U.S. Route 30 Corridor Study

From the junction of U.S. Route 30 and Illinois Route 136 to the U.S. Route 30 Spur north of Interstate Route 88 in Whiteside County, Illinois

July 2005

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1.0 INTRODUCTION

The Illinois Department of Transportation (IDOT) has initiated a corridor study for U.S. Route 30 in Whiteside County. Work was coordinated through the City of Morrison, Whiteside County, other agencies, and the public.

1.1 DESCRIPTION AND LOCATION OF PROJECT

The U.S. Route 30 Corridor study area is located in Whiteside County, Illinois. U.S. Route 30 (America's first coast to coast highway also known as Federal Aided (FA) Route 309 or Lincoln Highway) is an east-west highway facility that passes through the City of Morrison within the project limits. The City of Fulton is located near the western limits of the study area. Other cities located in the vicinity include: Sterling, Rock Falls, Coleta, Lyndon, Prophetstown, Albany, and Clinton, Iowa. The study limits along U.S. Route 30 extend approximately 19 miles from the junction of U.S. Route 30, Illinois Route 136, and Frog Pond Road near Fulton, Illinois and the Mississippi River to the intersection of U.S. Route 30, Moline Road, and the U.S. Route 30 Spur located approximately 1 mile north of Interstate Route 88. Figure 1 presents the general location map.

Eleven alternatives have been considered for improvements including the No-Action Alternative, Transportation System Management (TSM) Alternative, Existing Alignment Alternative, and eight corridor alternatives (new alignment). The TSM Alternative and Existing Alignment Alternative were eliminated from consideration early in the evaluation process since neither was found to satisfy the purpose and need for the project. The No-Action Alternative and the eight corridor alternatives (four north of existing U.S. Route 30 and four south of existing U.S. Route 30) have been evaluated in greater detail. Figure 2 shows the alternatives overlayed on a Whiteside County map. The U.S. Route 30 Corridor Study includes the development of a preliminary roadway alignment for each corridor alternative for the purpose of quantifying potential affects as part of a macro-level analysis. The study also includes an evaluation of potential social, economic, and environmental resource affects for each corridor alternative. The intention of this study is to assist in the NEPA evaluation and decision-making process.

1.2 HISTORY OF PROJECT

U.S. Route 30 was originally constructed in Illinois between 1919 and 1921 as a 16-foot to 18-foot wide highway. Between 1939 and 1940, a 10-mile segment of U.S. Route 30 in Whiteside County was relocated south of Sterling and Rock Falls with the original route remaining as a portion of Illinois Route 2. A 3.5-mile segment, built between 1956 and 1957, linked the Gateway Bridge across the Mississippi River to the original roadway located 2 miles east of the City of Fulton. Widening and resurfacing completed since the original construction have produced a 24-foot wide roadway throughout the entire length of the corridor study area, except for a portion within the urban limits of the City of Morrison, which is between 22 feet wide and 28 feet wide.

The need for an upgrade of the existing U.S. Route 30 highway to an expressway was identified decades ago. A 1967 study, *Illinois Highway Needs and Fiscal Study,* conducted by IDOT singled out the need for improving and upgrading existing U.S. Route 30.

In 1973, a corridor study was completed that evaluated several alternative corridors for a four-lane, fully access controlled freeway from the City of Fulton, to the east of the Mississippi River, to the Town of Como, located just east of the U.S. Route 30 Spur to north of Interstate Route 88. The study was completed prior to the construction of Interstate Route 88 from Rock Falls to the Quad Cities. However, plans for the interstate route were available for analysis in the study.

Three plausible corridors were presented in the study (Refer to Figure 3).

- Corridor A, 17.5 miles in length, extended from the Mississippi River, southeast of the City of Fulton, to Interstate Route 88, west of the now vacated Burlington Northern Santa Fe (BNSF) Railroad tracks (Lyndon Prairie).
- Corridor A1, 18.5 miles in length, extended from the Mississippi River at the City of Fulton and Illinois Route 136 and continued north of Union Grove and the City of Morrison and south of Morrison-Rockwood State Park to connect at Interstate Route 88, west of the now vacated BNSF Railroad tracks (Lyndon Prairie).
- Corridor B, 34.5 miles in length, extended from the Mississippi River at the City of Fulton and Illinois Route 136 and continued east between the City of Morrison and Morrison-Rockwood State Park, north of the City of Sterling to intersect with Interstate Route 88 at Howland Creek, southeast of Rock Falls.

Based on the potential environmental and socioeconomic affects, as well as the public opinion, the study recommended Corridor A as the preferred corridor. The 1973 evaluation showed that Corridor A allowed for natural residential development (north of the City of Morrison) and had a minimal affect on the surrounding area.

In 1973, a Final Corridor Environmental Statement was published subsequent to the Corridor Study. In addition to an analysis of the three alternatives included in the Corridor Report, two additional alternatives were considered. The fourth alternative included the improvement and upgrade of existing U.S. Route 30 to expressway standards; the fifth alternative, the No-Action Alternative, involved no major improvements to existing U.S. Route 30. The results of the study indicated that Corridor A was the preferred alternative. The corridor was chosen primarily because alignments could be developed to follow existing property lines, it provided an effective bypass of the City of Morrison that promoted easy access to and from the city, and it did not disturb residential growth that was occurring to the north.

The Final Corridor Environmental Statement evaluated the same alternatives included in the 1973 Corridor Study, as well as, the No-Action Alternative and an Improve Existing Alternative that involved upgrading the existing roadway to an expressway.

The current U.S. Route 30 Corridor Study was initiated in 2003. Federal funding was specifically allocated for this current study that has established project limits of the U.S. Route 30/Illinois Route 136/Frog Pond Road Intersection on the west and the U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection (located approximately 1 mile north of Interstate Route 88 Interchange) on the east.

2.0 PURPOSE AND NEED FOR THE IMPROVEMENT

The purpose of the U.S. Route 30 Corridor Study is to provide a transportation system improvement that will enhance east-west mobility while accommodating projected year 2023 travel demand within the study area located in northwestern Illinois. As with any transportation improvement project, this study will avoid or minimize potential environmental affects.

The transportation system improvement is needed to:

1. Improve Regional Mobility. This need addresses providing alternate access to residential areas and job centers around the City of Morrison and minimizing truck traffic through the City of Morrison.
2. Accommodate Land Use Planning Goals. This need addresses implementing a transportation system improvement that promotes attainment of local planning priorities.
3. Address Local System Deficiencies. This need relates to improving local access, mobility, and safety.

The three principal needs were identified by comparing the level of transportation service against the level of service goals and objectives identified by local and state agencies and special interest groups in the study area. Additional documentation and evidence addressing the changes between the existing and future (No-Action) conditions related to the three principal needs and the role of the proposed improvements in satisfying them is presented in the following sections.

2.1 IMPROVE REGIONAL MOBILITY

This need addresses improving access to residential areas and job centers by offering an alternate route other than existing U.S. Route 30 and minimizing truck traffic through Morrison. The need for improved regional mobility is shown in the following sections through explanation of characteristics of the study area and the surrounding area including residential areas, job centers, and recreational areas.

2.1.1 Whiteside County

Whiteside County is located in northwestern Illinois along the Mississippi River. It borders six counties including Rock Island, Henry, and Bureau counties to the south, Lee and Ogle counties to the east and northeast, and Carroll County to the north (Refer to Figure 1). Two major rivers are located in Whiteside County, the Rock River that flows southwest through the county and the Mississippi River that borders the county on the west. Two major highways cross Whiteside County, U.S. Route 30, and Interstate Route 88 connecting the Quad Cities and Chicago. The largest community in Whiteside County is the City of Sterling, located approximately 5 miles east of the study area.

The proposed improvements are needed to reduce congestion within the Corridor.

2.1.2 Residential Areas

Primary residential areas within and in close proximity to Whiteside County include the cities of Morrison, Fulton, Rock Falls, Lyndon, Sterling, and Clinton, Iowa. Residential expansion is anticipated to continue within existing municipalities. Within the study area, residential growth has occurred primarily on the north side of the City of Morrison. Future residential expansion is

anticipated to continue in the same location. The proposed improvements are needed to provide better access from residential areas to job centers and recreational areas and to accommodate the traffic demand generated by the projected residential growth.

The proposed improvements are also needed to improve access within the local roads system within the study area.

2.1.3 Job Centers

Primary job centers within and around Whiteside County have been identified as the cities of Morrison, Fulton, Rock Falls, Sterling, and Clinton, Iowa. Within the study area a Wal-Mart Distribution Center is proposed (approximately one-mile northwest of the Moline Road/U.S. Route 30 Intersection) along with industrial development (southeast side of the City of Morrison). Proposed regional developments include Morrison Industrial Park and an inter-modal facility in Rochelle. The proposed developments will introduce new jobs and services, as well as additional vehicle trips (both cars and trucks) to the study area.

In March 1988, Whiteside County became certified through the Department of Commerce and Community Affairs as an Enterprise Zone. An enterprise zone is a specific area designated by the State of Illinois in cooperation with a local government to receive various tax incentives and other benefits to stimulate economic activity and neighborhood revitalization. Currently, the Whiteside/Carroll Enterprise Zone consists of areas in the eight communities of Sterling, Rock Falls, Morrison, Fulton, Lyndon, Prophetstown, Savanna, Thomson and the rural areas of Whiteside County and Carroll County. The study area is located within the Enterprise Zone. The Enterprise Zone has had an affect on the study area through retaining existing business and drawing new business. The Enterprise Zone designation will expire at the end of 2008.

The proposed improvements are needed to provide improved access to existing job centers and to promote business within the study area and Whiteside County based on the Enterprise Zone designation.

2.1.4 Recreation

Major tourist and recreational destinations in and around Whiteside County include: Morrison-Rockwood State Park, Prophetstown State Park, Hennepin Canal Recreational Area, Mississippi River, Great River Recreational Path, Mississippi Palisades Park Savanna, Fulton Dutch Windmill, park districts, and golf courses. In addition, U.S. Route 30 also attracts visitors through it's designation as a National Scenic Byway under the National Scenic Byways (NSB) Program. The goals of the NSB Program are to improve local quality of life by creating a system of roadways that will provide visitors with unique travel opportunities as well as preserve the history of these roadways and protect their future.

The proposed improvements are needed to improve access to recreational facilities and maintain the local quality of life along the Scenic Byway.

2.2 ACCOMMODATE LAND USE PLANNING GOALS

This need addresses consistency with local planning priorities. Existing land use information was obtained from Whiteside County and the cities of Morrison, Fulton, Sterling, and Rock Falls. Within the study area the land use is primarily agricultural, with sporadic residential land use. Figure 4a and Figure 4b present existing land use in the study area.

Along U.S. Route 30 within the City of Morrison, land use is primarily urbanized with predominately residential development. Other major land uses include commercial within the City, industrial (Morrison Industrial Park and Wal-Mart Distribution Center) southeast and east of the City, and recreational southwest and north of the City. Some agricultural land uses also exist within the City limits.

The proposed improvements are needed to address expected economic growth within the City of Morrison and Whiteside County. Without the proposed improvements, businesses will have limited expansion capabilities due to the congested transportation system. The proposed improvements are needed to improve access to accommodate projected business and industrial development. Without the proposed improvements, expansion of the existing U.S. Route 30 roadway through the City of Morrison would be necessary within the current planning period. The expansion of U.S. Route 30 through the City of Morrison, however, is not an option due to the displacement of numerous homes and businesses. This is explained in Section 4.5.2, Existing Alignment Alternative.

2.3 ADDRESS LOCAL SYSTEM DEFICIENCIES

This need relates to improving local access, mobility, and safety. The sections below describe the condition of the existing facility, as well as, existing and future No-Action traffic and safety conditions along U.S. Route 30.

2.3.1 Conditions on Existing Highway Network

Conditions on the existing highway network are described through analysis of the typical section and the existing access control and access management. The posted speed limit along U.S. Route 30 within the study area ranges from 30 mph (through Morrison) to 55 mph (outside Morrison).

2.3.1.1 Typical Section

There are three typical sections that exist within the study area. The existing typical section along the majority of U.S. Route 30 (from the western study limits to 0.3 miles before the U.S. Route 30/U.S. Route 30 Spur/Moline Road intersection excluding the section within the City of Morrison city limits) is a rural cross section that consists of one 12-foot lane in each direction with 10-foot outside shoulders. The two-lane section of U.S. Route 30 transitions to a four-lane section with a grass median on the east end of the study area. The existing typical section for the eastern 0.6-mile segment includes two 12-foot lanes in each direction, 10-foot outside shoulders, 6-foot inside shoulders, and a 46-foot median. The third typical section in the study area is an urban section that is located within the City of Morrison city limits. The section consists of one lane in each direction that varies between 11 feet and 14 feet with curb and gutter.

As part of a separate project (U.S. Route 30 Morrison Widening Study), the third typical section is proposed to change to consist of one lane in each direction that varies between two 13-foot lanes and two 13-foot lanes with a 14-foot two-way-left turn lane with curb and gutter.

2.3.1.2 Extent of Access Control/Access Management

Currently, nine major intersections exist along U.S. Route 30 within the study limits: Illinois Route 136/Frog Pond Road, Illinois Route 78 (North), Garden Plain Road, Illinois Route 78 (South), Sawyer Road, Lyndon Road, Round Grove Road, Emerson Road, and Moline

Road/U.S. Route 30 Spur. Table 1 presents a summary of the approximate milepost, roadway classification, and access type of the cross roads within the study area. Figure 5 shows cross road locations with respect to the study area. In addition, a number of minor intersections and access points (private access, commercial access, and field access) exist within the study limits, primarily within the city limits of Morrison.

Table 1: Description of Cross Roads along U.S. Route 30

U.S. Route 30 Cross Roads	Approximate Milepost	Roadway Classification	Access Type
Illinois Route 136/ Frog Pond Road	4.1	Minor Arterial/ Local Road	At-grade intersection (Two-Way Stop Controlled)
Illinois Route 78 (North)	11.2	Major Arterial	At-grade intersection (Tee intersection) (One-way Stop Controlled)
Garden Plain Road	11.6	Minor Collector Road	At-grade intersection (Tee intersection) (One-Way Stop Controlled)
Illinois Route 78 (South)	12.7	Major Arterial	At-grade intersection (Signalized)
Sawyer Road	13.5	Minor Collector Road	At-grade intersection (Two-Way Stop Controlled)
Lyndon Road	15.0	Minor Collector Road	At-grade intersection (Two-Way Stop Controlled)
Round Grove Road	17.7	Minor Collector Road	At-grade intersection (Two-Way Stop Controlled)
Emerson Road	20.8	Major Collector Road	At-grade intersection (Tee intersection) (One-Way Stop Controlled)
Moline Road/ U.S. Route 30 Spur	23.0	Major Collector Road/Major Arterial	At-grade intersection (All-Way Stop Controlled)

Sources: IDOT District 2 and Whiteside County General Highway Map, 1995

2.3.2 Geometric Deficiencies

Two primary categories of geometric deficiencies, including alignment and cross-section deficiencies were identified along U.S. Route 30. These deficiencies were identified through an analysis of available as-built plans (plans that show what was constructed) and measurements taken in the field. Many of the deficiencies identified within the City of Morrison and included in this Corridor Report will be corrected as part of the U.S. Route 30 Morrison Widening Study. Construction of the U.S. Route 30 Morrison Widening Study is tentatively scheduled to begin in 2006.

2.3.2.1 Alignment Deficiencies

Two alignment deficiencies were identified along U.S. Route 30. The most common alignment deficiency within the study area is the angle of intersection between two roadways. IDOT standards state that two roadways should ideally intersect at a perpendicular angle.

The standards also state that it is preferred that roadways intersect within 15 degrees of perpendicular and no greater than 30 degrees from perpendicular. Four roadways, Emerson Road (near the east end of the project), Harmony Street and Liberty Street, (both of which intersect U.S. Route 30 at the same location west of Garden Plain Road,), and Union Street, (intersects U.S. Route 30 at Garden Plain Road,) all appear to intersect at substandard angles. The U.S. Route 30 Morrison Widening Study proposes the closing of access to U.S. Route 30 from Harmony Street, Liberty Street, and Union Street. Access will be provided from an extension of Norton Road.

The second alignment deficiency involves a curve on U.S. Route 30 west of downtown Morrison near Garden Plain Road. Traveling westbound, the roadway curves to the right east of Milnes Street (located east of and adjacent to the intersection of U.S. Route 30 and Rock Creek, just west of the City of Morrison). There is a retaining wall on the right side that, when combined with the curve, it appears to limit the sight distance around the curve. The U.S. Route 30 Morrison Widening Study proposes a relocation of the retaining wall to achieve the required sight distance.

2.3.2.2 Cross-Section Deficiencies

Cross-section elements include lane widths, shoulder widths, side slopes, and other items related to the overall width of a roadway. Primarily three cross-section deficiencies were identified. The deficiencies include substandard shoulder widths (narrower than standard), substandard taper lengths (tapers are used to widen a roadway to accommodate turn lanes – lengths are shorter than standard), and substandard turn lanes (shorter than standard).

The shoulders along U.S. Route 30 vary in width within the study area. Several areas include narrow shoulders to avoid impacts to properties adjacent to the roadway.

A majority of the turn lanes, and taper lengths leading to the turn lanes, within the central business district of the City of Morrison are shorter than current IDOT standards. The limited amount of space between intersections and the close proximity of existing structures are the primary causes for the deficiencies noted within the city limits.

2.3.3 Traffic and Capacity Deficiencies

Existing (2003) and No-Action (2023) traffic volumes were obtained by IDOT District 2. U.S. Route 30 Corridor capacity deficiencies were determined by comparing existing and projected traffic demand and roadway capacity to determine traffic operations. A high number of deficiencies is typically directly related to a higher level of roadway congestion, increased travel times, and a lower level of safety. Figure 5 shows the existing (2003) and No-Action (2023) average daily traffic (ADT) volumes.

2.3.3.1 Existing (2003) Traffic Volumes

The existing (2003) ADT volume along U.S. Route 30 ranges from approximately 3,150 vehicles along the U.S. Route 30 Spur to 12,200 vehicles between Illinois Route 78 (South) and Sawyer Road. Truck volume percentages along U.S. Route 30 range from approximately 5 percent to 17 percent. Traffic volumes are expected to increase as economic growth and development occur in Whiteside County.

2.3.3.2 Future (2023) No-Action Traffic Volumes

Traffic volumes along U.S. Route 30 are projected to increase over the next several years. Based on historic trends, traffic volumes are expected to increase approximately 22 percent by 2023. In addition, several proposed developments that influence the traffic volumes along U.S. Route 30 are expected. With the historic trends and proposed developments, Future 2023 No-Action ADT volumes are estimated to increase between 40 percent 211 percent above existing traffic volumes, resulting in 7,650 vehicles along U.S. Route 30 Spur and 17,050 vehicles between Illinois Route 78 (South) and Sawyer Road. Table 2 presents the ADT along U.S. Route 30 for the Existing Conditions (2003) and the Future (2023) No-Action Alternative.

2.3.3.3 Existing (2003) Traffic Operations

Roadway and intersection operations are expressed in terms of level-of-service (LOS) as defined by the Highway Capacity Manual (HCM). LOS is an operational analysis rating system commonly used in traffic engineering to measure the effectiveness of the operating conditions of two-lane highways, multi-lane highways, arterials, signalized intersections, and stop-controlled intersections. There are six LOS rates ranging from A to F. LOS A is defined as being ideal flow conditions with little or no delays, whereas LOS F is defined as conditions where extreme delays are encountered.

U.S. Route 30 is designated as a major arterial and Class II truck route, which characteristically operates at higher speeds (55 mph) and has limited access. U.S. Route 30 currently operates as a minor arterial through the City of Morrison. Within the city limits, U.S. Route 30 has a lower speed limit (between 45 mph and 30 mph) and contains many access points. U.S. Route 30 is not ideal for a Class II truck route designation due to the lack of access control and low speed limit.

Two types of intersections (signalized and stop-controlled) occur along U.S. Route 30 within the study area. Of the nine intersections that were evaluated in this study, eight are stop-controlled. The intersection of U.S. Route 30 and Illinois Route 78 (South) is signalized.

Table 2: U.S. Route 30 Average Daily Traffic (ADT) Comparison

Section along U.S. Route 30	Existing (2003) ADT	No-Action (2023) ADT
East of Illinois Route 84	4,450	7,700
West of Frog Pond Road/ Illinois Route 136	3,950	7,050
East of Frog Pond Road/ Illinois Route 136	6,500	12,000
West of Illinois Route 78 (North)	6,700	12,200
East of Illinois Route 78 (North)	8,200	14,950
West of Garden Plain Road	9,450	16,500
East of Garden Plain Road	11,050	18,450
West of Illinois Route 78 (South)	11,600	19,100
East of Illinois Route 78 (South)	12,200	17,050
West of Sawyer Road	10,050	15,400
East of Sawyer Road	9,400	14,600
West of Lyndon Road	8,350	13,350
East of Lyndon Road	7,550	12,400
West of Round Grove Road	7,600	12,450
East of Round Grove Road	7,600	12,450
West of Emerson Road	7,400	12,250
East of Emerson Road	4,350	6,700
West of Moline Road	4,500	14,000
U.S. Route 30 Spur	3,150	7,650

Source: Illinois Department of Transportation, 2003, U.S. Route 30 Traffic Operation Analysis, HDR 2004

During the 2003 peak hours, the existing LOS along the two-lane rural highway sections of U.S. Route 30 ranges between LOS D and LOS E. U.S. Route 30 within the City of Morrison (urban arterial) is operating between LOS B and LOS C. The U.S. Route 30 Spur (multi-lane highway) is operating at LOS A.

During the 2003 peak hours, drivers were experiencing LOS ranging from LOS A to LOS C at the intersections.

2.3.3.4 Future (2023) No-Action Traffic Operations.

Without improvements along U.S. Route 30, traffic operations are projected to continuously deteriorate to poor levels for most roadway sections within the study area. By the year 2023, the entire U.S. Route 30 Corridor is expected to operate at LOS D or LOS E, except for the recently reconstructed section of roadway near the U.S. Route 30 Spur.

Seven of the nine evaluated intersections are expected to operate at a LOS E or LOS F during peak periods. The intersection of the U.S. Route 30 Spur and Moline Road is expected to operate at LOS C and the intersection of U.S. Route 30 and Emerson Road is expected to operate at LOS C during the p.m. peak hour. Table 3 shows estimated Corridor LOS for Existing (2003) conditions and Future No-Action (2023) conditions along U.S. Route 30. Table 4 shows the estimated Existing (2003) LOS and Future No-Action (2023) LOS at U.S Route 30 intersections.

Table 3: Corridor Levels-of-Service along U.S. Route 30 (p.m. peak hour)

U.S. Route 30 Roadway Sections	Existing (2003)	No-Action (2023)
East of Illinois Route 84	D	D
West of Frog Pond Road/ Illinois Route 136	C	D
East of Frog Pond Road/ Illinois Route 136	E	E
West of Illinois Route 78 (North)	E	E
East of Illinois Route 78 (North)	E	E
West of Garden Plain Road	E	E
East of Garden Plain Road	B	D
West of Illinois Route 78 (South)	B	D
East of Illinois Route 78 (South)	C	C
West of Sawyer Road	C	C
East of Sawyer Road	E	E
West of Lyndon Road	D	E
East of Lyndon Road	D	E
West of Round Grove Road	D	E
East of Round Grove Road	E	E
West of Emerson Road	D	E
East of Emerson Road	D	D
West of Moline Road	D	E
U.S. Route 30 Spur	A	A

Source: U.S. Route 30 Traffic Operation Analysis, HDR 2004

Table 4: Intersection Levels-of-Service along U.S. Route 30

Intersection with U.S. Route 30	Approach	Existing (2003)		No-Action (2023)	
		AM	PM	AM	PM
Frog Pond Road/ Illinois Route 136	Northbound	B	B	C	C
	Southbound	B	B	F	F
Illinois Route 78 (North)	Southbound	C	C	F	F
Garden Plain Road	Eastbound	C	B	F	F
Illinois Route 78 (South)	Intersection	C	C	F	F
Sawyer Road	Northbound	C	C	F	F
Lyndon Road	Northbound	C	C	F	F
	Southbound	C	B	F	E
Round Grove Road	Northbound	C	C	F	E
	Southbound	B	C	E	E
Emerson Road	Westbound	B	B	E	C
Moline Road/ U.S. Route 30 Spur	Intersection	A	A	C	C

Source: U.S. Route 30 Traffic Operation Analysis, HDR 2004

2.3.4 Crash Information

Crash data within the study area for the years 1999, 2000, and 2001 was obtained from the IDOT Data Bank. The data included the number of crashes by crash type, crash severity including the number of injuries and fatalities, pavement condition, and lighting condition.

2.3.4.1 Crash Frequencies

The data was organized by location and was plotted along the existing U.S. Route 30 Corridor according to given mileposts using Geographical Information System (GIS) mapping and linear referencing to ensure accuracy. Figure 6 shows the reported crash number and severity by location.

A total of 240 crashes were documented between 1999 and 2001. Table 5 identifies the crash number, type, severity, and lighting and pavement conditions. The majority of crashes within the study area were rear end (76 crashes, 32 percent), animal (57 crashes, 24 percent), and angle (31 crashes, 13 percent). Of the 240 total crashes, 70 resulted in injuries (110 people injured). There was 1 fatal crash (1 person killed) within the study area. A total of 84 (35 percent) of the crashes occurred during night. A total of 28 (12 percent) of the crashes occurred on wet pavement and 33 (14 percent) on ice/snow pavement.

Table 5: Crash Information (1999 – 2001)

Crash Description	Number	Percent of Total
Total Crashes	240	-
Crash Type		
Angle	31	13%
Animal	57	24%
Fixed Object	20	8%
Head-On	4	2%
Non-Collision	4	2%
Other Object	4	2%
Parked Vehicle	1	<1%
Pedalcyclist	2	<1%
Rear End	76	32%
Sideswipe-Opposite Direction	10	4%
Sideswipe-Same Direction	2	<1%
Turning	21	9%
Vehicle Overturned	8	3%
Crash Severity		
Crashes Involved with Property Damage Only	169	71%
Crashes Involved with Injures	70	29%
Crashes Involved with Fatalities	1	<1%
Injuries/Fatalities		
People Injured	110	-
People Killed	1	-
Lighting Condition		
Crashes that Occurred during Night	84	35%
Crashes that Occurred during Daytime	156	65%
Pavement Condition		
Crashes that Occurred on Wet Pavement	28	12%
Crashes that Occurred on Ice / Snow Pavement	33	14%
Crashes that Occurred on Dry Pavement	179	75%

Source: Illinois Department of Transportation, Division of Traffic Safety, 1999-2001

2.3.4.2 High Accident Locations

IDOT compares the frequencies of crashes with the statewide averages to determine High Accident Location (HAL) sites. HAL sites are areas where the crash frequency meets or exceeds this critical frequency. Locations of HAL sites are identified each year based on the most recent three years of available data.

Between 1999 and 2001, IDOT identified three HAL sites within the study area:

- The section of U.S. Route 30 between Garden Plain Road (approx. M.P. 11.66) and Genesee Street (approximately M.P. 12.55)
- The intersection of U.S. Route 30 and Jackson Street (M.P. 13.11) (Subsequently improved)
- The intersection of U.S. Route 30 and Emerson Road (M.P. 20.78)

A total of 44 crashes were documented at the three HAL sites over the three-year period (1999-2001). Table 6 lists the number of crashes and their respective injuries and fatalities that occurred at these HAL sites.

Table 6: Crashes at the HAL Sites (1999-2001)

Location	Roadway/Intersection Classification	Crashes	Injuries	Fatalities
U.S. Route 30 between Garden Plain Road and Genesee Street	Major Arterial (2-lane)	20	14	0
Intersection of U.S. Route 30 and Jackson Street*	Major Arterial (Former Two-Way Stop Controlled Intersection; Upgraded in 2002)	15	6	0
Intersection of U.S. Route 30 and Emerson Road	Major Arterial/One-Way Stop Controlled Intersection	9	8	0

**Safety improvements resulted in an intersection upgrade from stop controlled to a signalized intersection.*

Source: Illinois Department of Transportation, Division of Traffic Safety, 1999-2001

The section of U.S. Route 30 between Garden Plain Road and Genesee Street (M.P. 12.55) is located on the west side of the City of Morrison. The majority of the crashes that were documented at this HAL were rear end (11 crashes, 55 percent). As a comparison, rear end crashes accounted for 76 of the total 240 crashes (32 percent) within the study area; approximately 15 percent of those 76 rear end crashes occurred at this HAL site. Crashes at this location represent approximately 8 percent of the total number of crashes in the study area between 1999 and 2001. The number of access roads along U.S. Route 30 increases as U.S. Route 30 enters the City of Morrison. Increased volume of traffic accessing from/to U.S. Route 30 within the City could interfere with the mainstream traffic along U.S. Route 30, and might be a contributing factor to the occurrence of the rear end crashes along this section. Other contributing factors could include the lack of turn lane channelization and a speed limit transition. The segment speed limit transitions from 45 miles per hour (mph) at Garden Plain Road to 30 mph at Genesee Street (M.P. 12.55). Based on more recent (2000 to 2002) crash statistics, this segment of U.S. Route 30 is no longer qualified as an HAL site.

The intersection of U.S. Route 30 and Jackson Street (M.P. 13.11) is located in the center of the City of Morrison. The intersection was recently upgraded to a signalized intersection to address the safety concern. For the period of the crash analysis between 1999 and 2001, the

intersection of U.S. Route 30 and Jackson Street (M.P. 13.11) was a stop-controlled intersection.

The intersection of U.S. Route 30 and Emerson Road is located on the east end of the study area, 0.5 miles west of the point where the roadway curves south towards Interstate Route 88. Crashes at this location represent approximately 4 percent of the total number of crashes in the study area between 1999 and 2001. The majority of the crashes that were documented at the intersection of U.S. Route 30 and Emerson Road were rear end (six crashes, 67 percent). As a comparison, rear end crashes accounted for 76 of the total 240 crashes (32 percent) within the study area; approximately 8 percent of those 76 rear end crashes occurred at this HAL site.

Factors contributing to the safety deficiency of this intersection could include insufficient capacity for high turning movement traffic volumes, poor sight-distance, and substandard intersection geometry. Emerson Road connects U.S. Route 30 to the City of Sterling. Approximately 45 percent of the traffic traveling along U.S. Route 30 diverts from/to Emerson Road. Insufficient storage and taper length on the U.S. Route 30 eastbound, left-turn lane could cause unexpected stops for mainline traffic. Sight distance for traffic turning left and looking west from Emerson Road is limited due to variances in the topography. Based on updated (2000 to 2002) crash statistics, this intersection is no longer considered an HAL site.

Of the 44 crashes that were documented at the HAL sites, 34 crashes (77 percent) occurred between 10:00 a.m. and 5:00 p.m., during which there was generally more traffic than the rest of a day. Nine crashes (20 percent) occurred during the afternoon peak hour (between 4:00 p.m. and 5:00 p.m.). As the traffic volumes increase, the delay experienced by the drivers wanting to access U.S. Route 30 and the interference with the mainstream traffic by the traffic accessing from Emerson are increased accordingly, contributing to the increased number of crashes.

If no improvements are made to U.S. Route 30, safety will deteriorate as the traffic volumes continue to grow.

3.0 EXISTING SETTINGS OR CONDITIONS

This chapter summarizes the existing social, economic, and physical environment of the U.S. Route 30 Corridor study area. Refer to the *U.S. Route 30 Corridor Study Environmental Resources Technical Report*, January 26, 2004 for a detailed description of the study area environment. Figure 7a and Figure 7b present the environmental resources located within the study area.

3.1 DESCRIPTION OF THE STUDY AREA AND STUDY LIMITS

The study area is located in the northern half of Whiteside County with the City of Morrison located in the center of the study area. The City of Fulton is located near the western limits of the study area. Other cities located in the vicinity include: Sterling, Rock Falls, and Clinton, Iowa. With the land use being primarily agricultural, a number of small rural agricultural communities are also located within the study area. Figure 1 presents the general location map.

The study limits along U.S. Route 30 extend east approximately 19 miles from the junction of U.S. Route 30, Illinois Route 136, and Frog Pond Road near Fulton, Illinois and the Mississippi River to the intersection of U.S. Route 30, Moline Road, and the U.S. Route 30 Spur located approximately 1 mile north of Interstate Route 88.

The logical termini represent the end points of the proposed improvements. The U.S. Route 30 termini were chosen at the junction of a State Route (Illinois Route 136) and the junction of a U.S. Route (U.S. Route 30 Spur). These junctions represent locations of major traffic movements within the study area. In addition, the logical termini were selected because the limits of the proposed improvements to U.S. Route 30 have independent utility by being able to function without the need for other improvements.

On the west end of the study area, the logical terminus is the junction of U.S. Route 30, Illinois Route 136, and Frog Pond Road. This particular location is appropriate for the western terminus since it is located at a major traffic split (60/40) in the west side of the study area. From this junction, Illinois Route 136 serves traffic heading northwest and U.S. Route 30 serves traffic heading southwest. Additional capacity is not needed west of the junction since the traffic volume along U.S. Route 30 is reduced by approximately 40 percent.

On the east end of the study area, the logical terminus is the intersection of Moline Road, U.S. Route 30, and the U.S. Route 30 Spur. From this location, expressway traffic can connect to Interstate Route 88 or continue eastward on U.S. Route 30. The traffic split at this location is major (50/35/15) so additional capacity is not needed east of the junction.

3.2 SOCIAL AND ECONOMIC CONDITIONS

Socioeconomic resources include community characteristics (population, age composition, employment, income, housing characteristics), environmental justice (minority population and poverty status), public facilities and services, and freight railroads.

3.2.1 Community Characteristics

Community characteristics are presented for the State of Illinois, Whiteside County, and four municipalities for comparison purposes. The four municipalities include the cities of Fulton,

Morrison, Rock Falls, and Sterling. The study area falls within the cities of Fulton and Morrison. Characteristics on the cities of Sterling and Rock Falls are included because they affect the traffic volume along U.S. Route 30.

3.2.1.1 Population

Table 7 shows U.S. Bureau of Census population statistics for the state, county, and municipalities in and around the study area. Between 1980 and 1990, Whiteside County experienced a decrease in the population of nearly 9 percent, while the population of the State of Illinois stayed approximately the same. Between 1990 and 2000, the population of Whiteside County slightly increased by approximately 0.8 percent, while the population of the State of Illinois increased approximately 6.2 percent.

Table 7: Population Forecast and Percent Growth

	1980 Census Population	1990 Census Population	2000 Census Population	2020 Projected Population	% Change 1980-1990	% Change 1990-2000
State						
Illinois	11,427,393	11,430,602	12,134,356	13,295,597	0	6.2
County						
Whiteside	65,970	60,186	60,653	57,815	-8.8	0.8
Municipality						
Fulton	3,936	3,698	3,881	N/A	-6.0	4.9
Morrison	4,607	4,474	4,447	N/A	-2.9	-0.6
Rock Falls	10,633	9,669	9,580	N/A	-9.1	-0.9
Sterling	16,281	15,142	15,451	N/A	-7.0	2.0

Source: U.S. Bureau of Census Data: 1980, 1990, and 2000, N/A: Not Available

3.2.1.2 Age Composition

The median age of residents is 40.6 in the City of Morrison and 38.5 in Whiteside County. These median ages are higher than the State of Illinois average of 34.7 years.

3.2.1.3 Employment

Primary job centers within and around Whiteside County have been identified as the cities of Morrison, Fulton, Rock Falls, Sterling, and Clinton, Iowa. The primary business types located in the vicinity of the study area include industrial, health care, and social services.

In 2000, the unemployment rate for the municipalities ranged from 1.4 percent to 4.2 percent, which is consistent with the rest of the state (3.9 percent). The unemployment rate for Whiteside County was 3.1 percent. Table 8 presents the employment status within and immediately adjacent to the study area.

Table 8: Employment (2000)

	Census Employment	Unemployment Rate
State		
Illinois	5,855,205	3.9%
County		
Whiteside	28,360	3.1%
Municipality		
Fulton	1,734	1.4%
Morrison	1,911	3.3%
Rock Falls	4,440	4.0%
Sterling	7,105	4.2%

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

3.2.1.4 Income

The 2000 U.S. Bureau of Census Data shows that the median family income ranged from $41,803 to $50,664 and per capita income ranged from $16,524 to $20,179 within the study area and its vicinity. Median family income and per capita income throughout the study area and its vicinity are lower than the state average income status ($55,545 for median family income and $23,104 for per capita income). Table 9 presents income statistics for the study area.

Table 9: Income (2000)

	Median Family Income	Per Capita Income
State		
Illinois	$55,545	$23,104
County		
Whiteside	$46,653	$19,296
Municipality		
Fulton	$45,134	$19,845
Morrison	$50,664	$20,179
Rock Falls	$41,803	$16,524
Sterling	$45,531	$19,432

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

3.2.1.5 Housing Characteristics

All the municipalities have low vacancy rates (ranging from 1.2 to 1.7 percent). The cities of Fulton and Morrison have ownership rates of 76.5 percent and 76.9 percent, respectively, higher than the ownership rates for Whiteside County (74.5 percent) and the State of Illinois (67.3 percent). The cities of Rock Falls and Sterling have lower ownership rates (64.1 percent and 62.9 percent, respectively) than Whiteside County and the State of Illinois.

The median home value of the municipalities within and immediately adjacent to the study area ranges from $62,800 to $76,600, which is between 52 percent and 41 percent lower than the median home value of the State of Illinois ($130,800). The median monthly rent throughout the study area and its vicinity (ranging from $427 to $483) is consistent with Whiteside County ($463) and lower than the State of Illinois ($605).

3.2.2 Environmental Justice

In February 1994, President Clinton issued Executive Order 12989 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.

3.2.2.1 Minority Populations

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

The municipalities within and immediately adjacent to the study area are primarily composed of Caucasian population (average of 93 percent). African American population ranges between 0.6 percent and 2.2 percent. Two of the four municipalities (cities of Rock Falls and Sterling) have minority population percentages higher than Whiteside County (6.2 percent). Within and immediately adjacent to the study area, the minority population percentage is lower than the State of Illinois (11.4 percent).

3.2.2.2 Poverty Status

The USDOT defines low-income as a person whose median household income is below the U.S. Department of Health and Human Services (HHS) poverty guidelines. The 1999 HHS poverty guidelines show an income of $16,700 for a family of 4 as being at poverty level.

In 1999, the municipalities within and immediately adjacent to the study area had a percent of families below poverty levels ranging from 3.2 percent to 10.3 percent and percent of individual residents below poverty levels ranging from 5.8 percent to 11.5 percent. Two of the four municipalities (cities of Rock Falls and Sterling) had a percent of families and individual residents living below poverty level slightly higher than that for Whiteside County (6.2 percent of families and 8.5 percent of individuals) and the State of Illinois (7.8 percent of families and 10.7 percent of individuals). Table 10 presents poverty status within and immediately adjacent to the study area.

3.2.3 Public Facilities and Services

A number of public facilities and services are located within the study area, as shown on Figure 8a and Figure 8b.

3.2.3.1 Public Facilities

Public facilities located within the study area include five parks, two golf courses, six public schools, two hospitals, one library, one active landfill, 11 cemeteries, 18 places of worship, two law enforcement facilities, and a city hall. These facilities are generally located within the City of Morrison.

3.2.3.2 Public Services

Public services available within the study area include bus service to public schools, emergency services including police, fire, and ambulance services, and utilities.

Major utilities located within the study area include a radio tower (near the Henry Road and Harvey Road intersection, southwest of Morrison), electric transmission towers (running

north-south to the east of Frog Pond Road and running east-west south of Interstate Route 88), and high pressure gas mains (adjacent to Union Pacific (UP) Railroad tracks just west of Deer Creek, north of UP Railroad tracks at Deer Creek, and near the intersection of the vacated railroad and the UP Railroad). No major pipelines or fiber optic lines were verified in the study area; however, discussions with other agencies suggest fiber optic lines may be located along the UP Railroad and U.S. Route 30.

Table 10: Poverty Status (1999)

	Percent of Families below Poverty Level	Percent of Individuals below Poverty Level
State		
Illinois	7.8%	10.7%
County		
Whiteside	6.2%	8.5%
Municipality		
Fulton	3.5%	5.8%
Morrison	3.2%	6.1%
Rock Falls	10.3%	11.5%
Sterling	7.6%	10.8%

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

3.2.4 Freight Railroads

Two major freight railroads (UP Railroad and BNSF Railroad) traverse the study area. The UP Railroad carries goods (coal, grain, containerized items, and other freight) from the west coast to Chicago, Illinois. Within the study area, the UP Railroad generally runs east/west, parallel to U.S. Route 30 on the southern side and crosses to the north approximately 2 miles west of Illinois Route 78 (North) and back to the south approximately 0.8 miles east of Frog Pond Road.

The BNSF Railroad carries goods (coal, grain, and other freight) from a switching line in Galesburg, Illinois to Minneapolis, Minnesota. Within the study area, the BNSF Railroad generally runs north/south, crossing U.S. Route 30 approximately 1.4 miles east of Frog Pond Road.

3.3 LAND USE AND ZONING

Available land use and zoning information was obtained from Whiteside County and the cities of Morrison, Fulton, Sterling, and Rock Falls. Within the study area the land use is primarily agricultural, with sporadic residential and industrial land use.

Along U.S. Route 30 within the City of Morrison, land use is primarily urbanized with predominately residential development. Other major land uses include commercial in the vicinity of U.S. Route 30, industrial (Morrison Industrial Park) southeast of the City, and

recreational southwest of the City. Sporadic agricultural land uses also exist within the City limits.

3.4 ENVIRONMENTAL RESOURCES

Environmental resources within the study area were evaluated to identify sensitive environmental areas that the expressway should avoid or minimize affects to. Environmental resources that were evaluated as part of this project include: agricultural resources, cultural resources, natural resources, water resources/quality, floodplains, wetlands, special waste sites, special lands, air quality, and traffic noise.

3.4.1 Agricultural Resources

The Federal Farmland Protection Policy Act was enacted in 1981 to minimize the conversion of agricultural lands to non-agricultural uses (7 USC 4202 (a)). Illinois state agencies are required to cooperate in the preservation of agriculture by minimizing the conversion of prime farmland caused directly and/or indirectly by state funded programs and to develop and implement policies that have a positive impact on agriculture.

3.4.1.1 County Agricultural Statistics

Whiteside County is primarily a rural agricultural community. The county has a total of approximately 446,170 acres, 86 percent of which are in agricultural production. Cultivated crops are the dominant form of agriculture with 92 percent of the farms in cropland. Corn and soybeans account for over 90 percent of the cultivated crops harvested. The two combined crops alone produce over 30 million bushels annually. The average farm size is 370 acres.

3.4.1.2 Prime and Unique Farmlands

The U.S. Department of Agriculture (USDA) divides farmland into four principle categories: prime farmland; unique farmland, other than prime; additional farmland of statewide importance; and additional farmland of local importance. According to the Whiteside County Natural Resources Conservation Service (NRCS), there are no additional farmlands of importance other than prime listed in the County. Over 300,000 acres, or approximately 68 percent of the total acreage, of Whiteside County is classified as prime farmland (Figure 9).

3.4.1.3 Centennial Farms

The Illinois Department of Agriculture maintains a program, the Centennial Farms Program, established to honor the generations of farmers who have worked to maintain family farms in Illinois. The Centennial Farms program was created in 1972. Agricultural properties that are designated as Centennial Farms have been owned by the same family of lineal or collateral descendants for at least 100 years. A lineal descendant is a person in the direct line of descent, such as a child or a grandchild. A collateral descendent is not a direct descendent, but is otherwise closely related, such as a brother, sister, uncle, aunt, nephew, niece or cousin. More than 7,200 Illinois farms have been named Centennial Farms since the program was established. There is at least one Centennial Farm in every county of the state. Owners that have applied and meet all requirements of the Centennial Farms Program receive an official Centennial Farm sign suitable for outdoor display and a certificate bearing signatures of the governor of Illinois and the director of the Illinois Department of Agriculture. There are currently 17 centennial farms located within the study area.

3.4.2 Cultural Resources

Cultural resources include archaeological sites and historic properties including; architecturally significant structures, historical landmarks, historic and pre-historic features, or other sites eligible for or listed on the National Register of Historic Places (NRHP).

3.4.2.1 Archaeological Sites

There are no archaeologically-listed NRHP sites located within the study area. Numerous historic and prehistoric archaeological sites, ranging from scattered artifacts to intact subsurface deposits representing entire communities, may be present in Whiteside County, and within the study area. Only one percent of the land surface within the study area has been formally surveyed for archaeological resources. Fifty-four archaeological sites have been recorded within the surveyed areas. These sites may range from surface scatters of prehistoric or historic artifacts to burial sites, including mounds.

The Illinois State Museum has mapped zones of high probability for encountering prehistoric archaeological sites. High probability zones within the study area include areas adjacent to Cattail Creek, Spring Brook, Rock Creek, French Creek, and Deer Creek and their major tributaries. These areas total almost 38 percent of the study area.

3.4.2.2 Historic Properties

As shown in Figure 7a and Figure 7b, twelve historic sites are located within the study area. Eleven of the 12 sites are cemeteries or isolated burial locations, which are described in the following section. The last site, the Odell Public Library Building (202 E. Lincolnway in the City of Morrison) is listed as historic in the NRHP. Numerous other structures within the study area may be eligible for historic listing in the NRHP based on their apparent age and condition. The eligibility of these structures will be determined during the Phase I/NEPA Evaluation Process.

3.4.2.3 Cemeteries

Nine cemeteries and two isolated burial locations were identified within the study area. All of these cemeteries are registered and considered historic. The isolated burial locations were identified by the Daughters of the American Revolution but were not found in the field. Historic cemeteries often extend beyond the area of visible grave markers or fencing and the limits can only be verified through field investigations.

3.4.3 Natural Resources

Natural resources include physiography, topography, geologic setting, soils, threatened and endangered species, upland vegetation/habitat, nature preserve/forest preserve/natural area, and land and water reserve.

Although the study area is predominantly in row crop agriculture, habitat for several threatened and endangered species and other wildlife is provided in limited areas. Some of these areas have been listed on the Illinois Natural Area Inventory (INAI).

3.4.3.1 Physiography and Topography, Geologic Setting, and Soils

Physiography and Topography. Whiteside County lies in the Rock River Hill Country Subsection of the Till Plains Section of the Central Lowlands Physiographic Province. Elevations in Whiteside County range from 570 feet above sea level near the Mississippi

River to 860 feet above sea level in the northeastern part of the county. The study area includes the former channel of the Mississippi River and numerous streams where local relief can vary greatly. Generally, the southern portion of the study area has little local relief, whereas the northern part has rolling terrain. Figure 10 presents the U.S. Geological Survey (USGS) quadrangle maps of the study area.

Geologic Setting. The study area falls within the Rock River Hill Country Natural Division. Natural Divisions are a classification based on the natural environments and biotic communities of Illinois based on physiography, flora, and fauna. The Rock River Hill Country Division covers major portions of Whiteside, Carroll, Ogle, Stevenson, and Winnebago counties and is generally defined as a region of rolling hills principally drained by the Rock River. This division is thinly mantled with glacial drift from the Illinoian and Wisconsinan glaciers. The bedrock in this natural division is primarily Ordovician and Silurian dolomite and limestone. The bedrock outcroppings present in Whiteside County, however, are almost exclusively Silurian. The Silurian system has a maximum thickness of nearly 1,000 feet, but it is generally less than 500 feet in Whiteside County.

Soils. Whiteside County is divided into nine soil associations or map units, each characterized by the major and minor soils that comprise them. Two of the nine Whiteside County soil associations are not found within the study area; Marshan-Prophetstown-Drummer and Selma. The soil associations present within the study area include: Tama-Downs-Port Byron, Seaton-Downs-Fayette, Richwood-Elburn-Drummer, Waukegan-Tell-Lamont, Sparta-Dickinson-Plainfield, Dickinson-Lawler, and Ambraw-Zumbro-DuPage. All of the soil associations contain some prime farmland and are conducive for agricultural use; however, the Seaton-Downs-Fayette association has the least conducive conditions for prime farmland.

3.4.3.2 Vegetation (Land Cover Types) and Wildlife Habitat

The land within the study area is currently dominated by croplands. Approximately 86 percent of Whiteside County is used for agricultural production. Primarily grasslands and forested areas makeup the remaining vegetation. Grasslands occur between parcels of croplands or serve as a buffer area between woodlands and croplands. Forested areas are mainly limited to small blocks along streams, although a few larger tracts of woodland remain.

Eight streams, one lake, one state park (Morrison-Rockwood), and three natural areas (Prairie Trails, Clyde Cemetery Prairie, and Lyndon Prairie) are located within the study area. Numerous wetland remnants exist along streams and in low-lying areas. Grasslands, woodlands, and riparian areas provide habitat for wildlife. However, most of this wildlife habitat has been disturbed by human activities.

The Whiteside County Natural Area Guardians identified 13 environmentally sensitive areas that should be avoided, if possible. These sites include three easements (protected by IDNR, the Federal Wetlands Reserve Program, and the Natural Lands Institute), four forested remnants, five prairie remnants, and one flood retention area. These remnant areas of native vegetation provide wildlife habitat, water retention, soil stabilization, and other natural functions that are not provided by row-cropped lands. The Whiteside County Natural Area Guardians noted that the prairie remnant along the UP Railroad northwest of the City of Morrison provides some of the highest quality turtle habitat remaining in Whiteside County.

3.4.3.3 Threatened and Endangered Species

A total of nine state threatened and endangered (T&E) species (six fauna and four flora) have been recorded within the study area. One of the nine State T & E species is also listed as a federally threatened species. One federally endangered species, the Indiana bat, is listed as occurring statewide in Illinois; however, it is currently thought that maternity habitat for this species does not occur north of Interstate 80. Table 11 identifies the species considered in this section along with their status. Figure 7a and Figure 7b show their approximate occurrence locations.

3.4.3.4 Natural Areas, Nature Preserves, and Land & Water Reserves

The Illinois Department of Natural Resources (IDNR) identified three INAI sites within the study area. These sites are located within Prairie Trails, Clyde Cemetery Prairie, and Lyndon Prairie. Lyndon Prairie is also dedicated as a nature preserve. There are no Land & Water Reserves within the study area. Figure 7a and Figure 7b illustrate the locations of the natural areas and nature preserves.

Table 11: T & E Species identified within the Study Area (between 1989 and 2001)

Species	Status
Fauna	
Bald eagle (*Haliaeetus leucocephalus*)	FT and ST
Butterfly mussel (*Ellipsaria lineolata*)	ST
Loggerhead shrike (*Lanius ludovicianus*)	ST
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	SE
Franklin's ground squirrel *(spermophilus franklinii)*	ST
Indiana bat *(Myotis sodalist)*	FE
Flora	
False heather (*Hudsonia tomentosa*)	SE
Gray's umbrella sedge (*Cyperus grayoides*)	ST
Kitten tails (*Besseya bullii*)	ST
Water pennywort (*Hydrocotyle ranunculoides*)	SE

Source: Illinois Department of Natural Resources website, 2003 and U.S. Fish and Wildlife Service website, 2003

Abbreviations: FT-Federal Threatened; ST- State Threatened;
SE: State Endangered

3.4.4 Water Resources / Quality

Water resources for this study include streams and lakes. Discussions of floodplains and wetlands are included in Section 3.4.5 and Section 3.4.6, respectively. Water quality conditions are assessed by the Illinois Environmental Protection Agency (IEPA) in terms of the degree to which waters attain beneficial/designated uses. The assessments are completed to satisfy

requirements set forth in the Clean Water Act. IEPA water quality assessments are categorized into two types: monitored and evaluated. Monitored assessments are those based on current site-specific data collected as part of a specific monitoring program. Evaluated assessments are those based on other than monitored information. IEPA assesses water bodies under a generic set of five designated use categories: drinking water, aquatic life, primary contact (swimming), secondary contact (recreation), and fish consumption. The IEPA assessment concludes for each category one of four possible use-support levels: fully supporting, partially supporting, or not supporting. The IEPA water quality information contained in this report is referenced from the IEPA, Bureau of Water, 2002 Illinois Water Quality Report.

IDOT develops a Class I Streams list and revisions to the list are made as information becomes available that would warrant a stream to be listed. Class I Streams are those that meet any one of the following criteria:

- National Park Service Candidate for Wild and Scenic Rivers
- Illinois Natural Areas Inventory (as Aquatic Natural Areas)
- Habitat for listed state or federal species
- IEPA Non-Degradation Streams
- High Biological Characterization (BSC) rating

The U.S. Route 30 Corridor Study area is located within the Rock River Watershed and the Mississippi River North Watershed. These watersheds contain several streams with a large number of minor tributaries. One lake was also identified within the study area. This discussion focuses on the identified streams (tributaries not included) and the lake.

3.4.4.1 Streams

Eight streams were identified within the study area, including:

- Rock River
- Cattail Creek
- Cattail Slough
- Deer Creek
- Elkhorn Creek
- French Creek
- Rock Creek
- Spring Brook

All eight streams are visible on USGS topographic maps and in the IEPA GIS databank. None of the streams are designated as Wild and Scenic Rivers. The Rock River is the only Class I Stream and Biologically Significant Stream in the study area. According to USACE definitions, all of the streams located within the study area are considered to be jurisdictional as by evidence of connectivity with a navigable stream, an ordinary high water mark (OHWM), bed, and/or bank. All of the streams are considered waters of the U.S.; however, USACE will need to verify jurisdictional status in the field. Figure 7a and Figure 7b show the locations of the streams, floodplains, lakes, and wetlands.

Rock River. The IEPA conducted a monitored water quality assessment for Rock River. The assessment is based on physical/chemical ambient water quality network data (less than or equal to five years old), fish tissue analysis data, and facility-related stream survey data (less than or equal to five years old). In the 2002 Water Quality Report, aquatic life (and thus overall use) is rated as full support and fish consumption and swimming are rated as partial support.

Cattail Creek, Cattail Slough, Deer Creek, and French Creek. The IEPA conducted an evaluated water quality assessment for Cattail Creek, Cattail Slough, Deer Creek, and French Creek. The overall use and aquatic life of these streams were not included in the 2002 Water Quality Report.

Elkhorn Creek. The IEPA conducted an evaluated water quality assessment for Elkhorn Creek. Fish consumption and aquatic life (and thus overall use) are rated in full support in the 2002 Water Quality Report.

Rock Creek. In the study area, the IEPA conducted both an evaluated and monitored water quality assessment for Rock Creek. The monitored assessment is based on physical/chemical ambient water quality network data (less than or equal to five years old). According to the 2002 Water Quality Report, aquatic life (and thus overall use) is rated in full support, while swimming is not supported.

Spring Brook. The IEPA did not conduct a water quality assessment for Spring Brook. It was not included in the 2002 Water Quality Report for the Mississippi River North Watershed.

3.4.4.2 Lakes

One lake was identified within the study area. Lake Carlton is located in the center of Morrison-Rockwood State Park, approximately three miles north of the City of Morrison. Approximately 75.4 acres in size, Lake Carlton provides habitat for the state endangered plant, water pennywort.

The IEPA conducted a monitored water quality assessment for Lake Carlton. The monitored assessment is based on ambient lake monitoring program chemical/physical data (less than or equal to five years old). According to the 2002 Water Quality Report, swimming and aquatic life (and thus overall use) are rated as full support, recreation is rated as partial support, and fish consumption and public water supply are rated as not supported. According to the IEPA, Lake Carlton is an impaired water body. Potential sources of the impairment include agriculture (crop related sources, non-irrigated crop production), habitat modification (streambank modification/destabilization), and contaminated sediments.

3.4.5 Floodplains

Regulated Federal Emergency Management Agency (FEMA) floodplains are identified by a FEMA investigation. The presence and extent of floodplains in the study area was determined through the analysis of FEMA documents, USGS Topographic Maps, and the IDNR GIS database.

FEMA 100-year floodplain and 500-year floodplain are associated with four of the seven streams located within the study area (Cattail Creek, Rock Creek, Elkhorn Creek, and Rock River). FEMA 100-year floodplain is also associated with Deer Creek near its confluence with Rock River (just south of the study area), French Creek near its confluence with Rock Creek, and Spring Brook near its confluence with Cattail Creek. Figure 7a and Figure 7b show the locations of the floodplains. FEMA documents do not define specific floodway boundaries based on FEMA mapping.

3.4.6 Wetlands

The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps and USDA-NRCS farmed wetlands maps were used to identify locations of potential wetlands within the study area.

Potential wetland sites located within the corridor alternatives can generally be characterized into three categories; farm ponds, scrub/shrub or forested wetlands located along streams and drainage ways, and isolated emergent wetlands. Farm ponds often occur in low-lying areas with poor drainage or where a seep occurs (typically ephemeral). Some of these seeps may be related to damaged field tiles. The scrub/shrub and forested wetlands within the corridor alternatives are typically in use for pasture or have been cleared and are in cultivation. Almost all of the emergent wetland areas within the corridor alternatives are currently in use as pasture or for cultivated crops. A combined total of 74 potential wetland sites are found within the different corridor alternatives: 39 of these sites were judged likely to be jurisdictional wetlands. Of the 74 potential wetland sites approximately 3 are classified as farm ponds, approximately 32 are considered to be scrub/shrub and forested wetlands, and approximately 39 are classified as emergent wetlands. These wetlands are shown in Figure 7a and Figure 7b.

3.4.7 Special Waste Sites

Special waste includes hazardous wastes, potentially infectious medical wastes, industrial process waste, and pollution control waste. Special waste requires special handling, trained people, and/or special disposal methods. Special waste sites evaluated for this project include Compensation, and Liability Information System (CERCLIS) sites, Resource Conservation and Recovery Act (RCRA) sites, leaking underground storage tank (LUST) sites, clean-up site, and landfill sites.

A total of 27 potential special waste sites are identified within the study area. These potential special waste sites include 11 LUST sites, two CERCLIS sites, four RCRA sites, two LUST/RCRA sites, one clean-up site, and seven landfill sites. Figure 7a and Figure 7b show the locations of the LUST, CERCLIS, RCRA, clean-up sites, and landfills within the study area.

3.4.8 Special Lands

Special lands are divided into three groups, Section 4(f) properties, Section 6(f) properties, and Open Space Land Acquisition & Development (OSLAD) Program lands.

3.4.8.1 Section 4(f) Properties

Section 4(f) properties within the study area include five parks, two natural areas, one nature preserve, and two golf courses: French Creek Preserve Park, Morrison-Rockwood State Park, Kelly Park, Kiwanis Park, Waterworks Park, Prairie Trails (natural area), Clyde Cemetery Prairie (natural area), Lyndon Prairie (nature preserve), Cross Creek Golf Course, and Sunset Woods Golf Course. Figure 7a and Figure 7b show the approximate locations of these publicly owned lands.

3.4.8.2 Section 6(f) Properties

No Section 6(f) properties are located within the study area.

3.4.8.3 OSLAD Lands

No OSLAD lands are located within the study area.

3.4.9 Air Quality

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

No portion of this project is located within a designated nonattainment area or maintenance area.

3.4.10 Traffic Noise

Traffic noise is defined as unpleasant, unwanted sounds generated from roadway systems. The level of traffic noise depends on a number of factors, such as traffic volumes, traffic speed, truck volumes, and roadway horizontal and vertical alignment.

A detailed Traffic Noise Study was not completed for this study. Therefore, existing traffic noise levels are not available. Existing traffic noise levels will be obtained in the Phase I/NEPA Evaluation Process.

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4.0 ALTERNATIVES CONSIDERED

A two-level alternatives evaluation process was used to progressively eliminate alternatives from further consideration and to develop a Recommended Alternative(s). The evaluation criteria used in the evaluation process were developed based on the U.S. Route 30 Corridor Study Purpose and Need. The result of the evaluation process is the Recommended Alternative(s) that best meets the purpose and need, while minimizing environmental affects. Two rounds of evaluation were conducted for this study as additional corridor alternatives were developed based on initial findings and comments received from the first Public Meeting. The results of the first round of evaluation are presented in Section 5.0, Comparative Analysis Results and the results of the second round of evaluation are presented in Section 6.0, Enhanced Comparative Analysis – Detailed Alternatives.

4.1 DEVELOPMENT OF PRELIMINARY CORRIDOR ALTERNATIVES

Preliminary corridor alternatives were developed based on various constraints in the study area. In addition to the corridor alternatives, the No-Action (baseline) Alternative, Existing Alignment Alternative, and Transportation System Management (TSM) Alternative were evaluated.

4.2 ALTERNATIVE EVALUATION PROCESS

The alternative evaluation process included a focused, fact-based technical analysis (including the development of alternative evaluation criteria) and a comprehensive public and agency involvement program. The fact-based technical approach included the evaluation of the corridor locations and termini through a two-level alternatives evaluation process. The Fatal Flaw Analysis is the first level of evaluation that eliminated alternatives that clearly did not meet the U.S. Route 30 Corridor Study Purpose and Need. The Comparative Analysis is the second level of evaluation that compared the relative benefits and affects of the corridor alternatives based on how effectively they met the established alternative evaluation criteria. The corridor alternatives that passed the second level of evaluation were presented to the public for feedback. Once feedback is received the process is either concluded with recommended alternative(s) or the process cycles back to the first level of analysis (fatal flaw evaluation) if additional alternatives are identified. The cycle continues until recommended alternative(s) are identified that are generally supported by the public because public involvement is a significant evaluation criteria. Refer to Figure 11 for a diagram of the alternative evaluation process.

4.2.1 Fatal Flaw Analysis

The Fatal Flaw Analysis was developed to screen corridor alternatives that clearly did not satisfy the U.S. Route 30 Corridor Study Purpose and Need. Alternatives screened out at this level were removed from further consideration because they were not practical and had no chance of being implemented. The Fatal Flaw Analysis involved input from special interest groups and local officials to ensure the appropriate range of corridor alternatives were evaluated at a more detailed level.

4.2.2 Comparative Analysis

The Comparative Analysis was developed to help determine the Recommended Alternative. Alternative evaluation criteria were developed for the analysis from the U.S. Route 30 Corridor

Study Purpose and Need. Detailed information was collected for each corridor alternative to use in the analyses. These analyses were primarily quantitative in nature and evaluated the relative benefits and affects of the corridor alternatives based on the established alternative evaluation criteria.

4.2.3 Public Involvement

To provide a fair and open process and to ensure that all issues were heard, a comprehensive public and agency involvement process was conducted. This process involved a variety of opportunities for the public and affected interest groups to get involved and stay informed including:

- Various local agencies and special interest group meetings and presentations
- Project newsletters
- Public meetings
- Project website (www.dot.il.gov/us30)
- Media outreach

As a result of the public involvement process, two new corridor alternatives were developed and evaluated in the Alternative Evaluation Process. In addition, the evaluation criteria were refined to reflect the concerns discussed during the first public meeting. Section 7.0 summarizes public involvement activities for this Corridor Study.

4.2.4 Enhanced Comparative Analysis

The Enhanced Comparative Analysis was developed from public comment and the Comparative Analysis to help determine the Recommended Alternative. Alternative evaluation criteria from the Comparative Analysis were enhanced as a result of public comment. Just as in the Comparative Analysis, detailed information was collected for each corridor alternative to use in the analyses. The analyses remained primarily quantitative in nature and evaluated the relative benefits and affects of the corridor alternatives based on the established alternative evaluation criteria.

4.3 PROPOSED HIGHWAY DESIGN GUIDELINES

The corridor alternatives that continued into the Comparative Analysis were developed to a conceptual design stage so they could be evaluated and compared to each other. The conceptual design followed IDOT's standards. As the U.S. Route 30 Corridor Study proceeds through the Phase I/NEPA Evaluation Process and Phase II/Design, the alternatives will be designed in greater detail.

4.3.1 Design Criteria

The U.S. Route 30 corridor alternatives were developed as a rural expressway. The U.S. Route 30 Corridor Study followed design criteria set forth for rural expressways in Chapter 37: Interchanges, Chapter 45: Expressways, and Figures 45-4A and 45-4C of the IDOT Bureau of Design and Environment (BDE) Manual (2002).

4.3.2 Typical Sections

All corridor alternatives have the same typical section. The proposed typical section is a four-lane, divided rural expressway facility. The typical section includes 12-foot travel lanes, a 52-foot median, a 10-foot fully paved outside shoulder, and a 6-foot partially paved inside shoulder (4-foot paved). The proposed typical section was developed using guidelines set forth in the IDOT BDE Manual Figure 45-4A: Geometric Design Criteria for Rural Expressways, while accommodating the standards set forth in the right column of the IDOT BDE Manual Figure 44-5A: Geometric Design Criteria for Freeways. Figure 12 contains the typical section for the proposed U.S. Route 30.

4.3.3 Design Speed

As an expressway, the proposed U.S. Route 30 has a design speed of 70 mph. The operating speed is anticipated to be between 55 mph and 65 mph.

4.3.4 Horizontal Alignment

Horizontal alignments define the path of a roadway. Horizontal alignments are made up of straight lines and circular segments. They are defined in the horizontal plane through specification of line, transition, and segment characteristics. The IDOT BDE sets standards for the development of horizontal alignments. Based on these standards, the expressway will be designed to provide:

- A maximum superelevation rate for turning roadways along U.S. Route 30 of 6 percent (BDE Figure 45-4C, page 45-4(10))
- A desirable horizontal radius of 3,000 feet (The minimum horizontal radius is 2, 050 feet) (BDE Figure 45-4C, page 45-4(10))
- A horizontal curve length between 500 feet and 1-mile (BDE section 32-2.05, BDE Figure 32-2G, pages 32-2(5) and 32-2(10))
- Limited access control with interchanges along U.S. Route 30 spaced at least 3.0 miles apart (BDE section 37-2.01, page 37-2(1))

4.3.5 Vertical Alignment

Vertical alignments consist of straight segments and parabolic curves in a vertical plane. The IDOT BDE sets standards for the development of vertical alignments. Based on these standards, the expressway will be designed to provide:

- A minimum stopping sight distance of 730 feet (BDE Figure 45-4C, page 45-4(10))
- A vertical grade between 0.5 percent and 4 percent (BDE Figure 45-4C, page 45-4(10))
- A minimum of 247 feet horizontal distance to produce a one-percent change in gradient for a crest vertical curve, and 181 feet for a sag vertical curve (BDE Figure 45-4C, page 45-4(10))
- A minimum vertical curve length of 350 feet; however, a minimum vertical curve length of 1,000 feet is preferred (BDE section 33-4.01(9), page 33-4(2))

4.3.6 Proposed Access Control or Access Management

Access along the expressway will be managed. At-grade access points are proposed along the corridor, with an interchange at Illinois Route 78. A grade separation over the expressway is recommended for one county road (Round Grove Road, Lyndon Road, Sawyer Road, or Garden Plain Road) at a location that will be determined in the next phase of the study. Access to field entrances, commercial entrances, and residential entrances is allowed only when other access cannot be provided to the property. Specific locations of field entrances, commercial entrances, and residential entrances along the expressway will be determined in the next phase of the study. The expressway will be constructed with consideration that future travel demand may warrant the conversion from an expressway to a freeway.

4.4 ALTERNATIVE EVALUATION CRITERIA

Criteria for determining the Recommended Alternative(s) were developed based on the U.S. Route 30 Corridor Study Purpose and Need. Each of the individual criterion was given a measure of effectiveness that was used to assess the benefits and potential affects of the corridor alternatives. The criteria were then separated by whether they were used for the Fatal Flaw Analysis or Comparative Analysis. The Fatal Flaw Analysis was the first level of the screening process and was used to eliminate corridor alternatives that were not practical. The second level of the screening process was either the Comparative Analysis or the Enhanced Comparative Analysis that was used to provide a corridor-to-corridor comparison of the remaining corridor alternatives.

4.4.1 Fatal Flaw Analysis Criteria

As shown in Table 12, the criteria used during the Fatal Flaw Analysis to screen impractical corridor alternatives included key social, economic, and natural resources; length of corridor; and local community goals and objectives. Each of these criteria are considered fatal flaws that justifies the elimination of an alternative from further consideration.

Table 12: Fatal Flaw Evaluation Criteria

Criterion	Measure of Effectiveness
Key social, economic, and natural resources affects	a. Does the corridor alternative traverse any state parks? b. Does the corridor alternative traverse any Nature Preserves? c. Does the corridor traverse a central business district?
Length	Does corridor alternative have a length substantially greater (>5 miles) than the existing route?
Local Community Goals and Objectives	Does the corridor alternative fail to meet the local community goal and objective of reducing truck traffic along the U.S. Route 30 Corridor and through the City of Morrison?

4.4.2 Comparative Analysis Criteria

Table 13 shows the evaluation criteria used during the Comparative Analysis to evaluate the corridor alternatives for the second level of evaluation. These analyses involved the evaluation of each alternative on the basis of safety, corridor utilization, traffic operations, environmental

resources affects, community planning/land use, right-of-way (ROW)/residences & commercial buildings, adverse travel, public support, economic vitality, and cost.

Table 13: Comparative Analysis Criteria

Criterion	Measure of Effectiveness
Safety	Does the corridor alternative meet full design standards?
Corridor Utilization	a. How many through trucks and other vehicles are projected to use the corridor alternative? b. How many through trucks and other vehicles are projected to use the existing U.S. Route 30?
Traffic Operations	a. What is the estimated corridor travel time? b. Does the intersection LOS improve (and to what extent) along the U.S. Route 30 corridor?
Environmental Resources Affects	a. What are the potential agricultural affects? b. What are the potential cultural (archaeological and historical) affects? c. What are the potential natural resources (nature preserves/natural areas, T&E species, and vegetation/wildlife habitat) affects? d. What are the potential water resource/water quality affects? e. What are the potential floodplain affects? f. What are the potential wetland affects? g. What are the potential special waste affects? h. What are the potential special lands affects? i. What are the potential air quality affects? j. What are the potential traffic noise affects?
Community Planning/Land Use	Is the corridor consistent with existing and planned land uses?
ROW/Residences & Commercial Buildings	a. What is the required ROW acquisition? b. How many residences and commercial buildings are located in the corridors?
Adverse Travel	What is the amount of out-of-direction travel?
Public Support	Does the public support the corridor alternative?
Economic Vitality	What is the distance from existing U.S. Route 30 in Morrison to the proposed Illinois Route 78 Interchange?
Cost	What is the estimated construction cost of the corridor alternative?

4.4.2.1 Safety

Roadway safety was evaluated for each corridor alternative based on Illinois Department of Transportation (IDOT), Federal Highway Administration (FHWA), and American Association of State Highway and Transportation Officials (AASHTO) design standards. Safety criteria reflect the ability to reasonably construct the corridor alternative alignments to

meet minimum design criteria for the facility type. An expressway facility is desired because it can handle higher design speeds and access is controlled.

4.4.2.2 Corridor Utilization

Corridor utilization was evaluated by the analysis of projected (2023 Build condition) average daily traffic (ADT) volume and truck volumes traveling along the existing U.S. Route 30. The ADT volume along the Expressway was not compared because it was assumed that the corridor alternatives would carry the same traffic volume. The 2003 Existing traffic volumes for U.S. Route 30 were based on 2003 traffic counts. The 2023 No-Action Alternative ADT volumes were developed based on 2003 Existing traffic volumes, a historic one percent growth rate, and existing and projected land use. Year 2023 Build ADT volumes were developed for the Expressway and U.S. Route 30. The 2023 Build ADT volumes along the Expressway were created with proposed developments taken into consideration, as well as, redirected traffic off of U.S. Route 30 and Interstate Route 88. The 2023 Build ADT volumes along existing U.S. Route 30 were created with the assumptions for the 2023 Build ADT volumes for the Expressway taken into consideration, as well as, proposed land use.

The ADT volume along U.S. Route 30 for the 2023 No-Action Alternative was compared to the ADT volume along U.S. Route 30 for the 2023 Build condition to evaluate how the Expressway is utilized and how well the alternative removes traffic from the existing corridor.

4.4.2.3 Traffic Operations

Traffic operations for each corridor alternative were evaluated using travel times from the western terminus to the eastern terminus and by making LOS comparisons between 2023 No-Action and 2023 Build conditions along U.S. Route 30.

Projected travel times for each corridor alternative were calculated by dividing the length of the alignment with the travel speed and adding delay time of traffic signals. In addition to travel times, improvements to traffic operations were evaluated based on the estimated LOS along existing U.S. Route 30 for the No-Action Alternative and the corridor alternatives. The traffic operations along the expressway (regardless of corridor alternative) is assumed to be free flowing based on the proposed capacity and projected traffic volumes; therefore, a LOS comparison along the expressway is not considered a beneficial comparison.

Segment and intersection LOS analysis, along U.S. Route 30, was completed for all corridor alternatives. Since the operations along U.S. Route 30 are generally controlled by the operations of the intersections, the intersections LOS were used for comparison purposes.

4.4.2.4 Environmental Resources Affects

Potential environmental resources affects for each corridor alternative, in addition to the No-Action Alternative, were evaluated based on established environmental evaluation criteria including agricultural resources, cultural resources (including archaeological and historical resources), natural resources (including nature preserves/natural areas, T&E species, and vegetation/wildlife habitat), water resources/water quality, floodplains, wetlands, special waste, special lands, air quality, and traffic noise. The environmental resources Comparative Analysis is quantitative in nature. For comparative purposes the environmental resources

were evaluated based on a 600-foot wide affect zone for each corridor with the exception of the traffic noise, which was evaluated using a 1,100-foot wide affect zone.

4.4.2.5 Community Planning/Land Use

Each of the corridor alternatives, in addition to the No-Action Alternative, was evaluated based on their consistency with community planning efforts. Existing and future land use plans of local municipalities were used in the analysis.

4.4.2.6 ROW/Residences & Commercial Buildings

ROW and relocation affects were evaluated for each corridor alternative based on typical ROW requirements and the number of potential buildings and major utilities located within the 600-foot wide affect zone.

ROW Acquisition. ROW acquisition represents the area in acres of land required for the expressway facility. The ROW was calculated based on the proposed typical section (200-foot wide) and length of the corridor alternative.

Number of Residences and Commercial Buildings. The number of residences and commercial buildings include any building (residence, business, or farming unit) or major utility within the 600-foot wide affect zone. Property records (Sidwell Mapping), aerial photography, utility records, and site visits were used to identify buildings and utilities. A farming unit consists of a residence and any barns, sheds, or silos located on the property.

4.4.2.7 Adverse Travel

Adverse travel may be described as the additional traveling distance that is required beyond the existing length. The additional distance may be considered out-of-direction travel since there may be a more direct route. The corridor alternatives were evaluated based on the amount (miles) of out-of-direction travel that is required between the east and west terminus locations. It is better to have less out-of-direction travel.

4.4.2.8 Public Support

Public support was evaluated for each corridor based on discussions with Whiteside County, City of Morrison, City of Fulton, City of Sterling, City of Rock Falls, and special interest groups. The level of support was categorized (support, neutral, or non-support) for a qualitative analysis based on feedback from discussions.

4.4.2.9 Economic Vitality

Affects to the economic vitality of the City of Morrison were evaluated for each corridor alternative. It was assumed that the closer a corridor alternative is to the City of Morrison, the more likely trips will be made for food, gas, resting, and shopping. The additional trips are directly related to the economic stability of the City of Morrison. Illinois Route 78 is the main north-south route to the center of the City of Morrison. The distance from the proposed Illinois Route 78 interchanges to the center of the City of Morrison (existing U.S. Route 30) was measured for each corridor alternative.

4.4.2.10 Cost

Conceptual cost estimates for the corridor alternatives were developed based on total construction cost of a four-lane expressway in 2003 dollars including engineering,

construction management, environmental studies, ROW requirements, and potential relocations as described in the IDOT BDE Manual (BDE Figure 12-4B, Cost Estimate Format for Project Reports). Similar assumptions were used for each corridor alternative, and a 15-percent contingency was added to the overall cost in determining the capital cost. Unit costs were taken from 2003 IDOT Pay Item reports with awarded prices, where possible. Other unit costs were estimated based on past project experience.

4.4.3 Enhanced Comparative Analysis Criteria

As a result of public feedback from the first public meeting on April 27, 2004, the comparative analysis criteria were enhanced. The first enhancement involved the combination of two criteria (Traffic Operations and Adverse Travel) into one criterion (Traffic Operations). The second enhancement involved the development of a new criterion, Agriculture, with new measures of effectiveness. The third enhancement affected the Environmental Resources Effects criterion. Since a new criterion was created for agriculture, it was not necessary to include agriculture as part of the Environmental Resources Effects criterion.

In the second level of analysis, alternatives are evaluated using the evaluation criteria shown in Table 14. The analysis involved the evaluation of each alternative on the basis of safety, corridor utilization, traffic operations, environmental resources affects, community planning/land use, right-of-way (ROW)/residences & commercial buildings, agriculture, public support, economic vitality, and cost.

Table 14: Enhanced Comparative Analysis Criteria

Criterion	Measure of Effectiveness
Safety	Does the corridor alternative meet full design standards?
Corridor Utilization	a. How many through trucks and other vehicles are projected to use the corridor alternative? b. How many through trucks and other vehicles are projected to use the existing U.S. Route 30?
Traffic Operations*	a. What is the estimated corridor travel time? b. Does the intersection LOS improve (and to what extent) along the U.S. Route 30 corridor? c. What is the amount of out-of-direction travel?
Environmental Resources Affects*	a. What are the potential cultural (archaeological and historical) affects? b. What are the potential natural resources (nature preserves/natural areas, T&E species, and vegetation/wildlife habitat) affects? c. What are the potential water resource/water quality affects? d. What are the potential floodplain affects? e. What are the potential wetland affects? f. What are the potential special waste affects? g. What are the potential special lands affects? h. What are the potential air quality affects? i. What are the potential traffic noise affects?

Community Planning/Land Use	Is the corridor consistent with existing and planned land uses?
ROW/Residences & Commercial Buildings	a. What is the required ROW acquisition? b. How many residences and commercial buildings are located in the corridors?
Agriculture*	a. How many centennial farms are located within the corridors? b. What is the area of Prime Farmland (acres) within the corridors? c. What is the potential of farm severance affects?
Public Support	Does the public support the corridor alternative?
Economic Vitality	What is the distance from existing U.S. Route 30 in Morrison to the proposed Illinois Route 78 Interchange?
Cost	What is the estimated construction cost of the corridor alternative?

* These criterion were added or enhanced as a result of public feedback from the first public meeting on April 27, 2004.

4.4.3.1 Agriculture

Potential agricultural affects for each detailed corridor alternative were evaluated based on established agricultural criteria including the number of centennial farms and acres of prime farmland within the 600-foot wide affect zone. In addition, the potential of farm severance was estimated. A low severance potential means the corridor touches property edges whereas a high severance potential cuts many properties in half.

4.5 FATAL FLAW ANALYSIS RESULTS

Two alternatives were eliminated from further consideration based on the results of the Fatal Flaw Analysis. These alternatives include the TSM Alternative and the Existing Alignment Alternative.

4.5.1 TSM Alternative

The TSM Alternative includes strategies that improve the operations of the existing network without the construction of new infrastructures. These strategies focus on lower-cost capital projects, operational and institutional improvements, operating efficiency improvements, quality of service enhancements, and the promotion of public transit. TSM strategies could include the introduction of a public transit system and/or public bus routes, the promotion of ride sharing programs, signal-timing improvements, and signing improvements. The construction of a new expressway is not included in this alternative.

The TSM Alternative was eliminated from further consideration during the Fatal Flaw Analysis since it does not meet the local community goals and objective of reducing truck traffic through the City of Morrison. The City of Morrison could not justify a public transit system or a ride share program to reduce vehicles traveling on U.S. Route 30. In addition, signal timing and signing improvements alone will not improve level-of-service enough to accommodate future traffic volumes and planned growth within the study area.

4.5.2 Existing Alignment Alternative

The Existing Alignment Alternative includes improvements to the existing U.S. Route 30 Corridor. These improvements include the addition of through and auxiliary lanes to accommodate future demand; reconstruction of intersections to address safety issues; and adjustments of profile, alignment, and cross-section to address existing deficiencies.

The Existing Alignment Alternative was eliminated from further consideration during the Fatal Flaw Analysis since it does not meet the local community goal and objective of reducing truck traffic through the City of Morrison. In addition, this alternative would substantially disrupt the community through the high number of residential and commercial relocations.

4.6 ALTERNATIVES

Five alternatives were carried forward into the Comparative Analysis level of evaluation. These alternatives include four corridor alternatives on a new alignment and the No-Action Alternative. The No-Action Alternative does not address the purpose and need of the project but is carried forward to the Comparative Analysis for comparative purposes only. It may be the recommended alternative if no other alternative is reasonable and addresses the purpose and need. Figures 13 through 16 show the four corridor alternatives on aerial mapping.

General structural and geotechnical considerations are discussed by corridor alternative in the following sections. Further details are included in the *Structures Report* dated September 15, 2004 and the *Geotechnical Feasibility Report* dated March 8, 2005 for the U.S. Route 30 Corridor Study under separate covers.

Intersection/interchange concepts (signalized intersections, roundabouts, and interchanges) were evaluated for each corridor alternative at three separate locations. The locations included the western terminus, the eastern terminus, and Illinois Route 78. A roundabout is a circular intersection where the entering vehicles yield to the circulating vehicles. Figure 17 shows a typical geometry layout of a roundabout and photographs of existing roundabouts.

One or more intersection/interchange concept(s) were evaluated at each of these locations and a recommended concept was identified based on four primary criteria:

- Geometry. It is assumed that all intersections (signalized, roundabouts, and interchanges) will be designed to standards. Geometric features that were considered during the evaluation are topography (a roundabout generally requires a flatter area than a signalized intersection) and number of approach lanes required (lower number of approach lanes reduces the number of conflict points).
- Longevity. The longer an intersection can operate without having to upgrade to an interchange is beneficial and requires less overall capital cost (multi-lane roundabouts generally have more capacity than a signalized intersection).
- Safety. General safety trends of the various intersection types are evaluated (based on research, a single-lane roundabout is safer than an intersection or a multi-lane urban roundabout. In addition, roundabouts decrease the incidence of severe crashes).
- Traffic Operations. The daily operations during peak hour traffic flows are evaluated for overall delay.

Analysis associated with the selection of the recommended intersection/interchange concepts was documented in a technical memorandum, *U.S. Route 30 Expressway Termini Alternatives*, dated January 7, 2004

All of the corridor alternatives and intersection/interchange concepts are preliminary. As the U.S. Route 30 Corridor Study proceeds through the Phase I/NEPA Evaluation Process and Phase II/Design, the corridor alternatives will be designed in further detail.

4.6.1 No-Action Alternative

The No-Action Alternative represents the future conditions if major improvements are not implemented. This alternative includes no major improvements along U.S. Route 30; only minor safety and maintenance improvements, such as minor widening, lighting upgrades, and roadway patching, would be undertaken.

4.6.1.1 Description of Corridor

The No-Action Alternative follows the existing U.S. Route 30 alignment and generally runs from northwest to southeast. Beginning at the junction of U.S. Route 30 and Illinois Route 136, the alignment travels to the northwest, over Cattail Creek and under the BNSF Railroad. Just east of the BNSF Railroad crossing, the alignment curves to the southeast direction and travels under the UP Railroad, through the City of Morrison, over Deer Creek, over the UP Railroad to the intersection of Moline Road and the U.S. Route 30 Spur. The No-Action Alternative is approximately 20.6 miles in length.

4.6.1.2 Description of Intersections/Interchanges

U.S. Route 30 intersects with several cross roads. In general, the intersections are stop-signed controlled with traffic along the cross roads stopping. Four signalized intersections exist through the City of Morrison. These intersections include Genesee, Jackson, Madison, and Illinois Route 78 (South). In addition to the numerous intersections, several access points exist along U.S. Route 30 within the City, accessing commercial and industrial businesses and residential homes. No interchanges currently exist along U.S. Route 30 within the study limits.

4.6.2 Corridor Alternative 1

Corridor Alternative 1 was developed as the farthest northern alternative. The strategy in developing the corridor alignment was to create a corridor that is in harmony with the community and environment. Several elements were considered in the development of this corridor including avoiding the Morrison-Rockwood State Park, allowing for residential development to the north of the City of Morrison as planned, separating the Expressway from Interstate Route 88, providing a smooth corridor with minimum number of curves, avoiding the bluffs located near the BNSF Railroad, and minimizing environmental impacts.

4.6.2.1 Description of Corridor

Corridor Alternative 1 includes constructing an expressway to the north of the City of Morrison. Beginning at the junction of U.S. Route 30 and Illinois Route 136, the corridor leaves the existing U.S. Route 30 alignment at Frog Pond Road and travels northeast across the BNSF Railroad. The corridor continues to the east, passing north of Morrison-Rockwood State Park. The corridor then travels to the southeast to reconnect with the existing U.S. Route 30 just north of the UP Railroad crossing, south of Emerson Road. The corridor

continues along the existing alignment and ends at the intersection of U.S. Route 30/Moline Road/U.S. Route 30 Spur. This corridor alternative is approximately 21.0 miles in length and crosses Illinois Route 78 (North) approximately 4.2 miles north of the center of the City of Morrison.

4.6.2.2 Structural and Geotechnical Considerations

Preliminary roadway geometrics have been developed and drainage analyses have been conducted to identify the structures for each corridor alternative. The bridges will involve crossings with Illinois Route 78, existing railroads, county roads, and waterways. It was assumed that Lyndon Road would be grade separated with U.S. Route 30 while the other county and local roads would involve at-grade intersections. There are seven bridges proposed for Corridor Alternative 1. The list below identifies each proposed bridge location and structure type. The *Structure Report* provides engineering details for each bridge. Further refinement of each proposed structure would be expected during the preliminary design and environmental analysis phase of the project.

1. U.S. Route 30 over BNSF Railroad (grade separation) – Dual Triple Span W30 Beams w/ RC Slab & Integral Abutments.
2. Illinois Route 78 over U.S. Route 30 (grade separation - overhead) – Double Span W36 Beams w/ RC Slab & Integral Abutments.
3. U.S. Route 30 over a Major Creek (Rock Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.
4. A County Road over U.S. Route 30 (grade separation – overhead, Lyndon Road) – Double Span 48" Web PL Girders w/ RC Slab & Pile Bent Abutments.
5. U.S. Route 30 over a Major Creek (Deer Creek Tributary) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.
6. U.S. Route 30 over a Major Creek (Deer Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.
7. U.S. Route 30 over UP Railroad (grade separation) – Dual Triple Span W36 Beams w/ RC Slab & Pile Bent Abutments.

It is anticipated that the bedrock surface underlying the project area is composed chiefly of relatively flat-lying Silurian dolomites from the Niagaran-Alexandrian Formations. These are underlain by the Maquoketa shale and dolomite. The ground and bedrock surface elevations are generally higher along Corridor Alternative 1, which passes over the Rock River Hill Country, as opposed to more southerly alternatives that cross the lowlands. Although there is no indication of Karst features in the project area, if rock is exposed or very near the surface then Karst features may be present and should be evaluated further. Karst features can result in unreliable soil conditions and may require special foundation considerations. With respect to earthwork, most cuts and fills are expected to be less than 20 feet deep. Almost all excavation is anticipated to be in soil with little or no rock excavation. Settlement and slope stability for the bridge approaches should be considered as the preliminary design is developed. Soil borings were limited to locations along Corridor Alternative 3, however, similar conditions are expected for all of the corridors. Deep foundations are likely to be needed with limited use of shallow, spread footing foundations.

4.6.2.3 Description of Intersections/Interchanges

Several intersection/interchange concepts were evaluated for Corridor Alternative 1 for the three previously identified locations: the western terminus, the eastern terminus, and Illinois Route 78 (North). Additional access will be provided along the Expressway for a limited number of cross roads, residences, businesses, and farm fields. The exact locations of access on the Expressway will be determined in the Phase I/NEPA Evaluation Process.

Western Terminus. Corridor Alternative 1 approaches the western terminus from the northeast and matches the existing U.S. Route 30 alignment west of Frog Pond Road. Illinois Route 136 and U.S. Route 30 are realigned to cross the Expressway at a ninety-degree angle. Frog Pond Road is extended to cross the Expressway and terminate in a tee-intersection with Illinois Route 136/realigned U.S. Route 30. Two intersection concepts and one interchange concept were considered for the western terminus of Corridor Alternative 1.

- Intersection Concept 1 includes the western terminus improvements described with a signalized intersection at the crossing of the Expressway and Illinois Route 136/realigned U.S. Route 30, and two unsignalized intersections, one at the crossing of the Expressway and Frog Pond Road and one at the tee intersection of Illinois Route 136/U.S. Route 30 and Frog Pond Road. Frog Pond Road is stop-controlled in each case. The signalized intersection requires four lanes at each approach except the Illinois Route 136 approach where three lanes are required.
- Intersection Concept 2 includes the western terminus improvements described with a roundabout at the crossing of the Expressway and Illinois Route 136/realigned U.S. Route 30, and two unsignalized intersections, one at the crossing of the Expressway and Frog Pond Road and one at the tee intersection of Illinois Route 136/realigned U.S. Route 30 and Frog Pond Road. Frog Pond Road is stop-controlled in each case. The roundabout requires one lane at one approach, two lanes at one approach, and one lane with one bypass lane at two approaches. The roundabout has two lanes around the circumference (multi-lane roundabout).
- Interchange Concept 1 includes the western terminus improvements described with a diamond interchange at the Expressway crossing with the Illinois Route 136/realigned U.S. Route 30. The interchange concept also includes an extension of Frog Pond Road north; Frog Pond Road overpasses the Expressway to a tee-intersection with Illinois Route 136 where Frog Pond Road is stop-controlled.

Intersection Concept 2 is the recommended intersection/interchange concept. The multi-lane roundabout is recommended over the traffic signal because it requires fewer approach lanes, provides more residual capacity, and operates with less overall delay than a signalized intersection. The recommended intersection concept is shown on Figure 13, sheet 2. The corridor footprint shown on the figure was created to include both the preferred intersection concept and the interchange concept since the interchange concept may be the ultimate configuration when it's justified by the traffic volumes.

Eastern Terminus. Corridor Alternative 1 approaches the eastern terminus from the northwest and matches the existing U.S. Route 30 alignment south of Emerson Road. U.S. Route 30 is realigned west of Emerson Road to cross Emerson Road at a ninety-degree angle. The improvements continue to the U.S. Route 30/U.S. Route 30 Spur/Moline Road

Intersection. Three intersection concepts and one interchange concept were evaluated for the eastern terminus of Corridor Alternative 1.

- Intersection Concept 1 includes the eastern terminus improvements described with traffic signals at the Emerson Road/U.S. Route 30/Expressway Intersection and the U.S. Route 30/U.S. Route 30 Spur/Moline Road/Expressway Intersection. The first intersection requires a four-lane approach along the Expressway and a three-lane approach along Emerson Road and U.S. Route 30. The second intersection requires a five-lane approach for the Expressway, four-lane approach for the U.S. Route 30 Spur, and a three-lane approach for U.S. Route 30 and Moline Road.
- Intersection Concept 2 includes the eastern terminus improvements described with roundabouts at the Emerson Road/U.S. Route 30/Expressway Intersection and the U.S. Route 30/U.S. Route 30 Spur/Moline Road/Expressway Intersection. Both roundabouts require two lanes (multi-lane roundabout). The first roundabout requires two-lane approaches for the Expressway and one-lane approach for Emerson Road and U.S. Route 30. The second roundabout requires two-lane approaches for the Expressway and the U.S. Route 30 Spur, one-lane approach for Moline Road, and one-lane approach with a bypass lane for U.S. Route 30.
- Intersection Concept 3 is a combination of Intersection Concept 1 and Intersection Concept 2. The improvements include the eastern terminus improvements described with a traffic signal at the Emerson Road/U.S. Route 30/Expressway Intersection and a roundabout at the U.S. Route 30/U.S. Route 30 Spur/Moline Road/Expressway Intersection.
- Interchange Concept 4 includes a diamond interchange at the Emerson Road/Expressway crossing and a traffic signal at the U.S. Route 30/U.S. Route 30 Spur/Moline Road intersection.

Intersection Concept 3 is the recommended intersection/interchange concept. A signalized intersection is recommended for the Emerson Road/U.S. Route 30/Expressway Intersection because it fits better with the topography than a roundabout and the overall delay is similar. The multi-lane roundabout is recommended for the U.S. Route 30/U.S. Route 30 Spur/Moline Road/Expressway Intersection because it requires fewer approach lanes, provides more residual capacity, and operates with less overall delay than a signalized intersection. The recommended intersection concept is shown on Figure 13, sheets 9 and 10. The corridor footprint shown on the figure was created to include both the recommended intersection concept and interchange concept since the interchange concept may be the ultimate configuration once it's justified to be constructed.

Illinois Route 78 (North). A standard diamond interchange was the only interchange concept considered to provide access to Illinois Route 78 (North) from the Expressway. Diamond interchanges are generally the simplest and most common type of interchange placed at the intersection of a major and minor facility where traffic is not expected to increase greatly. Diamond interchanges take a moderate amount of ROW and have a moderate capacity. Therefore, no additional interchange alternatives were evaluated for this location. This interchange concept is shown on Figure 13, sheet 5.

4.6.3 Corridor Alternative 2

Corridor Alternative 2 was developed as a northern alternative that is relatively close to the City of Morrison. The strategy in developing the corridor alignment was to create a corridor that is in harmony with the community and environment. Several elements were considered in the development of this corridor including avoiding the Morrison-Rockwood State Park, avoiding the Whiteside County Landfill, providing a smooth corridor with minimum number of curves, avoiding the bluffs located near the BNSF Railroad, and minimizing environmental impacts.

4.6.3.1 Description of Corridor

Corridor Alternative 2 includes constructing an expressway to the north of the City of Morrison. Beginning at the junction of U.S. Route 30 and Illinois Route 136, the corridor leaves the existing U.S. Route 30 alignment at Frog Pond Road and travels northeast across the BNSF Railroad. The corridor curves to the southeast, passing south of Morrison-Rockwood State Park. The corridor then reconnects with the existing U.S. Route 30 just north of the UP Railroad crossing, south of Emerson Road. The corridor continues along the existing alignment and ends at the intersection of U.S. Route 30/Moline Road/U.S. Route 30 Spur. This corridor alternative is approximately 20.6 miles in length and crosses Illinois Route 78 (North) approximately 1.2 miles north of the center of the City of Morrison.

4.6.3.2 Structural and Geotechnical Considerations

Preliminary roadway geometrics have been developed and drainage analyses have been conducted to identify the structures for each corridor alternative. The bridges will involve crossings with Illinois Route 78, existing railroads, county roads, and waterways. It was assumed that Lyndon Road would be grade separated with U.S. Route 30 while the other county and local roads would involve at-grade intersections. There are ten bridges proposed for Corridor Alternative 2. The list below identifies each proposed bridge location and structure type. The *Structure Report* provides engineering details for each bridge. Further refinement of each proposed structure would be expected during the preliminary design and environmental analysis phase of the project.

1. U.S. Route 30 over BNSF Railroad (grade separation) – Dual Triple Span W30 Beams w/ RC Slab & Integral Abutments.
2. U.S. Route 30 over a Major Creek (Spring Brook) – Dual Single Span 48” Web Plate Girders w/ RC Slab & Integral Abutments.
3. U.S. Route 30 over a Major Creek (Spring Brook Tributary) – Dual Single Span 48” Web Plate Girders w/ RC Slab & Integral Abutments.
4. Illinois Route 78 over U.S. Route 30 (grade separation – overhead) – Double Span W36 Beams w/ RC Slab & Integral Abutments.
5. U.S. Route 30 over a Major Creek (Rock Creek) – Dual 5 Span W36 Beams w/ RC Slab & Pile Bent Abutments.
6. Lyndon Road over U.S. Route 30 (grade separation – overhead) – Double Span W40 Beams w/ RC Slab & Integral Abutments.
7. U.S. Route 30 over a Major Creek (French Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.

8. U.S. Route 30 over a Major Creek (Deer Creek Tributary) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.
9. U.S. Route 30 over a Major Creek (Deer Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.
10. U.S. Route 30 over UP Railroad (grade separation) – Dual Triple Span W36 Beams w/ RC Slab & Pile Bent Abutments.

It is anticipated that the bedrock surface underlying the project area is composed chiefly of relatively flat-lying Silurian dolomites from the Niagaran-Alexandrian Formations. These are underlain by the Maquoketa shale and dolomite. The ground and bedrock surface elevations are generally higher along Corridor Alternative 2 (similar to Alternative 1), which passes over the Rock River Hill Country, as opposed to more southerly alternatives that cross the lowlands. Although there is no indication of Karst features in the project area, if rock is exposed or very near the surface then Karst features may be present and should be evaluated further. Karst features can result in unreliable soil conditions and may require special foundation considerations. With respect to earthwork, most cuts and fills are expected to be less than 20 feet deep. Almost all excavation is anticipated to be in soil with little or no rock excavation. Settlement and slope stability for the bridge approaches should be considered as the preliminary design is developed. Soil borings were limited to locations along Corridor Alternative 3; however, similar conditions are expected for all of the corridors. Deep foundations are likely to be needed with limited use of shallow, spread footing foundations.

4.6.3.3 Description of Intersections/Interchanges

Several intersection/interchange concepts were evaluated for Corridor Alternative 2 for the three previously identified locations: the western terminus, the eastern terminus, and Illinois Route 78 (North). Additional access will be provided along the Expressway for a limited number of cross roads, residences, businesses, and farm fields. The exact locations of access on the Expressway will be determined in the Phase I/NEPA Evaluation Process.

Western Terminus, Eastern Terminus, and Illinois Route 78 (North). The intersection/interchange concepts associated with the western terminus, eastern terminus, and Illinois Route 78 (North) locations are the same as the concepts presented for Corridor Alternative 1; refer to Section 4.6.2.2: Description of Intersections/Interchanges. The recommended improvements to the western terminus (Intersection Concept 2) are shown on Figure 14, sheet 2. The corridor footprint shown on the figure was created to include both the recommended intersection concept and the interchange concept since the interchange concept may be the ultimate configuration when it's justified to be constructed. The recommended improvements to the eastern terminus (Intersection Concept 3) are shown on Figure 14, sheets 9 and 10. This interchange concept for Illinois Route 78 is shown on Figure 14, sheet 5.

4.6.4 Corridor Alternative 3

Corridor Alternative 3 was developed as a southern alternative that is relatively close to the City of Morrison. The strategy in developing the corridor alignment was to create a corridor that is in harmony with the community and environment. Several elements were considered in the development of this corridor including avoiding the Lyndon Prairie Nature Preserve, providing easy access to the Industrial Park, minimizing construction along the bluffs located near the

BNSF Railroad, providing a smooth corridor with minimum number of curves, and minimizing environmental impacts.

4.6.4.1 Description of Corridor

Corridor Alternative 3 includes constructing an expressway to the south of the City of Morrison. Beginning at the junction of U.S. Route 30 and Illinois Route 136, the corridor continues close to the existing U.S. Route 30 alignment until it leaves the alignment just east of the BNSF Railroad crossing. The corridor continues in the southeast direction, passing south of the City of Morrison, and ending at approximately 0.5 miles east of Round Grove Road. Corridor Alternative 3 is approximately 16.3 miles in length and crosses Illinois Route 78 (South) approximately 1.4 miles south of the center of the City of Morrison.

This corridor alternative needs to be combined with one of the three terminus options to be complete.

Terminus Option A. Terminus Option A begins where Corridor Alternative 3 ends (approximately 0.5 miles east of Round Grove Road) and curves to the northeast, crossing over the UP Railroad and Deer Creek, intersecting with the existing U.S. Route 30 Corridor at approximately 0.5 miles east of Deer Creek. This option continues east along the existing U.S. Route 30 Corridor and ends at the intersection of U.S. Route 30/Moline Road/U.S. Route 30 Spur. Terminus Option A is approximately 5.6 miles in length.

Terminus Option B. Terminus Option B begins where Corridor Alternative 3 ends (approximately 0.5 miles east of Round Grove Road) and continues to the east reconnecting with the existing U.S. Route 30 at the Moline Road/U.S. Route 30 Spur intersection. Terminus Option B is approximately 4.2 miles in length.

Terminus Option C. Terminus Option C begins where Corridor Alternative 3 ends (approximately 0.5 miles east of Round Grove Road) and curves to the southeast, ending with an interchange at Interstate Route 88. This option does not reconnect to the existing U.S. Route 30 Corridor. Terminus Option C is approximately 1.3 miles in length.

4.6.4.2 Structural and Geotechnical Considerations

Preliminary roadway geometrics have been developed and drainage analyses have been conducted to identify the structures for each corridor alternative. The bridges will involve crossings with Illinois Route 78, existing railroads, county roads, and waterways. It was assumed that Lyndon Road would be grade separated with U.S. Route 30 while the other county and local roads would involve at-grade intersections. There are eight bridges proposed for Corridor Alternative 3. Since Corridor Alternative 3 was evaluated in greater depth, optional structure types were considered at several locations. The list below identifies each proposed bridge location and structure type. It should be noted that the proposed alignment could use the existing spans of the BNSF Railroad structure. This opportunity will be explored in greater detail during the preliminary design and environmental analysis. The *Structure Report* provides engineering details for each bridge. Further refinement of each proposed structure would be expected during the preliminary design and environmental analysis phase of the project.

1. U.S. Route 30 over a Major Creek (Spring Brook) – Dual 3 Span W36 Beams w/ RC Slab & Pile Bent Abutments.

2. Option 1 - UP Railroad over U.S. Route 30 (grade separation – U.S. Route 30 Rural Expressway Section) – Double Span Truss Type Ballast Deck & Two Approach Spans Concrete Ballast Deck on Steel Beams.

   Option 2 – UP Railroad over U.S. Route 30 (grade separation – U.S. Route 30 Urban Expressway Section) – Four Span Thru Plate Girder Ballast Deck.

3. Option 1 - BNSF Railroad over U.S. Route 30 (grade separation) – Four Span Steel Beam Open Deck.

   Option 2 – BNSF Railroad over U.S. Route 30 (grade separation) – Four Span Thru Plate Girder Ballast Deck.

4. U.S. Route 30 over a Major Creek (Rock Creek) – Dual 5 Span W36 Beams w/ RC Slab & Pile Bent Abutments.
5. Illinois Route 78 over U.S. Route 30 (grade separation – overhead) – Double Span W36 Beams w/ RC Slab & Integral Abutments.
6. Lyndon Road over U.S. Route 30 (grade separation – overhead) – Double Span W36 Beams w/ RC Slab & Integral Abutments.
7. U.S. Route 30 over a Major Creek (Unknown Creek) – Dual Single Span 48" Web Plate Girders w/ RC Slab & Integral Abutments.
8. N/A*
9. Frog Pond Road over a Major Creek (Cattail Creek) – 3 Span W36 Beams w/ RC Slab & Integral Abutments.

*This structure is described under Bridge #1 for the East Terminus Option B structure summary.

It is anticipated that the bedrock surface underlying the project area is composed chiefly of relatively flat-lying Silurian dolomites from the Niagaran-Alexandrian Formations. These are underlain by the Maquoketa shale and dolomite. The ground and bedrock surface elevations are generally lower along Alternative 3 which crosses the lowlands as opposed to more northerly alternatives that pass over the Rock River Hill Country. Although there is no indication of Karst features in the project area, if rock is exposed or very near the surface then Karst features may be present and should be evaluated further. Karst features can result in unreliable soil conditions and may require special foundation considerations. With respect to earthwork, most cuts and fills are expected to be less than 20 feet deep. Almost all excavation is anticipated to be in soil with little or no rock excavation except on the western end near the BNSF Railroad crossing where there is a cut proposed through an existing bluff. Settlement and slope stability for the bridge approaches should be considered as the preliminary design is developed. Soil borings were limited to locations along Corridor Alternative 3, however, similar conditions are expected for all of the corridors. Deep foundations are likely to be needed with limited use of shallow, spread footing foundations.

Terminus Option A. There are three bridges proposed for Terminus Option A. The list below identifies each proposed bridge location and structure type. The *Structure Report* provides engineering details for each bridge. Further refinement of each proposed structure would be expected during the preliminary design and environmental analysis phase of the project.

1. U.S. Route 30 over UP Railroad (grade separation) – Dual Triple Span W36 Beams w/ RC Slab & Pile Bent Abutments.
2. U.S. Route 30 over a Major Creek (Deer Creek) – Dual Triple Span 48" Web Plate Girders w/ RC Slab & Pile Bent Abutments.
3. U.S. Route 30 over UP Railroad (grade separation) – Dual Triple Span W36 Beams w/RC Slab & Pile Bent Abutments.

Terminus Option B. There is one bridges proposed for Terminus Option B. The list below identifies the proposed bridge location and structure type. The *Structure Report* provides engineering details for the bridge. Further refinement of the proposed structure would be expected during the preliminary design and environmental analysis phase of the project.

1. U.S. Route 30 over a Major Creek (Deer Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.

Terminus Option C. There are two bridges proposed for Terminus Option C. The list below identifies each proposed bridge location and structure type. The *Structure Report* provides engineering details for each bridge. Further refinement of each proposed structure would be expected during the preliminary design and environmental analysis phase of the project.

1. U.S. Route 30 over a Major Creek (Deer Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.
2. U.S. Route 30 over I-88 (grade separation) – Double Span 48" Web Plate Girders w/ RC Slab & Integral Abutments.

4.6.4.3 Description of Intersections/Interchanges

Several intersection/interchange concepts were evaluated for Corridor Alternative 3 for the three previously identified locations: the western terminus, the eastern terminus, and Illinois Route 78 (South). Additional access will be provided along the Expressway for a limited number of cross roads, residences, businesses, and farm fields. The exact locations of access on the Expressway will be determined in the Phase I/NEPA Evaluation Process.

Western Terminus. Corridor Alternative 3 joins the existing U.S. Route 30 alignment east of the BNSF Railroad Bridge and continues west to the U.S. Route 30/Illinois Route 136/Frog Pond Road Intersection. The existing U.S. Route 30 alignment, coming from the east, is realigned to form a tee intersection and ninety-degree angle with the Expressway. U.S. Route 30 (coming from the west), Illinois Route 136, and Frog Pond Road are realigned to match the Expressway near their existing at-grade intersection to provide an angle of intersection closer to ninety degrees. Three intersection concepts and one interchange concept were considered for the western terminus of Corridor Alternative 3.

- Intersection Concept 1 includes the western terminus improvements described with traffic signals at the two intersections (Existing U.S. Route 30/Expressway Intersection and Existing U.S. Route 30/Expressway/Illinois Route 136/Frog Pond Road Intersection). The first intersection requires one two-lane approach, one three lane approach, and one four lane approach. The second intersection requires three four-lane approaches and one three-lane approach.

- Intersection Concept 2 includes the western terminus improvements described with roundabouts at the two intersections (Existing U.S. Route 30/Expressway Intersection and Existing U.S. Route 30/Expressway/Illinois Route 136/Frog Pond Road Intersection). The first roundabout would be a multi-lane roundabout (two lanes) with a two-lane approach at all approaches. The second roundabout would be a single lane roundabout with a bypass lane at the Expressway approach.
- Intersection Concept 3 is a combination of Intersection Concept 1 and Intersection Concept 2. The improvements include the western terminus improvements described with a traffic signal at the Existing U.S. Route 30/Expressway Intersection and a single-lane roundabout with a bypass lane at the Existing U.S. Route 30/Expressway/Illinois Route 136/Frog Pond Road Intersection.
- Interchange Concept 1 includes the western terminus improvements described and two interchanges. A diamond interchange is provided at the Existing U.S. Route 30/Expressway/Illinois Route 136/Frog Pond Road Intersection. A trumpet interchange is provided at the Existing U.S. Route 30/Expressway Intersection.

Intersection Concept 3 is the recommended intersection/interchange concept. A traffic signal is recommended for the Existing U.S. Route 30/Expressway Intersection because it operates with less overall delay and provides more residual capacity than a roundabout. The single-lane roundabout is recommended for the Existing U.S. Route 30/Expressway/Illinois Route 136/Frog Pond Road Intersection because it requires fewer approach lanes, provides more residual capacity, and operates with less overall delay than a signalized intersection. The recommended intersection concept is shown on Figure 15, sheet 2. The corridor footprint shown on the figure was created to include both the recommended intersection concept and the interchange concept since the interchange concept may be the ultimate configuration when they are justified to be constructed.

Eastern Terminus. Three eastern terminus options (Terminus Option A, Terminus Option B, and Terminus Option C) were analyzed for Corridor Alternative 3. Various intersection/interchange concepts were analyzed with the terminus options.

Terminus Option A. The Expressway joins Existing U.S. Route 30 (from the southwest) between Round Grove Road and Emerson Road. The improvements continue east to the eastern terminus (the U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection). Existing U.S. Route 30 (coming from the west) is realigned to intersect the Expressway at a ninety-degree angle. Emerson Road is realigned to intersect U.S. Route 30 at a ninety-degree angle. Three intersection concepts and one interchange concept were considered for Terminus Option A.

- Intersection Concept 1 includes the eastern terminus improvements for Terminus Option A with three signalized intersections. The traffic signals are located at the following locations: Existing U.S. Route 30/Expressway Intersection, U.S. Route 30/Emerson Road Intersection, and U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection. The first intersection requires three-lane approaches. The second intersection requires a two-lane approach for Emerson Road, a three-lane approach for westbound Expressway, and a four-lane approach for eastbound Expressway. The third intersection requires four-lane approaches for all approaches except the Expressway approach, which requires five lanes.

- Intersection Concept 2 includes the eastern terminus improvements for Terminus Option A with three multi-lane roundabouts (two lanes). The roundabouts are located at the following locations: Existing U.S. Route 30/Expressway Intersection, U.S. Route 30/Emerson Road Intersection, and U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection. Each roundabout requires two lanes. The first roundabout requires two-lane approaches for the Expressway and a one-lane approach for U.S. Route 30. The second roundabout requires two-lane approaches for the Expressway and a one-lane approach for Emerson Road. The third roundabout requires two-lane approaches for all four legs.
- Intersection Concept 3 includes the eastern terminus improvements for Terminus Option A with two multi-lane roundabouts and a signalized intersection. The multi-lane roundabouts are located at the Existing U.S. Route 30/Expressway Intersection and the U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection. The intersection at Emerson Road and U.S. Route 30 is signalized.
- Interchange Concept 1 includes a pair of trumpet interchanges at the intersections of Existing U.S. Route 30 and the Expressway and U.S. Route 30 and Emerson Road. In addition, a signalized intersection is proposed at the U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection.

Intersection Concept 3 is the recommended intersection/interchange concept for Terminus Option A. The multi-lane roundabouts are recommended at the Existing U.S. Route 30/Expressway Intersection and the U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection because they require fewer approach lanes, provide more residual capacity, and operate with less overall delay than a signalized intersection. A signalized intersection is recommended for the Emerson Road/U.S. Route 30/Expressway Intersection because it fits better with the topography than a roundabout and the overall delay is similar. The recommended intersection concept is shown on Figure 18. The corridor footprint shown on the figure was created to include both the recommended intersection concept and the interchange concept since the interchange concept may be the ultimate configuration when they are justified to be constructed.

Terminus Option B. The Expressway joins the existing U.S. Route 30 alignment at the eastern terminus (the U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection). Three intersection concepts were considered for Terminus Option B.

- Intersection Concept 1 includes three signalized intersections: Emerson Road/U.S. Route 30, Expressway/Moline Road, and U.S. Route 30/Expressway/U.S. Route 30 Spur. Moline Road is realigned to intersect (in a tee-intersection) the Expressway at a ninety-degree angle, west of the four-legged intersection. The first intersection requires two-lane approaches. The second intersection requires three-lane approaches for the Expressway and a two-lane approach for Moline Road. The third intersection requires five-lane approaches for each leg except westbound U.S. Route 30, which requires six lanes.
- Intersection Concept 2 includes a signalized intersection at Emerson Road/U.S. Route 30 and a five-legged, multi-lane roundabout at the U.S. Route 30/Expressway/U.S. Route 30 Spur/Moline Road Intersection. This concept requires the realignment of Moline Road to more evenly space the incoming legs of the roundabout. The single-

lane roundabout requires one lane approaches and the multi-lane roundabout includes two-lane approaches at all legs.

- Intersection Concept 3 is the same as Intersection Concept 1 except that all three signalized intersections are replaced with a roundabout. The Emerson Road/U.S. Route 30 roundabout is a single-lane roundabout and the other two are multi-lane roundabouts.

Intersection Concept 2 is the recommended intersection/interchange concept. The 5-legged multi-lane roundabout is recommended because it operates with less overall delay than two signalized intersections or two roundabouts. The preferred intersection/interchange concept is shown on Figure 19.

Terminus Option C. One interchange concept was considered for Terminus Option C. The concept includes a trumpet interchange with Interstate Route 88. Trumpets are typically used when three intersecting legs are present. An intersection is not recommended in this location because of the connection with the interstate system; at-grade intersections are not permitted on freeway facilities. The interchange is located approximately 3 miles east of the U.S. Route 30 Spur/Interstate Route 88 Interchange and is shown on Figure 20.

Illinois Route 78 (South). A standard diamond interchange was the only interchange concept considered to provide access to Illinois Route 78 (South) from the Expressway. Diamond interchanges are generally the simplest and most common type of interchange placed at the intersection of a major and minor facility where traffic is not expected to increase greatly. Diamond interchanges take a moderate amount of ROW and have a moderate capacity. Therefore, no additional interchange alternatives were evaluated for this location. This interchange concept is shown on Figure 15, sheet 6.

4.6.5 Corridor Alternative 4

Corridor Alternative 4 was developed as the southern most alternative. The strategy in developing the corridor alignment was to create a corridor that is in harmony with the community and environment. Several elements were considered in the development of this corridor including avoiding the Lyndon Prairie Nature Preserve, providing easy access to the Industrial Park, avoiding the bluffs located near the BNSF Railroad, providing a smooth corridor with minimum number of curves, and minimizing environmental impacts.

4.6.5.1 Description of Corridor

Corridor Alternative 4 includes constructing an expressway to the south of the City of Morrison. Beginning at the junction of U.S. Route 30 and Illinois Route 136, the corridor leaves the existing U.S. Route 30 alignment just west of Frog Pond Road. The corridor continues in the southeast direction, passing south of the City of Morrison, and ending at approximately 0.5 miles east of Round Grove Road. Corridor Alternative 4 is approximately 16.4 miles in length and crosses Illinois Route 78 (South) approximately 2.6 miles south of the center of the City of Morrison. This corridor alternative needs to be combined with one of the three terminus options (Terminus Option A, Terminus Option B, or Terminus Option C) to be complete. Refer to Sections 4.9.1.1, 4.9.1.2, and 4.9.1.3 for descriptions of the terminus options.

4.6.5.2 Structural and Geotechnical Considerations

Preliminary roadway geometrics have been developed and drainage analyses have been conducted to identify the structures for each corridor alternative. The bridges will involve crossings with Illinois Route 78, existing railroads, county roads, and waterways. It was assumed that Lyndon Road would be grade separated with U.S. Route 30 while the other county and local roads would involve at-grade intersections. There are eleven bridges proposed for Corridor Alternative 4. The list below identifies each proposed bridge location and structure type. The *Structure Report* provides engineering details for each bridge. Further refinement of each proposed structure would be expected during the preliminary design and environmental analysis phase of the project.

1. U.S. Route 30 over a Major Creek (Cattail Creek) – 3 Span W36 Beams w/ RC Slab & Pile Bent Abutments.
2. U.S. Route 30 over UP Railroad (grade separation) – Dual Triple Span W36 Beams w/ RC Slab & Pile Bent Abutments.
3. U.S. Route 30 over a Major Creek (Cattail Creek) – 3 Span W36 Beams w/ RC Slab & Integral Abutments.
4. U.S. Route 30 over BNSF Railroad (grade separation) – Dual Triple Span W30 Beams w/ RC Slab & Integral Abutments.
5. U.S. Route 30 over a Major Creek (Rock Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.

5a. U.S. Route 30 WB Entrance Ramp over a Major Creek (Rock Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.

5b. U.S. Route 30 – Illinois Route 78 Exit Ramp over a Major Creek (Rock Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.

6. Illinois Route 78 over U.S. Route 30 (grade separation – overhead) – Double Span W36 Beams w/ RC Slab & Integral Abutments.
7. Lyndon Road over U.S. Route 30 (grade separation – overhead) – Double Span W36 Beams w/ RC Slab & Integral Abutments.
8. U.S. Route 30 over a Major Creek (Unknown Creek) – Dual Single Span 48” Web Plate Girders w/ RC Slab & Integral Abutments.
9. U.S. Route 30 over a Major Creek (Deer Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.

It is anticipated that the bedrock surface underlying the project area is composed chiefly of relatively flat-lying Silurian dolomites from the Niagaran-Alexandrian Formations. These are underlain by the Maquoketa shale and dolomite. The ground and bedrock surface elevations are generally lower along Alternative 4 which crosses the lowlands, as opposed to more northerly alternatives that pass over the Rock River Hill Country. Although there is no indication of Karst features in the project area, if rock is exposed or very near the surface then Karst features may be present and should be evaluated further. Karst features can result in unreliable soil conditions and may require special foundation considerations. With respect to earthwork, most cuts and fills are expected to be less than 20 feet deep. Almost all

excavation is anticipated to be in soil with little or no rock excavation. Settlement and slope stability for the bridge approaches should be considered as the preliminary design is developed. Soil borings were limited to locations along Corridor Alternative 3; however, similar conditions are expected for all of the corridors. Deep foundations are likely to be needed with limited use of shallow, spread footing foundations.

Terminus Option A, B, and C. Refer to Section 4.6.4.2 for structural and geotechnical considerations relating to the terminus options.

4.6.5.3 Description of Intersections/Interchanges

Several intersection/interchange concepts were evaluated for Corridor Alternative 4 for the three previously identified locations: the western terminus, the eastern terminus, and Illinois Route 78 (South). Additional access will be provided along the Expressway for a limited number of cross roads, residences, businesses, and farm fields. The exact locations of access on the Expressway will be determined in the Phase I/NEPA Evaluation Process.

Western Terminus. Corridor Alternative 4 approaches the western terminus from the southeast. The expressway alignment crosses over Frog Pond Road and intersects with U.S. Route 30 and Illinois Route 136. U.S. Route 30 and Illinois Route 136 are realigned to intersect with the Expressway at a ninety-degree. Frog Pond Road is extended to a tee-intersection with the realigned U.S. Route 30. Two intersection concepts and one interchange concept were evaluated for the western terminus of Corridor Alternative 4.

- Intersection Concept 1 includes the western terminus improvements and a traffic signal at the U.S. Route 30/Expressway/Illinois Route 136 intersection. In addition to the signalized intersection, a stop sign is provided on Frog Pond Road at the tee intersection of U.S. Route 30 and Frog Pond Road. The signalized intersection requires fives lanes at the Illinois Route 136 approach and the Expressway approach and four lanes at the U.S. Route 30 approaches.
- Intersection Concept 2 includes the western terminus improvements and a multi-lane roundabout at the U.S. Route 30/Expressway/Illinois Route 136 Intersection. In addition to the roundabout, a stop sign is provided on Frog Pond Road at the tee intersection of U.S. Route 30 and Frog Pond Road. The roundabout requires two lanes within the roundabout and two-lane approaches for each approach.
- Interchange Concept 1 includes the western terminus improvements with a diamond interchange at the U.S. Route 30/Expressway/Illinois Route 136 Intersection. In addition to the interchange, a stop sign is provided on Frog Pond Road at the tee intersection of U.S. Route 30 and Frog Pond Road.

Intersection Concept 2 is the recommended intersection/interchange concept for western terminus. The multi-lane roundabout is preferred for the U.S. Route 30/Expressway/Illinois Route 136 Intersection because it operates at a better LOS and provides more residual capacity than a signalized intersection. The preferred intersection concept is shown on Figure 16, sheet 2. The corridor footprint shown on the figure was created to include both the interchange concept and the preferred intersection concept should future volumes warrant an improvement to an interchange. Currently, the proposed traffic volumes do not support an interchange concept.

Eastern Terminus. The intersection/interchange concepts associated with the eastern terminus options (Terminus Option A, Terminus Option B, and Terminus Option C) are the same as the concepts presented for Corridor Alternative 3. Refer to Section 4.9.2.2.

Illinois Route 78. A standard diamond interchange was the only interchange concept considered to provide access to Illinois Route 78 from the Expressway. Diamond interchanges are generally the simplest and most common type of interchange placed at the intersection of a major and minor facility where traffic is not expected to increase greatly. Diamond interchanges take a moderate amount of ROW and have a moderate capacity. Therefore, no additional interchange alternatives were evaluated for this location. This interchange concept is shown on Figure 16, sheet 6.

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5.0 COMPARATIVE ANALYSIS RESULTS

The corridor alternatives that survived the Fatal Flaw Analysis were refined to provide the necessary detail to complete the second level of screening, the Comparative Analysis. The Comparative Analysis was conducted to determine the relative benefits and potential affects of the corridor alternatives in relation to one another. The analysis was based on the established criteria shown in Table 13, which includes safety, traffic operations, corridor utilization, environmental resources affects, community planning/land use, ROW/residences & commercial buildings, adverse travel, public support, economic vitality, and cost. Table 15 presents a comparison of the corridor alternatives with how well the alternative addresses the criteria. Table 16 presents the results of the Comparative Analysis.

5.1 COMPARATIVE ANALYSIS SUMMARY

During the Comparative Analysis, the corridor alternatives were compared to each other based on how effectively they addressed the criteria. The results were presented in a matrix evaluation that shows whether the corridor alternative is least favorable, moderate, or most favorable. A least favorable rating is represented by a minus sign, a moderate rating is represented by a circle, and a most favorable rating is represented by a plus sign as shown in Table 16.

Based on the results of the Comparative Analysis, Corridor Alternative 3B and Corridor Alternative 3C best address the U.S. Route 30 Purpose and Need. These two alternatives were presented at the public meeting on April 27, 2004 and continued through the alternative evaluation process. Corridor Alternative 1 and Corridor Alternative 2 least address the U.S. Route 30 Purpose and Need. A detailed description of each of the criteria is contained in the following sections.

5.2 SAFETY

The No-Action Alternative does not meet IDOT full standards in regards to profile, alignment, and cross-section. The existing profile along U.S. Route 30 near the UP Railroad crossing, east of Frog Pond Road has a zero percent grade. Alignment deficiencies include four roadways intersecting at substandard angles and limited sight distance around one curve. Cross-section deficiencies include substandard side slopes, substandard shoulder widths, substandard taper lengths, and substandard turn lanes.

All corridor alternatives can be designed to meet IDOT full standards.

5.3 CORRIDOR UTILIZATION

The ADT volume along U.S. Route 30 varies substantially throughout the corridor. Between 7,650 vehicles (eastern end) and 19,100 vehicles (within the City of Morrison) a day are projected to travel along the existing U.S. Route 30 in 2023 under the No-Action Alternative. Of these vehicles, between 380 vehicles (5 percent) and 3,200 vehicles (17 percent) are trucks, respectively.

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Table 15: Summary of Comparative Analysis

Criterion	Measure of Effectiveness	No-Action	Corridor Alternative 1	Corridor Alternative 2	Corridor Alternative 3			Corridor Alternative 4		
					Terminus Option A	Terminus Option B	Terminus Option C	Terminus Option A	Terminus Option B	Terminus Option C
Safety	Does the corridor alternative meet full standards?	no	yes	yes	yes	yes	yes	yes	yes	yes
Corridor Utilization	Year 2023 ADT reduction along U.S. Route 30 at critical location	0	550	550	6,700	6,700	6,700	6,700	6,700	6,700
Traffic Operations	Estimated travel time (minutes) Improve intersection LOS along U.S. Route 30?	34.9 no	22.9 no	22.5 no	23.9 yes	22.4 yes	22.8 yes	24.0 yes	22.5 yes	23.0 yes
Environmental Resources Affects	Potential affects to environmental resources (based on Table 20)	N/A	30	41	43	46	33	51	53	41
Community Planning/ Land Use	Consistent with existing and future land use plans? (ranked as consistent, not fully consistent, not consistent)	Not Consistent	Not Consistent	Not Consistent	Consistent	Consistent	Consistent	Consistent	Consistent	Consistent
ROW/Residences & Commercial Buildings	ROW acquisition (acres)/Number of Residences & Commercial Buildings	0/0	598/23	594/24	695/40	748/32	697/27	567/44	620/36	569/31
Adverse Travel	Amount of out-of-direction travel (miles)	0	0.4	0	1.3	-0.1	0.3	1.4	0	0.4
Public Support*	Does the public support the corridor alternative?	yes	no	no	no	yes	yes	no	somewhat	somewhat
Economic Vitality	Distance to existing U.S. Route 30 from proposed IL Route 78 interchanges (miles)	0	4.2	1.2	1.4	1.4	1.4	2.6	2.6	2.6
Cost	Estimated construction cost (millions)	0**	$107	$131	$129	$122	$133	$122	$104	$119

** Public support results are based on limited input; therefore, results may change throughout the duration of the study.*

*** The No-Action Alternative has no construction cost; however, the cost of maintaining the existing route would be greater than maintaining a new corridor alternative.*

Table 16: Comparative Analysis Results*

Criterion	Measure of Effectiveness	No-Action	Corridor Alternative 1	Corridor Alternative 2	Corridor Alternative 3			Corridor Alternative 4		
					Terminus Option A	Terminus Option B	Terminus Option C	Terminus Option A	Terminus Option B	Terminus Option C
Safety	Does the corridor alternative meet full standards?	–	+	+	+	+	+	+	+	+
Corridor Utilization	Year 2023 ADT reduction along U.S. Route 30 at critical location	–	O	O	+	+	+	+	+	+
Traffic Operations	Estimated travel time (minutes) Improve intersection LOS along U.S. Route 30?	–	O	O	O	+	+	O	+	O
Environmental Resources Affects	Potential affects to environmental resources	O	+	O	O	O	+	–	–	O
Community Planning/ Land Use	Consistent with existing and future land use plans? (ranked as consistent, not fully consistent, not consistent)	–	–	–	+	+	+	+	+	+
ROW/Residences & Commercial Buildings	ROW acquisition (acres)/Number of Residences & Commercial Buildings	+	+	+	–	–	O	O	O	+
Adverse Travel	Amount of out-of-direction travel (miles)	+	O	O	–	+	O	–	O	O
Public Support	Does the public support the corridor alternative?	+	–	–	–	+	+	–	O	O
Economic Vitality	Distance to existing U.S. Route 30 from proposed IL Route 78 interchanges (miles)	+	–	+	+	+	+	O	O	O
Cost	Estimated construction cost (millions)	+	O	–	O	O	–	O	O	O
Preliminary Point Subtotal**	[+=5 points, O=3 points, and –=1 point]	32	30	30	32	42	42	30	36	38
Preliminary Ranking***		**5**	**7**	**7**	**5**	**1**	**1**	**7**	**4**	**3**

*Note: *=The information contained in Legend for Comparative Analysis Category Rating provides an explanation of how the corridor alternatives were rated under each of the categories.*

***=Each of the category ratings (+, O, and –) was given a point value to distinguish overall rankings for the corridor alternatives. The corridor alternative with the highest point total is the recommended alternative. It is assumed that all of the categories are equally weighted.*

****=The preliminary ranking is based on point totals. Higher point totals equate to a higher overall ranking, thus better addressing the U.S. Route 30 Corridor Study Purpose and Need.*

Legend for Comparative Analysis Category Rating

Criterion	+	O	–
Safety (based on constructability to IDOT standards)	yes	somewhat	no
Corridor Utilization	≥ 5,000	500 – 5,000	≤ 500
Traffic Operations (Refer to Table 18)	≤ 5	5 - 13	≥ 13
Environmental Resources Score (Refer to Table 20)	< 39	40 - 49	> 50
Community Planning/ Land Use	consistent	not fully consistent	not consistent
ROW/ Residences & Commercial Buildings Score (Refer to Table 23)	≤ 6	6 - 12	≥ 13
Adverse Travel (miles)	≤ 0.0	0.0 – 1.0	≥ 1.0
Public Support	yes	neutral	no
Economic Vitality (miles from city)	< 2.2	2.2 – 3.1	> 3.1
Cost (millions)	≤ $100	$100 - $130	≥ $130

The corridor alternatives are projected to carry between 6,100 vehicles (western end) and 8,100 vehicles (eastern end) a day. This leaves between 5,300 vehicles (western end) and 17,900 vehicles (within the City of Morrison) a day traveling along U.S. Route 30 with between 260 vehicles and 2,100 vehicles as trucks for Corridor Alternative 1 and Corridor Alternative 2. For Corridor Alternative 3 and Corridor Alternative 4 approximately 11,750 vehicles a day (2,000 trucks) travel within the City of Morrison. The truck calculations assume the same 5 percent and 17 percent trucks as the No-Action Alternative; however, it is likely that the percent trucks along the U.S. Route 30 Corridor would decrease since the expressway would be more attractive to this type of vehicle.

Table 17 presents a sampling of the ADT volumes along U.S. Route 30 for the 2023 No-Action Alternative and each corridor alternative. Figure 21 presents the projected ADT volumes along U.S. Route 30, throughout the study limit. As shown in the table, a large amount of traffic travels along the existing U.S. Route 30 alignment between Illinois Route 78 (North) and Illinois Route 78 (South) for the northern alternatives. This traffic volume is high because the traffic generated from the proposed development located adjacent to Illinois Route 78 (South) is required to travel north along Illinois Route 78 (South), west along U.S. Route 30, and north along Illinois Route 78 (North) to the expressway. At this location, Corridor Alternative 1 and Corridor Alternative 2 reduce the traffic volume from the No-Action Alternative by approximately 550 vehicles a day, whereas, Corridor Alternative 3 and Corridor Alternative 4 reduce the traffic volume by approximately 6,700 vehicles a day.

Table 17: 2023 ADT Projections

	East of Frog Pond Rd.	Center (between IL 78S and IL 78N)	West of Emerson Rd.
U.S. Route 30			
No-Action Alternative	12,000	18,450	12,250
U.S. Route 30 with Alternatives 1 and 2	5,300	17,900	5,950
U.S. Route 30 with Alternatives 3 and 4	5,300	11,750	5,950
Expressway (Corridor Alternative 1-4)	6,100	-	8,100

Corridor Alternative 3 and Corridor Alternative 4 (regardless of terminus option) address the Corridor Utilization criteria better than Corridor Alternative 1 and Corridor Alternative 2 because none of the vehicles traveling along the southern corridor alternatives are required to access the existing U.S. Route 30 corridor prior to accessing the Expressway.

5.4 TRAFFIC OPERATIONS

The estimated travel time for each corridor alternative was evaluated using travel times from the western terminus to the eastern terminus and by making LOS comparisons between the No-Action (2023) and Build (2023) conditions along U.S. Route 30. The estimated travel time for the corridor alternatives range from 22.4 minutes (Corridor Alternative 3B) to 24.0 minutes (Corridor Alternative 4A). These times may be compared to the No-Action Alternative estimated travel time of 34.9 minutes. Refer to Table 17 for results of specific travel times.

Since many vehicles access U.S. Route 30 from Emerson Road it is beneficial to evaluate the travel time from this access point. The travel time for the No-Action Alternative along existing U.S. Route 30 beginning at Emerson Road and ending at the western terminus is approximately

32.1 minutes. The travel time for the corridor alternatives with Emerson Road as the starting point, ranges between 20 minutes (Alternative Corridor 2) and 25.4 minutes (Alternative Corridor 4C). This calculation presents a larger range of travel times and should be considered during future evaluation once additional traffic information is available.

In addition to travel times, intersection LOS was used to evaluate traffic operations. U.S. Route 30 intersections for the No-Action Alternative are projected to generally operate at LOS E and LOS F during the p.m. peak hour by 2023. This represents frequent stops and large delays at intersections.

For the Build (2023) condition with Corridor Alternative 1 or Corridor Alternative 2, U.S. Route 30 intersections are projected to operate at LOS C, LOS D, or LOS F during the 2023 peak hours. Of the six intersections evaluated, the northern corridor alternative improves the operations of 3 intersections. For the Build (2023) condition with Corridor Alternative 3 or Corridor Alternative 4, U.S. Route 30 intersections are projected to operate at LOS C, LOS D, or LOS E during the 2023 peak hours. The southern alternatives improve the operations of all 6 intersections along U.S. Route 30. Table 18 presents the results of the intersection LOS analysis.

Table 18: U.S. Route 30 Intersection LOS Analysis Results

Intersection with U.S. Route 30	Approach	No-Action (2023)	Build (2023)*	
			Corridor Alternatives 1 and 2	Corridor Alternatives 3 and 4
Illinois Route 78 (North)	Southbound	F	F	D
Garden Plain Road	Eastbound	F	F	C
Illinois Route 78 (South)	Intersection	F	F	E
Sawyer Road	Northbound	F	D	D
Lyndon Road	Northbound	F	D	D
	Southbound	E	C	C
Round Grove Road	Northbound	E	C	C
	Southbound	E	C	C

**Note: Minor intersection improvements (turning lanes, signalization, etc.) may be made to improve operations along U.S. Route 30.*

Based on the two traffic operations criteria, Corridor Alternative 3B and Corridor Alternative 4B improve the traffic operations the most and Corridor Alternative 1 improves operations the least. Table 19 presents the results of the traffic operations analysis.

Table 19: Traffic Operations Analysis Results

Corridor Alternative	Travel Time		Intersection LOS *		Total Score (rank 1 + rank 2)	Final Rank
	Min.	rank 1	Improve LOS?	rank 2		
1	22.9	5	No	7	12	8
2	22.5	3	No	7	10	7
3A	23.9	7	Yes	1	8	5
3B	22.4	1	Yes	1	2	1
3C	22.8	4	Yes	1	5	3
4A	24.0	8	Yes	1	9	6
4B	22.5	2	Yes	1	3	2
4C	23.0	6	Yes	1	7	4

**: Refer to Table 18.*

5.5 ENVIRONMENTAL RESOURCES AFFECTS

The No-Action Alternative has no affect on many environmental resources discussed in this chapter. No direct land use affects occur and no publicly owned properties are taken for ROW. No relocations are required. No sedimentation or potential spill related to construction occurs. No wetlands are disturbed and no additional affects on wildlife result. Floodplain hydraulics are not altered, and no historic resources are affected. The No-Action Alternative, however, results in several other affects. The additional traffic volumes increase the noise levels from existing levels at homes and businesses, as well as, deteriorate air quality within the City of Morrison. The local economy also experiences affects and energy consumption increases. The No-Action Alternative is not responsive to community planning efforts with respect to proposed development and growth.

Affects to numerous environmental resources were evaluated for each corridor alternative. Resources included agriculture, cultural (archaeological and historic), natural (natural areas, threatened and endangered species, and wildlife habitat), water, floodplains, wetlands, special waste, special lands, air quality, and traffic noise. This section summarizes the affects the corridor alternatives may have to some of these resources. Table 20 summarizes all of the environmental resources affects evaluated and Table 21 presents the corridor alternatives ranking for each environmental resource based on the calculated effect. Refer to the *U.S. Route 30 Corridor Study Environmental Resources Technical Report*, January 26, 2004 and its Addendum, September 16, 2004 for a more detailed description of all the environmental affects. Figure 7a and Figure 7b present the environmental resources located within the study area.

5.5.1 Agriculture

Prime Farmland is a critical resource within Whiteside County. The corridor alternatives affect between approximately 1,160 acres (Corridor Alternative 1) and 1,600 acres (Corridor Alternative 3B). Corridor Alternative 3 and Corridor Alternative 4 (regardless of terminus option) affect more Prime Farmland than the northern alternatives.

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Table 20: Comparison of Environmental Resources Affects

Environmental Resources	Measure of Effectiveness	Corridor Alternative 1	Corridor Alternative 2	Corridor Alternative 3			Corridor Alternative 4		
				Terminus Option A	Terminus Option B	Terminus Option C	Terminus Option A	Terminus Option B	Terminus Option C
Agriculture	Area of Prime Farmland (acres)	1,160	1,330	1,450	1,600	1,400	1,430	1,580	1,380
Archaeological	Area of Archaeological High Probability (length corridor traverses high probability zones) (miles)	5	9	5.5	5	4.5	6.5	6	5.5
Historic	# of Historic Properties (# buildings with potentially historic structure)	12	11	12	15	12	15	18	15
Natural Areas/Nature Preserves	Area of Natural Areas (INAI) and Nature Preserve Affects (acres)	0	0	0	0	0	0	0	0
Threatened and Endangered Species	Federal and State Protected Species Area of Association (acres)	157	143	68	68	68	0	0	0
Vegetation/Wildlife Habitat	Area of Vegetation and Wildlife Habitat (acres)	21.5	118	92	89	87.6	55.4	52.4	51
Water Resources/ Water Quality	# New Bridges/Increase Impervious Surface Area (acres)	3/56	7/41	5/63	5/67	5/38	4/67	4/71	4/42
Floodplains	Area of FEMA 100-year Floodplain (acres)	221	178	217	231	192	267	281	242
Wetlands	Total Wetland/Jurisdictional Wetland	102.5/30.5	82.8/22.6	66.8/45.8	92.3/71.3	58.3/39.3	54.3/26.8	79.8/52.3	45.8/20.3
Special Waste	# of Affected Special Waste Sites	1	1	1	1	0	1	1	0
Special Lands	Area of Special Lands Affected	0	0	0	0	4.6	0	0	4.6
Air Quality	Negative Affect to Air Quality	none	none	none	none	none	none	none	none
Traffic Noise	# of Sensitive Receptors that could experience an increase in traffic noise levels	45	75	78	67	58	79	68	59

Table 21: Ranking of Environmental Resources Affects

Environmental Resources	Measure of Effectiveness	Corridor Alternative 1	Corridor Alternative 2	Corridor Alternative 3			Corridor Alternative 4		
				Terminus Option A	Terminus Option B	Terminus Option C	Terminus Option A	Terminus Option B	Terminus Option C
Agriculture	Area of Prime Farmland (acres)	1	2	6	8	4	5	7	3
Archaeological	Area of Archaeological High Probability (length corridor traverses high probability zones) (miles)	2	8	4	2	1	7	6	4
Historic	# of Historic Properties (# buildings with potentially historic structure)	2	1	2	5	2	5	8	5
Natural Areas/Nature Preserves	Area of Natural Areas (INAI) and Nature Preserve Affects (acres)	1	1	1	1	1	1	1	1
Threatened and Endangered Species	Federal and State Protected Species Area of Association (acres)	1	1	1	1	1	1	1	1
Vegetation/Wildlife Habitat	Area of Vegetation and Wildlife Habitat (acres)	8	7	4	4	4	1	1	1
Water Resources/ Water Quality	# New Bridges/Increase Impervious Surface Area (ranking – see Table 22)	1	5	5	8	3	4	5	1
Floodplains	Area of FEMA 100-year Floodplain (acres)	4	1	3	5	2	7	8	6
Wetlands	Total Wetland/Jurisdictional Wetland (ranking – see Table 23)	6	3	5	8	3	2	6	1
Special Waste	# of Affected Special Waste Sites	3	3	3	3	1	3	3	1
Special Lands	Area of Special Lands Affected (acres)	1	1	1	1	7	1	1	7
Air Quality	Affects to Air Quality	1	1	1	1	1	1	1	1
Traffic Noise	# of Sensitive Receptors that could experience an increase in traffic noise levels	1	6	7	4	2	8	5	3
	Total Score	32	40	43	51	32	46	53	35
	Overall Environmental Resources Affect (Ranking)	1	4	5	7	1	6	8	3

Note: the ranking of overall environmental resources represents a decreasing order of the amount of overall environmental resources impacts.

5.5.2 Cultural Resources

Cultural resources affects within the study area fall into two categories: archaeological resources and historical resources.

Archaeological. Archaeological affects were evaluated through measurement of the length of archaeological high probability zone that is located within the corridor alternatives. Corridor Alternative 2 affects the largest amount of high probability zone, approximately 9 miles. The remaining corridor alternatives affect between approximately 4.5 miles and 6.5 miles of high probability zone.

Historic. Historic affects were evaluated through tabulation of the number of potentially historic buildings located within each of the corridor alternatives. The corridor alternatives affect between 11 (Corridor Alternative 2) and 18 (Corridor Alternative 4B) potentially historic buildings.

5.5.3 Natural Resources

Natural Areas (INAI) and Nature Preserves. Due to the special protection status and high quality vegetation of natural areas (INAI) and nature preserves, the corridor alternatives were developed to avoid these areas. None of the corridor alternatives affect natural areas or nature preserves within the study area.

Threatened and Endangered Species. The corridor alternatives affect between 0 acres (Corridor Alternative 4, all terminus types) and approximately 157 acres (Corridor Alternative 1) of the federal and state protected species area of association. The northern corridor alternatives affect at least two times more area of association than the southern alternatives.

Vegetation and Wildlife Habitat. All of the corridor alternatives affect vegetation and wildlife habitat within the study area. One of the northern alternatives (Corridor Alternative 2) affects the largest area (approximately 118 acres) of vegetation and wildlife habitat while the other northern alternative (Corridor Alternative 1) affects the smallest area (approximately 21.5 acres). Between the southern alternatives, Corridor Alternative 3 affects a larger area than Corridor Alternative 4, regardless of terminus option.

5.5.4 Water Resources

Affects to water quality may be directly related to the number of new bridges over a water resource and the increase of impervious surface area. The corridor alternatives require between 3 new bridges (Corridor Alternative 1) and 7 new bridges over a water resource (Corridor Alternative 2). The increase of impervious surface area ranges between approximately 38 acres (Corridor Alternative 3C) and approximately 71 acres (Corridor Alternative 4B). Based on these two criteria, Corridor Alternative 1 and Corridor Alternative 4C have the least affect to water resources. Corridor Alternative 3B has the greatest affect to water resources. Table 22 presents the results of the water resources analysis.

Table 22: Water Resources Affects by Corridor Alternative

Corridor Alternative	New Bridges		Impervious Surface Area		Total Score (rank 1 + rank 2)	Final Rank
	#	Rank 1	acres	rank 2		
1	3	1	56	4	5	1
2	7	8	41	2	10	5
3A	5	5	63	5	10	5
3B	5	5	67	6	11	8
3C	5	5	38	1	6	3
4A	4	2	67	6	8	4
4B	4	2	71	8	10	5
4C	4	2	42	3	5	1

5.5.5 Floodplains

Fill in floodplains should be avoided, especially FEMA floodway and 100-year floodplain, as they require a permit according to the Water Quality Act and often mitigation through replacement land of the same quality and type.

The Corridor Alternatives affect between approximately 178 acres (Corridor Alternative 2) and approximately 281 acres (Corridor Alternative 4B) of FEMA 100-year floodplain. Overall Corridor Alternative 4 (regardless of terminus option) affects the largest area of FEMA 100-year floodplain.

5.5.6 Wetlands

The corridor alternatives affect between approximately 45.8 acres (Corridor Alternative 4C) and approximately 102.5 acres (Corridor Alternative 1) of wetlands. Corridor Alternative 1 and Corridor Alternative 2 affect more wetlands than the majority of the southern corridor alternatives (regardless of terminus option).

Although minimizing affects to all wetlands is essential, jurisdictional wetlands are of particular concern. Jurisdictional wetlands, as defined by the ACOE, are those wetlands that have a direct surface connection to navigable waters. Because of this connection, jurisdictional wetlands can represent a higher valued wetland in terms of function. The Illinois Department of Natural Resources (IDNR) has jurisdiction over wetlands considered isolated by the ACOE under the Illinois Interagency Wetland Policy Act of 1989. To determine the jurisdictional status of project area wetlands, a field-based wetland delineation and agency coordination are required. Wetland delineations and agency coordination will be conducted in the next phase of this study, the Phase I/NEPA Evaluation Process. The calculated area of jurisdictional wetlands presented in this section is estimated based on available information.

The corridor alternatives affect between approximately 20.3 acres (Corridor Alternative 4C) and approximately 71.3 acres (Corridor Alternative 3B) of jurisdictional wetlands. There are more jurisdictional wetlands affected by the southern alternatives than the majority of the northern

alternatives. Table 23 presents the results of the wetland affects by corridor alternative based on the two criteria: total wetland area affected and jurisdictional wetland area affected. As shown in the table, Corridor Alternative 4C has the least overall wetland affects and Corridor Alternative 3B has the most.

Table 23: Wetland Affects by Corridor Alternative

Corridor Alternative	Total Wetland Area Affected		Jurisdictional Wetland Area Affected		Total Score (rank 1 + rank 2)	Final Rank
	acres	rank 1	acres	rank 2		
1	102.5	8	30.5	4	12	6
2	82.8	6	22.6	2	8	3
3A	66.8	4	45.8	6	10	5
3B	92.3	7	71.3	8	15	8
3C	58.3	3	39.3	5	8	3
4A	54.3	2	26.8	3	5	2
4B	79.8	5	52.3	7	12	6
4C	45.8	1	20.3	1	2	1

5.5.7 Special Waste

Special waste sites affect the construction of projects because of high clean-up costs and safety hazards through exposure and material handling. All of the corridor alternatives affect one potentially hazardous waste site that is located adjacent to the eastern terminus with the exception of Corridor Alternative 3C and Corridor Alternative 4C that have no affects.

5.5.8 Special Lands

Corridor Alternative 3C and Corridor Alternative 4C are the only two corridor alternatives that affect special lands. Both of these alternatives affect approximately 4.6 acres (or approximately 10 percent) of the Lyndon Prairie Easement. The Lyndon Prairie Easement is currently a proposed nature preserve buffer site.

5.5.9 Air Quality

The Corridor Alternatives do not negatively affect air quality within the study area. Whiteside County will remain an attainment zone with the proposed improvements.

5.5.10 Traffic Noise

Traffic noise affects were evaluated by determining the number of potential noise sensitive receptors that will experience an increase in traffic noise levels with the development of the expressway.

Noise sensitive receptors include residential development, commercial development, churches, parks, and recreational facilities. Most noise sensitive receptors within the study area are located within the City of Morrison, with the remaining noise sensitive land use scattered throughout the

rural area. The land use within the study area is primarily agricultural, with sporadic residential land use. Along existing U.S. Route 30 within the City of Morrison, land use is primarily urban.

Corridor Alternative 3A and Corridor Alternative 4A contain the largest number of potential noise sensitive receptors, (approximately 78 and 79 receptors, respectively) that will experience an increase in traffic noise levels. Corridor Alternative 1 will affect the least number of sensitive receptors (approximately 45 receptors).

5.6 COMMUNITY PLANNING/LAND USE

The No-Action Alternative is not consistent with community planning and land use. This alternative does not increase accessibility or improve mobility for the region.

Corridor Alternative 1 and Corridor Alternative 2 are not consistent with the City of Morrison Land Use Plan and the plans of the surrounding communities since they are located north of the existing U.S. Route 30, away from the location of the existing and proposed industrial development. These alternatives may encourage the truck traffic that is accessing the industrial development to use the existing facility instead of the Expressway. In addition, the Expressway may attract roadside services for travelers that interrupt the existing agricultural/residential land use.

Corridor Alternative 3A, Corridor Alternative 3B, Corridor Alternative 4A, and Corridor Alternative 4B are consistent with the current City of Morrison Land Use Plan and the plans of the surrounding communities, since they compliment the proposed industrial development that will potentially be located south of the City. These alternatives increase accessibility and improve mobility for the region and foster continuation of the current industrial and business growth south of the City. Small businesses could be attracted along the corridor and between the corridor and the industrial facility to provide roadside services for travelers on the expressway.

Corridor Alternative 3C and Corridor Alternative 4C are not fully consistent with plans of the surrounding communities. The corridor alternatives are generally consistent with the City of Morrison Land Use Plan since they compliment the proposed industrial development that will potentially be located south of the City. These alternatives, however, are not consistent with the surrounding community's plans such as the City of Sterling and City of Rock Falls since the terminus option requires substantial out-of-direction travel when accessing the expressway.

5.7 ROW/RESIDENCES & COMMERCIAL BUILDINGS

Two elements were evaluated for the ROW/Residences & Commercial Buildings Criterion. These elements include ROW acquisition and the number of residences and commercial buildings located within the 600-foot wide affect zone.

The No-Action Alternative does not require additional ROW or affect any residences or commercial buildings.

The ROW acquisition for the corridor alternatives ranges between approximately 569 acres (Corridor Alternative 4C) to 748 acres (Corridor Alternative 3B). Corridor Alternative 3 (regardless of terminus option) generally requires more ROW than the other alternatives due to the proposed trumpet interchange located at the expressway connection with the existing U.S. Route 30.

The number of residences and commercial buildings within the corridor alternatives range between 23 buildings (Corridor Alternative 1) and 44 buildings (Corridor Alternative 4A). Corridor Alternative 3 and Corridor Alternative 4 (regardless of terminus option) contain more residences and commercial buildings than the northern alternatives.

Based on the three ROW/Residences & Commercial Buildings criteria, Corridor Alternative 1 and Corridor Alternative 2 have the least affect on ROW/Residences & Commercial Buildings and Corridor Alternative 3A has the most. Table 24 presents the results of the ROW/ Residences & Commercial Buildings analysis.

Table 24: ROW/ Residences & Commercial Buildings Affects by Corridor Alternative

Corridor Alternative	ROW Acquisition		Number of Residences & Commercial Buildings		Total Score (rank 1 + rank 2)	Final Rank
	acres	rank 1	#	rank 2		
1	598	4	23	1	5	1
2	594	3	24	2	5	1
3A	695	7	40	7	14	8
3B	748	8	32	5	13	7
3C	697	6	27	3	9	4
4A	567	1	44	8	9	4
4B	620	5	36	6	11	6
4C	569	2	31	4	6	3

5.8 ADVERSE TRAVEL

The existing U.S. Route 30 generally follows in a southeast/northwest direction throughout the study area. The traveling distance is approximately 20.6 miles, calculated from the U.S. Route 30 Spur to just west of the U.S. Route 30 and Frog Pond Road Intersection. The amount of adverse travel ranges between –0.1 miles (Corridor Alternative 3B) and 1.4 miles (Corridor Alternative 4A). The negative adverse travel represents that Corridor Alternative 3B is a more direct route and is shorter than the existing U.S. Route 30 alignment. Vehicles accessing from/to the U.S. Route 30 Spur may choose to travel along existing U.S. Route 30 instead of Corridor Alternative 3A and Corridor Alternative 4A since these alternatives require the driver to travel northwest along the existing U.S. Route 30 alignment, west along the existing alignment, and southwest along the expressway, before they can begin traveling in the northwest direction; an added distance of 1.4 miles.

Since several vehicles access U.S. Route 30 from Emerson Road it is beneficial to evaluate the adverse travel from this access point. The traveling distance along existing U.S. Route 30 beginning at Emerson Road is approximately 17.3 miles. The amount of adverse travel for the corridor alternatives with Emerson Road as the starting point, ranges between 0 miles (Alternative Corridor 2) and 5.0 miles (Alternative Corridor 4C). This calculation presents a

larger range of out-of-direction travel and should be considered during future evaluation once additional traffic information is available.

5.9 PUBLIC SUPPORT

Based on the discussions with Whiteside County, City of Morrison, City of Fulton, City of Sterling, City of Rock Falls, and special interest groups it was determined that the public supports the southern corridor alternatives more than the northern corridor alternatives. In general, it was stated at a coordination meeting in the summer of 2003 that a southern alignment is more beneficial to the public than a northern alignment and the closer the alignment is to the existing U.S. Route 30 alignment the better.

5.10 ECONOMIC VITALITY

Economic Vitality of the proposed improvements is related to the distance from the corridor alternative to the City of Morrison. The closer the alternative is to the City, the more vital it is to the economy. The distance between the corridor and the City (measured along Illinois Route 78) ranges between 1.2 miles (Corridor Alternative 2) and 4.2 miles (Corridor Alternative 1). Although Corridor Alternative 2 is the closest to the City, Corridor Alternative 3 (regardless of terminus option) is just slightly more at a distance of 1.4 miles and may be considered just as vital.

5.11 COST

Table 25 presents the detailed cost estimate for each corridor alternative. The estimated construction costs for the corridor alternatives range between $104 million (Corridor Alternative 4B) and $133 million (Corridor Alternative 3C).

The earthwork for Corridor Alternative 1 and Corridor Alternative 3 (regardless of terminus option) require a large amount of earth excavation (between $9.1 million and $12.7 million), whereas Corridor Alternative 2 and Corridor Alternative 4 (regardless of terminus option) require more borrow than excavation.

The southern corridor alternatives (Corridor Alternative 3 and Corridor Alternative 4) require more potential relocations than the northern alternatives (between 3 and 20 additional relocations). With each relocation estimated at $300,000, the additional cost ranges between $900,000 and $6.0 million.

Table 25: Estimated Cost of each Corridor Alternative

#	Item Description	Unit	Unit Cost	Corridor Alternative 1		Corridor Alternative 2		Corridor Alternative 3						Corridor Alternative 4					
								Terminus Option A		Terminus Option B		Terminus Option C		Terminus Option A		Terminus Option B		Terminus Option C	
				Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
1	Clearing: Minor Removal Items	acre	$2,000	106	$212,000	156	$313,000	107	$213,000	108	$217,000	84	$169,000	54	$107,000	55	$111,000	31	$63,000
2	Earthwork																		
	Earth Excavation	yard^{3} (2)	$4.10	2,208,367	$9,054,000	1,582,765	$6,489,000	3,069,340	$12,584,000	3,094,135	$12,686,000	2,722,438	$11,162,000	800,178	$3,281,000	632,476	$2,593,000	455,872	$1,869,000
	Borrow	yard^{3} (2)	$2.85	974,554	$2,777,000	5,626,546	$16,036,000	9,379	$27,000		-		-	2,135,370	$6,086,000	1,419,574	$4,046,000	1,862,008	$5,307,000
3	Erosion Control (1% of line 2)				$118,000		$225,000		$126,000		$127,000		$112,000		$94,000		$66,000		$72,000
4	Drainage (1% of line 2)				$118,000		$225,000		$126,000		$127,000		$112,000		$94,000		$66,000		$72,000
5	Subbase, Base, Surface, Shoulders																		
	Subbase	yard^{3} (2)	$22.00	347,502	$7,645,000	342,312	$7,531,000	361,733	$7,958,000	331,329	$7,289,000	284,881	$6,267,000	353,114	$7,769,000	321,739	$7,078,000	274,869	$6,047,000
	Base + Surface	ton$^{(2)}$	$32.94	524,871	$17,289,000	517,031	$17,031,000	546,364	$17,997,000	500,443	$16,485,000	430,287	$14,174,000	533,346	$17,568,000	485,957	$16,007,000	415,165	$13,676,000
	Bituminous Shoulder	yard^{2} (2)	$21.14	406,832	$8,600,000	400,756	$8,472,000	423,492	$8,953,000	387,898	$8,200,000	333,519	$7,051,000	413,402	$8,739,000	376,670	$7,963,000	321,798	$6,803,000
	Aggregate Shoulders	ton$^{(2)}$	$15.00	35,082	$526,000	34,558	$518,000	36,518	$548,000	33,449	$502,000	28,760	$431,000	35,648	$535,000	32,481	$487,000	27,749	$416,000
6	Guardrail, Roadside Safety	per structure	$10,000	14	$140,000	17	$170,000	17	$170,000	15	$150,000	13	$130,000	16	$160,000	14	$140,000	12	$120,000
7	Intersections/Interchanges																		
	Traffic Signals	per intersection	$150,000	1	$150,000	1	$150,000	2	$300,000	2	$300,000	2	$300,000	1	$150,000	1	$150,000	1	$150,000
	Interstate Route 88 Interchange (includes structure cost)	per interchange	$20 million		-		-		-		-	1	$20,000,000		-		-	1	$20,000,000
	Illinois Route 78 Interchange (includes structure cost)	per interchange	$12 million	1	$12,000,000	1	$12,000,000	1	$12,000,000	1	$12,000,000	1	$12,000,000	1	$12,000,000	1	$12,000,000	1	$12,000,000
8	Detours, Temp. Traffic Control (4% of line 2)				$473,000		$901,000		$504,000		$507,000		$446,000		$375,000		$266,000		$287,000
9	Railroad Crossing Improvements	per crossing	$250,000		-		-		-		-		-	1	$250,000	1	$250,000	1	$250,000
10	Field Office and Laboratory	per month	$1,500	36	$54,000	36	$54,000	36	$54,000	36	$54,000	36	$54,000	36	$54,000	36	$54,000	36	$54,000
11	Environmental Mitigation/ Incidental Items (5% of 1 thru 10)				$2,358,000		$2,906,000		$2,478,000		$2,332,000		$2,020,000		$2,263,000		$1,964,000		$1,759,000
12	Roadway Subtotal (1-11)				$61,514,000		$73,021,000		$64,038,000		$60,976,000		$74,428,000		$59,525,000		$53,241,000		$68,945,000
13	Structure Removal	each	$250,000	1	$250,000	1	$250,000	3	$750,000	2	$500,000	2	$500,000	1	$250,000		-		-
14	Culverts																		
	Major$^{(3)}$	cubic yard	$400.00	1,493	$597,000	1,280	$512,000	1,280	$512,000	1,280	$512,000	853	$341,000	1,067	$427,000	1,067	$427,000	640	$256,000
	Minor$^{(3)}$	foot$^{(2)}$	$80.00	9,440	$755,000	6,560	$525,000	7,200	$576,000	5,920	$474,000	4,640	$371,000	7,840	$627,000	6,560	$525,000	5,280	$422,000
15	Bridges				$9,419,255		$15,269,905		$18,288,756		$18,029,736		$18,029,736		$17,594,043		$13,252,609		$13,252,609
16	Structures for Detours and Temporary Traffic Control$^{(4)}$				-		-		-		-		-		-		-		-

Table 25: Estimated Cost of each Corridor Alternative

#	Item Description	Unit	Unit Cost	Corridor Alternative 1		Corridor Alternative 2		Corridor Alternative 3						Corridor Alternative 4					
								Terminus Option A		Terminus Option B		Terminus Option C		Terminus Option A		Terminus Option B		Terminus Option C	
				Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
17	Structure Subtotal (13-16)				$11,021,000		$16,557,000		$20,127,000		$19,516,000		$19,242,000		$18,898,000		$14,205,000		$13,931,000
18	Roadway and Structure Subtotal (12+17)				$72,535,000		$89,578,000		$84,165,000		$80,492,000		$93,670,000		$78,423,000		$67,446,000		$82,876,000
19	Contingencies (15% of 18)				$12,107,000		$15,516,000		$14,433,000		$13,698,000		$12,334,000		$13,285,000		$11,089,000		$10,175,000
20	Total Construction Cost (18+19)				$84,642,000		$105,094,000		$98,598,000		$94,190,000		$106,004,000		$91,708,000		$78,535,000		$93,051,000
21	Utility Adjustments	per mile	$50,000	22	$1,084,000	21	$1,067,000	23	$1,128,000	21	$1,033,000	18	$888,000	22	$1,101,000	20	$1,003,000	17	$857,000
22	Land Acquisition and Relocation																		
	Land	acre	$5,000	598	$2,990,000	594	$2,970,000	695	$3,475,000	748	$3,740,000	697	$3,485,000	567	$2,835,000	620	$3,100,000	569	$2,845,000
	Relocations	per building[1]	$300,000	23	$6,900,000	24	$7,200,000	40	$12,000,000	32	$9,600,000	27	$8,100,000	44	$13,200,000	36	$10,800,000	31	$9,300,000
23	Preliminary Engineering (13% of 20)				$11,003,460		$13,662,220		$12,817,740		$12,244,700		$13,780,520		$11,922,040		$10,209,550		$12,096,630
24	Construction Engineering (1% of 20)				$846,420		$1,050,940		$985,980		$941,900		$1,060,040		$917,080		$785,350		$930,510
25	**Total Project Cost**				$107,465,880		$131,044,000		$129,005,000		$121,750,000		$133,318,000		$121,683,000		$104,433,000		$119,080,000
	Overall Cost Ranking				**2**		**7**		**6**		**5**		**8**		**4**		**1**		**3**

Note:

(1) Includes commercial buildings, residential buildings, or farm units. A farm unit could include a residence, barn, and/or silos.
(2) Unit cost taken from IDOT Pay Item Reports from March, June, August, and September 2003
(3) Major Culvert: Assumed length of 160' based on the typical section and additional clear zone. Assumed structure was an 8' by 8' box culvert. Minor Culvert: Assumed length was 160’ and assumed structure was a 30” –diameter RCP (averaged between a 24”-diameter and a 36” diameter RCP)
(4) The costs associated with ‘Structures for Detours and Temporary Traffic Control’ are accounted for in the contingency cost for this phase of the project.

6.0 ENHANCED COMPARATIVE ANALYSIS - DETAILED ALTERNATIVES

Following the Comparative Analysis, the two corridor alternatives that scored the best (Corridor Alternative 3B and Corridor Alternative 3C) were developed into more detail (based on access issues) and evaluated against two alternatives that were developed based on the public involvement process (Corridor Alternative 5 and Corridor Alternative 6). These four corridor alternatives (Detailed Alternatives), in addition to the No-Action Alternative, were evaluated using the Alternative Evaluation Process following the Fatal Flaw and Enhanced Comparative Analysis.

This analysis was conducted to determine the relative benefits and potential affects of the Detailed Alternatives in relation to one another. The analysis was based on criteria shown in Table 14. These criteria included safety, traffic operations, corridor utilization, environmental resources affects, community planning/land use, ROW/residences & commercial buildings, agriculture, public support, economic vitality, and cost. Table 26 presents a comparison of the corridor alternatives with how well the alternative addresses the criteria. Table 27 presents the results of the Enhanced Comparative Analysis for the Detailed Alternatives.

The results of the Enhanced Comparative Analysis cannot be compared to the results of the Comparative Analysis. They are not comparable because the footprints of the Detailed Alternatives are larger than the footprints of the other alternatives since they include additional access improvements.

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Table 26: Enhanced Comparative Analysis Summary

Criterion	Measure of Effectiveness	No-Action*	Corridor Alternative 3B	Corridor Alternative 3C	Corridor Alternative 5	Corridor Alternative 6
Safety	Does the corridor alternative meet full standards?	No	Yes	Yes	Yes	Yes
Corridor Utilization	Year 2023 Average Daily Travel (ADT) reduction along U.S. Route 30 at critical location (vehicles per day)	0	6,700	6,700	550	6,700
Traffic Operations	Estimated travel time (minutes) Improve intersection LOS along U.S. Route 30? Amount of out-of-direction travel (miles)	34.9 No 0	23.4 Yes -0.1	23.8 Yes 0.3	25.2 No 0.7	26.1 Yes 1.5
Environmental Resources Affects	Potential affects to environmental resources *(Refer to Tables 29 and 30)*	N/A	28	18	23	24
Community Planning/ Land Use	Consistent with existing and future land use plans? (ranked as consistent, not fully consistent, not consistent)	Not Consistent	Consistent	Consistent	Not Consistent	Consistent
ROW/Residences & Commercial Buildings	ROW acquisition (acres)/Number of Residences & Commercial Buildings	0/0	879/53	828/48	674/105	724/113
Agriculture	Number of Centennial Farms Area of Prime Farmland (acres) Potential of Farm Severance Affects	0 0 None	2 1,613 Medium	2 1,404 Medium	1 1,237 Low	2 1,440 Low
Public Support	Does the public support the corridor alternative?	Yes	Yes	Yes	Neutral	Yes
Economic Vitality	Distance to existing U.S. Route 30 from proposed IL Route 78 interchanges (miles)	0	1.4	1.4	1.2	1.4
Cost	Estimated construction cost (millions)	0**	$128	$139	$149	$146

Note:
** The No-Action Alternative is shown as a baseline for comparative purposes only. The No-Action did not pass through the fatal flaw analysis as a feasible alternative and therefore does not meet the Purpose and Need of the study.*

*** The No-Action Alternative has no construction cost; however, the cost of maintaining the existing route would be greater than maintaining a new corridor alternative.*

Table 27: Enhanced Comparative Analysis Results

Criterion	Measure of Effectiveness	No-Action	Corridor Alternative 3B	Corridor Alternative 3C	Corridor Alternative 5	Corridor Alternative 6
Safety	Does the corridor alternative meet full standards?	–	+	+	+	+
Corridor Utilization	Year 2023 Average Daily Travel (ADT) reduction along U.S. Route 30 at critical location (vehicles per day)	–	+	+	o	+
Traffic Operations	Estimated travel time (minutes) Improve intersection LOS along U.S. Route 30? Amount of out-of-direction travel (miles)	–	+	+	o	o
Environmental Resources Affects	Potential affects to environmental resources *(Refer to Tables 29 and 30)*	+	–	o	o	o
Community Planning/ Land Use	Consistent with existing and future land use plans? (ranked as consistent, not fully consistent, not consistent)	–	+	o	–	+
ROW/Residences & Commercial Buildings	ROW acquisition (acres)/Number of Residences & Commercial Buildings	+	o	o	o	o
Agriculture	Number of Centennial Farms Area of Prime Farmland (acres) Potential of Farm Severance Affects	+	+	o	o	–
Public Support	Does the public support the corridor alternative?	+	+	+	+	+
Economic Vitality	Distance to existing U.S. Route 30 from proposed IL Route 78 interchanges (miles)	+	o	o	o	o
Cost	Estimated construction cost (millions)	+	o	o	o	o
Preliminary Point Subtotal**	[+=5 points, o=3 points, and –=1 point]	34	40	38	32	36
Preliminary Ranking***		**4**	**1**	**2**	**5**	**3**

*Note: *=The information contained in Legend for Enhanced Comparative Analysis Category Rating provides an explanation of how the corridor alternatives were rated under each of the categories.*

***=Each of the category ratings (+, o, and –) was given a point value to distinguish overall rankings for the corridor alternatives. The corridor alternative with the highest point total is the recommended alternative. It is assumed that all of the categories are equally weighted.*

****=The preliminary ranking is based on point totals. Higher point totals equate to a higher overall ranking, thus better addressing the U.S. Route 30 Corridor Study Purpose and Need.*

Legend for Comparative Analysis Category Rating

Criterion	+	o	–
Safety (based on constructability to IDOT standards)	yes	somewhat	no
Corridor Utilization	≥ 5,000	500 – 5,000	≤ 500
Traffic Operations (Refer to Table 28)	≤ 3	3 - 6	≥ 7
Environmental Resources Score (Refer to Table 30)	< 39	40 - 49	> 50
Community Planning/ Land Use	consistent	not fully consistent	not consistent
ROW/Residences & Commercial Buildings Score (Refer to Table 34)	≤ 5	5 - 9	≥ 9
Adverse Travel (miles)	≤ 0.0	0.0 – 1.0	≥ 1.0
Public Support	yes	neutral	no
Economic Vitality (miles from city)	≤ 1	1.0 – 2.0	≥ 2.0
Cost (millions)	≤ $100	$100 - $150	≥ $150

6.1 DETAILED ALTERNATIVES

Four Detailed Alternatives, in addition to the No-Action Alternative, were evaluated through the Alternative Evaluation Process. These corridor alternatives are more detailed in the design of access from roadways that intersect with the expressway. Examples of access alternatives evaluated in these alternatives included cul-de-sacs, stop sign controlled intersections, signalized intersections, grade separations, roundabouts, and interchanges.

6.1.1 Corridor Alternative 3 with Terminus Option B (Corridor Alternative 3B)

Corridor Alternative 3B is the same as the Corridor Alternative 3 with Terminus Option B that was evaluated in the Comparative Analysis except additional access improvements were developed.

Access to the Expressway is provided at the following crossroads as shown on Figure 22 and Figure 23: Illinois Route 136, Frog Pond Road, Acker Road, existing U.S. Route 30 (to the west), Millard Road, Prairie Center Road, Illinois Route 78, Feldman Road, Yager Road, Round Grove Road, existing U.S. Route 30 (to the east), Moline Road, and the U.S. Route 30 Spur. Existing U.S. Route 30 is terminated at the Eastern Terminus on the east. On the west existing U.S. Route 30 terminates at the Expressway west of Millard Road with a signal. Access along the Expressway will be refined in the Phase I/NEPA Evaluation Process as alignment alternatives are developed.

6.1.2 Corridor Alternative 3 with Terminus Option C (Corridor Alternative 3C)

Corridor Alternative 3C is the same as the Corridor Alternative 3 with Terminus Option C that was evaluated in the Comparative Analysis except additional access improvements were developed.

Access to the Expressway is provided at the following crossroads as shown on Figure 22 and Figure 24: Illinois Route 136, Frog Pond Road, Acker Road, existing U.S. Route 30 (to the west), Millard Road, Prairie Center Road, Illinois Route 78, Feldman Road, Yager Road, Round Grove Road, Blue Goose Road, Matznick Road, Coletta Road, Troy Road, existing U.S. Route 30 (to the east), Moline Road, and the U.S. Route 30 Spur. Existing U.S. Route 30 is terminated at the Eastern Terminus on the east. On the west existing U.S. Route 30 terminates at the Expressway west of Millard Road with a signal. Access along the Expressway will be refined in the Phase I/NEPA Evaluation Process as alignment alternatives are developed.

6.1.3 Corridor Alternative 5

Corridor Alternative 5 was developed as part of the public involvement process after comments were received that requested a northern alternative that used more of the existing U.S. Route 30 alignment, and remained close to the City of Morrison. This corridor alternative is a northern alternative that uses the existing alignment as much as possible. The strategy in developing the corridor alignment was to create a corridor that is in harmony with the community and environment. This corridor is relatively close to the City of Morrison and uses some of the same alignment as Corridor Alternative 2. Several elements were considered in the development of this corridor including avoiding the Morrison-Rockwood State Park, avoiding the Whiteside County Landfill and Round Grove Cemetery, providing a smooth corridor with minimum number of curves, avoiding the bluffs located near the BNSF Railroad, and minimizing environmental impacts.

6.1.3.1 Description of Corridor

Corridor Alternative 5 includes constructing an expressway to the north of the City of Morrison. Beginning at the junction of U.S. Route 30 and Illinois Route 136, the corridor continues along the existing U.S. Route 30 alignment for approximately 5.3 miles, it travels east across the UP Railroad and leaves the existing alignment at approximately 1.5 miles west of the intersection of Illinois Route 78 (north). The corridor continues to the east, passing south of Morrison-Rockwood State Park. Immediately following the crossing of Lyndon Road, the corridor curves to the south and crosses the existing alignment approximately 0.5 miles east of Lyndon Road. The alignment then curves to the east, just north and parallel to the UP Railroad. After crossing Round Grove Road, the corridor curves to the northeast to reconnect with the existing alignment approximately 1.1 miles east of Round Grove Road. The corridor continues along the existing alignment and ends at the intersection of U.S. Route 30/Moline Road/U.S. Route 30 Spur. This corridor alternative is approximately 22.4 miles in length and crosses Illinois Route 78 approximately 1.2 miles north of the center of the City of Morrison. Corridor Alternative 5 is shown on Figure 25.

6.1.3.2 Structural and Geotechnical Considerations

Preliminary roadway geometrics have been developed and drainage analyses have been conducted to identify the structures for each corridor alternative. The bridges will involve crossings with Illinois Route 78, existing railroads, county roads, and waterways. It was assumed that Lyndon Road would be grade separated with U.S. Route 30 while the other county and local roads would involve at-grade intersections. There are thirteen bridges proposed for Corridor Alternative 5. Since Corridor Alternative 5 was evaluated in greater depth, optional structure types were considered at several locations. The list below identifies each proposed bridge location and structure type. It should be noted that the proposed alignment could use the existing spans of the BNSF Railroad structure. This opportunity will be explored in greater detail during the preliminary design and environmental analysis. The *Structure Report* provides engineering details for each bridge. Further refinement of each proposed structure would be expected during the preliminary design and environmental analysis phase of the project.

1. U.S. Route 30 over a Major Creek (Spring Brook) – Dual 3 Span W36 Beams w/ RC Slab & Pile Bent Abutments.
2. Option 1 – UP Railroad over U.S. Route 30 (grade separation – U.S. Route 30Rural Expressway Section) – Double Span Truss Type Ballast Deck & Two Approach Spans Concrete Ballast Deck on Steel Beams.

   Option 2 – UP Railroad over U.S. Route 30 (grade separation – U.S. Route 30Urban Expressway Section) – Four Span Thru Plate Girder Ballast Deck.
3. Option 1 – BNSF Railroad over U.S. Route 30 (grade separation) – Four Span Steel Beam Open Deck.

   Option 2 – BNSF Railroad over U.S. Route 30 (grade separation) – Four Span Thru Plate Girder Ballast Deck.
4. U.S. Route 30 over UP Railroad (grade separation) – Dual Triple Span W36 Beams w/ RC Slab & Pile Bent Abutments.

5. Illinois Route 78 over U.S. Route 30 (grade separation – overhead) – Double Span W36 Beams w/ RC Slab & Integral Abutments.
6. U.S. Route 30 over a Major Creek (Rock Creek) – Dual 5 Span W36 Beams w/ RC Slab & Pile Bent Abutments.
7. Lyndon Road over U.S. Route 30 (grade separation – overhead) – Double Span W40 Beams w/ RC Slab & Integral Abutments.
8. U.S. Route 30 over a Major Creek (French Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.
9. Existing U.S. Route 30 over U.S. Route 30 (grade separation – overhead) – Double Span 48" Web Plate Girders w/ RC Slab & Pile Bent Abutments.
10. U.S. Route 30 over a Major Creek (Unknown Creek) – Dual Single Span 48" Web Plate Girders w/ RC Slab & Integral Abutments.
11. U.S. Route 30 over a Major Creek (Deer Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.
12. U.S. Route 30 over UP Railroad (grade separation) – Dual Triple Span W36 Beams w/ RC Slab & Pile Bent Abutments.
13. Frog Pond Road over a Major Creek (Cattail Creek) – 3 Span W36 Beams w/ RC Slab & Integral Abutments.

It is anticipated that the bedrock surface underlying the project area is composed chiefly of relatively flat-lying Silurian dolomites from the Niagaran-Alexandrian Formations. These are underlain by the Maquoketa shale and dolomite. The ground and bedrock surface elevations are generally higher along Alternative 5 (similar to Alternative 1), which passes over the Rock River Hill Country as opposed to more southerly alternatives that cross the lowlands. Although there is no indication of Karst features in the project area, if rock is exposed or very near the surface then karst features may be present and should be evaluated further. Karst features can result in unreliable soil conditions and may require special foundation considerations. With respect to earthwork, most cuts and fills are expected to be less than 20 feet deep. Almost all excavation is anticipated to be in soil with little or no rock excavation. However, on the western end near the BNSF RR crossing there is a cut proposed through an existing bluff. Settlement and slope stability for the bridge approaches should be considered as the preliminary design is developed. Soil borings were limited to locations along Corridor Alternative 3; however, similar conditions are expected for all of the corridors. Deep foundations are likely to be needed with limited use of shallow, spread footing foundations.

6.1.3.3 Description of Intersections/Interchanges

Intersection/interchange concepts of Corridor Alternative 5 are described in detail for the western terminus, the eastern terminus, and Illinois Route 78 (North). The western terminus is similar to the recommended for Corridor Alternative 3, the eastern terminus is similar to recommended for Corridor Alternative 3A and Corridor Alternative 4A, and the crossing of Illinois Route 78 is similar to the recommended for Corridor Alternative 2.

Access to the Expressway is provided at the following crossroads as shown on Figure 25: Illinois Route 136, Frog Pond Road, Acker Road, Millard Road, Fulfs Road, Hillside Road, Creamery Road, Illinois Route 78, Crosby Road, Bishop Road, Round Grove Road, Blue Goose Road, Emerson Road, existing U.S. Route 30 (on the east near the study limits), Moline Road, and the U.S. Route 30 Spur. Existing U.S. Route 30 is terminated with a cul-de-sac near Round Grove Road to the east and near Creamery Road to the west of Morrison. In both cases where existing U.S. Route 30 terminates, the expressway continues along the existing U.S. Route 30 alignment. Access along the Expressway will be refined in the Phase I/NEPA Evaluation Process as alignment alternative are developed.

Western Terminus. Corridor Alternative 5 joins the existing U.S. Route 30 alignment near Creamery Road and continues west to the U.S. Route 30/Illinois Route 136/Frog Pond Road Intersection. U.S. Route 30 (coming from the west), Illinois Route 136, and Frog Pond Road are realigned to match the Expressway near their existing at-grade intersection to provide an angle of intersection closer to ninety degrees.

The Western Terminus includes a single-lane roundabout with a bypass lane at the Existing U.S. Route 30/Expressway/Illinois Route 136/Frog Pond Road Intersection. The recommended intersection concept is shown on Figure 25, sheet 2. The corridor footprint shown on the figure was created to include both the recommended intersection concept and the interchange concept since the interchange concept may be the ultimate configuration when they are justified to be constructed.

Eastern Terminus. Corridor Alternative 5 approaches the eastern terminus from the northwest and matches the existing U.S. Route 30 alignment east of Round Grove Road. The existing U.S. Route 30 alignment is realigned west of Emerson Road to cross Emerson Road at a ninety-degree angle. The improvements continue to the U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection. The Eastern Terminus includes improvements described with a traffic signal at the Emerson Road/ Expressway Intersection and a roundabout at the U.S. Route 30/U.S. Route 30 Spur/Moline Road/Expressway Intersection.

Illinois Route 78 (North). A standard diamond interchange at Illinois Route 78 (North) from the Expressway is recommended. This interchange concept is shown on Figure 25, sheet 5.

6.1.4 Corridor Alternative 6

Corridor Alternative 6 was developed as part of the public involvement process after comments were received that requested a southern alternative that used more of the existing U.S. Route 30 alignment, and remained close to the City of Morrison. Corridor Alternative 6 was developed as a southern alternative that uses the existing alignment as much as possible. This corridor is relatively close to the City of Morrison and uses some of the same alignment as Corridor Alternative 3. The strategy was to develop the corridor in harmony with the community and environment. Several elements were considered in the development of this corridor including avoiding the Whiteside County Landfill and Round Grove Cemetery, providing easy access to the Industrial Park, avoiding the bluffs located near the BNSF Railroad, providing a smooth corridor with minimum number of curves, and minimizing environmental impacts.

6.1.4.1 Description of Corridor

Corridor Alternative 6 includes constructing an expressway to the south of the City of Morrison. Beginning at the junction of U.S. Route 30 and Illinois Route 136, the corridor

continues along the existing U.S. Route 30 alignment for approximately 4.2 miles, it leaves the existing alignment at approximately 2.8 miles west of the intersection of Illinois Route 78 (north) and travels south, crossing Garden Plain Road. The alignment travels southeast and then east, crossing Illinois Route 78 and Sawyer Road before it curves to the northeast, paralleling the existing U.S. Route 30 alignment approximately 0.2 miles west of Lyndon Road. The alignment continues paralleling the existing alignment for approximately 0.6 miles and then curves to the southeast to just north of the UP Railroad where it curves to the east. After crossing Round Grove Road, the corridor curves to the northeast to reconnect with the existing alignment approximately 1.1 miles east of Round Grove Road. The corridor continues along the existing alignment and ends at the intersection of U.S. Route 30/Moline Road/U.S. Route 30 Spur. This corridor alternative is approximately 23.2 miles in length and crosses Illinois Route 78 approximately 1.4 miles south of the center of the City of Morrison.

6.1.4.2 Structural and Geotechnical Considerations

Preliminary roadway geometrics have been developed and drainage analyses have been conducted to identify the structures for each corridor alternative. The bridges will involve crossings with IL Route 78, existing railroads, county roads, and waterways. It was assumed that Lyndon Road would be grade separated with U.S. Route 30 while the other county and local roads would involve at-grade intersections. There are eleven bridges proposed for Corridor Alternative 6. Since Corridor Alternative 6 was evaluated in greater depth, optional structure types were considered at several locations. The list below identifies each proposed bridge location and structure type. It should be noted that the proposed alignment could use the existing spans of the BNSF Railroad structure. This opportunity will be explored in greater detail during the preliminary design and environmental analysis. The *Structure Report* provides engineering details for each bridge. Further refinement of each proposed structure would be expected during the preliminary design and environmental analysis phase of the project.

1. U.S. Route 30 over a Major Creek (Spring Brook) – Dual 3 Span W36 Beams w/ RC Slab & Pile Bent Abutments.
2. Option 1 – UP Railroad over U.S. Route 30 (grade separation – U.S. Route 30Rural Expressway Section) – Double Span Truss Type Ballast Deck & Two Approach Spans Concrete Ballast Deck on Steel Beams.

   Option 2 – UP Railroad over U.S. Route 30 (grade separation – U.S. Route 30Urban Expressway Section) – Four Span Thru Plate Girder Ballast Deck.
3. Option 1 – BNSF Railroad over U.S. Route 30 (grade separation) – Four Span Steel Beam Open Deck.

   Option 2 – BNSF Railroad over U.S. Route 30 (grade separation) – Four Span Thru Plate Girder Ballast Deck.
4. U.S. Route 30 over a Major Creek (Rock Creek) – Dual 5 Span W36 Beams w/ RC Slab & Pile Bent Abutments.
5. Illinois Route 78 over U.S. Route 30 (grade separation – overhead) – Double Span W36 Beams w/ RC Slab & Integral Abutments.

6. U.S. Route 30over UP Railroad (grade separation) – Dual Triple Span W36 Beams w/RC Slab & Pile Bent Abutments.
7. Lyndon Road over U.S. Route 30 (grade separation – overhead) – Double Span W36 Beams w/ RC Slab & Integral Abutments.
8. U.S. Route 30 over a Major Creek (Unknown Creek) – Dual Single Span 48" Web Plate Girders w/ RC Slab & Integral Abutments.
9. U.S. Route 30 over a Major Creek (Deer Creek) – Dual Triple Span W36 Beams w/ RC Slab & Integral Abutments.
10. U.S. Route 30 over UP Railroad (grade separation) – Dual Triple Span W36 Beams w/ RC Slab & Pile Bent Abutments.
11. Frog Pond Road over a Major Creek (Cattail Creek) – 3 Span W36 Beams w/ RC Slab & Integral Abutments.

It is anticipated that the bedrock surface underlying the project area is composed chiefly of relatively flat-lying Silurian dolomites from the Niagaran-Alexandrian Formations. These are underlain by the Maquoketa shale and dolomite. The ground and bedrock surface elevations are generally lower along Alternative 6 which crosses the lowlands as opposed to more northerly alternatives that pass over the Rock River Hill Country. Although there is no indication of Karst features in the project area, if rock is exposed or very near the surface then karst features may be present and should be evaluated further. Karst features can result in unreliable soil conditions and may require special foundation considerations. With respect to earthwork, most cuts and fills are expected to be less than 20 feet deep. Almost all excavation is anticipated to be in soil with little or no rock excavation. However, on the western end near the BNSF RR crossing there is a cut proposed through an existing bluff. Settlement and slope stability for the bridge approaches should be considered as the preliminary design is developed. Soil borings were limited to locations along Corridor Alternative 3; however, similar conditions are expected for all of the corridors. Deep foundations are likely to be needed with limited use of shallow, spread footing foundations.

6.1.4.3 Description of Intersections/Interchanges

Intersection/interchange concepts are described for the western terminus, the eastern terminus, and Illinois Route 78 (South) of Corridor Alternative 6. The Western Terminus is similar to the recommended western terminus for Corridor Alternative 3A and Corridor Alternative 4A. The Eastern Terminus and the crossing of Illinois Route 78 (South) are similar to the recommended for Corridor Alternative 3.

Access to the Expressway is provided at the following crossroads as shown on Figure 26: Illinois Route 136, Frog Pond Road, Acker Road, Millard Road, Fulfs Road, Hillside Road, Garden Plain Road, Prairie Center Road, Illinois Route 78, Feldman Road, Round Grove Road, Blue Goose Road, Matznick Road, Emerson Road, existing U.S. Route 30 (on the east near the study limits), Moline Road, and the U.S. Route 30 Spur. Existing U.S. Route 30 is terminated with a cul-de-sac near Round Grove Road to the east. Existing U.S. Route 30 is realigned and terminated at the intersection of U.S. Route 30 and Hillside Road with a signalized intersection to the west. In both cases where existing U.S. Route 30 terminates, the expressway continues along the existing U.S. Route 30 alignment. Access along the

Expressway will be refined in the Phase I/NEPA Evaluation Process as alignment alternative are developed.

Western Terminus. Corridor Alternative 6 joins the existing U.S. Route 30 alignment approximately 1,200 feet west of Hillside Road and continues west to the U.S. Route 30/Illinois Route 136/Frog Pond Road Intersection. The existing U.S. Route 30 alignment, coming from the east, is realigned to form a tee intersection and ninety-degree angle with the Expressway. U.S. Route 30 (coming from the west), Illinois Route 136, and Frog Pond Road are realigned to match the Expressway near their existing at-grade intersection to provide an angle of intersection closer to ninety degrees.

The Western Terminus includes a traffic signal at the Existing U.S. Route 30/Expressway Intersection and a single-lane roundabout with a bypass lane at the Existing U.S. Route 30/Expressway/Illinois Route 136/Frog Pond Road Intersection. The recommended intersection concept is shown on Figure 26, sheet 2. The corridor footprint shown on the figure was created to include both the recommended intersection concept and the interchange concept since the interchange concept may be the ultimate configuration when they are justified to be constructed.

Eastern Terminus. Corridor Alternative 6 approaches the eastern terminus from the northwest and matches the existing U.S. Route 30 alignment west of Emerson Road. Emerson Road is realigned north of U.S. Route 30 to cross at a ninety-degree angle. The improvements continue to the U.S. Route 30/U.S. Route 30 Spur/Moline Road Intersection.

The Eastern Terminus includes a traffic signal at the Emerson Road/Expressway Intersection and a roundabout at the U.S. Route 30/U.S. Route 30 Spur/Moline Road/Expressway Intersection. The recommended intersection concept is shown on Figure 26, sheets 9 and 10. The corridor footprint shown on the figure was created to include both the recommended intersection concept and interchange concept since the interchange concept may be the ultimate configuration once it's justified to be constructed.

Illinois Route 78 (South). A standard diamond interchange at Illinois Route 78 (North) from the Expressway is recommended. This interchange concept is shown on Figure 26, sheet 6.

6.2 ENHANCED COMPARATIVE ANALYSIS SUMMARY

All four corridor alternatives passed through the fatal flaw analysis and were carried forward to the enhanced comparative analysis. The No-Action Alternative does not address the purpose and need of the project but is carried forward to the Comparative Analysis for comparative purposes only. It may be the recommended alternative if no other alternative is reasonable and addresses the purpose and need. Similarly to the Comparative Analysis, in the Enhanced Comparative Analysis the corridor alternatives were compared to each other based on how effectively they addressed the criteria. The results were presented in a matrix evaluation that shows whether the corridor alternative is least favorable, moderate, or most favorable. A least favorable rating is represented by a minus sign, a moderate rating is represented by a circle, and a most favorable rating is represented by a plus sign as shown in Table 27.

Based on the results of the Enhanced Comparative Analysis, Corridor Alternative 3B best addresses the U.S. Route 30 Purpose and Need, followed by Corridor Alternative 3C and

Corridor Alternative 6. Corridor Alternative 5 least address the U.S. Route 30 Purpose and Need. A detailed discussion of each of the criteria is contained in the following sections.

6.2.1 Safety

The No-Action Alternative does not meet IDOT full standards in regards to profile, alignment, and cross-section. The existing profile along U.S. Route 30 near the UP Railroad crossing, east of Frog Pond Road has a zero percent grade. Alignment deficiencies include four roadways intersecting at substandard angles and limited sight distance around one curve. Cross-section deficiencies include substandard side slopes, substandard shoulder widths, substandard taper lengths, and substandard turn lanes.

All corridor alternatives can be designed to meet IDOT full standards.

6.2.2 Corridor Utilization

The ADT volume along U.S. Route 30 varies substantially throughout the corridor. Between 7,650 vehicles (eastern end) and 19,100 vehicles (within the City of Morrison) a day are projected to travel along the existing U.S. Route 30 in 2023 under the No-Action Alternative. Of these vehicles, between 380 vehicles (5 percent) and 3,200 vehicles (17 percent) are trucks, respectively.

Generally, the corridor alternatives substantially reduce the number of vehicles traveling along the existing U.S. Route 30. Along U.S. Route 30 between Illinois Route 78 (North) and Illinois Route 78 (South) the number of reduced vehicles per day is estimated to be approximately 6,700 vehicles for Corridor Alternative 3B, Corridor Alternative 3C, and Corridor Alternative 6. This number is substantially less for Corridor Alternative 5 (approximately 550 vehicles) since a large number of trucks traveling on the expressway will require to travel on U.S. Route 30 between Illinois Route 78 (North) and Illinois Route 78 (South) to access the Morrison Industrial Park.

6.2.3 Traffic Operations

The traffic operations criterion includes the analysis of estimated travel time along the expressway, improve intersection LOS along U.S. Route 30, and the amount of out-of-direction travel. Table 28 presents the results of the traffic operations analysis.

Table 28: Traffic Operations

Corridor Alternative	Travel Time		Intersection LOS *		Adverse Travel		Total Score (score 1 + score 2 + score 3)	Final Rank
	Min.	score 1	Improve LOS?	score 2	Miles	score 3		
No-Action	34.9		No		0			N/A
3B	23.4	1	Yes	1	-0.1	1	3	1
3C	23.8	2	Yes	1	0.3	2	5	2
5	25.2	3	No	4	0.7	3	10	4
6	26.1	4	Yes	1	1.5	4	9	3

6.2.3.1 Travel Times

Corridor Alternative 3B is estimated to have the fastest travel time between the U.S. Route 30 Spur and just west of the U.S. Route 30 and Frog Pond Road Intersection of 23.4 minutes, followed by Corridor Alternative 3C of 23.8 minutes. Corridor Alternative 6 has the slowest travel time of 26.1 minutes. These can be compared to the No-Action travel time of 34.9 minutes.

Since many vehicles access U.S. Route 30 from Emerson Road it is beneficial to evaluate the travel time from this access point. The travel time for the No-Action Alternative along existing U.S. Route 30 beginning at Emerson Road and ending at the western terminus is approximately 32.1 minutes. The travel time for the corridor alternatives with Emerson Road as the starting point, ranges between 21.7 minutes (Alternative Corridor 5) and 26.3 minutes (Alternative Corridor 3C). This calculation presents a larger range of travel times and should be considered during future evaluation once additional traffic information is available.

6.2.3.2 Level-of-Service (LOS)

In addition to travel times, intersection LOS was used to evaluate traffic operations. U.S. Route 30 intersections for the No-Action Alternative are projected to generally operate at LOS E and LOS F during the p.m. peak hour by 2023. This represents frequent stops and large delays at intersections.

For the Build (2023) condition with Corridor Alternative 5, U.S. Route 30 intersections are projected to operate at LOS C, LOS D, or LOS F during the 2023 peak hours. Of the six intersections evaluated, the northern corridor alternative improves the operations of 3 intersections. For the Build (2023) condition with Corridor Alternative 3B, Corridor Alternative 3C, or Corridor Alternative 6, U.S. Route 30 intersections are projected to operate at LOS C, LOS D, or LOS E during the 2023 peak hours. The southern alternatives improve the operations of all 6 intersections along U.S. Route 30.

6.2.3.3 Adverse Travel

The existing U.S. Route 30 generally follows in a southeast/northwest direction throughout the study area. The traveling distance is approximately 20.6 miles, calculated from the U.S. Route 30 Spur to just west of the U.S. Route 30 and Frog Pond Road Intersection. The amount of adverse travel ranges between –0.1 miles (Corridor Alternative 3B) and 1.5 miles (Corridor Alternative 6). The negative adverse travel represents that Corridor Alternative 3B is a more direct route and is shorter than the existing U.S. Route 30 alignment.

Since several vehicles access U.S. Route 30 from Emerson Road it is beneficial to evaluate the adverse travel from this access point. The traveling distance along existing U.S. Route 30 beginning at Emerson Road is approximately 17.3 miles. The amount of adverse travel for the corridor alternatives with Emerson Road as the starting point, ranges between 0.7 miles (Alternative Corridor 5) and 4.9 miles (Alternative Corridor 3C). This calculation presents a larger range of out-of-direction travel and should be considered during future evaluation once additional traffic information is available.

6.2.4 Environmental Resources Affects

The No-Action Alternative has no affect on many environmental resources discussed in this chapter. No direct land use affects occur and no publicly owned properties are taken for ROW.

No relocations are required. No sedimentation or potential spill related to construction occurs. No wetlands are disturbed and no additional affects on wildlife result. Floodplain hydraulics are not altered, and no historic resources are affected. The No-Action Alternative, however, results in several other affects. The additional traffic volumes increase the noise levels from existing levels at homes and businesses, as well as, deteriorate air quality within the City of Morrison. The local economy also experiences affects and energy consumption increases. The No-Action Alternative is not responsive to community planning efforts with respect to proposed development and growth.

Affects to numerous environmental resources were evaluated for each corridor alternative. Resources included cultural (archaeological and historic), natural (natural areas, threatened and endangered species, and wildlife habitat), water, floodplains, wetlands, special waste, special lands, air quality, and traffic noise. This section summarizes the affects the corridor alternatives may have to some of these resources. Table 29 summarizes all of the environmental resources affects evaluated and Table 30 presents the corridor alternatives ranking for each environmental resource based on the calculated effect. Refer to the *U.S. Route 30 Corridor Study Environmental Resources Technical Report*, January 26, 2004 and its Addendum, September 16, 2004 for a more detailed description of all the environmental affects. Figure 7b presents the environmental resources located within the study area.

Table 29: Comparison of Environmental Resources Affects

Environmental Resources	Measure of Effectiveness	No-Action	Corridor Alternative 3B	Corridor Alternative 3C	Corridor Alternative 5	Corridor Alternative 6
Archaeological	Area of Archaeological High Probability (length corridor traverses high probability zones) (miles)	0	5	4.5	8	8
Historic	# of Historic Properties (# buildings with potentially historic structure)	0	20	17	34	40
Natural Areas/Nature Preserves	Area of Natural Areas (INAI) and Nature Preserve Affects (acres)	0	0	0	0	0
Threatened and Endangered Species	Federal and State Protected Species Area of Association (acres)	0	66.7	66.7	46.5	46.5
Vegetation/Wildlife Habitat	Area of Vegetation and Wildlife Habitat (acres)	0	89	83	78	36

Table 29: Comparison of Environmental Resources Affects

Environmental Resources	Measure of Effectiveness	No-Action	Corridor Alternative 3B	Corridor Alternative 3C	Corridor Alternative 5	Corridor Alternative 6
Water Resources/ Water Quality	# New Bridges/Increase Impervious Surface Area (acres) *(Refer to Table 31)*	0/0	5/191	5/162	6/172	5/182
Floodplains	Area of FEMA 100-year Floodplain (acres)	0	231	192	162	225
Wetlands	Total Wetland/Jurisdictional Wetland *(Refer to Table 32)*	0	93.8/72.8	60.3/41.8	53.8/31.3	78.8/60.8
Special Waste	# of Affected Special Waste Sites	0	1	1	1	1
Special Lands	Area of Special Lands Affected	0	0	0	0	0
Air Quality	Negative Affect to Air Quality	No	No	No	No	No
Traffic Noise	# of Sensitive Receptors that could experience an increase in traffic noise levels	268	83	74	170	166

Table 30: Ranking of Environmental Resources Affects

Environmental Resources	Measure of Effectiveness	Corridor Alternative 3B	Corridor Alternative 3C	Corridor Alternative 5	Corridor Alternative 6
Archaeological	Area of Archaeological High Probability (length corridor traverses high probability zones) (miles)	2	1	3	3
Historic	# of Historic Properties (# buildings with potentially historic structure)	2	1	3	4
Natural Areas/ Nature Preserves	Area of Natural Areas (INAI) and Nature Preserve Affects (acres)	1	1	1	1
Threatened and Endangered Species	Federal and State Protected Species Area of Association (acres)	3	3	1	1
Vegetation/Wildlife Habitat	Area of Vegetation and Wildlife Habitat (acres)	4	3	2	1
Water Resources/ Water Quality	# New Bridges/Increase Impervious Surface Area (acres)	3	1	4	2
Floodplains	Area of FEMA 100-year Floodplain (acres)	4	2	1	3
Wetlands	Total Wetland/Jurisdictional Wetland	4	2	1	3
Special Waste	# of Affected Special Waste Sites	1	1	1	1
Special Lands	Area of Special Lands Affected	1	1	1	1
Air Quality	Negative Affect to Air Quality	1	1	1	1
Traffic Noise	# of Sensitive Receptors that could experience an increase in traffic noise levels	2	1	4	3
	Total Score	28	18	23	24
Overall Environmental Resources Affect (Ranking)*		4	1	2	3

Note:

** = The ranking of overall environmental resources represents a decreasing order of the amount of overall environmental resources impacts. (i.e. An alternative with a ranking of "1" will impact the least amount of environmental resources in the study area, while an alternative with a ranking of "4" will impact the most environmental resources in the study area.)*

6.2.4.1 Cultural Resources

Cultural resources affects within the study area fall into two categories: archaeological resources and historic resources.

Archaeological. Archaeological affects were evaluated through measurement of the length of archaeological high probability zone that is located within the corridor alternatives. Corridor Alternative 5 and Corridor Alternative 6 affect the largest amount of high probability zone, approximately 8 miles. Corridor Alternative 3C and Corridor Alternative 3B affect approximately 4.5 miles and 5 miles of high probability zone, respectively.

Historic. Historic affects were evaluated through tabulation of the number of potentially historic buildings located within each of the corridor alternatives. The corridor alternatives affect between 17 (Corridor Alternative 3C) and 40 (Corridor Alternative 6) potentially historic buildings.

6.2.4.2 Natural Resources

Natural Areas (INAI) and Nature Preserves. Due to the special protection status and high quality vegetation of natural areas (INAI) and nature preserves, the corridor alternatives were developed to avoid these areas. None of the corridor alternatives affect natural areas or nature preserves within the study area.

Threatened and Endangered Species. The corridor alternatives affect between 46.5 acres (Corridor Alternative 5 and Corridor Alternative 6) and approximately 66.7 acres (Corridor Alternative 3B and Corridor Alternative 3C) of the federal and state protected species area of association. The corridor alternatives that use more of the existing U.S. Route 30 alignment affect approximately 20 acres less of threatened and endangered species habitat than those alternatives that traverses new areas.

Vegetation and Wildlife Habitat. All of the corridor alternatives affect vegetation and wildlife habitat within the study area. Corridor Alternative 6 affects the least amount (approximately 36 acres). The other alternatives are relatively similar ranging between 78 acres and 89 acres.

6.2.4.3 Water Resources

Affects to water quality may be directly related to the number of new bridges over a water resource and the increase of impervious surface area. The corridor alternatives require either 5 bridges (Corridor Alternative 3B, Corridor Alternative 3C, and Corridor Alternative 6) or 6 new bridges over a water resource (Corridor Alternative 5). The increase of impervious surface area ranges between approximately 162 acres (Corridor Alternative 3C) and approximately 191 acres (Corridor Alternative 3B). Based on these two criteria, Corridor Alternative 3C has the least affect to water resources. Corridor Alternative 5 has the greatest affect to water resources. Table 31 presents the results of the water resources analysis.

Table 31: Water Resources Affects by Corridor Alternative

Corridor Alternative	New Bridges		Impervious Surface Area		Total Score (score 1 + score 2)	Final Rank
	#	score 1	acres	score 2		
No-Action	0		0			N/A
3B	5	1	191	4	5	3
3C	5	1	162	1	2	1
5	6	4	172	2	6	4
6	5	1	182	3	4	2

6.2.4.4 Floodplains

Fill in floodplains should be avoided, especially FEMA floodway and 100-year floodplain, as they require a permit according to the Water Quality Act and often mitigation through replacement land of the same quality and type.

The Corridor Alternatives affect between approximately 162 acres (Corridor Alternative 5) and approximately 231 acres (Corridor Alternative 3B) of FEMA 100-year floodplain.

6.2.4.5 Wetlands

The corridor alternatives affect between approximately 53.8 acres (Corridor Alternative 5) and approximately 93.8 acres (Corridor Alternative 3B) of wetlands. Although Corridor Alternative 6 uses a portion of the existing U.S. Route 30 alignment, it affects the second most acres of wetlands (approximately 78.8 acres).

Although minimizing affects to all wetlands is essential, jurisdictional wetlands are of particular concern. Jurisdictional wetlands are those wetlands that have a direct surface connection to navigable waters. Because of this connection, jurisdictional wetlands can represent a higher valued wetland in terms of function. The corridor alternatives affect between approximately 31.3 acres (Corridor Alternative 5) and approximately 72.8 acres (Corridor Alternative 3B) of jurisdictional wetlands.

Table 32 presents the results of the wetland affects by corridor alternative based on the two criteria. As shown in the table, Corridor Alternative 5 has the least overall wetland affects and Corridor Alternative 3B has the most.

6.2.4.6 Special Waste

Special waste sites affect the construction of projects because of high clean-up costs and safety hazards through exposure and material handling. All of the corridor alternatives affect one potentially hazardous waste site that is located adjacent to the eastern terminus.

6.2.4.7 Special Lands

The Corridor Alternatives do not negatively affect special lands located within the study area.

Table 32: Wetland Affects by Corridor Alternative

Corridor Alternative	Total Wetland Area Affected		Jurisdictional Wetland Area Affected		Total Score (score 1 + score 2)	Final Rank
	#	score 1	acres	score 2		
No-Action	0		0			N/A
3B	93.8	4	72.8	4	8	4
3C	60.3	2	41.8	2	4	2
5	53.8	1	31.3	1	2	1
6	78.8	3	60.8	3	6	3

6.2.4.8 Air Quality

The Corridor Alternatives do not negatively affect air quality within the study area. Whiteside County will remain an attainment zone with the proposed improvements.

6.2.4.9 Traffic Noise

Traffic noise affects were evaluated by determining the number of potential noise sensitive receptors that will experience an increase in traffic noise levels with the development of the expressway.

Noise sensitive receptors include residential development, commercial development, churches, parks, and recreational facilities. Most noise sensitive receptors within the study area are located within the City of Morrison, with the remaining noise sensitive land use scattered throughout the rural area. The land use within the study area is primarily agricultural, with sporadic residential land use. Along existing U.S. Route 30 within the City of Morrison, land use is primarily urban.

Since there are more commercial and residential development located along the existing U.S. Route 30 Corridor than are scattered throughout the study area, Corridor Alternative 5 and Corridor Alternative 6 (the two alternatives that use the existing alignment more) contain the largest number of potential noise sensitive receptors, (approximately 170 and 166 receptors, respectively) that will experience an increase in traffic noise levels. Corridor Alternative 3C will affect the least number of sensitive receptors (approximately 74 receptors).

6.2.5 Agriculture

Prime Farmland is a critical resource within Whiteside County. Based on concern received from the public, agricultural resources were added to the Enhanced Comparative Analysis Criteria. The corridor alternatives affect between approximately 1,250 acres (Corridor Alternative 5) and 1,600 acres (Corridor Alternative 3B). In addition to the number of acres impacted, the number of centennial farms and potential of farm severance affects are important elements to evaluate. Corridor Alternative 5 potentially affects the least number of Centennial Farms with one affected, the remaining corridor alternative potentially affect two Centennial Farms. Corridor Alternative 5 and Corridor Alternative 6 both have potentially low farm severance affects,

whereas, Corridor Alternative 3B and Corridor Alternative 3C have potentially medium farm severance affects.

Table 33 presents the results of the agricultural resources affect by corridor alternative based on the three criteria. As shown in the table, Corridor Alternative 5 has the least overall agricultural affects and Corridor Alternative 3B has the most.

Table 33: Agricultural Resource Affects by Corridor Alternative

Corridor Alternative	Number of Centennial Farms		Area of Prime Farmland		Potential of Farm Severance Affects		Total Score (score 1 + score 2 + score 3)	Final Rank
	#	score 1	acres	score 2	(High, Medium, Low)	score 3		
No-Action	0		0		None			N/A
3B	2	2	1,613	4	Medium	3	9	4
3C	2	2	1,404	2	Medium	3	7	3
5	1	1	1,237	1	Low	1	3	1
6	2	2	1,440	3	Low	1	6	2

6.2.6 Community Planning/Land Use

The No-Action Alternative is not consistent with community planning and land use. This alternative does not increase accessibility or improve mobility for the region.

Corridor Alternative 5 is not consistent with the City of Morrison Land Use Plan and the plans of the surrounding communities since they are located north of the existing U.S. Route 30, away from the location of the existing and proposed industrial development. This alternative may encourage the truck traffic that is accessing the industrial development to use the existing facility instead of the Expressway. In addition, the Expressway may attract roadside services for travelers that interrupt the existing agricultural/residential land use.

Corridor Alternative 3B, Corridor Alternative 3C, and Corridor Alternative 6 are consistent with the current City of Morrison Land Use Plan and the plans of the surrounding communities, since they compliment the proposed industrial development that will potentially be located south of the City. These alternatives increase accessibility and improve mobility for the region and foster continuation of the current industrial and business growth south of the City. Small businesses could be attracted along the corridor and between the corridor and the industrial facility to provide roadside services for travelers on the expressway.

6.2.7 ROW/Residences & Commercial Buildings

Two elements were evaluated for the ROW/Residences & Commercial Buildings Criterion. These elements include ROW acquisition and the number of residences and commercial buildings within the corridors.

The No-Action Alternative does not require additional ROW or affect any residences or commercial buildings.

The ROW acquisition for the corridor alternatives ranges between approximately 674 acres (Corridor Alternative 5) to 879 acres (Corridor Alternative 3B). Corridor Alternative 3 (regardless of terminus option) generally requires more ROW than Corridor Alternative 5 or Corridor Alternative 6 because it uses less existing ROW. Although Corridor Alternative 3B has three extra miles of pavement and ROW requirements, it only requires 51 acres more ROW than Corridor Alternative 3C due to the proposed trumpet interchange located at the expressway connection with the existing U.S. Route 30.

The number of residences and commercial buildings within the 600-foot wide affect zone alternatives range between 48 buildings (Corridor Alternative 3C) and 113 buildings (Corridor Alternative 6). Corridor Alternative 5 and Corridor Alternative 6 contain more residences and commercial buildings than the other alternatives since these alternatives follow the existing alignment with a larger cross section and there are several existing buildings located adjacent to the existing alignment.

Based on the three ROW/Residences & Commercial Buildings criterion, Corridor Alternative 3C and Corridor Alternative 5 have the least affect on ROW/Residences & Commercial Buildings and Corridor Alternative 3B and Corridor Alternative 6 have the most. Table 34 presents the results of the ROW/Residences & Commercial Buildings analysis.

Table 34: ROW/ Residences & Commercial Buildings Affects by Corridor Alternative

Corridor Alternative	ROW Acquisition		Potential Residences & Commercial Buildings Affects		Total Score (score 1 + score 2)	Final Rank
	acres	score 1	#	score 2		
No-Action	0		0			N/A
3B	879	4	53	2	6	3
3C	828	3	48	1	4	1
5	674	1	105	3	4	1
6	724	2	113	4	6	3

6.2.8 Public Support

Based on the results of the public meeting, the public supports all of the corridor alternatives evaluated in the Enhanced Comparative Analysis. Corridor Alternative 5 and Corridor Alternative 6 were developed directly from comments received at the meeting and Corridor Alternative 3B and Corridor Alternative 3C were supported by the majority of comments received.

6.2.9 Economic Vitality

Economic Vitality of the proposed improvements is related to the distance from the corridor alternative to the City of Morrison. The closer the alternative is to the City, the more vital it is to the economy. The closest distance between the corridor and the City (measured along Illinois Route 78) is 1.2 miles (Corridor Alternative 5). Although Corridor Alternative 5 is the closest to the City, the remaining corridor alternatives are just slightly more at a distance of 1.4 miles and may be considered just as vital.

6.2.10 Cost

Table 35 presents the detailed cost estimate for each corridor alternative. The estimated construction costs for the corridor alternatives range between $128 million (Corridor Alternative 3B) and $149 million (Corridor Alternative 5).

The earthwork for Corridor Alternative 3B, Corridor Alternative 3C, and Corridor Alternative 6 requires a large amount of earth excavation (between $11.4 million and $12.4 million) and a comparatively small amount of borrow (between no borrow and $1.4 million), whereas Corridor Alternative 5 requires more borrow than excavation.

The Corridor Alternatives that use the existing alignment (Corridor Alternative 5 and Corridor Alternative 6) require more potential relocations than the other alternatives (approximately twice as many).

Table 35: Estimated Cost of each Detailed Corridor Alternative

#	Item Description	Unit	Unit Cost	Corridor Alternative 5		Corridor Alternative 6		Corridor Alternative 3B		Corridor Alternative 3C	
				Units	Cost	Units	Cost	Units	Cost	Units	Cost
1	Clearing: Minor Removal Items [1]	acre	$2,000	135	$269,600	144.8	$289,600	176	$351,600	166	$331,200
2	Earthwork										
	Earth Excavation	$yard^3$ [2]	$4.10	1,861,245	$7,631,105	3,017,870	$12,373,265	3,153,622	$12,929,851	2,781,925	$11,405,893
	Borrow	$yard^3$ [2]	$2.85	2,511,587	$7,158,023	477,105	$1,359,748		-		-
3	Erosion Control (1% of line 2)				$147,891		$137,330		$129,299		$114,059
4	Drainage (1% of line 2)				$147,891		$137,330		$129,299		$114,059
5	Subbase, Base, Surface, Shoulders										
	Subbase	$yard^3$ [2]	$22.00	352284	$7,750,248	364645	$8,022,190	331329	$7,289,238	279898	$6,157,756
	Base + Surface	ton[2]	$32.94	532093	$17,527,143	550763	$18,142,133	500443	$16,484,592	422761	$13,925,747
	Bituminous Shoulder	$yard^2$ [2]	$21.14	412430	$8,718,770	426901	$9,024,687	387898	$8,200,164	327686	$6,927,282
	Aggregate Shoulders	ton[2]	$15.00	35564	$533,466	36812	$552,184	33449	$501,733	28257	$423,852
6	Guardrail, Roadside Safety	per structure	$10,000	13.00	$130,000	11.00	$110,000	9.00	$90,000	11.00	$110,000
7	Intersections/Interchanges										
	Traffic Signals	per intersection	$150,000	1	$150,000	2	$300,000	2	$300,000	2	$300,000
	Interstate Route 88 Interchange (includes structure cost) [3]	per interchange	$20 million		-		-		-	1	$20,000,000
	Illinois Route 78 Interchange (includes structure cost) [3]	per interchange	$12 million	1	$12,000,000	1	$12,000,000	1	$12,000,000	1	$12,000,000
8	Detours, Temp. Traffic Control (4% of line 2)				$591,565		$549,321		$517,194		$456,236
9	Railroad Crossing Improvements	per crossing	$250,000	1	$250,000	3	$750,000		-		-
10	Field Office and Laboratory	per month	$1,500	36	$54,000	36	$54,000	36	$54,000	36	$54,000
11	Environmental Mitigation/ Incidental Items (5% of 1 thru 10)				$2,552,985		$2,590,089		$2,348,848		$2,016,004
12	Roadway Subtotal (1-11)				$65,612,687		$66,391,877		$61,325,818		$74,336,087
13	Structure Removal	each	$250,000	1	$250,000	1	$250,000	2	$500,000	2	$500,000
14	Culverts										
	Major [4]	cubic yard	$400.00	1,067	$426,667	1,707	$682,667	1,280	$512,000	853	$341,333
	Minor [4]	foot[2]	$80.00	5,600	$448,000	4,320	$345,600	7,680	$614,400	5,120	$409,600
15	Bridges				$34,695,165		$30,923,763		$25,717,021		$25,717,021
16	Structures for Detours and Temporary Traffic Control [5]				-		-	-	-	-	-
17	Structure Subtotal (13-16)				$35,819,832		$32,202,030		$27,343,421		$26,967,954

Table 35: Estimated Cost of each Detailed Corridor Alternative

#	Item Description	Unit	Unit Cost	Corridor Alternative 5		Corridor Alternative 6		Corridor Alternative 3B		Corridor Alternative 3C	
				Units	Cost	Units	Cost	Units	Cost	Units	Cost
18	Roadway and Structure Subtotal (12+17)				$101,432,519		$98,593,906		$88,669,239		$101,304,042
19	Contingencies (20% of 18)				$17,886,504		$17,318,781		$15,333,848		$13,860,808
20	Total Construction Cost (18+19)				$119,319,023		$115,912,688		$104,003,087		$115,164,850
21	Utility Adjustments	per mile	$50,000	21.97	$1,098,447	22.74	$1,136,989	20.66	$1,033,108	17.45	$872,743
22	Land Acquisition and Relocation										
	Land	acre	$5,000	674	$3,370,000	724	$3,620,000	879	$4,395,000	828	$4,140,000
	Relocations [6]	per building	$300,000	32	$9,450,000	34	$10,170,000	15.9	$4,770,000	14.4	$4,320,000
23	Preliminary Engineering (12% of 20)				$14,318,283		$13,909,523		$12,480,370		$13,819,782
24	Construction Engineering (1% of 20)				$1,193,190		$1,159,127		$1,040,031		$1,151,648
25	**Total Project Cost**				$148,750,000		$145,910,000		$127,720,000		$139,470,000
	Overall Cost Ranking				**4**		**3**		**1**		**2**

Note:

(1) The Quantity is assumed to be 1/5th of the total land acquisition which is based on an assumed 200-foot ROW width.
(2) Unit cost taken from IDOT Pay Item Reports from March, June, August, and September 2003.
(3) The cost estimate for the proposed I-88 and IL 78 interchanges are lump sum costs which include all contingencies associated with the interchange. Therefore, the cost estimate does not include the cost of the interchanges when calculating items 11 and 19.
(4) Major Culvert: Assumed length of 160' based on the typical section and additional clear zone. Assumed structure was an 8' by 8' box culvert. Minor Culvert: Assumed length was 160' and assumed structure was a 30" –diameter RCP (averaged between a 24"-diameter and a 36" diameter RCP).
(5) The costs associated with 'Structures for Detours and Temporary Traffic Control' are accounted for in the contingency cost for this phase of the project.
(6) Includes commercial buildings, residential buildings, or farm units. A farm unit could include a residence, barn, and/or silos. The impacted units represent 1/3rd of the total relocations within the 600-foot affect zone based on an assumed 200-foot ROW width.

7.0 CONCLUSIONS/RECOMMENDATIONS

The recommended alternatives of the U.S. Route 30 Corridor Study are Corridor Alternative 3B, Corridor Alternative 3C, and Corridor Alternative 6. This recommendation was developed based on the results of the alternative evaluation process. Although Corridor Alternative 3B performed the best, Corridor Alternative 3C and Corridor Alternative 6 performed comparable with Corridor Alternative 3 (with preliminary point subtotals within 10 percent) and should be carried forward to the Phase I/NEPA Evaluation Process.

7.1 RECOMMENDED ALTERNATIVES

The evaluation criteria used in the Enhanced Comparative Analysis were developed based on the U.S. Route 30 Purpose and Need. Because of this, if the corridor alternative addresses the criteria then it addresses the purpose and need of the project. The criteria included safety, corridor utilization, traffic operations, environmental resources effects, community planning/land use, right-of-way (ROW)/relocations, agriculture, public support, economic vitality, and cost. Table 36 summarizes how the recommended alternatives address the Enhanced Comparative Analysis criteria.

Table 36: Recommended Corridor Alternatives and the Enhanced Comparative Analysis Evaluation Criteria

Criterion	Effectiveness
Safety	The recommended alternatives meet the current IDOT standards included in the IDOT BDE Manual.
Corridor Utilization	The recommended alternatives remove approximately 6,700 vehicles per day along U.S. Route 30 between Illinois Route 78 (North) and Illinois Route 78 (South).
Traffic Operations	The recommended alternatives have a travel time between approximately 23.4 minutes and 26.1 minutes from terminus to terminus. This is between 8.5 minutes and 11.5 minutes faster than the No-Action Alternative. The recommended alternatives improve the LOS (intersections and segments) along the entire U.S. Route 30 Corridor. Corridor Alternative 3B has negative 0.1 miles of adverse travel. The negative number represents a more direct route from terminus to terminus than the existing alignment. Corridor Alternative 3C and Corridor Alternative 6 have 0.3 miles and 1.5 miles out of direction travel, which is a less direct route than the existing alignment, but estimated to be a faster trip since they would avoid the congestion/traffic signals within the City of Morrison central business district.
Environmental Resources Affects	The recommended alternatives affect some of the environmental resources evaluated. As the project progresses into the Phase I/NEPA Evaluation Process, avoidance and minimization measures will be evaluated to reduce the overall environmental affects.

Community Planning/Land Use	The recommended alternatives are consistent with the City of Morrison Land Use Plan and the plans of the surrounding communities.
ROW/Residences & Commercial Buildings	The recommended alternatives require between approximately 724 acres and 879 acres of land and between 48 and 113 building structure relocations. As the project progresses into the Phase I/NEPA Evaluation Process, minimization measures will be evaluated to reduce the overall ROW acquisition and avoidance measures will be evaluated to minimize relocations.
Agriculture	The recommended alternatives potentially affect one Centennial Farm and have low to medium farm severance affect. They affect between approximately 1,400 acres and 1,613 acres of prime farmland. As the project progresses into the Phase I/NEPA Evaluation Process, avoidance and minimization measures will be evaluated to reduce the overall agriculture affects.
Public Support	The public generally supports all of the recommended alternatives. At the first public meeting 54 percent supported the corridor alternatives while 31 percent supported the No-Action Alternative. At the second public meeting 52 percent supported a recommended alternative while 13 percent supported the No-Action Alternative.
Economic Vitality	The recommended alternatives are approximately 1.4 miles south of the City of Morrison. This distance supports the economic vitality of the community.
Cost	The recommended alternatives cost between approximately $128 million and $145 million.

7.2 SUPPORTING REASONS FOR RECOMMENDATION

As previously stated in Chapter 2.0 Purpose and Need for Improvement, the transportation system improvement is needed to:

1. Improve Regional Mobility. This need addresses providing alternate access to residential areas and job centers around the City of Morrison and minimizing truck traffic through town.
2. Accommodate Land Use Planning Goals. This need addresses implementing a transportation system improvement that promotes attainment of local planning priorities.
3. Address Local System Deficiencies. This need relates to improving local access, mobility, and safety.

Corridor Alternative 3B, Corridor Alternative 3C, and Corridor Alternative 6 best address these needs while minimizing environmental affects at a cost lower than most considered alternatives. The evaluation criteria were developed based on the U.S. Route 30 Corridor Study Purpose and Need. The corridor alternative that best addresses the evaluation criteria also best meets the purpose and need.

7.2.1 Improve Regional Mobility

Two Enhanced Comparative Analysis criteria were developed to evaluate the Improve Regional Mobility need. These criteria include Traffic Operations and Corridor Utilization.

The recommended alternatives address the Improve Regional Mobility Purpose and Need by creating a high-speed alternate route through the study area. Since the alternatives have a shorter travel time than the existing corridor and they are designed as a free-flowing facility, drivers will be encouraged to use the Expressway. These alternate routes reduce the traffic demand along the existing U.S. Route 30 corridor, thus improving the operations along U.S. Route 30.

7.2.2 Accommodate Land Use Planning Goals

Four Enhanced Comparative Analysis criteria were developed to evaluate the Accommodate Land Use Planning Goals need. These criteria include Community Planning/Land Use, ROW/Relocation, Public Support, and Economic Vitality.

The recommended alternatives address the Accommodate Land Use Planning Goals Purpose and Need by accommodating the existing and proposed land use plans. The Expressway is proposed to be located close to two developments: the Wal-Mart Distribution Center (currently under construction along U.S. Route 30 near the eastern terminus) and Morrison Industrial Park (existing development located adjacent to Illinois Route 78 (South) and plans to expand within the limits of the development). The recommended alternatives are located conveniently for accessing these proposed developments. The Expressway is proposed to be located within 0.7 miles of the Morrison Industrial Park. This expanded development will generate relatively high traffic volumes with a large amount of distribution trucks. Vehicles can access the development from the Expressway without traveling along the existing U.S. Route 30 corridor.

The recommended alternatives are located approximately 1.4 miles south of the center of the City of Morrison. Being close may encourage travelers to stop in the City for fuel, food, or lodging. This will assist in maintaining economic vitality within the City. With the recommended alternatives being located south of the City of Morrison, future residential expansion to the north can continue as planned.

The recommended alternatives are generally supported by the public. Over 50 percent of those that commented at the first and second public meetings supported the corridor alternatives. The increased capacity on the Expressway will draw regional traffic from U.S. Route 30 thus easing the congestion in the City of Morrison and improving the quality of life for local residents of the City of Morrison. In addition, the public will be traveling with less travel time (between 8.5 and 11.5 minutes less) than the No-Action Alternative.

7.2.3 Address Local System Deficiencies

One Enhanced Comparative Analysis criterion was developed to evaluate the Address Local System Deficiencies need. This criterion includes Safety.

The recommended alternatives will be constructed to meet full IDOT standards. This alternative will reduce the traffic volume, including trucks, along U.S. Route 30, from the No-Action Alternative thus improving the overall safety of the corridor.

The recommended alternatives include improvements to the Emerson Road intersection with U.S. Route 30. A large number of crashes have occurred at this intersection; the improvements should increase safety and mobility along that section of U.S. Route 30.

7.3 IMPLEMENTING NEXT STEP/PHASE OF STUDY

A comprehensive analysis of potential corridor alternatives within the study area has been completed. There is a need for more detailed analysis to assess the potential benefits and affects of alignment alternatives within the preferred corridor alternatives. The more detailed level of analysis necessary involves refinement of geometry and an environmental analysis based on the National Environmental Policy Act (NEPA). Under the NEPA process, all reasonable alternatives must be considered including the No-Action Alternative.

The corridor alternatives recommended in this Corridor Report should be the starting point for the next phase of the study. The following items should be considered as the recommended alternatives (Alternative 3B, Corridor Alternative 3C, and Corridor Alternative 6) are further developed and analyzed.

1. Traffic Volumes. The recommended alternatives were developed using limited traffic information along with a number of assumptions such as the annual growth rates (for US 30 and I-88), percentage of traffic that will use the Expressway over the existing corridor, the amount of traffic generated by the new developments and their traffic patterns, etc. A detailed explanation of the traffic developed for this study is located in the *U.S. Route 30 Corridor Proposed Expressway Traffic Projections Memo* dated 12-23-2003. An Origin-Destination Study is recommended to more accurately account for traffic movements and further develop the proposed access along the corridors. Information generated from the origin-destination study will be used to develop proposed traffic volumes for each of the corridor alternatives.
2. Lyndon-Agnew Prairie. The Lyndon-Agnew Prairie is proposed for dedication as a Nature Preserve. Corridor Alternative 3C is one of the recommended alternatives based on the assumption that the interchange could be developed without affecting the Lyndon-Agnew Prairie. Retaining walls could be used in the design of the trumpet interchange to avoid the Lyndon-Agnew Prairie. In addition, the design speed could be adjusted (while maintaining safe driving conditions), resulting in the ability to use design criteria that would require less ROW to build the trumpet interchange. Impacts to a Nature Preserve are considered a fatal flaw and result in the elimination of the alternative according to the Alternative Evaluation Process as presented in this Corridor Report.
3. New Interchange Location along I-88. A new interchange along I-88 is recommended for Corridor Alternative 3C. The proposed trumpet interchange, if further developed, would require the completion of an Access Justification Report with Federal Highway Administration approval.
4. Ramp Design Speed for the Trumpet Interchange at I-88. The entrance and exit ramps of the trumpet interchange proposed at the intersection of I-88 and the expressway were designed to a 35 mph speed limit. Additional interchange alternatives that included ramps with variable design speeds were not evaluated as part of this study. Future studies should include an evaluation of truck design speeds and turning radius on ramps.
5. Geotechnical Analysis. A preliminary geotechnical evaluation was completed for this study, *Geotechnical Feasibility Report*, March 8, 2005. The evaluation is based on a review of existing literature and available geotechnical engineering studies as well as nine preliminary soil borings that were drilled primarily along Corridor Alternative 3 near

anticipated structure crossings. The intent of the evaluation was to develop conceptual recommendations for the study area, recognizing that specific information on each corridor alternative would be limited. A field investigation was not conducted for the geotechnical investigation. A geotechnical field investigation is typically conducted along each proposed corridor alignment by a geotechnical engineer/scientist to locate features (such as slope cuts, quarries, and gravel pits) that have the potential to pose a problem to the project. Additional geotechnical analyses, including additional borings and a geotechnical field investigation, are recommended.

6. Whiteside County Landfill and Round Grove Cemetery. Impacts to the active Whiteside County Landfill and Round Grove Cemetery should be avoided. Proceeding west, Corridor 6 could be carried along existing U.S. Route 30 between the Whiteside County Landfill and the Round Grove Cemetery before diverting south. Additional information is required refine the corridor.
7. Cemetery Impacts. The Cottonwood Cemetery is located within the 600-foot affect zone of the recommended alternatives. Future corridor refinements should avoid impacts to the cemetery.
8. Western Terminus to BNSF Railroad. When additional detailed survey is available the segment between the western terminus and BNSF Railroad should be reevaluated. Issues to consider include: bridge skews, FEMA floodplains, railroad and roadway profiles, roadway curves, soil conditions, bluffs, staging, and alternate corridor combinations.

7.4 PROPOSED INTERIM IMPROVEMENTS

The Illinois Department of Transportation (IDOT) is in the planning stages of a separate project, U.S. Route 30 Morrison Widening Study that is proposing to widen U.S. Route 30 within the City of Morrison. The project consists of a two-lane section (one 13-foot lane in each direction) with curb and gutter. Some areas also include a 14-foot two-way-left turn lane. It is expected that the U.S. Route 30 Morrison Widening Study will be completed prior to the U.S. Route 30 Corridor Study. In addition to the widening, minor safety improvements will be made along U.S. Route 30 (such as intersection upgrades, improving sight distance, etc.). All funded improvements are listed in the current IDOT six-year construction program.

Based on traffic projections developed for this study, a two-lane facility is warranted for the Expressway. A four-lane section would be warranted with Expressway traffic projections of approximately 12,000 vehicles per day. Current traffic projections estimate Expressway traffic volumes between 6,800 and 8,100 vehicles per day. Based on the results of an Origin-Destination Study it may be recommended to develop the Expressway as a four-lane facility with construction staging of a two-lane section in the interim until traffic warrants a four-lane section.

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8.0 COORDINATION ACTIVITIES

The U.S. Route 30 Corridor Study included a multilevel outreach and coordination effort with government agencies, local municipalities/agencies, special interest groups, and the public to encourage a broad range of participation. The coordination effort included two public meetings, four widely distributed newsletters, a project website, meetings with local agencies, and presentations at special interest group meetings. Periodic updates and project information such as maps and figures were also provided to interested parties. Feedback received through the coordination efforts resulted in several changes including changes in the evaluation criteria and the development of two new corridor alternatives (Corridor Alternative 5 and Corridor Alternative 6) that utilized as much of the existing corridor while avoiding the City of Morrison. Relevant correspondence is attached to the end of the report. Coordination activities associated with the public are discussed in Section 9.0, Public Involvement Activities.

8.1 GOVERNMENT AGENCIES

The Illinois Department of Natural Resources (IDNR), Illinois Environmental Protection Agency (IEPA), and Illinois Nature Preserve Commission (INPC) were among the government agencies contacted for information for the U.S. Route 30 Corridor Study. The agencies provided information on wetland locations, endangered species, land and water resource locations, special waste (landfill and hazardous waste locations), special lands (LAWCON, LWCF & OSLAD), nature preserves, prairies, cemeteries, archeological areas, and other natural resource areas.

8.2 LOCAL MUNICIPALITIES/AGENCIES

The study encouraged all the affected municipalities/agencies within the study corridor to participate in the development of the study. The affected local municipalities/agencies included the following:

- Whiteside County
- City of Morrison
- City of Fulton
- City of Sterling
- City of Rock Falls
- Union Grove Township
- City of Prophetstown
- Clinton City Council
- Whiteside County Natural Area Guardians
- Whiteside County Farm Bureau

The affected municipalities/agencies were provided with information on the U.S. Route 30 Corridor Study. They also responded to requests for information and provided feedback on the study. In general, the municipalities/agencies support the corridor alternatives. However, there

were concerns about the affects that the improvements would have on natural resources, drainage, emergency response, safety (safety concerns included familiarity with roundabouts, speed limits, and access), and accessibility to other transportation facilities in the area.

The municipalities/agency were also very responsive to requests for information for the project. They provided information on RCRA, CERCLA, Cleanups and landfill locations in the Morrison area, existing and planned land use information, existing and projected population data, agricultural and environment information, and traffic counts for the new Wal-Mart Distribution Center and inter-modal facility in Rochelle.

8.3 SPECIAL INTEREST GROUPS

The Corridor Study involved coordination with several special interest groups. The special interest groups included:

- Illinois Highway 30 Coalition
- Dixon Chamber of Commerce
- Rock Falls Community Development Corporation
- Blackhawk Hills Economic Development District

The groups were provided with project updates and project information. In addition, the project team gave several presentations at their regular meetings. In general, the special interest groups were supportive of the study and the proposed improvements as well as supplied feedback and comments on the project to the project team.

9.0 PUBLIC INVOLVEMENT ACTIVITIES

Throughout the study, there has been ongoing coordination with federal, state, and local agencies, as well as the public and special interest groups. Two public meetings were held with local representatives from affected communities and Whiteside County to collect information and present study details. Additionally, a series of four newsletters were developed to keep the public informed of the study status and build support for the project. This provides opportunity for input as well as questions or concerns.

The goal of public involvement for the U.S. Route 30 Corridor Study was to relay all available project information to the public so that informed decisions and comments can be made. During this process, topics such as corridor alternatives, ROW acquisition and relocations, and interchange locations were discussed. Every municipality, agency, and organization that the U.S. Route 30 Corridor Study could possibly affect, or whom could have an affect on the study was notified and given the opportunity to be heard. Their ideas and suggestions were taken as far as the laws and policies that governed this study would allow them.

9.1 PUBLIC MEETING 1

The first public meeting for the proposed improvements to U.S. Route 30 was held on April 27, 2004 at the United Methodist Church of Morrison (200 W. Lincolnway Road, Morrison, Illinois).

The purpose of the public meeting was to provide information about the corridor study process; present the preliminary corridor alternatives; present evaluation criteria on which the preliminary corridors were assessed; present initial identification of social, economic, and environmental resources within the study area; and solicit input/comments from the public on all of these topics.

The public meeting was held in an open-house format from 1:00 p.m. to 6:00 p.m. Handouts (one eight-page handout and one single-page, double-sided handout), display boards, and a 20-minute audio-visual presentation were used to present the study. At the meeting, project staff was present to discuss the study and answer questions. Representatives were available to discuss a wide variety of study issues including corridor alternative alignments and termini, land use, drainage, and a number of socioeconomic and environmental issues. Comment tables were set up with comment forms and a comment submission box to facilitate making comments. The site was accessible to the disabled and provisions were made to accommodate those needing special arrangements.

Legal notices of the public meeting were published in three local newspapers including the Whiteside News Sentinel, Quad City Times - Clinton News Bureau, and Sauk Valley Newspaper. In addition, newsletters were mailed out to the entire project mailing list (including citizens, businesses, elected officials, and the media) and announcements were made at various meetings including a U.S. Route 30 Local Agency Meeting on March 30, 2004 and a Highway 30 Coalition Fundraiser Luncheon on April 15, 2004.

Approximately 300 citizens, elected officials, and media signed-in at the public meeting. A total of 90 individual comments were received during the comment period. Of the comments received, 54 percent supported a corridor alternative or developed their own corridor alternative, 4 percent supported improving/upgrading the existing corridor, and 31 percent supported the No-

Action Alternative. The remaining 11 percent of the comments were related to issues separate from the project and preliminary alternatives.

The majority of the corridor alternative support comments preferred a southern corridor alternative (Corridor Alternative 3 or Corridor Alternative 4) as opposed to a northern corridor alternative (Corridor Alternative 1 or Corridor Alternative 2), the Existing Alignment Alternative, or the TSM Alternative. A number of comments (approximately 25 percent of those supporting the project) proposed a new corridor alternative. The proposed corridors ranged from modified versions or combinations of the existing Corridor Alternatives to new alignments which followed existing routes. The majority of the new proposed corridors followed a route south of Morrison.

9.2 PUBLIC MEETING 2

A second public meeting for the proposed improvements to U.S. Route 30 was held on December 9, 2004 at the United Methodist Church of Morrison (200 W. Lincolnway Road, Morrison, Illinois).

The purpose of the second public meeting was to provide an update on the corridor study process; present two new alternatives (Corridor Alternative 5 and Corridor Alternative 6), present the corridor alternatives recommended for further study; present evaluation criteria on which the preliminary corridors were assessed; present the social, economic, and environmental resources within the study area; and solicit input/comments from the public on all of these topics.

The public hearing was held in an open-house format from 1:00 p.m. to 6:00 p.m. Handouts (one eight-page handout and one single-page, double-sided handout) and display boards were used to present the above information. At the meeting, project staff was present to discuss the study and answer questions. Comment tables were set up with comment forms and a comment submission box to facilitate making comments. The site was accessible to the disabled and provisions were made to accommodate those needing special arrangements.

Legal notices of the public meeting were published in local newspapers including the Whiteside County Sentinel, Quad City Times, Clinton Bureau, and Sauk Valley Newspaper. In addition, approximately 310 personalized invitation letters were mailed out to the project mailing list (including citizens, businesses, elected officials, and the media) and announcements were made at various meetings including a U.S. Route 30 Local Agency Meeting on November 9, 2004.

Approximately 250 citizens, elected officials, and media signed-in at the public meeting. A total of 62 individual comments sheets were received during the comment period. Of the comments received, 52 percent (approximately 32 comments) supported a recommended corridor alternative or a modified version of one of the corridor alternatives, 7 percent (approximately 4 comments) proposed a new alternative, 13 percent supported improving/upgrading the existing corridor (approximately 8 comments), and 13 percent (approximately 8 comments) supported the No-Action Alternative. The remaining 15 percent (approximately 9 comments) were related to issues separate from the project and preliminary alternatives.

9.3 PUBLIC CONCERNS

Many of the comments received in response to the two public meetings expressed concerns over the project and its impact to the study area. The concerns mainly fall within the following categories:

- Agriculture
- Socio-Economics
- Environmental
- Traffic
- Safety

9.3.1 Agriculture

Many of comments received expressed concerns about agricultural affects, both direct and indirect. In general, agricultural concerns covered the following topics: prime farmland conversion, parcel division, access, adverse travel, safety, family relocations, agricultural economy, negative effects on farm operations, uneconomical remnants, drainage changes, and the elimination of historic agricultural properties. Several people opposed the project because of the large agricultural impacts that it may create. Others supported specific alternatives because they would pose the least threat to agricultural land and operations above other alternatives. Those that supported the project generally encouraged the Illinois Department of Transportation (IDOT) to minimize impacts to the agricultural land as much as possible.

9.3.2 Socio-Economic

Many comments also raised socio-economic issues. Some people are concerned that the project will impact quality of life, property value, businesses in downtown Morrison, the agricultural industry, historic properties, and indirectly schools (the more money taken from the pot for transportation projects, the less there is left for schools). Several comments suggested that the money allocated for this project would be better served for schools and/or fixing existing roadways. Others see the project as benefiting the local economy (bringing new jobs, new industries, providing better access) and improving safety. Questions were also raised about the Land Acquisition and Relocation process and there was a request to conduct an Economic Impact Study within the study area.

9.3.3 Environmental

In general, the public commented that environmental impacts should be avoided or minimized. Specific environmental concerns raised from public comments included the following resources: agricultural; natural (including prairie and forest remnants); cultural resources (historic properties); wetlands; and traffic noise. There was also a request to conduct a Weather Impact Study within the study area.

9.3.4 Traffic Operations

A few traffic issues were raised through public comment. Some view existing U.S. Route 30 as dangerous and see traffic congestion (both truck and car) as an issue that needs to be addressed. Others view the traffic situation as acceptable and that the project is not needed. Concerns were raised that the proposed improvements would create a bottleneck at the western terminus

(forcing four lanes of traffic to two lanes at the Mississippi River) and the eastern terminus (forcing four lanes of traffic to two lanes). Other comments suggested adding weigh stations along U.S. Route 30 to alleviate truck traffic (trucks would avoid using U.S. Route 30 to avoid the weigh stations) or creating a two-lane truck bypass of the City of Morrison that would force trucks off of U.S. Route 30 and onto the truck bypass.

9.3.5 Safety

Comments were received expressing concerns over safety issues. One concern was raised about how the proposed access control, more specifically at-grade crossings with stop sign control, may not be safe along the proposed expressway corridors where vehicles would be required to cross four lanes of expressway traffic that would be traveling at high speeds. In addition, crossing U.S. Route 30 with agricultural equipment (slow moving vehicle) may create a hazard.

9.4 COMMENT RESPONSES

Comment responses were sent to individuals that requested them on their comment form and to a number of individuals that did not indicate a preference for receiving a comment response. All comments received and responses sent during this project are on file and will be reanalyzed in the next phase of the project, Phase I: Preliminary Design/Environmental Evaluation.

Based on comments received and discussions that occurred at the first public meeting, the Alternative Evaluation Process was reevaluated and a few changes were made:

- Two new corridor alternatives were developed (Corridor Alternative 5 and Corridor Alternative 6)
- New measures of effectiveness were developed for the agricultural criteria (severances and centennial farms)
- The corridor evaluation criteria were enhanced
- The Adverse Travel criterion was combined with the Traffic Operations Criterion

As a result of the changes, three alternatives out-performed the rest and are recommended for further study in Phase I. The three alternatives include: Corridor Alternative 3B, Corridor Alternative 3C, and Corridor Alternative 6.

During Phase I: Preliminary Design/Environmental Evaluation, a more detailed analysis of traffic patterns, engineering design, socio-economic, and environmental impacts will proceed. The alignments will be adjusted to avoid and minimize impacts and the logical termini will be reevaluated. In addition the footprints of the corridors will be reduced from 600 feet in width to 200 - 250 feet in width. The footprint reduction will result in smaller impacts to properties than illustrated at the first and second public meetings and in this Corridor Report. The 600-foot width was used in this study to allow for alignment shifts in the next phase. Identifying major features of a corridor early in the process eliminates surprises in the following phases as alignments can be designed to avoid the features and reduce impacts.

FIGURES

REFER TO FIGURES FOLDER

CORRESPONDENCE

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