatic life based on its fish, mussels, aquatic macroinvertebrates, crayfish, and often the presence of threatened or endangered species. A biologically significant stream has a high percentage of its aquatic species still present compared to similar streams in the same region.

*Kickapoo Creek [at county road 2100E bridge, 6.6 mi (10.7 km) E Bloomington]*

EPT richness was highest within the project area at two sites on Kickapoo Creek (Site #14 and Site #17) and the unnamed tributary of East Branch Kickapoo Creek (Site #13). Thus, using EPT Richness as an indicator these three sites had the lowest amount of pollution within the project area. **Table 3.7-1** summarizes the Hilsenhoff Family Biotic Index scores that also measure level of organic pollution present.

In terms of Hilsenhoff Family Biotic Index, one Kickapoo Creek site was rated "fair" and two sites were rated "poor." In addition, two sites on the unnamed tributary of Kickapoo Creek were rated "fairly poor" and one, "poor" (See Table 3.7-1).

Within the project area, the highest rated aquatic habitat was on the unnamed tributary of Kickapoo Creek at CR 2100 E, Site #16, and was rated as "good." There were also three sites rated “fair”, and two sites were rated as “poor.”

**Acute General Use Water Quality Standards**

Cannot be exceeded at any time as the concentrations could cause death or other adverse effects in an aquatic organism.

**Chronic Water Quality Standards**

Protect aquatic species from the capacity of any constituent to cause injury or debilitating effects resulting from exposure during the natural life cycle of that organism. The chronic standard (CS) for the chemical constituents shall not be exceeded by the arithmetic average of at least four consecutive samples collected over any period of at least four days.

**Diversity** refers to the variety of taxa within several important aquatic groups (e.g., mussels, fish, macroinvertebrates, and crayfish).

**Integrity** refers to a system's wholeness and ability to support organisms and processes comparable to natural habitat of the region.

(INDR, 2008)

*Kickapoo Creek two-stage ditch design at The Grove*

Of the three past mussel surveys, no state-listed mussels were found. Kickapoo Creek, at Site #17, contained the highest mussel diversity of relatively common and widespread species.

Three water quality samples were collected at seven sampling locations on Kickapoo Creek and its tributaries during 2011. Chloride levels met the General Use Water Quality Standard of 500 mg/L. All other parameters achieved the General Use Water Quality Standards with the exception of zinc and dissolved oxygen. The dissolved zinc concentration achieved the acute water quality standard for zinc in all samples but exceeded the chronic General Use Water Quality Standard at four sampling sites (Site #10, #13, #14, and #15) in the June 2011 sampling round. Two subsequent sample rounds achieved the General Use Water Quality Standard. The dissolved oxygen concentration did not achieve the water quality standard of 3.5 mg/L at two locations on Kickapoo Creek (Sites #10 and #17) in October 2011; all other General Use Water Quality Standards were achieved.

Kickapoo Creek (at IEPA station EIE-03) fully supports aquatic life. The IDNR has rated Kickapoo Creek as “B” in diversity due to the type of organisms present and “C” in integrity due to the how the whole Kickapoo Creek functions. Downstream of the study area, Kickapoo Creek is listed as a biologically significant stream.

Additional water quality data have been collected by the U.S. Geological Survey (USGS) for the reaches of Kickapoo Creek close to The Grove subdivision. See **Figure 3.7-1** for location of these stations near The Grove subdivision. These stations are east of the four remaining Build Alternatives. Stream restoration activities have occurred in Kickapoo Creek and its

tributary in this area and are being studied. In collaboration with USGS, fish surveys conducted by Illinois Department of Natural Resources (INDR) during 2005 to 2010/2011 found an increase in species abundance and diversity. IDNR set up six fish sampling stations, three wetland nutrient monitoring stations, and USGS set up three stream gages. **Table 3.7-2** summarizes the aquatic surveys between 2005 to 2010/2011.

The IDNR and INHS results both identified the intolerant species of hornyhead chub as present in Kickapoo Creek. IDNR also collected the northern hog sucker, and banded darter, which are also intolerant species.

**Table 3.7-2: Summary of IDNR Fish Surveys in Kickapoo Creek at The Grove (2005-2010/2011)**

| Sample Site | Total Species | Dominant Fish Species | Percentage of Native Fish Species | Intolerant Species |
|---|---|---|---|---|
| East Branch (EIE-18) | 14-19 | Central stoneroller (22%), Striped Shiner (20%), Bluntnose minnow (19%) | 99-100% | Hornyhead chub, Northern hog sucker, Banded darter |
| East Branch (EIE-19) | 10-20 | Striped shiner (19%), Central stoneroller (18%), Creek chub (13%) | 98-100% | Hornyhead chub, Northern hog sucker |
| East Branch (EIE-20) | 6-12 | Creek chub (32%), Central stoneroller (29%), Hornyhead chub (13%) | 100% | Hornyhead chub |
| West Branch (EIEM-01) | 8-14 | Bigmouth shiner (36%), Central stoneroller (14%), Sand shiner (10%) | 99-100% | Hornyhead chub |
| West Branch (EIEM-02) | 5-10 | Creek chub (36%), Central stoneroller (33%) | 100% | Hornyhead chub |
| West Branch (EIEM-03) | 5-11 | Creek Chub (46%), Johnny Darter (13%), Bluntnose Minnow (10%) | 100% | Hornyhead chub |

*Source: Thomas, 2012; IEPA, 2002*

### Little Kickapoo Creek-North

Little Kickapoo Creek-North has a measured width of 39 feet, a depth of 2.8 feet and is considered a perennial stream within the study area.

The remaining ESH alternatives cross a tributary to Little Kickapoo Creek-North near I-74 and E 850 North Road. INHS assessed the Little Kickapoo Creek-North at U.S. Route 150 and Morrissey Drive

(Site #12) during 2011 (Wetzel et al., 2011). Substrate in Little Kickapoo Creek-North consists of silt. The stream bank (riparian) vegetation consists of grass, trees, and herbaceous vegetation with the surrounding land use of agricultural fields and residences.

The INHS collected fourteen fish species at this stream site. One intolerant fish species, the hornyhead chub, was identified. The mean Hilsenhoff Family-Level Biotic Index indicates the stream has "poor" water quality. The stream is also classified as "poor" for aquatic habitat.

Little Kickapoo Creek-North has been assessed by IEPA (2016) as fully supporting aquatic life. Other uses have not been assessed. A portion of Little Kickapoo Creek-North upstream of the proposed ESH crossings has been rated by the IDNR as "D" for diversity and "E" for integrity.

INHS collected three water quality samples at Site #12. The dissolved zinc concentration in one sample exceeded the chronic General Use Water Quality standard in June 2011. Subsequent samples did achieve both the chronic and acute General Use Water Quality standards. All chloride met the water quality standard of 500 mg/L and ranged from 120.0 mg/L to 201.0 mg/L at the three stations.

### Six Mile Creek

Six Mile Creek originates west of I-55 near Towanda and flows northwest toward Kerrick, Illinois. Six Mile Creek is approximately 11.2 miles in length with a drainage area of 18.5 square miles (Healy, 1979). INHS did not assess Six Mile Creek as part of the ESH project; however, existing data from the IEPA is presented below.

**303(d) list**

Impaired Streams are those streams that are included on the Clean Water Act Section 303 (d) list of impaired waters in Illinois. These streams do not meet water quality standards.

All four remaining ESH Alternatives cross a Six Mile Creek tributary but do not cross the main stem.

Six Mile Creek within the study area (segment ID DKN01) was part of the IEPA water quality stream assessment in 2016. IEPA indicated the designated use for this segment is non-support for aquatic life (IEPA-DRAFT, 2016) and full support for aesthetic quality. Non-support indicates that the water quality is severely impaired and not capable of supporting the designated use to any degree. In 2016, the causes of impairment are alteration in stream-side or littoral vegetative covers, other flow regime alterations, dissolved oxygen, sedimentation/siltation, and loss of instream cover. The sources of impairment are channelization, dam or impoundment, crop production (crop land or dry land), agriculture, and unknown sources. This segment is listed on the 303(d) list.

According to the IDNR, Six Mile Creek has been rated as "D" for diversity and "D" for integrity.

**Sugar Creek**

Sugar Creek originates in the western portion of the study area near General Electric Road and north of the airport. Sugar Creek is generally west of Towanda Barnes Road. Sugar Creek is approximately 58.6 miles in length with a drainage area of 498 square miles (Healy, 1979). INHS did not assess Sugar Creek as part of the ESH project; however, existing data from the IEPA is presented below.

All four remaining ESH Alternatives drain to a tributary of Sugar Creek, but do not cross the main stem.

Sugar Creek within the study area (segment ID EIDC1) was part of the IEPA water quality stream assessment in 2016. IEPA listed the designated use for this segment as not supporting for aquatic life and full support for aesthetic quality. Causes of impairment include the existence of phosphorous and the loss of instream cover. The sources of impairment are channelization and municipal point source discharges (IEPA-DRAFT, 2016). This segment is listed on the 303(d) list (IEPA-DRAFT, 2016).

According to the IDNR assessment, Sugar Creek is a classified as C for Integrity and Diversity (IDNR, 2008).

### *What other surface waters are in the study area?*

There are two lakes just outside the study area, Lake Bloomington and Evergreen Lake. Streams in the study area supply water to these lakes, which in turn provide water supply and recreational uses in the area.

## 3.7.2 Ponds

Ponds vary in origin from naturally occurring ponds to man-made ponds such as borrow pits, farm ponds, or water treatment ponds. The most common types of ponds in the study area are farm ponds. Some ponds appear to have been formed by damming small creeks. Occasional ponds appear to be associated with residential areas for aesthetic purposes.

## 3.7.3 Highly Erodible Soils

Highly erodible soils are determined by slope and soil class. These soils typically occur near streams and changes in topography. These soils can increase sedimentation in streams. Sedimentation can adversely affect water quality and the biological health of streams. The area of highly erodible soils presently occurs in the Kickapoo Creek watershed south of Ireland Grove Road as shown on the Natural Resource Environmental Inventory Map in **Appendix A**. USGS has studied the Kickapoo Creek watershed due to sedimentation concerns associated with the presence of highly erodible soils. USGS conducted a study measuring sediment yields and flow rates in tributaries of Kickapoo Creek north of Ireland Grove Road.

High erosion rates were identified in the East Branch and West Branch of Kickapoo Creek near The Grove subdivision. Measures to reduce sedimentation included green infrastructure projects at The Grove. Two miles of channelized ditch were restored to a naturalized stream channel.

## 3.7.4 Impacts Associated with Alternatives

The four remaining ESH alternatives were assessed regarding number of stream/tributary crossings, potential impacts to main branch crossings, stream bank riparian areas disturbed, and acres of highly erodible soils. Highly erodible soils are shown on the Natural Resources Environmental Inventory Map in **Appendix A**. These four criteria provided a measure of the potential magnitude of impacts. As streams are crossed, impacts occur from construction and operations. Erodible soils potentially affect stream sedimentation during construction. In addition to the temporary construction impacts, the operating and maintenance impacts of the alternatives would potentially impact water quality. The four remaining alternatives were developed to avoid the main stem of the Kickapoo Creek and thus, minimized water quality impacts. As shown in **Table 3.7-3**, the number of crossings is very similar among the remaining alternatives. This information was used in the

evaluation process to select the Preferred Alternative. **Chapter 4** describes in detail anticipated impacts for streams and ponds associated with the Preferred Alternative.

**Table 3.7-3 Summary of Stream Impacts for Each Build Alternative**

| Criterion / Alternatives | 124 | 125 | 126 | 127 |
|---|---|---|---|---|
| Number of stream and tributary crossings | 35 | 36 | 34 | 36 |
| Number of main stream crossings | 0 | 0 | 0 | 0 |
| Stream bank (Riparian Areas) (acres affected) | 14.4 | 15.2 | 10.3 | 10.6 |
| Highly Erodible Soils (acres affected) | 25.8 | 27.6 | 27.2 | 29.1 |

The highly erodible soils varied slightly among the alternatives; however, the riparian or stream bank vegetation areas had fewer acres impacted for Alternatives 126 and 127. These soils appear prevalent on the north and south ends of the study corridor.

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to water resources resulting from other unrelated planned and programmed projects associated with this alternative.

## 3.8 Groundwater Resources

### *What are the groundwater resources in the study area?*

The Illinois State Geological Survey (ISGS) has mapped and classified the shallow and deep groundwater aquifers in Illinois, dividing them into numbered zones based upon their recharge potential. Zone 1 indicates the highest potential for groundwater recharge and Zone 7 indicates the lowest potential (Keefer and Berg, 1990).

The study area is located in three different zones for groundwater recharge potential. The majority of the study area is located in Zones 1 and 7 except near the northern project limits (near I-55), which is in Zone 5.

The Illinois Pollution Control Board (IPCB) has established certain areas as regulated recharge areas; however, the study area is not within a regulated recharge area (IPCB, 2001).

**Groundwater Recharge**

Groundwater recharge is water that has infiltrated into the ground and moved downward through soil and rock and into the water table. Groundwater recharge maintains the supply of fresh water for wells, streams, springs, and wetlands.

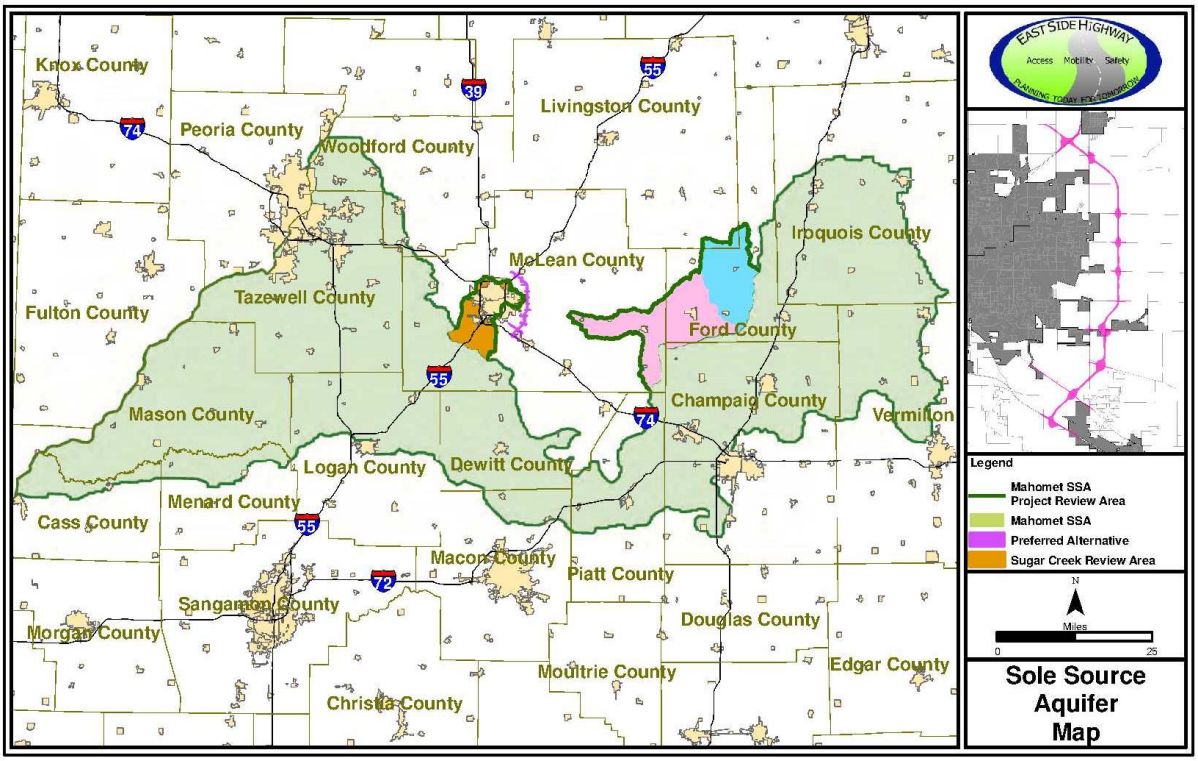
**Sole Source Aquifer**

The U.S. Environmental Protection Agency (US EPA) defines a sole source aquifer as an underground water source that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas have no alternative drinking water source(s) that could physically, legally, and economically supply all those who depend upon the aquifer for drinking water.

On March 11, 2015 the U.S. Environmental Protection Agency (USEPA) designated the Mahomet Aquifer system as a sole source aquifer (SSA) under Section 1424(e) of the Safe Drinking Water Act. The Mahomet Aquifer is located in parts of 15 Illinois counties, including parts of McLean County and areas that drain into the aquifer, as shown in Figure 3.8-1. The Safe Drinking Water Act gives USEPA authority to designate all or part of an aquifer as a "sole source" if contamination of the aquifer would create a significant hazard to public health and there are no physically available or economically feasible alternative sources of drinking water to serve the population that relies on the aquifer. The designation authorizes USEPA review of projects that receive Federal financial assistance to assess potential for contamination of the aquifer system that would create a significant hazard to public health.

The only portion of the study area that lies within the Mahomet SSA Review Area is the proposed bike path along GE Road.

**Figure 3.8-1 Mahomet Sole Source Aquifer Project Review Area**




**Karst Formation**

A terrain with distinctive landforms and hydrology created from the dissolution of soluble rocks, principally limestone and dolomite. Karst terrain is characterized by springs, caves, sinkholes, and a unique hydrogeology that results in aquifers that are highly productive but extremely vulnerable to contamination.

In addition, there are no Karst formations within the study area (IGSS, 2012).

Groundwater flow is assumed to follow the local topography as follows:

- In the northern portion of the study area, groundwater flows north/northwest towards Six Mile Creek or Money Creek.
- In the west-central portion, groundwater flows west towards Sugar Creek.
- In the southern portion, groundwater flows south toward Kickapoo Creek, Little Kickapoo Creek, and their tributaries.

### *How is drinking water provided in the study area?*

A mixture of groundwater and surface water is used to provide drinking water to the residents of the study area. The main drinking water supply for the City of Bloomington is provided by Lake Bloomington and Evergreen Lake. The collective water supply system has the capacity to supply up to 36 million gallons of potable water a day. This capacity is enough to serve the needs of the entire population of the City of Bloomington. In addition, other local entities also purchase water from the City of Bloomington. These entities include the Village of Hudson, the Village of Towanda, Bloomington Township (TWP) Public Water District West Phase, Meadows of Bloomington Mobile Home Park (MHP), Hilltop MHP, and Bloomington TWP Public Water District Crestwicke.

The Town of Normal obtains its water supply from 15 groundwater wells, six of which are outside the corporate limits. The wells have a combined capacity of 9.5 million gallons per day. Additionally, the Village of Downs and unincorporated areas of McLean County are supplied water from eight public water wells within the study area.

**Types of Public Wells**

There are two different types of public wells - community wells and non-community wells. Community wells serve residents year round. Non-community wells serve 25 or more people for at least 60 days per year (e.g., restaurants, campgrounds, schools).

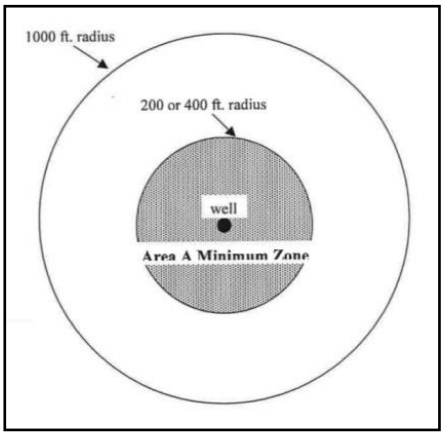
ISGS maintains a database of private well records. This database was searched to locate private wells and to help characterize groundwater in the study area. Private wells provide potable water for residences located outside the Bloomington and Normal corporate limits. Well records indicate that water in the study area is obtained from sand and gravel at depths ranging from 55 to 320 feet below the surface. Also, a single well was identified in bedrock at a depth of 290 feet (ISGS, 2012). In total, 101 were identified by ISGS within 200 feet of the project limits.

### *How will public water supplies be affected by the Alternatives?*

No impacts to public water supplies are anticipated. The public water supply for the City of Bloomington is provided by Lake Bloomington and Evergreen Lake (as a backup source) and would not be affected. Lake Bloomington and Evergreen Lake are fed by Money Creek, Six Mile Creek, and numerous tributaries located in the study area. As mentioned above, the Village of Downs and unincorporated areas of McLean County are supplied water from eight public water wells within 1,000 feet of the project right-of-way (ROW). The quantity and quality of surficial public water supplies would not be affected by any of the remaining ESH alternatives.

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to groundwater resources resulting from other unrelated planned and programmed projects associated with this alternative.

### *How will private water supplies be affected by the Alternatives?*




Private water supplies could be affected if the ESH were to create new potential routes for groundwater pollution or any new potential sources of groundwater pollution as defined in the Illinois Environmental Protection Act (*415 Illinois Compiled Statutes Section [ILCS] 5/3, et seq.*). Wells that can potentially be affected by a new roadway would be those within 200 feet of the roadway and are shallow, improperly cased, or hydraulically connected to highway runoff.

Private wells were identified within the ROW of the remaining Build Alternatives and within the setback zone to assess potential impacts. Wells that can potentially be affected by a new roadway have the possibility of increased chlorides in the groundwater. Additionally, where shallow groundwater aquifers exist, the direction and supply of groundwater must be maintained. These wells would be properly abandoned in accordance with Illinois Department of Health codes.

**Setback Zone**

A setback zone is a geographic area containing a public or private well with restrictions on land uses within that zone to protect water supply—400 feet for public water supplies and 200 feet for private wells.

**Table 3.8-1** shows the number of wells that may be affected for the remaining alternatives. Only two private wells are located within the proposed ROW for the four alternatives. The number of private wells within 200 feet or in the proposed ROW varies from nine to 11.

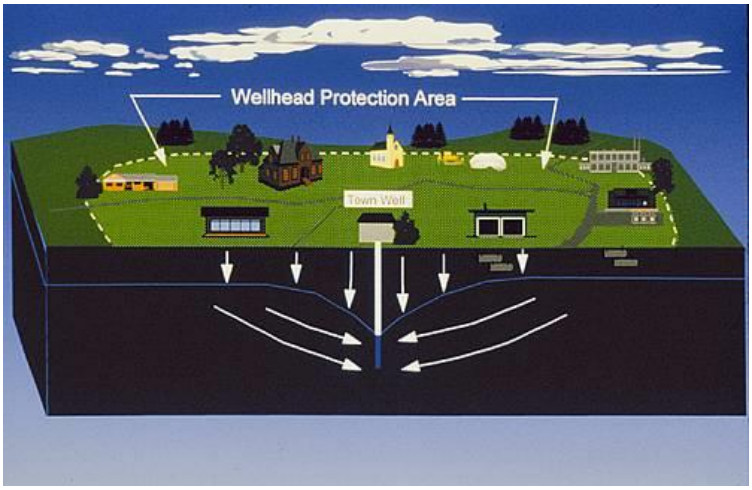
**Figure 3.8-1. Private Wells within the ESH Alternatives**

| Alternative | Number of Private Wells within Proposed ROW | Number of Private Wells within 200 feet | Total Wells within Proposed ROW or within 200 feet |
|---|---|---|---|
| **124** | 2 | 9 | 11 |
| **125** | 2 | 7 | 9 |
| **126** | 2 | 9 | 11 |
| **127** | 2 | 7 | 9 |

*Source: ISGS, 2012 and IEPA, 2014*

### *How will wellhead protection areas be affected by the Alternatives?*

Wellhead protection areas represent surface and subsurface areas surrounding a community water supply (CWS) well through which contaminates have the potential to move toward the well system. The ISGS reported eight wellhead protection areas crossed by the remaining alternatives (ISGS, 2012). In addition, non-community water supply (non-CWS) wells were also identified in the study area (IEPA, 2014). The Environmental Inventory Map in **Appendix A** illustrates the location of the wellhead protection areas.




*Source: US EPA, 2014*

**Table 3.8.2** summarizes the total number of wellhead protection areas crossed by the remaining alternatives. Three wellhead protection areas identified by ISGS are crossed by all four of the remaining alternatives. These areas are located near IL Route 9 and Towanda Barnes Road, near Fort Jesse Road and Towanda Barnes Road, and near Raab Road west of Towanda Barnes Road.

In addition, two non-CWS wellhead protection areas are crossed by all four remaining alternatives and are located near Fort Jesse Road and Towanda Barnes Road and near Raab Road west of Towanda Barnes Road. In addition, Alternatives 124 and 126 cross a non-CWS wellhead protection area near CR 1300 N and Towanda Barnes Road.

**Figure 3.8-2. Wellhead Protection Areas in the ESH Study Area**

| Alternative | Number of Non-CWS Phase 1 Wellhead Protection Areas | Number of Wellhead Protection Areas[1] | Total Number of Wellhead Protection Areas |
|---|---|---|---|
| **124** | 3 | 3 | 6 |
| **125** | 2 | 3 | 5 |
| **126** | 3 | 3 | 6 |
| **127** | 2 | 3 | 5 |

*Source: ISGS, 2012, 2013, 2014 and IEPA, 2014*

*[1] From 2012, 2013, and 2014 PESA Reports*

## 3.9 Floodplains

*Floodplains are flat areas along streams and watercourses that hold excess water after a storm. Executive Order 11988 states that impacts to floodplains should be avoided to the extent possible.*

### *What is a floodplain?*

Floodplains are low-lying areas that frequently flood after large storms. The Federal Emergency Management Agency (FEMA), in cooperation with local and state jurisdictions, maps regulatory floodplain areas. Regulatory (100-year) floodplains are regulated by Executive Order 11988. Although areas located outside of the regulatory floodplain may also flood, this study includes only the regulatory floodplains mapped on the FEMA Flood Insurance Rate Maps (FIRM).

**Floodplain**

Low-lying areas that often flood after storm events. The regulatory (100-year) floodplain is subject to floodplain laws, regulations, and ordinances. Only the regulatory floodplain is evaluated in this section.

Floodplains consist of the floodway and the flood fringe. The floodway is the channel of a river, stream, or other watercourse and the adjacent area that is required to discharge flood water without increasing the water surface elevation more than a designated height. The flood fringe is the area outside the floodway that is subject to inundation by regular flooding.

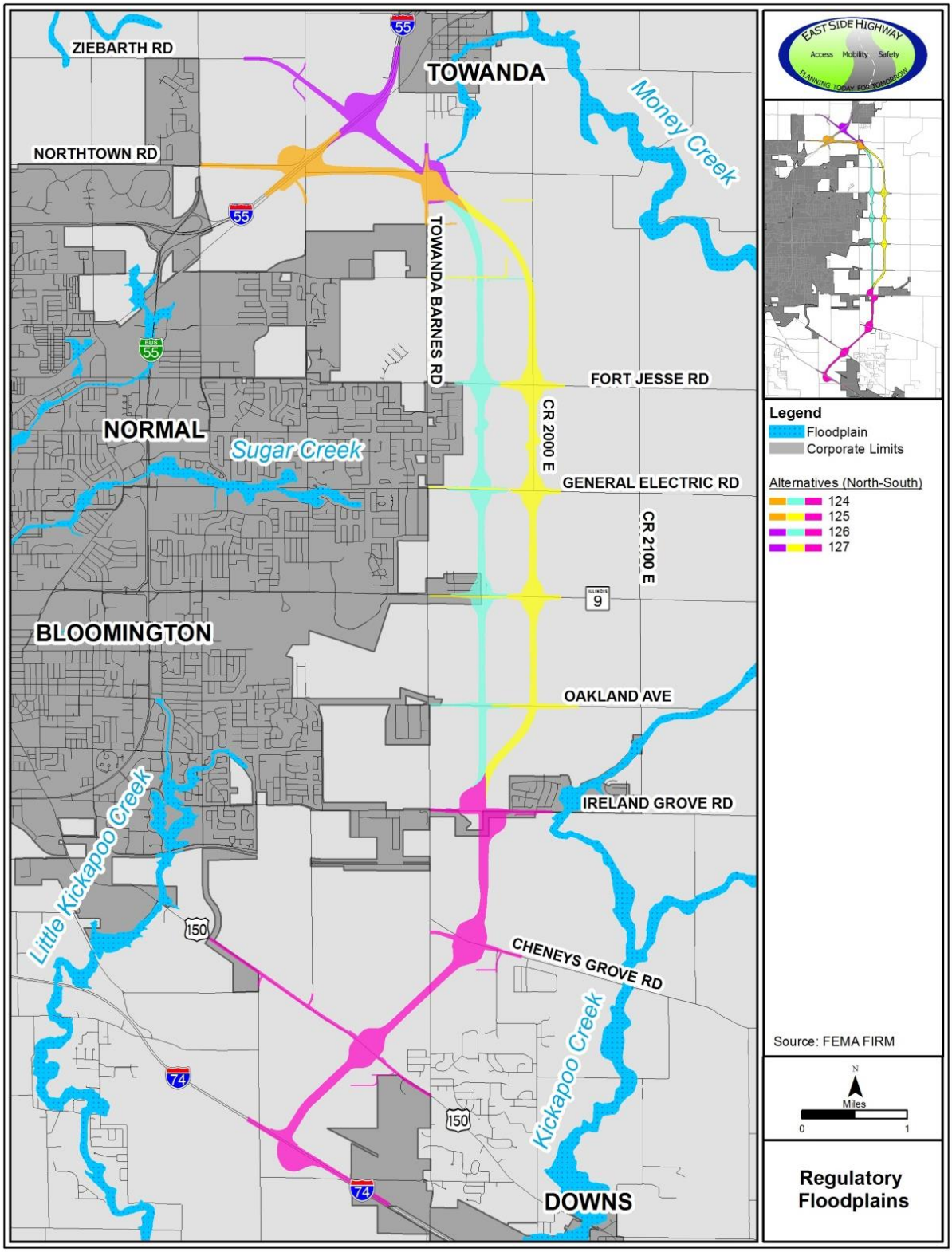
### *Where are the floodplains in the study area?*

There are four floodplains adjacent to streams in the study area. The remaining East Side Highway (ESH) alternatives avoid three of the floodplains. The floodplains within the study area are identified in **Table 3.9-1** and displayed in **Figure 3.9-1**.

**Table 3.9-1: Regulatory Floodplains in the Study Area**

| Water Resource Associated with Floodplain | Floodplain Impacted by A Build Alternative? | Cover Type |
|---|---|---|
| Money Creek | Yes | Agricultural |
| Sugar Creek | No | Urban |
| Kickapoo Creek | No | Agricultural and Forested |
| Little Kickapoo Creek | No | Agricultural, Forested, and Urban |

**Figure 3.9-1: Regulatory Floodplains in the Study Area**



### *How were floodplain impacts evaluated?*

The acres of floodplain crossed by each build alternative were calculated by overlaying the alternatives on the floodplain map.

Floodplain impacts are further assessed by the type of encroachment (transverse or longitudinal; see example), floodplain characteristics (floodway or flood fringe), and effects on natural and beneficial floodplain values.

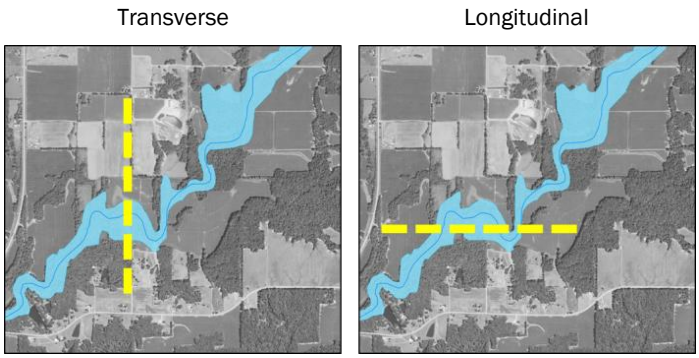
**Encroachment**

Any action within the floodplain.

**Natural and Beneficial Floodplain Values**

Flood reduction, water quality maintenance, groundwater recharge, fish and wildlife habitat, and agricultural production.

**Floodplain Encroachment Type**




*A transverse encroachment travels across the direction of flow. They are difficult to avoid, and usually result in a lower impact. A longitudinal encroachment travels along direction of flow. They may result in a greater impact to floodwater transport and storage.*

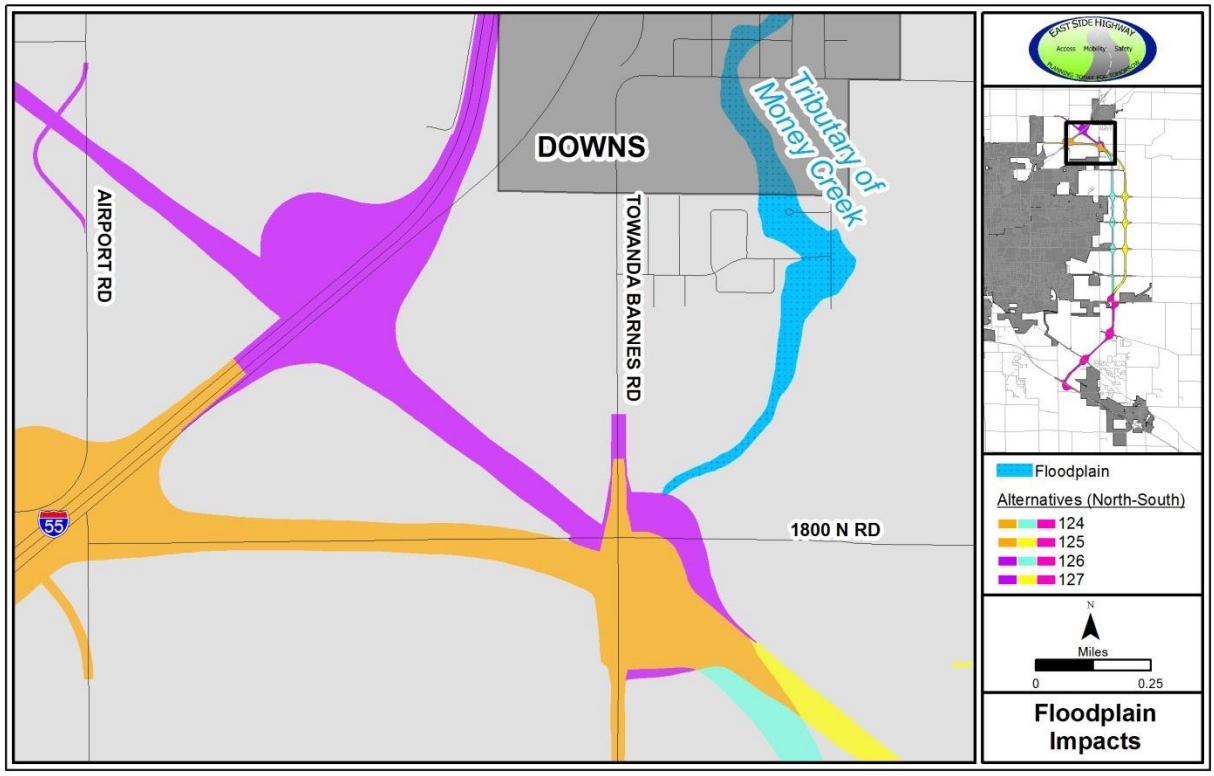
### *What are the floodplain impacts for the remaining alternatives?*

Alternatives 125 and 126 would not impact floodplains. Alternatives 126 and 127 would result in minor impacts to the flood fringe associated with a tributary of Money Creek within the proposed ESH interchange with Towanda Barnes Road south of Towanda. The floodplain is agricultural land at this location. The transverse floodplain encroachment resulting from Alternatives 126 and 127 is not considered significant as it will not increase the risk of flood damage or result in flood-related interruption of emergency services or routes, will not result in significant adverse impacts to the natural and beneficial floodplain values, and will not result in incompatible floodplain development. The floodplain impacts are summarized in **Table 3.9-2** and displayed in **Figure 3.9-2**.

**Table 3.9-1: Floodplain Impact Summary**

| Criteria | 124 | 125 | 126 | 127 |
|---|---|---|---|---|
| Acres of Floodplains Crossed | 0 | 0 | 0.008 | 0.008 |
| Longitudinal or Transverse Encroachment? | -- | -- | Transverse | Transverse |
| Floodway or flood fringe? | -- | -- | Flood fringe | Flood fringe |
| Significant Encroachment? | -- | -- | No | No |

**Figure 3.9-2: Floodplain Impacts**




Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to floodplains resulting from other unrelated planned and programmed projects associated with this alternative.

### *How were impacts to the floodplains avoided and minimized?*

The majority of floodplains in the study area were completely avoided. Alternatives 126 and 127 impact less than 0.01 acre of floodplain. The interchange at this location was designed to minimize impacts to the floodplain.

### *How were impacts to the floodplains avoided and minimized?*

**Compensatory Storage**

Compensatory storage is a method of mitigating impacts to the floodplain. When the floodplain is filled by the construction of a road, another area nearby must be excavated in order to offset the loss of flood storage capacity. This excavated volume is the compensatory storage.

IDOT policy is to restore and preserve the natural and beneficial floodplain values that are adversely impacted by the construction or roadways. This is accomplished through mitigation. Where fill within floodplains is unavoidable, mitigation such as compensatory storage will be provided to offset the impact to the floodplain. Mitigation for fill in the floodplain will be based upon IL Administrative Code Title 17 Part 3700, 8/20/10.

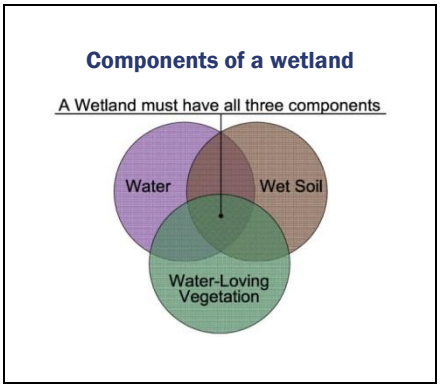
## 3.10 Wetlands

*Wetlands are transitional areas between aquatic and terrestrial habitats where water is located at or near the soil surface during the growing season. They provide diverse and sometimes specialized habitats for aquatic and terrestrial wildlife and plants.*

*Information in this section is provided by the 2012 Illinois Natural History Survey (INHS) wetland report.*

### *Why are wetlands important and what functions do they provide?*

Wetlands are important because they provide critical ecosystem services such as water filtering, flood control, protection of shorelines and stream banks from erosion, recreational and economic benefits, and provide vital habitat for many plants and animals.




Wetlands are protected by both federal and state laws. Wetlands that cannot be avoided must be replaced, which can increase overall project costs and potentially result in more land acquisition.

### *How are wetlands regulated?*

Wetlands are regulated under a number of federal and state laws and policies. Executive Order 11990 requires a finding in the Finding of No Significant Impact (FONSI) that there is no practicable alternative to construction in wetlands and that the Preferred Alternative includes all practicable measures to minimize harm to wetlands that may result from the project.

Wetlands within the study area are regulated by the Rock Island District of the U.S. Army Corps of Engineers (USACE) and the Illinois Environmental Protection Agency (EPA) under the Clean Water Act. The USACE and the Illinois EPA regulate wetlands by requiring permits to be obtained prior to the start of project construction if wetlands are present.

Wetlands are also regulated by the Illinois Department of Natural Resources (IDNR) through the Interagency Wetland Policy Act of 1989 (IWPA), which also requires avoidance, minimization, and mitigation of wetland impacts. These regulations also include mandatory mitigation (replacement) ratios of up to 5.5 to 1 for replacing impacted wetlands.

### *How were wetlands identified?*

INHS botanists and soil scientists conducted a review of county soil survey maps, aerial photography and U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps to determine the locations of potential wetland sites. The INHS team then surveyed each of these sites to determine the presence of plant species, the soil type, and the presence of water at or near the surface to determine where wetlands were present. Maps of the wetland area were then created.

*Emergent Wetland*

### *What types of wetlands are located within the study area?*

A total of 15 wetlands sites totaling approximately 27.45 acres were identified within the 12.5 mile long study area. Three basic types of wetlands were identified within the study area: pond, forest, and emergent. The majority of the wetlands in the study area were emergent wetlands (86 percent). **Figure 3.10-1** shows the wetland types present and **Table 3.10-1** has further information on the characteristics of those wetlands. Most of these wetland sites are associated with streams, rivers, and ponds. The wetlands identified in the study area can be seen on the Environmental Inventory Map located in **Appendix A**.

**Figure 3.10-1: Wetland Plant Communities by Percent (Based upon Number of Wetlands)**

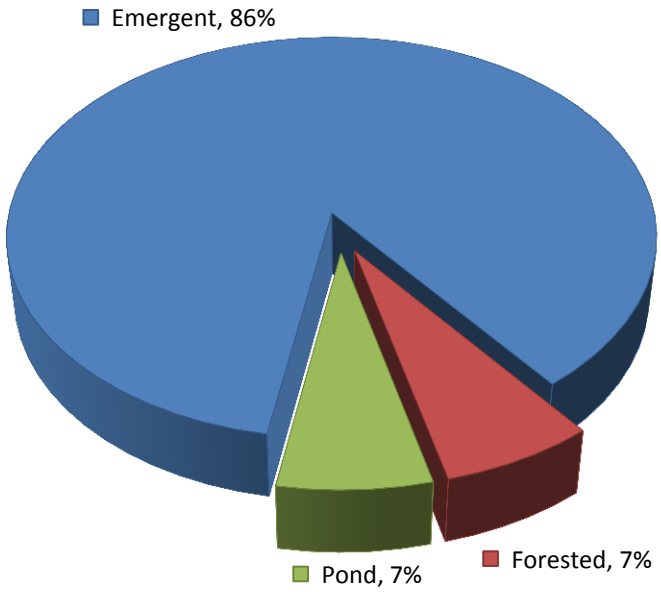



**Table 3.10-1: Description of Wetland Types**

| Wetland Type | Description |
|---|---|
| Pond | Man-made features usually formed by excavation or the construction of a dam on an upland drainage area. The wetland includes the fringe of vegetation around the margin of the pond inward to a water depth of 6.6 feet. Ponds that do not meet these requirements are not considered wetlands. |
| Forested | Areas dominated by woody vegetation that is 20 feet or taller. Typically dominated by silver maple, green ash, or pin oak. |
| Emergent | Areas dominated by grasses, sedges, rushes and other perennial or annual herbaceous plants where hydric soils are present and water is at or near the soil surface. |

*Source: Cowardin et al., 1979; U.S. Army Corps of Engineers, 2010*

### *Why count total number of wetlands and total acres of wetlands?*

The total amount of wetlands and the total area of wetlands are counted to allow comparison of the impacts that may occur from each different alternative. In this manner, it can be determined which alternatives would impact fewer wetlands than others. By assigning numbers to each wetland, it can be determined what types of wetlands would be impacted by each alternative.

### *What is the quality of the corridor wetlands?*

#### Floristic Quality

Vegetation in wetlands is an important indicator of wetland quality or level of disturbance. Vegetation quality is measured by the Floristic Quality Index (FQI) (Taft et al., 1997). The FQI value is obtained from a mathematical formula based on the plant inventory conducted for each site. Areas with FQI values of:

**Floristic Quality Assessment**

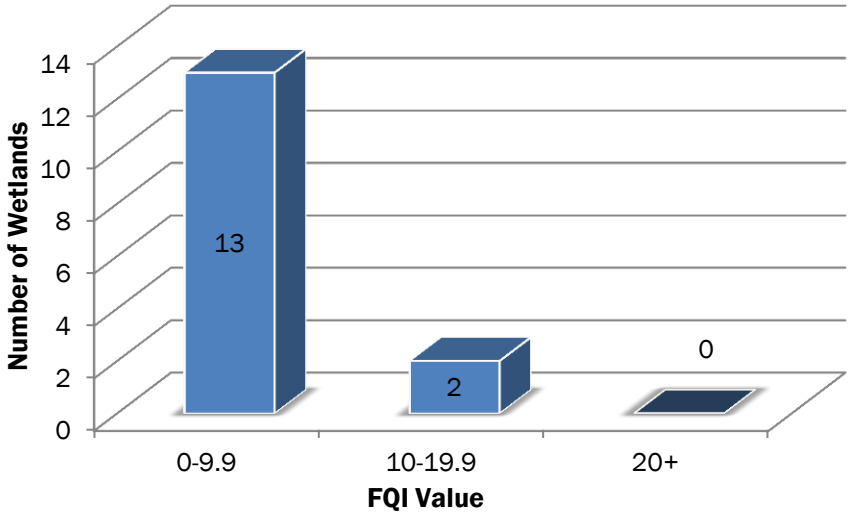
The higher the FQI number, the higher the quality of wetland.

Within the ESH study area, the highest FQI value is 11.1 (Site 31) near Towanda.

- 0–9.9 are considered to be poor quality (highly disturbed),
- 10-19.9 are considered to be moderate quality (moderate disturbance), and
- 20+ are considered to be higher quality (minimal disturbance).

The majority of wetlands within the study area are poor quality as shown in **Figure 3.10-2**. None of the wetlands identified are considered to have high floristic quality.

**Figure 3.10-2: Distribution of Floristic Quality Index of Wetlands**



### *Would wetlands be impacted by the proposed alternatives?*

All of the build alternatives would impact wetlands in the study area. Of the 15 wetlands identified within the study area, the total numbers of wetlands impacted range from 1 to 3 for the different alternatives. The total acres of wetlands impacted range from 0.0003 acres to 7.73 acres. **Table 3.10-2** depicts the number and area of wetland impacts for each alternative.

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to wetlands resulting from other unrelated planned and programmed projects associated with this alternative.

**Table 3.10-2: Wetland Impacts by Alternative**

| Alternative | Number of Wetlands Impacted | Impacts to Forested Wetlands (Acres) | Impacts to Emergent Wetlands (Acres) | Total Area of Wetland Impact (Acres) |
|---|---|---|---|---|
| 124 | 3 | 6.56 | 1.17 | 7.73 |
| 125 | 2 | 6.56 | 0.46 | 7.02 |
| 126 | 2 | 0.0003 | 0.71 | 0.71 |
| 127 | 1 | 0.0003 | 0 | 0.0003 |

*Source: Beas et al., 2012*

## 3.11 Special Waste

*Special waste sites have the potential to contaminate soil and groundwater and include both hazardous and non-hazardous waste sites. There are both federal and state regulations for investigating and cleaning up such sites. Roadway alternatives consider and avoid to the maximum extent possible contaminated and potentially contaminated soil and groundwater.*

### *How were special waste sites identified?*

Screenings for special waste sites were conducted by the Illinois State Geological Survey (ISGS) and reported in three Preliminary Environmental Site Assessments (PESA) reports completed on April 20, 2011; November 02, 2012; August 30, 2013; and November 24, 2014 (the November 24, 2014 PESA covers the Preferred Alternative and is covered in Section 4.3.11). These PESAs identified sites with potential Recognized Environmental Conditions (RECs). Sites may have more than one REC depending on the activities present, and RECs may be found on both hazardous and non-hazardous waste sites.

**Recognized Environmental Condition (REC)**

Defined by ASTM E 1527-05 as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property."

### *What are hazardous waste sites?*

Hazardous waste sites are sites having potential, suspected, and known hazardous waste or hazardous substances present. Federal and state regulations define hazardous wastes as ignitable, corrosive, reactive, or toxic wastes. These sites are subject to both US EPA and Illinois Environmental Protection Agency (IEPA) regulation. Sites that generate or handle hazardous waste are regulated under Resource Conservation and Recovery Act (RCRA). Sites that have had historical releases are listed in the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS), also known as the Federal Superfund Program. The CERCLIS database includes all sites nominated for investigation under the Superfund Program.

Archived CERCLIS sites represent sites that were enrolled in the Federal Superfund Program but are not currently active. If additional environmental work at these sites is required, the archived designation is removed and they are returned to the program.

### *What are non-hazardous waste sites?*

Non-hazardous waste sites are sites with RECs not directly related to hazardous waste that still have the potential to impact the environment. These would include sites with above-ground storage tanks (ASTs), underground storage tanks (USTs), leaking underground storage tanks (LUSTs), chemical spills, non-hazardous waste generation, or other conditions that could potentially impact the environment. These sites are typically regulated by the IEPA.

### *What types of REC sites are in the study area?*

The ISGS investigated the environmental conditions at 341 sites in the study area. Of these 341 sites, 161 sites had RECs, with the remainder having no RECs or *de minimis* conditions. *De minimis* includes use of lead-based paint or asbestos-coating material on buildings or transformers or the agricultural application of herbicides or pesticides.

**Bureau of Land**

The Bureau of Land (BOL) is a division of IEPA that administers a database that includes all special waste facilities in the State of Illinois. The BOL administers a broad variety of solid and hazardous waste management and cleanup programs.

An individual property may have several RECs. For example, a site may have ASTs and be a hazardous waste generator, which would be considered two separate RECs. REC sites were primarily located west of Towanda-Barnes Road in urbanized areas, at the southern end of the study area near the intersection of Towanda Barnes Road and US 150, and at the north end of the study area near Towanda Barnes Road and I-55. Please see the Environmental Inventory Map in **Appendix A** for more details.

The types of RECs identified in the study area include:

- 2 CERCLIS archived sites
- 26 ASTs
- 48 former, current, or potential USTs
- 37 LUSTs
- 38 RCRA sites
- 90 IEPA Bureau of Land (BOL) sites
- 16 Illinois Emergency Management Agency (IEMA) sites

Other RECs identified in the study area that are not collected in a database listing include drums, spill sites, dump sites, railroad boxes, lead paint waste, or other sources of potential contamination.

Of particular note, two archived CERCLIS sites are present in the study area:

- McDonald Supply (Site 2316-048): This site, under the record name of Modine MFG Company, appears on the US EPA site as an archived CERCLIS site. The US EPA and IEPA investigations reported violations of waste designation, waste handling, and manifesting violations. Hazards associated with this site include ignitable and corrosive wastes, diesel fuel, and battery acids.
- Truck Driver Institute (Site 2316-023): This site, under the record name of General Electric Co., appears as an archived CERCLIS site and has historic releases to the environment and has reported violations of waste handling and storage, reporting, and employee training.

None of the remaining Build Alternatives analyzed would affect either of the above listed sites.

### *How will the Alternatives affect REC sites?*

The Environmental Inventory Map (included in **Appendix A**) depicts the sites that contain RECs and are potentially affected by the four remaining Build Alternatives. The two archived CERCLIS sites would be avoided by all four remaining Build Alternatives. **Table 3.11-1** lists the number of RECs crossed by each alternative.

**Table 3.11-1: Sites containing RECs by Build Alternative**

| Type of Site | Alternative 124 | Alternative 125 | Alternative 126 | Alternative 127 |
|---|---|---|---|---|
| Recognized Environmental Conditions (RECs) | 18 | 15 | 19 | 16 |

Alternatives 124 and 126 are western alternatives closer to Bloomington-Normal. As a result, these alternatives have slightly greater special waste impacts than Alternatives 125 and 127, which are located in less developed land to the east.

Alternatives 124 and 126 impact sites that have ASTs, USTs, LUSTs, and other potential environmental hazards. Alternatives 124 and 126 impact the same sites with one exception: Alternative 126 also impacts right-of-way along the Union Pacific Railroad tracks near the proposed interchange with I-55 that includes railroad signal boxes that may contain metals or acids.

Alternatives 125 and 127 impact sites that have ASTs, USTs, and other potential environmental hazards. Both Alternatives 125 and 127 impact the same sites with one exception: Alternative 127 also impacts right-of-way along the Union Pacific Railroad tracks near the proposed interchange with I-55 that includes railroad signal boxes that may contain metals or acids.

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to special waste sites resulting from other unrelated planned and programmed projects associated with this alternative.

## 3.12 Visual Resources

*The construction of the ESH will change existing views. Potential visual impacts from the ESH are identified through the visual impact assessment process. The different types of viewers in the study area and how their views would change are determined.*

### *What types of views exist in the study area?*

The study area has two predominant types of views: rural landscapes and communities. The communities of Bloomington and Normal are west of the remaining ESH alternatives. The land east of the remaining ESH alternatives is predominantly cropland, with the Village of Downs near I-74 at the southern project terminus and the Village of Towanda near I-55 at the north terminus.


*Cropland typical of the study area*

### *What are the different types of viewers that may be affected by the ESH?*

Viewers can be categorized into the following groups based on their relationship to the study area:

1. Rural residents living on farms or in unincorporated rural areas adjacent to or near the ESH. See the Environmental Inventory Map's aerial photography in **Appendix A** for rural residence locations.
2. Urban residents who live in subdivisions or communities at the edges of developed areas adjacent to or near the ESH. See the Environmental Inventory Map's aerial photography in **Appendix A** for urbanized residential locations.
3. Other residents who live outside the viewshed of the ESH but may view it in regular travel through the region.
4. Non-residents who visit the area for a limited time on an irregular basis.

*Residential development in the study area*

All users are sensitive to changes in the visual environment. Potential sensitivity to changing views is generally proportionate to the amount of "ownership" a group has for an area. "Ownership" refers to a combination of emotional investment in the scenic quality and/or financial investment in the land. Rural residents and those living in subdivisions adjacent to the ESH will most likely be the most sensitive to changes in the visual environment whereas non-residents visiting the area occasionally will be the least sensitive to changes.

### *Are there unique visual resources in the study area?*

*Duncan Manor*
*National Register Property*

Duncan Manor, a National Register historical site, is located within the study area and in the proximity of the proposed alternatives. See the Environmental Inventory Map in **Appendix A**; Duncan Manor is located on Towanda-Barnes Road, immediately north of Northtown Road. The site is located 240 feet from Alternatives 126 and 127 and over 1,500 feet from Alternatives 124 and 125. All alternatives would be visible from Duncan Manor and Duncan Manor would be visible from all of the alternatives. However, Duncan Manor has an existing view of I-55 and can be seen from I-55, so the ESH would not significantly alter the visual character of the area.

### *What will be the views from the ESH?*

Visual impacts are subjective and determined by the preferences of viewers. If the ESH were constructed today, views from the ESH would predominantly be of rural landscapes. The 2035 future land use plan for McLean County and its communities (see **Section 3.1.3**) shows planned future urban development in the vicinity of the ESH. The current trend of eastern urban development is planned to continue, moving closer to the ESH. The views from the ESH will change as urbanization continues to increase over time, primarily from south of Ireland Grove Road to Northtown Road.

### *What will be the views of the ESH?*

With the remaining build alternatives, the ESH will be visible to the surrounding area, especially in areas where interchanges will require elevated structures. Elevated structures are anticipated at the interchanges with I-74, U.S. 150, Cheneys Grove Road, Ireland Grove Road, Empire Street (IL Route 9), General Electric Road, Fort Jesse Road, Towanda Barnes Road (north of Fort Jesse Road), and I-55. In addition to interchange areas, structures carrying the ESH or a local road are anticipated at Towanda Barnes Road (south of Cheneys Grove Road), Norfolk Southern Railway tracks (north of Cheneys Grove Road), and Oakland Avenue.

Residents in rural areas within sight of the remaining ESH alternatives will have changed views, as a roadway will be introduced where one did not previously exist.

Because the No Build Alternative would not include the ESH and related roadway improvements, it is assumed that there would be no impacts to visual resources resulting from other unrelated planned and programmed projects associated with this alternative.

## 3.13 Summary and Selection of the Preferred Alternative

*In selecting the Preferred Alternative for implementation, all of the social, economic, environmental, and engineering factors involved must be carefully weighed.*

Four ESH alternatives were carried forward as reasonable alternatives into the Environmental Assessment Analysis. The engineered right-of-way width, interchange designs, access roads, and bicycle facilities included as part of the ESH were used to assess potential resource impacts.

**Table 3.13-1** summarizes the impacts associated with the four remaining alternatives.

## Table 3.13-1: Environmental Assessment Analysis Summary

| Criterion | Unit of Measure | ESH Alternative | | | |
|---|---|---|---|---|---|
| | | 124 | 125 | 126 | 127 |
| **Environmental** | | | | | |
| Water Quality/ Water Resources | Floodplain (acres affected) | 0 | 0 | 0.008 | 0.008 |
| | Floodway (acres affected) | 0 | 0 | 0 | 0 |
| | Biologically Significant Streams (number of crossings) | 0 | 0 | 0 | 0 |
| | Streams (number of main branch crossings) | 0 | 0 | 0 | 0 |
| | Streams (number of tributary crossings) | 35 | 36 | 34 | 36 |
| | Drinking Water Supplies - Private Wells within ROW (number affected) | 2 | 2 | 2 | 2 |
| | Drinking Water Supplies - Private Wells within 200 ft. setback zone (number affected) | 9 | 7 | 9 | 7 |
| | Wellhead Protection Areas (number affected) | 6 | 5 | 6 | 5 |
| Wetlands | **Wetland Areas (number affected)** | **3** | **2** | **2** | **1** |
| | **Wetland Areas (acres affected)** | **7.73** | **7.02** | **0.71** | **0.0003** |
| | High-Quality Wetland Areas (number affected) | 0 | 0 | 0 | 0 |
| | High-Quality Wetland Areas (acres affected) | 0 | 0 | 0 | 0 |
| Special Waste | **Recognized Environmental Conditions (RECs) (number affected)** | **18** | **15** | **19** | **16** |
| T&E Species | State and Federal Threatened and Endangered Species (number affected) | 0 | 0 | 0 | 0 |
| Cover Type | Agricultural Land | **820** | **864** | **857** | **888** |
| | Urban/Built Up (Developed Land) | 186 | 187 | 193 | 191 |
| | Forest | 0 | 0 | 0 | 0 |
| | Prairie | 3.35 | 3.35 | 3.8 | 3.8 |
| | Riparian | 6.4 | 7.0 | 8.9 | 9.1 |
| | Wetlands | **7.73** | **7.02** | **0.71** | **0.0003** |
| | Ponds (open water) | 0.50 | 0.50 | 0.50 | 0.50 |

**Table 3.13-2: Environmental Assessment Analysis Summary (continued)**

| Criterion | Unit of Measure | ESH Alternative | | | |
|---|---|---|---|---|---|
| | | 124 | 125 | 126 | 127 |
| **Community and Economic** | | | | | |
| Residences | **Homes, including homes on a farmstead (number displaced)** | **21** | **13** | **21** | **13** |
| Environmental Justice | Minority and/or Low-Income Population Impacted? (Y/N) | N | N | N | N |
| Business | **Businesses (number displaced)** | **7** | **0** | **7** | **0** |
| | Parking (number of spaces lost) | 0 | 0 | 0 | 0 |
| Public Facilities & Services | Public Facilities (number displaced) | 0 | 0 | 0 | 0 |
| | Public Service Facilities with Access Change (number affected) | 2 | 2 | 2 | 2 |
| Section 4(f) & 6(f) Impacts | Parklands (number affected) | 0 | 0 | 0 | 0 |
| | Parklands (area affected) | 0 | 0 | 0 | 0 |
| Utilities | Utilities Crossings (number of crossings) | 12 | 12 | 13 | 13 |
| Utility Infrastructure | **Utility Infrastructure (number affected)** | **34** | **6** | **33** | **5** |
| Noise | **Representative Receptors within 500' of Each Alternative* (number)** | **138** | **116** | **141** | **120** |
| | Representative Receptors within 200' of Each Alternative (number) | **57** | **51** | **59** | **54** |
| | Representative Receptors within 100' of Each Alternative (number) | **45** | **43** | **46** | **45** |

**Table 3.13-3: Environmental Assessment Analysis Summary (continued)**

| Criterion | Unit of Measure | ESH Alternative | | | |
|---|---|---|---|---|---|
| | | 124 | 125 | 126 | 127 |
| **Agricultural** | | | | | |
| Prime and Important Farmland | **Prime and Important Farmland (acres affected)** | **820** | **864** | **857** | **888** |
| Landlocked Parcels | **Landlocked Parcels (acres/number)** | **181 / 3** | **233 / 6** | **181 / 4** | **234 / 7** |
| Farmsteads | **Farm Residences (number affected)** | **9** | **5** | **10** | **6** |
| | **Farm Outbuildings (number affected)** | **41** | **29** | **42** | **30** |
| Severances | **Diagonally Severed Tracts (number affected)** | **6** | **7** | **10** | **11** |
| | **Laterally Severed Tracts (number affected)** | **3** | **1** | **4** | **1** |
| | **Severance Management Zones (acres)** | **34** | **45** | **42** | **55** |
| Adverse Travel | **Adverse Travel (miles)** | **12.7** | **16.9** | **21.5** | **22.8** |
| | **Tracts with Access Change (number affected)** | **8** | **7** | **11** | **9** |
| Farms Otherwise Affected | **Farms Otherwise Affected (tracts)** | **102** | **114** | **100** | **109** |
| Number of Owners | Owners (number affected) | 64 | 68 | 62 | 66 |
| Uneconomical Remnants | **Uneconomical Farm Remnants (number)** | **22** | **20** | **22** | **20** |
| Centennial/ Sesquicentennial Farms | Centennial or Sesquicentennial Farms (number affected, by family) | 5 | 5 | 5 | 5 |
| **Cultural** | | | | | |
| Cultural | Historic Sites (number affected) | 0 | 0 | 0 | 0 |
| | Cemeteries (number affected) | 0 | 0 | 0 | 0 |

## Table 3.13-4: Environmental Assessment Analysis Summary (continued)

| Criterion | Unit of Measure | ESH Alternative | | | |
|---|---|---|---|---|---|
| | | 124 | 125 | 126 | 127 |
| **Design** | | | | | |
| ROW | Total ROW (acres) | 1,012 | 1,053 | 1,053 | 1,078 |
| Termini Connections | **I-55 Operational/Connectivity Impacts** | **High** | **High** | **Medium** | **Medium** |
| | Terminus Impacts | Low | Low | Low | Low |
| | Route 66/High Speed Rail Impacts | Medium | Medium | Low | Low |
| | Existing and Future Land Use Impacts | Low | Low | Medium | Medium |
| Operations | **Volume to Capacity (congestion reduction)** | **4** | **3** | **1** | **2** |
| | **Intersection Level of Service** | **4** | **3** | **2** | **1** |
| | Arterial Access | Low | Low | Low | Low |
| Topography** | **Net Fill Required (cubic yards, in 1000s)** | **4,566** | **6,940** | **3,814** | **5,377** |
| Drainage Structure** | Total Drainage Structures (number) | 35 | 36 | 34 | 36 |
| Estimated Cost** | Estimated Cost (shown in $1,000s) | $504,544 | $507,226 | $499,521 | $507,238 |
| **Sustainability** | | | | | |
| Pavement | **Area of New Pavement Required (acres)** | **225** | **230** | **232** | **239** |
| Right-of-Way | **Area of New ROW Required (acres)** | **855** | **884** | **890** | **905** |
| Farmland Preservation | **Area of Farmland Between the Alternative and the 2035 Land Use Plan (acres)** | **2,163** | **2,890** | **2,388** | **3,117** |
| | **Farm Tracts Located Between the Alternative and the 2035 Land Use Plan (number)** | **93** | **105** | **103** | **115** |
| Watershed | Amount of ROW within each Watershed (% watershed affected) | | | | |
| | Six Mile Creek-Mackinaw River Watershed | 0.50% | 0.50% | 0.34% | 0.34% |
| | Money Creek Watershed | 0.64% | 0.82% | 1.03% | 1.04% |
| | Sugar Creek Watershed | 0.05% | 0.01% | 0.05% | 0.01% |
| | Kickapoo Creek Watershed | 1.26% | 1.26% | 1.26% | 1.26% |
| Riparian Areas | Riparian Areas (acres affected) | 14.4 | 15.2 | 10.3 | 10.6 |
| Highly Erodible Soils | **Highly Erodible Soils (acres affected)** | **25.8** | **27.6** | **27.2** | **29.1** |
| Bike/Pedestrian Access | Is alternative adjacent to proposed or existing bike/ped network? (Y/N) | Y | Y | Y | Y |

*** Impacts noted for these items are for the ESH from Oakland Avenue to the north terminus since the alignment south of Oakland Avenue is the same for all four alternatives.*

Alternatives 124, 125, 126, and 127 were developed to meet the Purpose and Need of the project while avoiding or minimizing resource impacts. The differentiating resources used to select the Preferred Alternative, as shown in bold in **Table 3.13-1**, were wetlands, special waste, residential displacements, business displacements, utility infrastructure impacts, noise receptors, agricultural resource impacts, geometric design, and sustainability features.

The wetland impacts associated with Alternatives 124 and 125 (Northtown Road interchange at I-55) can be avoided by selecting either Alternative 126 or 127 (Ziebarth Road interchange at I-55). The primary difference is the connection point of ESH with I-55. The interchange at Ziebarth Road avoids the 7 acres of wetland impacts that a Northtown Road interchange would incur.

With this wetland impact, Alternatives 124 and 125 were eliminated from further consideration, as the other alternatives were feasible and avoided this impact. In addition, Alternatives 124 and 125, which use Northtown Road, were considered to have high I-55 operational/connectivity impacts and did not reduce traffic through the Village of Towanda. Alternatives 126 and 127, which use Ziebarth Road, are more effective at reducing traffic through Towanda. Alternatives 124 and 126, which are the westernmost alternatives, are more effective at diverting traffic from Towanda Barnes Road to the new ESH, although volumes are similar.

## Selection of the Preferred Alternative

The Preferred Alternative recommendation of Alternative 127 is based upon meeting the Purpose and Need, minimizing environmental impacts, considering public input, and evaluating sustainability factors. Avoidance and minimization of impacts reduced the number of alternatives from 129 to four (Alternatives 124, 125, 126, and 127) and subsequently to two (Alternative 126 and 127; based upon wetland impacts) for final consideration. Of the 66 resource and design criteria that were evaluated, 22 criteria were considered to be differentiators. These criteria included community impacts, wetland impacts, natural resource impacts, agricultural impacts, land use planning factors, and design factors.

Alternative 127 minimizes the impacts of wetlands, residential locations, businesses, wellhead protection areas, private water supplies, special waste sites, and utility infrastructures. Both alternatives have minimal wetland impacts; Alternative 127 affects only 0.0003 wetland acres compared to 0.71 acres for Alternative 126. Alternative 127 avoids the residential displacements associated with the expanding development of Harvest Pointe near Alternative 126. The displacement impacts for Alternative 126 only include existing homes that would be displaced by the ESH, and do not include additional platted (but not constructed) areas of subdivisions such as

Harvest Pointe, Eagle View, and The Grove. Alternative 127 also avoids seven businesses displaced by Alternative 126 near the proposed interchange at Empire Street/IL Route 9.

Agricultural impacts vary between Alternative 126 and 127 when all agricultural criteria are evaluated, as shown in **Table 3.13-1** and in the agricultural impacts in **Section 3.2**. Alternative 127 affects four fewer farm residences and 12 fewer farm outbuildings than Alternative 126; however, Alternative 127 impacts three percent more prime and important farmland acres than Alternative 126. Other agricultural factors, such as adverse travel and tracts with access changes, are similarly impacted by both alternatives. Alternative 127 does result in more acres of severance management zones and uneconomical farm remnants due to the larger curve near Fort Jesse Road. There is not a clear difference between the two alternatives when all agricultural factors are considered.

Public input from the June 2013 public information meeting and Community Working Group meeting provided perspectives regarding Alternatives 126 and 127. Public support was greater for Alternative 127 compared to Alternative 126, although the total number of public comments received for this public comment period was lower than in previous public comment periods. This support was based upon minimizing residential, business, wetland, and utility impacts in the expanding east side of the Bloomington-Normal area. There were two comments preferring Alternative 126 over 127 based on lower farm impacts. The most commonly occurring reason provided for public support of Alternative 127 was that it impacted fewer residences or residential areas than Alternative 126.

Compatibility with land use plans is an environmental factor and important for sustainability considerations. McLean County's 2035 Regional Plan identifies growth on the east side of Bloomington-Normal, and the regional comprehensive plan included an ESH corridor to serve eastern planned growth. The location of this corridor was based on the 2009 East Side Highway Corridor Study, and was located in the vicinity of Alternatives 126 and 127, near the eastern edge of future planned development. Alternatives 126 and 127 have the same proximity to the planned growth areas south of Ireland Grove Road, which comprises approximately half of the proposed corridor area. However, the alignments for Alternatives 126 and 127 vary north of Ireland Grove Road. Alternative 127 is approximately 0.5 miles farther to the east and farther from planned growth areas, which results in 729 acres of additional farmland at greater risk of development compared to Alternative 126. However, the opportunity for development in this area is reduced because infrastructure expansion, such as sewer and water, in the area is not conducive, but this does not preclude the area from future development.

The sustainability factors used in the selection of the Preferred Alternative indicated that Alternatives 126 and 127 had similar effects upon resources. Alternative 127 requires three percent more pavement and two percent more right of way than Alternative 126. Other factors, such as watershed impacts and stream crossings, are similar for both alternatives. Both alternatives avoid crossing the Kickapoo Creek main stem, which was a concern of the McLean County watershed group and the Sustainability Focus Working Group. Alternative 127 affects 1.9 acres more of highly erodible soils compared to Alternative 126, but this represents only a seven percent difference. Bicycle facilities will also be included in both alternatives. The small differences between the two alternatives are not definitive in the selection of the Preferred Alternative.

Alternative 127 is recommended as the Preferred Alternative as it minimizes impacts to wetlands, residential displacements, business displacements, wellhead protection areas, and special waste sites. Agricultural effects are mixed, considering farm operation impacts versus land displacements. The continued growth on the east side of the Bloomington-Normal area has preceded the ESH corridor planning, and Alternative 127 provides for the best opportunity to serve planned growth while minimizing impacts to the community and the environment. Alternative 127's design was further refined to minimize potential impacts and is discussed in **Chapter 4**.