APPENDIX G

NEPA/404 Merger Meeting Materials

Introduction – June 27, 2011

Purpose and Need – March 1, 2012

Alternatives Carried Forward – June 25, 2013

Preferred Alternative – June 25, 2014

NEPA/404 Merger Meeting

Introduction
June 27, 2011

Presentation Slides
Meeting Summary – See Coordination Section

Illinois Department of Transportation

NEPA

Presentation

June 27, 2011

Illinois Route 31

ROUTE 176 TO ROUTE 120

www.ILRoute31.com

McHenry County

Illinois Department of Transportation

NEPA

Part 1: Project Introduction

Illinois Route 31

ROUTE 176 TO ROUTE 120

www.ILRoute31.com

McHenry County

Study Area

- Approximately 6.8 miles
- From IL 176 to IL 120
- Traverses several local agencies
- Includes mixture of land uses *(residential, commercial, agricultural and industrial)*
- Natural Resources
- Regional Significance

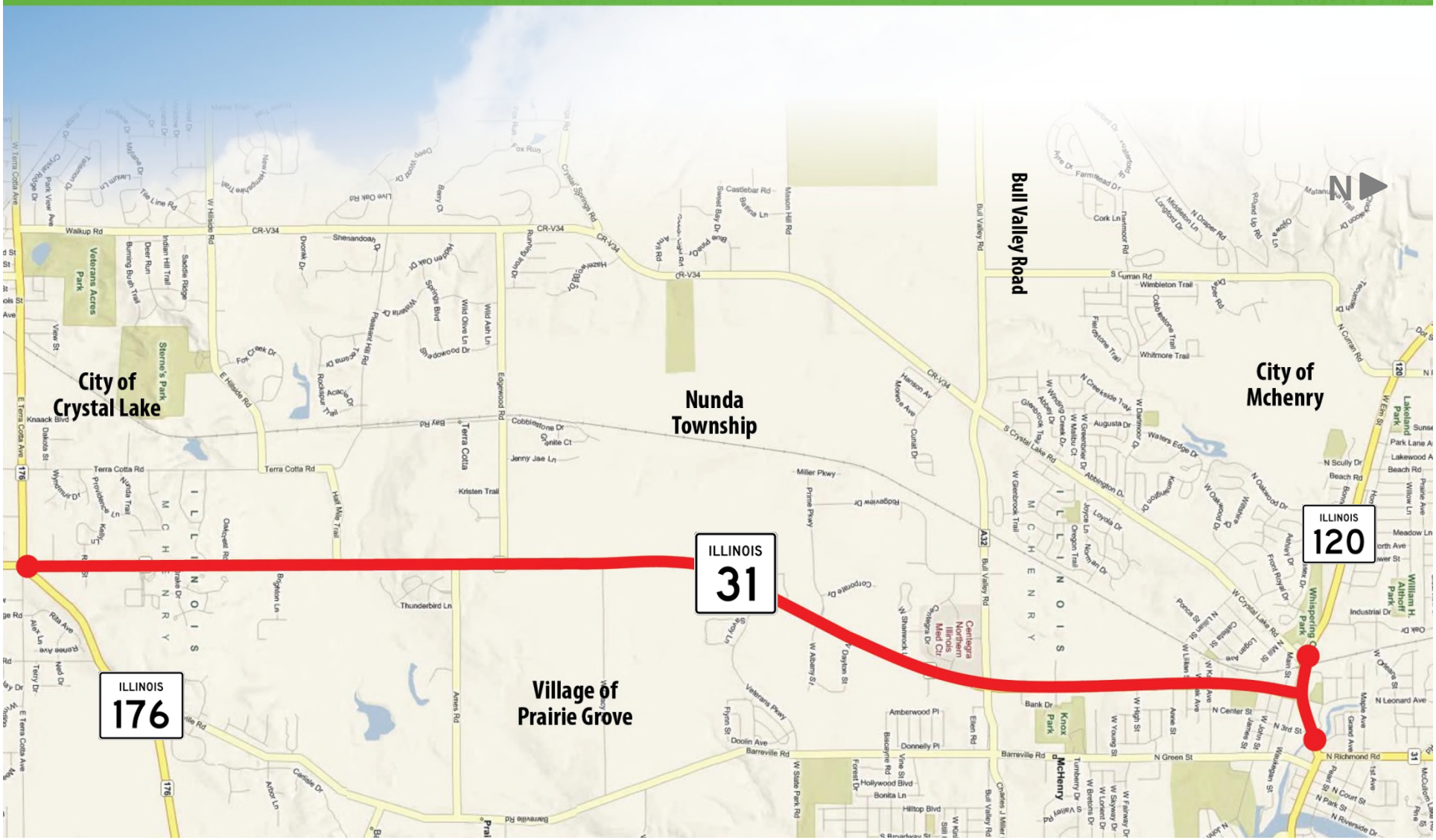
Phase I Study Schedule

We Are Here

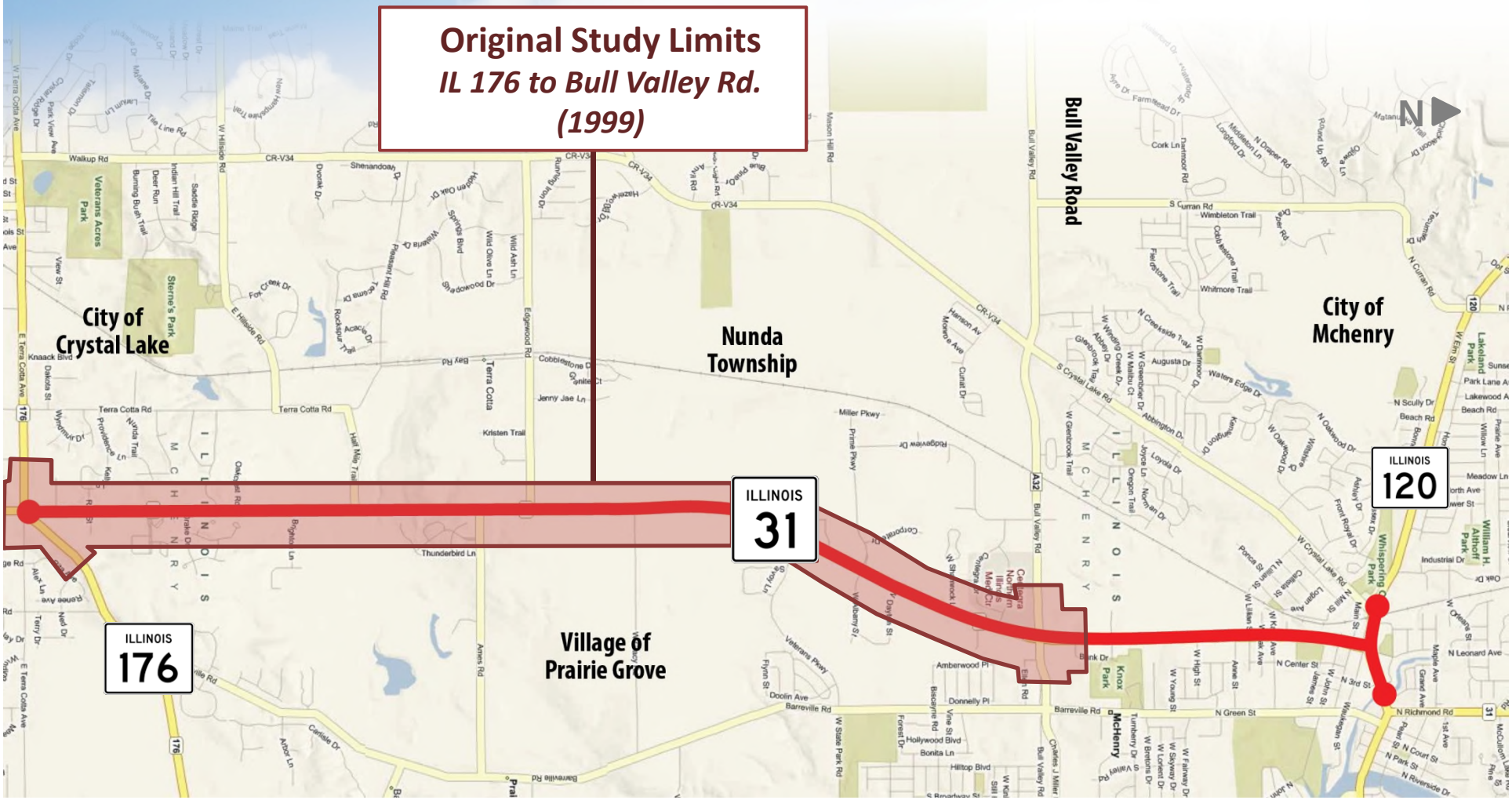
○ Anticipated CAG Meeting Schedule

- After Public Meeting #1
- Beginning the CSS Process

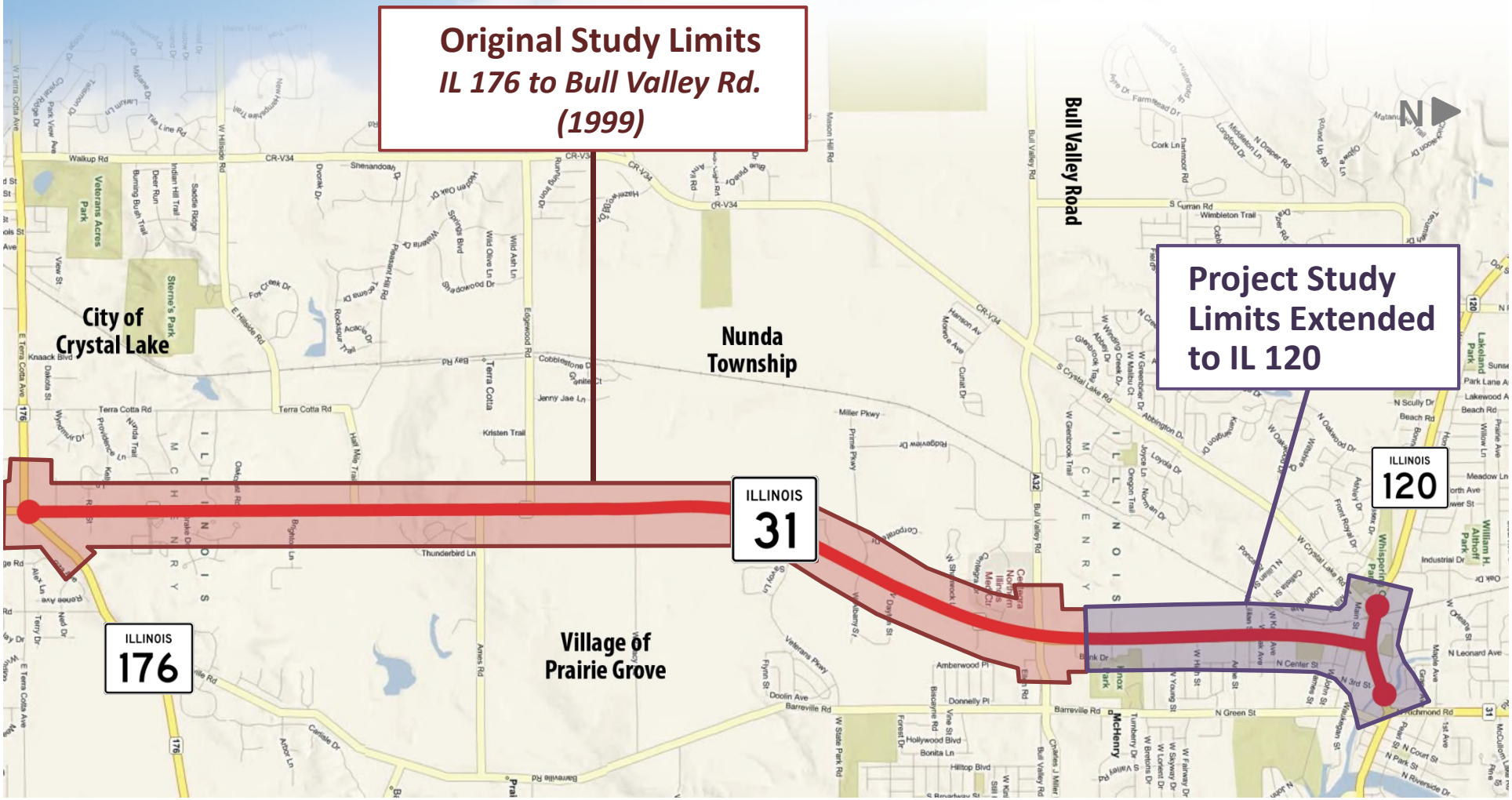
Study History



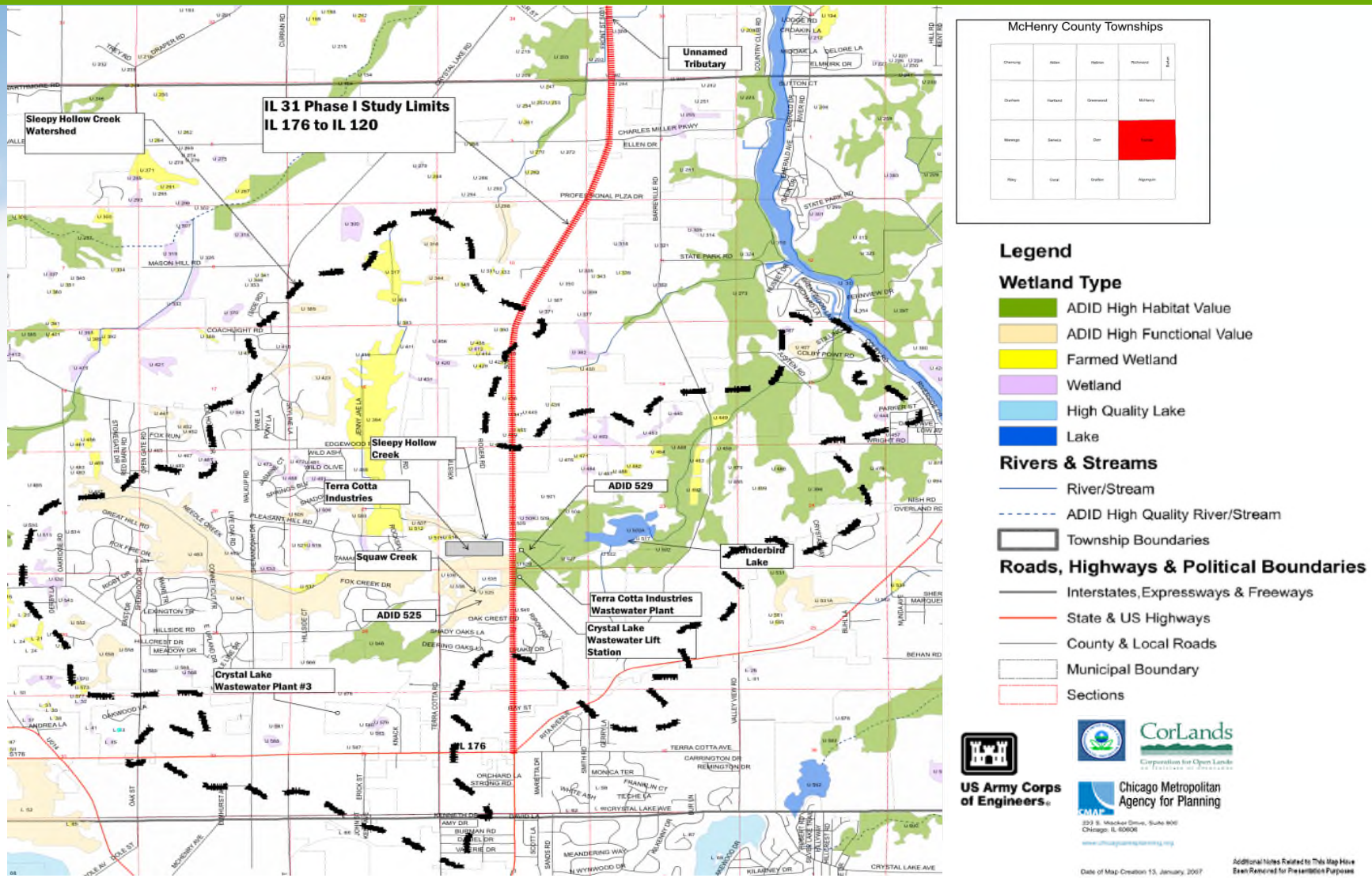
Study History



Study History



Wetland – ADID Map



Stream Crossings

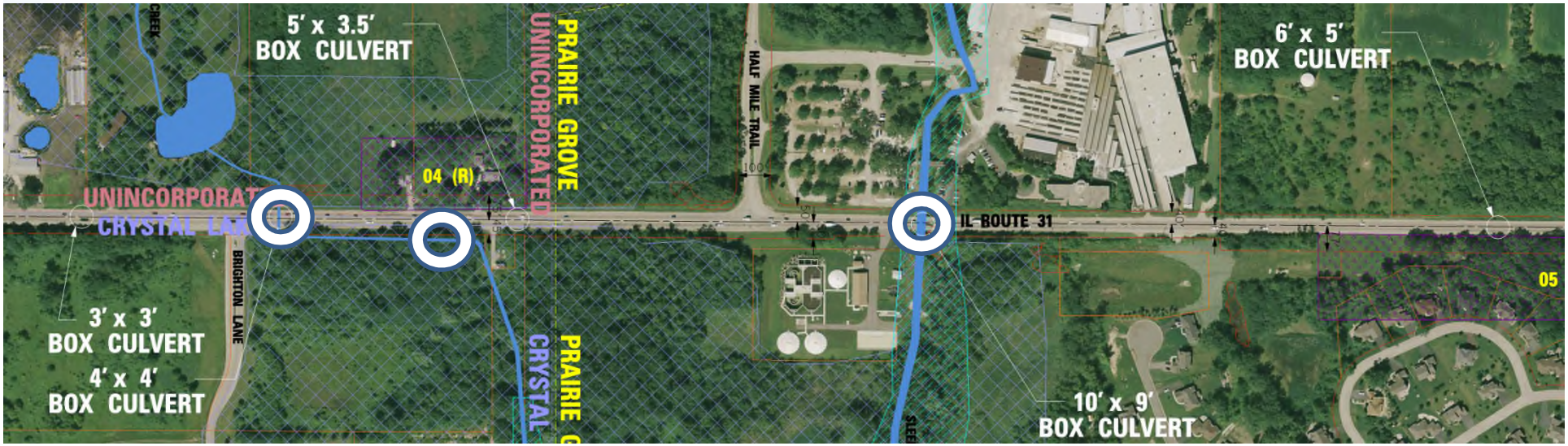
Squaw Creek Crossing

» 4’x4’ Box Culvert

Squaw Creek Crossing

» 10’x8’ Box Culvert

Squaw Creek Channel Along IL Route 31



Other Potential Impacts

- Surface Waters
  - » Squaw Creek, Sleepy Hollow Creek, Unnamed Stream
- Agricultural Land
  - » Village of Prairie Grove but under Development Pressure
- Noise
  - » Numerous Sensitive Receptors – Many Residential Properties are Adjacent to the Corridor
- Special Waste
  - » Numerous Gas Stations (Existing & Abandoned) throughout Corridor
- Special Lands
  - » McMillan Cemetery & Freund Field
- Seep Locations near Thunderbird Lake
- Property Impacts

Illinois Department of Transportation

NEPA

Part 2: Purpose and Need

Illinois Route 31

ROUTE 176 TO ROUTE 120

www.ILRoute31.com

Purpose and Need (P&N)

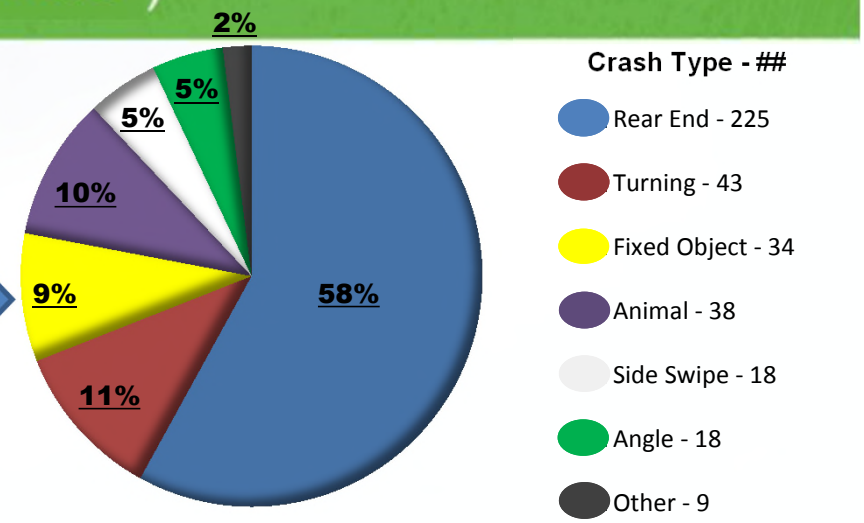
- Improve Traffic Safety
  - » Reduce the Number and Severity of Crashes
- Increase Roadway Capacity
- Operational Deficiencies
  - » Geometric and Sight Distance Related
- P&N will be further developed through Public Involvement in the Community Advisory Group (CAG) Meetings

Study Considerations

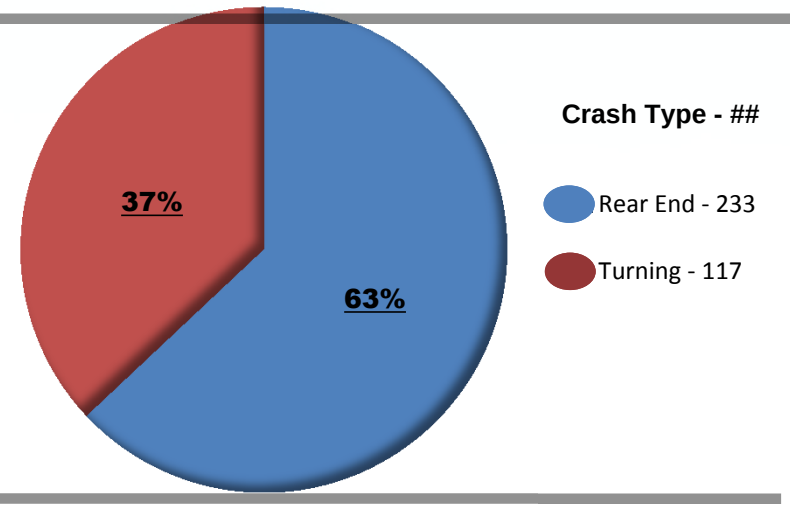
Safety Issues (Crash Experience)

- Crash Data Gathered From IDOT (2006-2008)
  - » 4 Fatalities Occurred in Segment Sections
  - » 2 Fatalities Occurred at Intersections

Segment Data



Intersection Data



Study Considerations

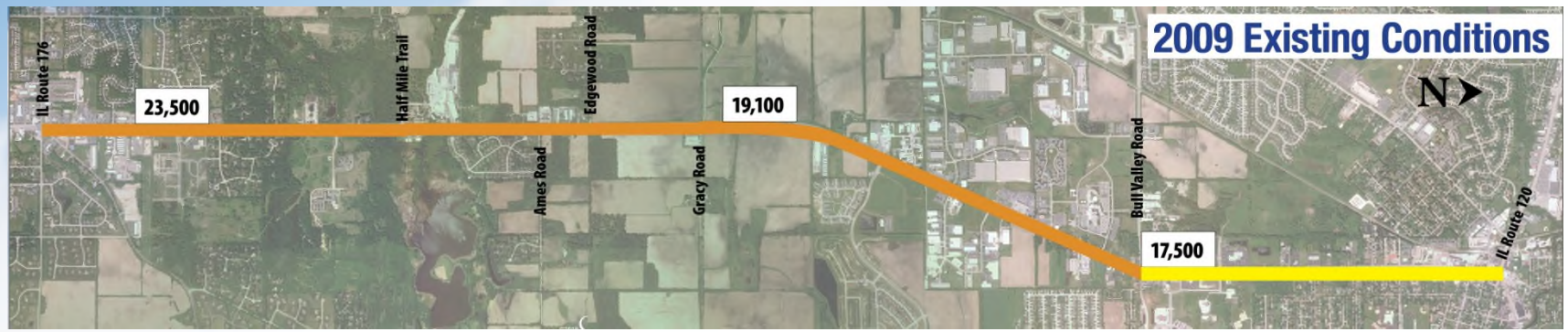
Safety Issues (Crash Experience)

LOCATION RANKED AMONG TOP 5% BY THE STATE (IDOT) AS HAVING THE HIGHEST CRASH SEVERITY INDEX IN 2009.

THE CRASH SEVERITY INDEX IS THE LIKELIHOOD OF A USER OF THE ROADWAY TO BE INVOLVED IN A SEVERE COLLISION

Study Considerations

Operational Issues (Capacity)

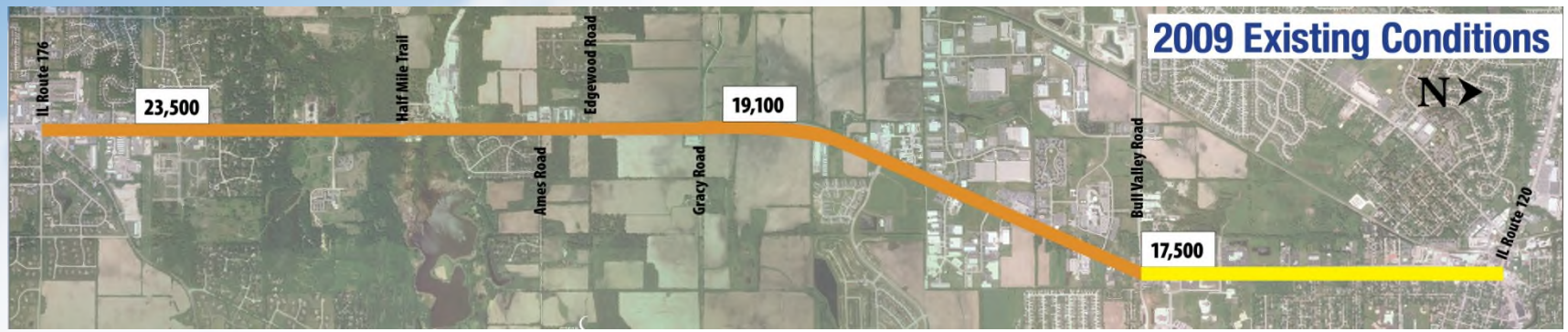


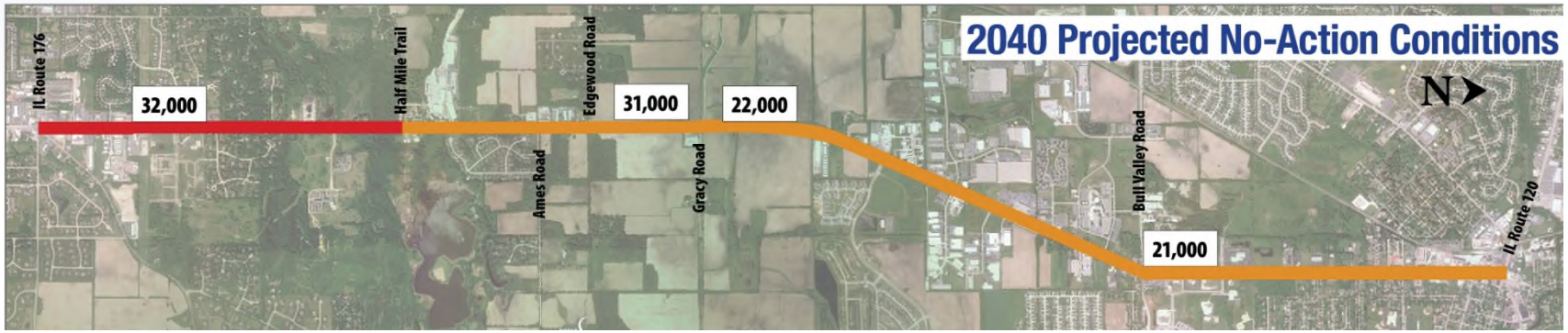
LEVEL OF SERVICE (LOS) DEFINED

2009 Existing and 2040 No-Action Average Daily Traffic Volume and Traffic Level of Service Comparison

Study Considerations

Operational Issues (Capacity)





LEVEL OF SERVICE (LOS) DEFINED

2009 Existing and 2040 No-Action Average Daily Traffic Volume and Traffic Level of Service Comparison

Thank You!

www.ILRoute31.com

Illinois Department of Transportation

Illinois Route 31

ROUTE 176 TO ROUTE 120

McHenry County

NEPA/404 Merger Meeting

Purpose and Need
March 1, 2012

Purpose & Need Statement
Presentation Slides
Meeting Summary – See Coordination Section

1.1 INTRODUCTION

1.1.1. Description and Location of Project

IL Route 31 (IL Route 31) is a Strategic Regional Arterial (SRA 104) and a Class II truck route which extends north-south through the City of Crystal Lake, the Village of Prairie Grove, unincorporated McHenry County, and the City of McHenry. The limits for this study are from IL Route 176 approximately 6.75 miles north to IL Route 120. These roads represent logical termini in that IL Route 120 is an east-west Strategic Regional Arterial (SRA 510) and IL Route 176 is an east-west arterial in southeastern McHenry County. South of IL Route 176, IL Route 31 has been widened to a four lane road and extends south of IL Route 176 to Rakow Road. The most heavily traveled areas within the project limits are at the south end of the project in Crystal Lake.

IL Route 31 is one of only three continuous north-south routes in McHenry County, including IL Route 47 and IL Route 23. IL Route 31 extends through eastern McHenry County and provides access to Interstate 90 in Elgin, south of the project, and connects to U.S. Route 12 in Richmond, south of the Wisconsin border. This roadway is a major component to the local and regional transportation system and is vital to the economic development of the area. In addition to being an important route for through traffic, the roadway provides access to local communities. A Regional Location Map is shown in Exhibit 1 and a Project Location Map is shown in Exhibit 2.

Improvements to the intersection of IL Route 176 and IL Route 31, the southern terminus, were undertaken as a separate project in 2002 and construction is anticipated to begin on this intersection in 2012. This study will tie into these planned improvements north of this intersection. However, pedestrian and bicycle accommodations will be evaluated further south to the intersection of IL Route 176 and IL Route 31. IL Route 31 has a locally recognized dual name, Front Street, within the city limits of McHenry. Through downtown McHenry, IL Route 31 and IL Route 120 both share the same section of roadway between Front Street and Richmond Road. At the intersection at Richmond Road, IL Route 31 continues north towards Johnsburg. IL Route 31 is known as Richmond Road north of IL Route 120.

Land use is diverse along the corridor and is split into four distinct sections. The southern section, from IL Route 176 to Drake Drive, is an urban section with primarily commercial buildings. From Drake Drive to Veterans Parkway is a rural section with primarily agricultural, scattered residential and industrial areas. The next section, from Veterans Parkway to High Street, is an urban section with mainly commercial and industrial buildings. The northern section from High Street to IL Route 120 is located in an urban setting with mainly commercial and residential usage.

IL Route 31 currently carries 23,500 vehicles per day (vpd) in the section between IL Route 176 and Half Mile Trail, 19,100 vpd in the section between Half Mile Trail and Bull Valley Road/Charles Miller Road, and 17,500 vpd in the section from Bull Valley Road/Charles Miller Road to IL Route 120. These traffic volumes are projected to increase to between 32,000 vpd and 21,000 vpd, in Year 2040 without any highway improvements.

The roadway crosses or is adjacent to three natural or forested areas. IL Route 31 crosses over three creeks including Squaw Creek, Sleepy Hollow Creek and an unnamed creek just south of Lillian Street/Grove Street. Squaw Creek appears to have been relocated when the road was originally constructed in the 1930's and flows parallel to the IL Route 31 alignment for approximately 0.40 miles from Oak Crest Road to 0.15 miles north of

Brighton Lane. Additionally, there are three culvert crossings within the project limits and two large ADID wetland areas along the corridor.

1.1.2. History of Project

IL Route 31 is a two-lane highway constructed in the 1930's as a rural road with graded shoulders and an open ditch cross section. This condition can still be found along most of the highway within the project limits. As the roadway enters the City of McHenry, it has been widened to provide a bi-directional painted median.
Left-turn lanes have been added to IL Route 31 at Half Mile Trail and Brighton Lane. A separate interim project is planned to add left turn lanes at Edgewood Road and Ames Road.

Although this project passes through a large section of open land, most of the land between Half Mile Trail and Gracy Road within the Village of Prairie Grove is expected to be subdivided and developed over the next 10 to 20 years as McHenry County continues to grow. The Village of Prairie Grove Town Center and TOD Plan, dated June 15, 2010, indicates that future land use along the IL Route 31 corridor north of Edgewood Road is planned to be zoned for commercial use. South of Edgewood Road, the planned zoning transitions from commercial to residential use.

Meetings have been held with local government agencies including the three municipalities (City of Crystal Lake, Village of Prairie Grove, and City of McHenry), Nunda Township, and McHenry County. A public meeting was held on June 9, 2011 to solicit input from the public for this proposed improvement. The response to improving IL Route 31 has been favorable from both the government agencies and the public.

Location	Year			
	1980	1990	2000	2010
City of McHenry	13,536	16,117	21,501	26,992
Village of Prairie Grove	680	654	960	1,904
City of Crystal Lake	18,590	21,823	38,000	42,180
McHenry County	86,745	183,241	260,077	308,760

Table 1.1-1 - Regional Population Growth 1980-2010

The population of the City of McHenry, Village of Prairie Grove, City of Crystal Lake and McHenry County has continued to grow, as shown in Table 1.1-1.

Since 1980, the populations of local communities within the IL Route 31 corridor have grown considerably. The City of McHenry's populations has nearly doubled (increased by 99%) since 1980. Similarly, the Village of Prairie Grove and City of Crystal Lake have grown by 180% and 126%, respectively. The population of McHenry County

has grown 247%. Traffic volumes on IL Route 31 have increased approximately 120% over the last 30 years. Despite the localized roadway improvements, traffic delays and congestion have impacted mobility and safety for roadway users. Because of these deficiencies, the Illinois Department of Transportation (IDOT) has initiated the Phase I study of the IL Route 31 corridor. Funding for this improvement is not currently included in the Department's Fiscal Year 2012 to 2017 Proposed Highway Improvement Program. This project will be included in IDOT priorities for future funding consideration among similar improvement needs throughout the region.

1.1.3. Previous Studies and Adjacent Projects

A previous IL Route 31 Phase I Study from IL Route 176 to Bull Valley Road was started in 1999 by IDOT. The project was being processed as an Environmental Class of Action Determination (ECAD), but was never completed due to an extension of project logical termini to the intersection of IL Route 31 and IL Route 120. During the previous study, several projects within the project study area were advanced ahead of the overall project study to address immediate needs. These projects included the IL Route 31 and IL Route 176 Intersection Reconstruction Project, and the IL Route 31 at Edgewood /Ames Road Interim Safety Project. McHenry County has also completed a Phase I study and initiated Phase II engineering documents for the reconstruction of Bull Valley Road/Charles Miller Road, which includes the IL Route 31 intersection.

The City of McHenry is leading a locally funded project at the intersection of IL Route 120 and IL Route 31 (Richmond Road). The project includes the full reconstruction of the intersection including additional turn lanes and improvements to roadway geometry through the intersection. West of this intersection, IL Route 120/IL Route 31 crosses Boone Creek, a tributary to the Fox River. This bridge crossing (SN 056-0060) was constructed in 1990 and was given a 90.2 sufficiency rating in 2010. The McHenry-led project has been designed to terminate just east of this existing bridge structure with no planned improvements to the structure as part of the intersection project. Any planned improvements to IL Route 120 resulting from the IDOT-led IL Route 31 study are expected to terminate just west of the bridge structure over Boone Creek.

The proposed scope of work for both the IL Route 31 at IL Route 176 and IL Route 31 at Bull Valley Road projects includes the reconstruction of the IL Route 31 intersections to provide two through lanes in each direction, dual left turn lanes and single right turn lanes on all four legs. The proposed scope of work for the IL Route 31 at Edgewood and Ames Road Project includes widening IL Route 31 to provide left turn lanes at each intersection. Construction is anticipated to begin in 2012 for all three projects.

1.2 PURPOSE OF THE PROJECT

The purpose of the proposed project is to improve safety, address roadway capacity and mobility, correct existing geometric deficiencies and encourage multi-modal transportation along IL Route 31 from the intersection of IL Route 176 to the intersection of IL Route 120, in eastern McHenry County.

1.3 NEED FOR THE PROJECT

Increased travel demands on IL Route 31 are creating safety and operational deficiencies along the immediate roadway and adjacent arterials and intersections. The insufficient capacity of the roadway to manage travel demands creates congestion, limits mobility, hinders safe access of adjacent properties and businesses, and

leads to safety issues of motorists, bicyclists, and pedestrians. Both pedestrian access to adjacent land uses, and bicycle accessibility through and across the corridor are limited. In addition, existing facilities do not encourage the use of multi-modal forms of transportation.

1.3.1. Safety Deficiencies

Crash data was collected from IDOT for the years 2006, 2007, 2008 and 2009. The total number of crashes for the study period was 913. There were 250 crashes in 2006, 253 crashes in 2007, 260 crashes in 2008, and 150 crashes in 2009. Changes in Illinois law regarding the completion and processing of police crash reports that were implemented in 2009 resulted in the considerable reduction in crashes noted in 2009 when compared to previous years. The predominant crash types for the study period were rear-end (53.6 percent) and turning (20.8 percent). Other types of crashes included angle, sideswipe, and fixed objects. Seventy-eight percent of crashes occurred during the day, 80.9 percent occurred during clear weather and 72.1 percent on dry pavement. This indicates that lighting conditions, weather, and wet pavement do not appear to contribute substantially to crashes.

Of the total crashes, 223 (24.4 percent) were injury crashes, resulting in 350 injuries. There were six fatalities recorded during the study period. Two of these fatalities occurred at the intersection of IL Route 31 at Half Mile Trail. These two fatalities were a result of two separate incidents that included a head-on collision and a turning collision. Both occurred during clear and dry conditions. One fatality occurred on the roadway section between Shady Oaks and Half Mile Trail and was a result of an overturned vehicle during snowy conditions. Another fatality occurred on the roadway section between Half Mile Trail and Ames Road was a result of a head-on collision. This collision occurred during clear and dry conditions. The two remaining fatalities occurred on the roadway section between Gracy Road and Veterans Parkway. Both occurred during clear and dry conditions. One was a head-on collision and another was a fixed-object collision.

Two general trends can be gleaned from the crash data in regard to fatalities within the project corridor. First, the most common crash resulting in fatalities on IL Route 31 are head-on type collisions. Second, the section of the project between Shady Oaks and Veterans Parkway is where the most fatalities occurred. This also happens to coincide with the location of the longest and steepest vertical curves (or 'hills') within the project corridor; three out of four of the existing vertical curve deficiencies are located within this section (see Section 1.3.4 for further discussion).

There were 54 incapacitating type 'A' injuries, which are the most severe injury type that is not a fatality. Overall, five crashes involved pedestrians and one crash involving a bicyclist. Three of the five crashes involving pedestrians were during dark roadway conditions. The crash involving the bicyclist occurred during daylight conditions in the early evening and was a result of the bicyclist ignoring a red traffic signal. The bicyclist was issued a citation for illegal operation of a bicycle.

The predominant crash types, rear-end and turning crashes, are usually caused by several factors, such as deficiency in the capacity of the roadway, signal timing issues because of lack of signal modernization, improper design of the roadway leading to incomplete channelization of traffic, lack of barrier medians, and insufficient

drainage of the pavement. The lack of capacity on this two-lane roadway, coupled with the numerous entrances, leads to conflicts that result in crashes.

The intersection of IL Route 31 and Bull Valley Road is one of the busiest in the corridor, and experienced an elevated number of crashes. There were 74 crashes within the four-year study period. The vast majority of crashes at this location were rear-end crashes (60.8%). The McHenry County Department of Transportation has taken the lead on developing engineering plans to improve this intersection. The improvements will include the construction of dual left turns, right turn lanes, and two through lanes on all four approaches.

The southern section of the project study area from IL Route 176 to Gracy Road is in the top 5% crash locations for roadway sections within the State of Illinois in 2009. The high incidence of crashes in the study period indicates that safety is an issue in the corridor. The number of rear end crashes demonstrates that high traffic volumes, insufficient roadway capacity, and poor access management may be contributing to crashes.

1.3.2. Capacity and Mobility Deficiencies

This project is also needed to address capacity deficiencies in the corridor. The existing (2009) Average Daily Traffic (ADT) varies through the corridor from 23,500 vpd at the south end of the project at IL Route 176 to 17,500 vehicles per day (vpd) south of IL Route 120. Projected traffic volumes were generated by the Chicago Metropolitan Agency for Planning (CMAP) for the 2040 design year. The projected no-action conditions take into account the construction of the south section of the proposed West McHenry bypass project from south of Gracy Road to IL Route 120. Future traffic volumes are expected to range from 32,000 vpd at IL Route 176 to 21,000 vpd south of IL Route 120. The existing and projected 2040 ADT at each section can be found in Table 1.3-1.

The project is also needed to address mobility deficiencies within the corridor, especially within the urbanized sections near the north project limits in downtown McHenry. Most of the intersections within this section are two-way stop controlled. Due to the high traffic volumes on IL Route 31 and on IL Route 120, drivers on adjacent side streets experience long delays at these intersections, especially during rush hour. Vehicles attempting to access IL Route 31 and IL Route 120 from commercial and residential driveways in this northern section of the project also experience this delay. In fact, from 2006-2009, a total of 330 crashes were reported along the section of IL Route 31 and IL Route 120 between High Street and Millstream Drive/3rd Street. This represents 36% of the total crashes reported within the study area, yet only accounts for 15.4% of the total length of the project. Hence, this section of the study area experiences more crashes due to the higher volumes of turning vehicles and greater number of intersections and driveways.

Likewise, most of the project study area currently lacks continuous pedestrian and bike facilities. The absence of such amenities discourages the use of more environmentally sustainable transportation modes and creates safety concerns for pedestrians and bicyclists alike. Carefully planned pedestrian and bicycle accommodations with accessibility to public transit facilities including the existing Metra train station in Downtown McHenry, planned Metra station in Prairie Grove and future planned bus stops along IL Route 31 will help promote the use of such modes of transportation and enhance safety for all modes of transportation within the corridor.

ROAD SECTION	Average Daily Traffic (ADT)	
	Existing (2009)	Future No - Action (2040)
IL Route 31 south of IL Route 176	33,500	46,000
IL Route 31 between IL Route 176 and Half Mile Trail	23,500	32,000
IL Route 31 between Half Mile Trail and Ames Road	19,100	32,000
IL Route 31 between Ames Road and Edgewood Road	19,100	32,000
IL Route 31 between Edgewood Road and Gracy Road/McHenry Bypass	19,100	31,000
IL Route 31 between Gracy Road/McHenry Bypass and Albany Street/Prime Parkway	19,100	22,000
IL Route 31 between Albany Street/ Prime Parkway and Shamrock Lane	19,100	22,000
IL Route 31 between Shamrock Lane and Bull Valley Road	19,100	22,000
IL Route 31 between Bull Valley Road and Lillian Street/ Grove Avenue	17,500	21,000
IL Route 31 between Lillian Street/ Grove Avenue and IL Route 120	17,500	21,000
IL Route 31 north of IL Route 120	1,750	5,000

Table 1.3-1, IL Route 31 Traffic Volumes – Existing and Projected 2040

Increasing traffic volumes as shown in Table 1.3-1 will lead to traffic congestion and delay. A schematic of the IL Route 31 corridor showing the relationship between these ADT's and the operational characteristics of the roadway can be seen in Figure 1.3-1.

This figure also shows the ADT of the corridor for various roadway sections for both the 2009 Existing Conditions and 2040 Projected No-Action Conditions. The Level of Service (LOS) of an intersection rates the operational characteristics of traffic volumes to give a measure of traffic flow. The LOS rating is a scale from A to F, with A being optimal free-flow conditions and F indicating the intersection no longer operates properly because demand exceeds capacity. This figure shows high congestion in the 2040 design year throughout the corridor, especially the section from IL Route 176 to Edgewood Road.

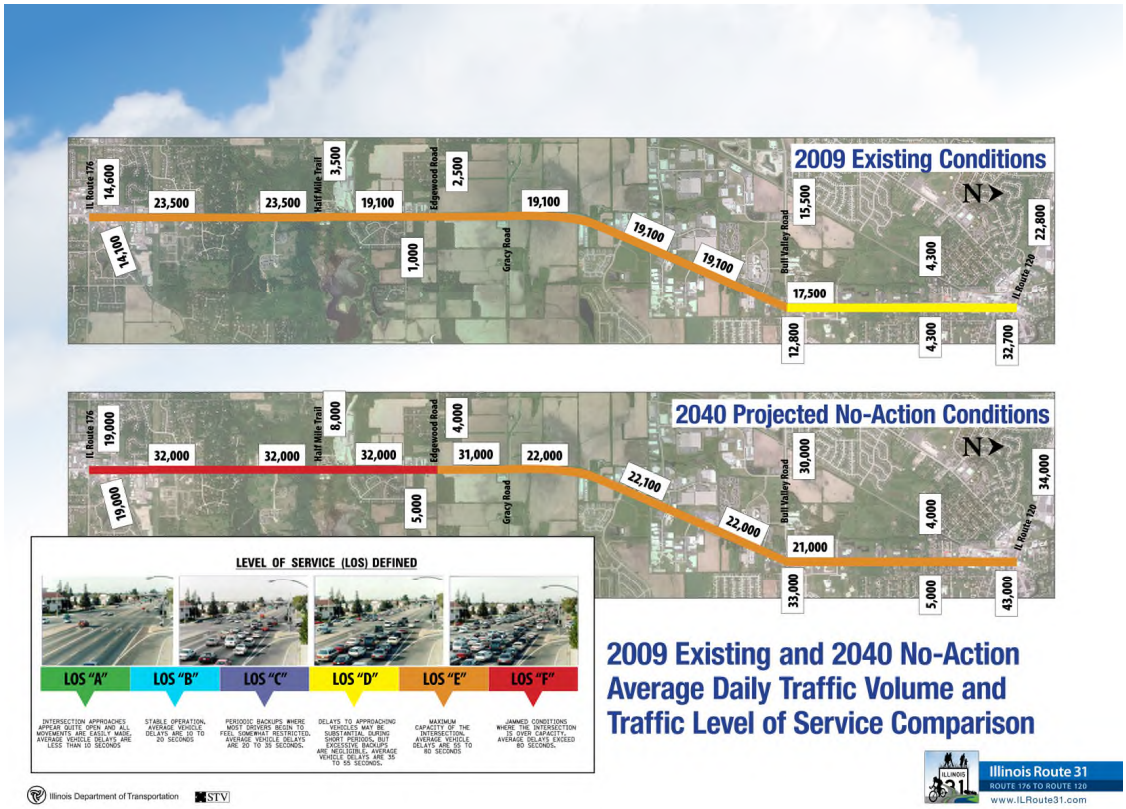


Figure 1.3-1, Existing and Projected ADT and the Resulting Impact on Congestion and Delay

Overall, the existing intersection geometry and traffic volumes result in intersection LOS ranges from A to F. The 2040 future no-action scenario intersection LOS ranges from B to F. A summary of the AM and PM LOS, and delay for the existing and future no-action scenarios at each signalized (current or future planned) intersection can be seen in Table 1.3-2.

	AM Peak Hour				PM Peak Hour			
	Existing		**Future No-Action (2040)**		**Existing**		**Future No-Action (2040)**	
Intersection	**Delay (seconds/ vehicle)**	**LOS**	**Delay (seconds/ vehicle)**	**LOS**	**Delay (seconds/ vehicle)**	**LOS**	**Delay (seconds/ vehicle)**	**LOS**
Half Mile Trail(*)	767.8	F	137.4	F	761.7	F	132.8	F
Edgewood Road(*)(**)	126.4	F	87.3	F	70.5	F	110.6	F
Prime Pkwy./Albany St.	16.2	B	24.9	C	27.5	C	48.2	D
Shamrock Lane	18.0	B	39.4	D	11.8	B	18.9	B
Bull Valley Road(**)(***)	65.3	E	43.2	D	83.0	F	42.0	D
Lillian St./Grove Ave.	32.3	C	37.9	D	37.1	D	39.5	D
IL Route 120	44.3	D	105.3	F	78.1	E	174.9	F

Table 1.3-2, AM and PM Existing and Future No-Action (2040) Level of Service and Delay by Intersection

(*) Three legged intersections list the stop controlled approach Level of Service for existing conditions. Proposed signal for future conditions.

(**) Future delay & LOS assumes completion of intersection build-out as part of separate projects. Edgewood Road to include a new signal.

(***) Bull Valley Road projections based upon 2030 data shown on latest Intersection Design Study provided by McHenry County. 2040 data not yet available.

In the AM peak hour, four of the seven intersections currently experience LOS D or worse. By 2040, six of the seven intersections experience LOS D or worse, with three signalized intersections with LOS F. As a result, the future No-action AM peak hour queues and delays become excessive. In the PM peak hour, five of the seven intersections currently experience LOS D or worse. By 2040, six of the seven intersections experience LOS D or worse, with three signalized intersections with LOS F. As a result, the future No-action PM peak hour queues and delays become excessive. This decrease in LOS for both the AM and PM conditions is indicative of excessive traffic congestion and travel times.

1.3.3. Geometric Deficiencies

Geometric and design deficiencies along IL Route 31 contribute to safety deficiencies and also to reduced roadway capacity. The overall horizontal and vertical geometrics fall within IDOT standards, except as noted in this section.

There are several substandard vertical curves within the project study area. These vertical curves include the following locations:

Location	Type	K Value Req. Max/Min.	K Value Actual
IL 31 at Drake Drive	Crest	167/84	79
470 feet South of Brighton Lane on IL 31	Sag	167/96	78
970 feet North of Half Mile Trail on IL 31	Sag	167/96	79
350 feet south of Ames Road on IL 31	Crest	167/84	71

Table 1.3-3 – Existing Geometric Deficiencies (Vertical Curves)

The table above indicates the locations where the roadway profile does not meet the current design standards for stopping sight distance. At crest locations, a low K-value implies that the vertical curve is sharp and restricts sight distance at that location.

Several sections of IL Route 31 have had reports of poor drainage. One of these areas includes the section of IL Route 31 between intersections of Lillian Street/Grove Avenue and Anne Street. Anne Street and properties near this intersection have been known to flood during heavy rain events. There is an unnamed tributary to the Fox River that drains the southwest section of the City of McHenry that crosses IL Route 31 at this location.

1.3.4. Multi-Modal Transportation

Pedestrian and Bicycle Accommodations

The presence of pedestrian facilities varies throughout the study area. There are no existing bike paths or bicycle accommodations within the corridor. Bicyclists who use the corridor have to travel on IL Route 31 at the existing edge of pavement. Pedestrians travelling along the alignment have to walk within the roadway shoulder.

Figure 1.3-2 Incomplete Facilities Make Pedestrian Travel Difficult

In the south section, there is 5-foot wide sidewalk on the west side of IL Route 31 that extends approximately 500 feet north of the intersection of IL Route 176 and IL Route 31. There is no sidewalk this point northward until the intersection of IL Route 31 and Veterans Parkway. At this point, there is a small, isolated section of 5 foot wide sidewalk on the east side of IL Route 31 that extends approximately 300

feet south of the intersection. North of Veterans Parkway, there are no existing sidewalks on either side of IL Route 31 until the intersection at Bull Valley Road. North of Bull Valley, a sidewalk continues north on the east side of the road to Knox Drive. At Knox Drive, a sidewalk on the west side of IL Route 31 continues north approximately 700 feet until it stops altogether. Scattered sidewalk accommodations exist on either side of IL Route 31 from Knox Drive to Kane Avenue, but lack any continuity with adjacent sections. North of Kane Avenue, sidewalks are present on both the east and west sides of IL Route 31 up to IL Route 120.

The discontinuous nature of pedestrian facilities in the corridor means pedestrians must walk through parking lots, along grass terraces, and even on roadway shoulders. The use of sidewalk accommodations in these discontinuous areas also requires that pedestrians cross the roadway multiple times to continue using the sidewalk on the other side of the street. The intersections of IL Route 120 and Lillian Street/Grove Avenue are the only two locations within the study area that have both a striped pedestrian crossing and pedestrian signals. The intersection at Main Street in McHenry has a striped pedestrian walkway but does not have any traffic and pedestrian signals.

There are several bicycle and pedestrian generators located along or near the corridor. In addition to the residential and commercial properties immediately adjacent to the roadway, there are several land uses within the project study area that generate pedestrian traffic. Examples include the downtown McHenry area (immediately south of the intersection of IL Route 31 and IL Route 120), a Metra train station (approximately 0.12 miles west of IL Route 31 in downtown McHenry), and Edgebrook Elementary School and McCracken Athletic Field (approximately 0.32 miles east of IL Route 31 in McHenry on Kane Avenue). The McHenry County Prairie Trail is located parallel to and west of the IL Route 31 alignment. This trail is a major regional attraction to bicycle riders in this area. In addition to this bicycle trail, the Moraine Hills Park bicycle trails east of IL Route 31 near Bull Valley Road/Charles Miller Road are also large generators of bicycle traffic within the region.

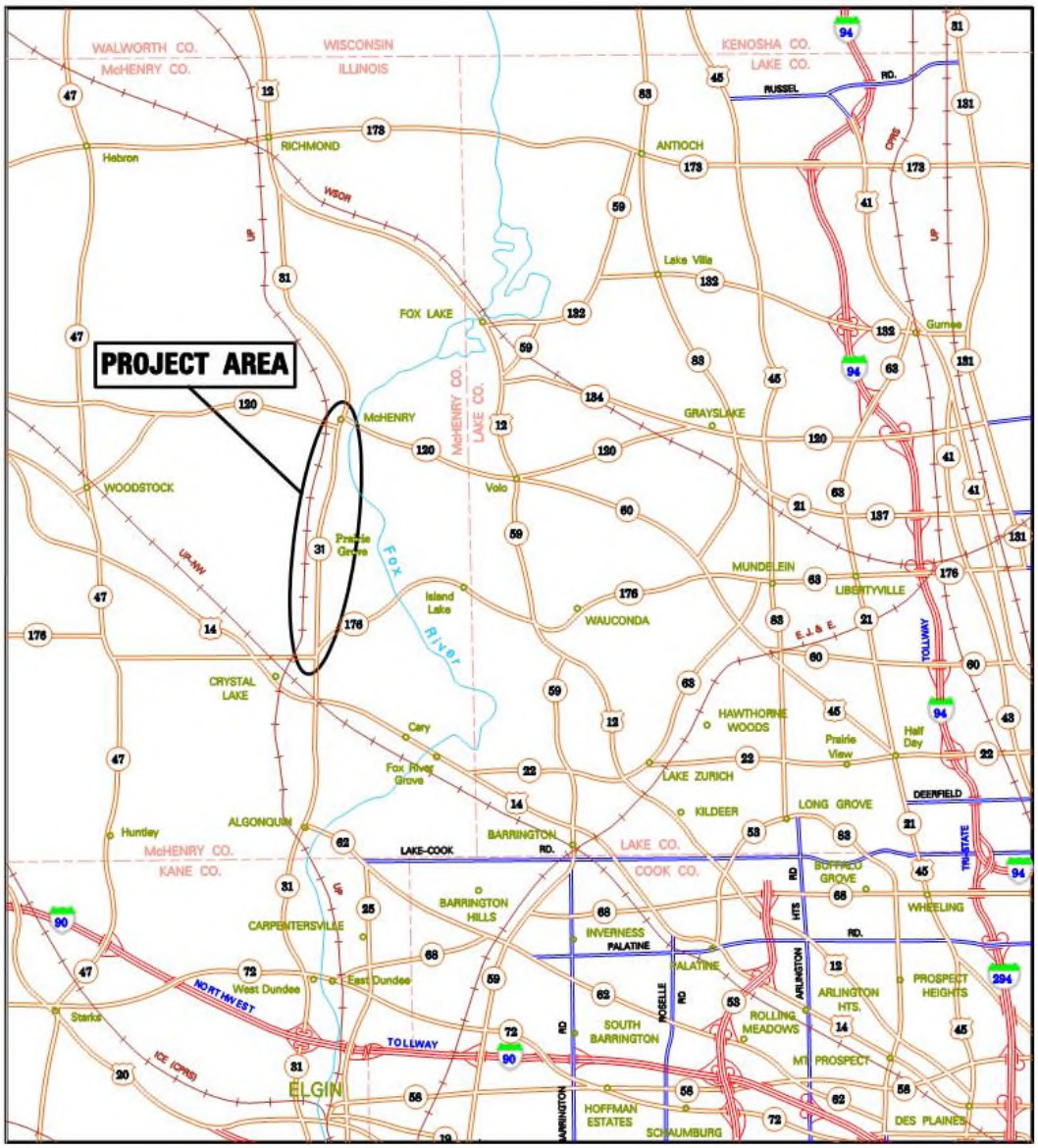
Modal Interrationships

The McHenry Branch of the Metra Union Pacific Northwest (UP-NW) line commuter railroad is located approximately 1 mile west of this project. This branch line runs between the City of McHenry and the City of Crystal Lake and connects with the UP-NW main line that runs between Ogilvie Transportation Center in Chicago and Harvard. Currently, area commuters board the train at one of three nearby stations: McHenry, Crystal Lake (downtown), or Crystal Lake (Pingree Road). As part of a proposed UP-NW Upgrade project, a new station is planned in Prairie Grove along the McHenry Branch, approximately one mile west of the intersection of IL Route 31 and Gracy Road. This new station will become an integral part of the planned Prairie Grove Town Center and Transit Oriented Development. The proposed station site will be initially built as a Park-and-Ride commuter lot with bus service to Metra Stations in Crystal Lake and McHenry, then later converted to a separate Prairie Grove Metra Station as a part of the UP-NW Upgrade project.

With the planned development of residential subdivisions on the east side of IL Route 31 and the future development of a Metra train station west of IL Route 31, there exists a need to provide provisions for future bicycle and pedestian accomodations along the IL Route 31 corridor to accommodate future multi-modal connections to these transportation facilities.

Public bus service along the project corridor includes Pace Bus Routes 806 and 807. Route 806 provides rush hour service between Crystal Lake and Fox Lake, via McHenry. This route runs along IL Route 31 for a majority of the project limits, and service is provided to several commerical and light industrial area in McHenry, including the Pioneer Center and Centegra Medical Center. In addition, Route 806 serves the Metra stations in Crystal Lake and McHenry, with future service planned for the Prairie Grove Town Center. Route 807 provides rush hour service between Woodstock and McHenry, servicing various areas in downtown McHenry and the Metra station. IL Route 31 currently does not have bus turnouts or shelters, since there are no existing bus stops directly on IL Route 31.

IL Route 31 currently lacks bus shelters and pull out lanes for bus service within the study area. In order to improve safety within the corridor, provisions for safe bus access within the study area should be considered.



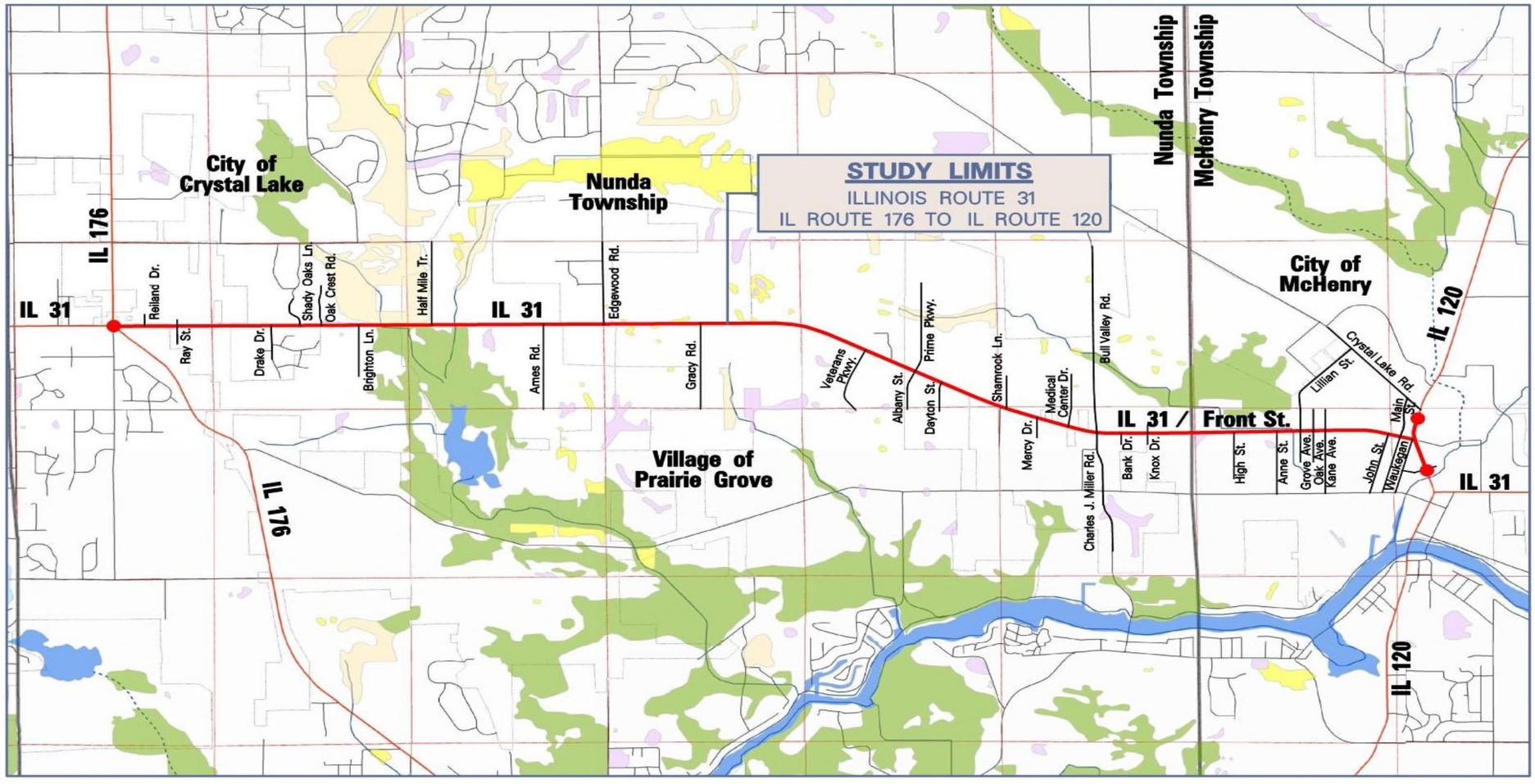
REGIONAL LOCATION MAP

Illinois Route 31 Phase I Study
Illinois Route 176 to Illinois Route 120
McHenry County
P-91-135-99

N

Scale: N.T.S.

Exhibit 1



PROJECT LOCATION MAP

Illinois Route 31 Phase I Study
Illinois Route 176 to Illinois Route 120
McHenry County
P–91–135–99

Legend

Study Limits

Graphic Scale

0 1 2
Miles

Exhibit 2

Illinois Department of Transportation

NEPA -404 Merger Purpose and Need Concurrence and Introduction of Range of Alternatives

March 1, 2012

Illinois Route 31

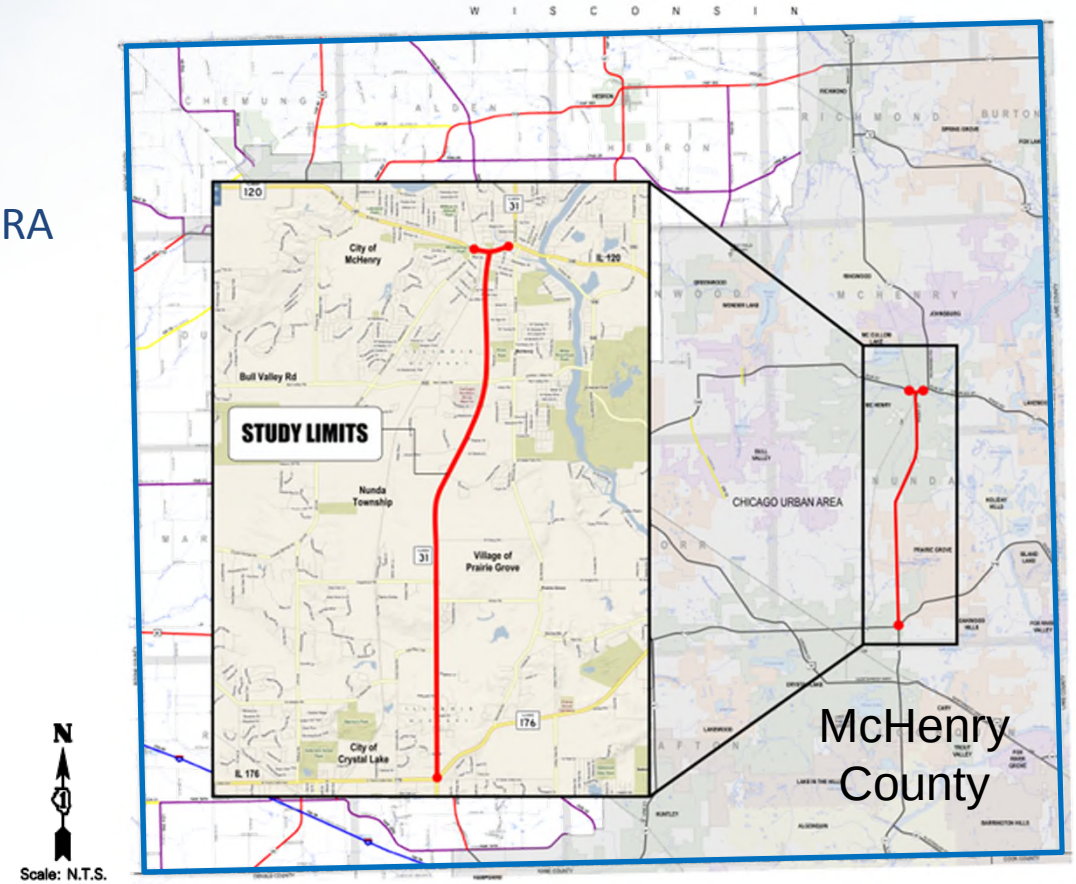
ROUTE 176 TO ROUTE 120

www.ILRoute31.com

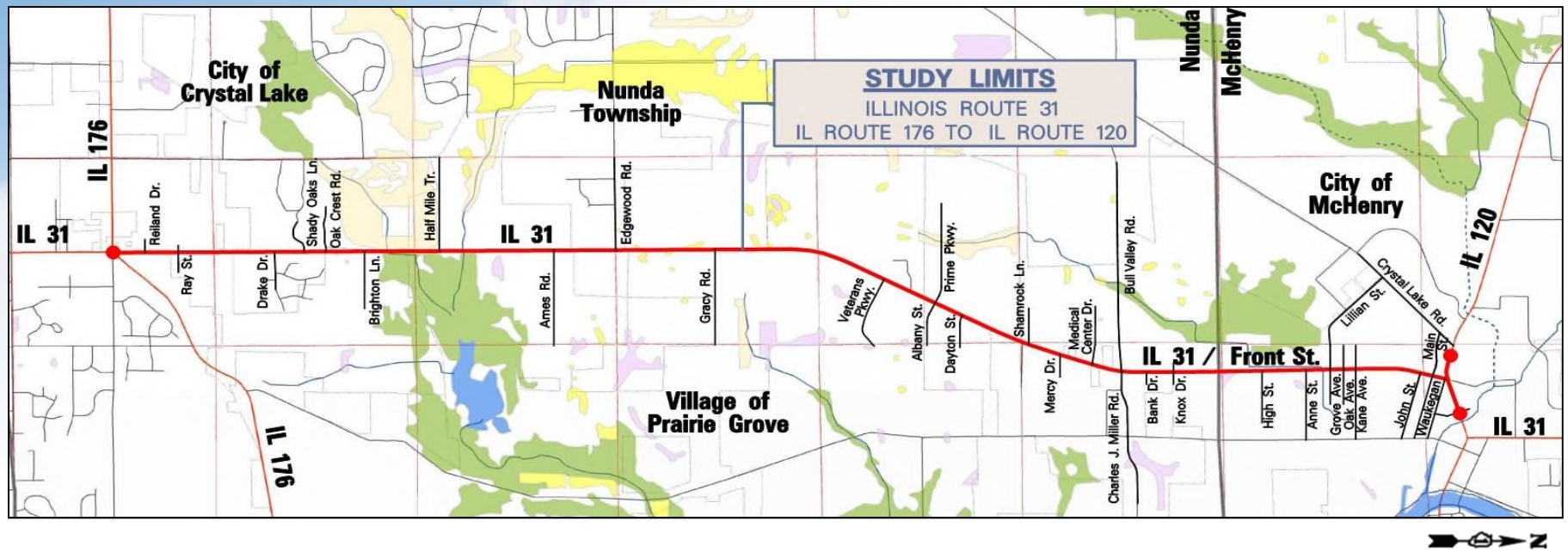
McHenry County

Project Location

- Regional Map
  - » Eastern McHenry County
  - » One of Three North-South SRA Routes in McHenry County Including IL 47 and IL 23



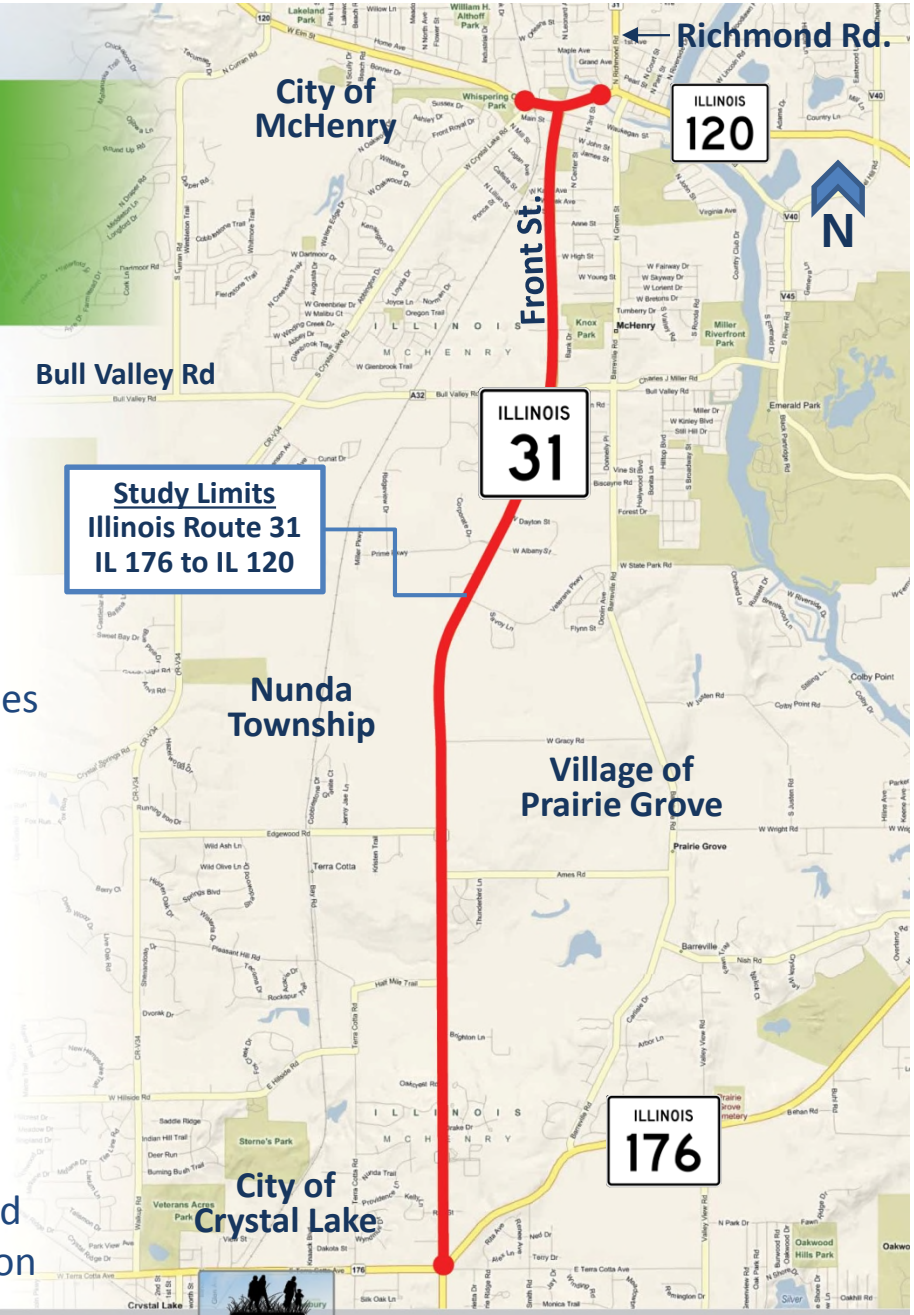
Project Overview



- IL Route 31 – IL Route 176 to IL Route 120
  - » Crystal Lake, Prairie Grove, McHenry, McHenry County, IL
  - » Environmental Assessment (EA)
  - » Context Sensitive Solutions (CSS)

Study Area

- South Section
  - » Commercial far south
  - » Transitions to Residential as you move north
- Middle Section
  - » Mainly agricultural
  - » Industrial near Thunderbird Lake (TC Industries – Large Facility)
- North Section
  - » Residential and Commercial mixed development north of Bull Valley Road
- Logical Termini
  - » South - IL 176 – Planned Phase III full reconstruction of this intersection – 2012
  - » North – IL 120 – Planned locally led project (City of McHenry) at IL 31 (Richmond Rd.) and IL 120, east of Front Street - full reconstruction



Phase I Study Schedule

PROJECT MILESTONES

- Establish Problem Statement, Identify Deficiencies
- Develop Purpose and Need
- Identify Possible Alternatives
- Evaluate and Screen Alternatives
- Preferred Alternative
- Final Engineering Report

PUBLIC INVOLVEMENT

SPRING 2011 | WINTER 2011 | SUMMER 2012 | WINTER 2012 | SUMMER 2013

Public Meeting (May 2011)
- Overview of study process
- Solicit issues and concerns
- Solicit input on deficiencies

Public Meeting (April 2012)
- Share Problem Statement
- Present project Purpose & Need
- Develop alternatives and evaluate to carry forward
- Solicit input on alternatives

Public Hearing (Winter 2012)
- Present Preferred Alternative
- Public review and input

We are here

Anticipated CAG Meeting Schedule

Project Progress

- June 9, 2011 – Public Meeting #1
- June 27, 2011 - NEPA Merger Meeting
  - » Project Introduction
- September 1, 2011 – CAG Meeting #1
  - » Introduction and Project Problem Statement Workshop
- September 22, 2011 – CAG Meeting #2
  - » Purpose and Need, Engineer's Toolbox, Evaluation Criteria and Identify and Map Key Project Constraints Workshop
- November 3, 2011 – CAG Meeting #3
  - » Alternatives Development Workshop

Public Meeting #1

- Comment Summary
  - » Congestion/safety concerns
  - » Noise mitigation
  - » Immediate need for improvements at the intersection of IL 31 and Edgewood Road
  - » Mountable medians for commercial access
  - » Request for additional dedicated turn lanes throughout project
  - » Request to widen to four through lanes of traffic

CAG #1 Meeting Milestones

- Identified Key Transportation Issues and Concerns
  - » Congestion (Existing and Future)
  - » Safety
  - » Accessibility
  - » Existing design deficiencies

- Conducted a Workshop to Develop a Project Problem Statement

CAG #2 Meeting Milestones

- Presented Project Purpose and Need
  - » "The purpose of the proposed action is to address transportation safety, capacity, access management, pedestrian and bicycle needs, and geometric deficiencies along Illinois Route 31 from the intersection of Illinois Route 176 to the intersection of Illinois Route 120, in eastern McHenry County."
- Obtained CAG Input on P&N
  - » Revised Purpose and Need Statement based on CAG member input
- Conducted Constraint Mapping Workshop

CAG #3 Meeting Milestones

- Finalized Project Purpose and Need
  - » The purpose of the proposed project is to improve safety, address roadway capacity and mobility, correct existing geometric deficiencies and encourage multi-modal transportation along IL Route 31 from the intersection of IL Route 176 to the intersection of IL Route 120, in eastern McHenry County.
- Conducted Alternatives Development and Review of Evaluation Criteria Workshop

Safety Deficiencies

- Roadway Safety
  - » Crash Statistics (2006-2009) – 913 Total Crashes
    - 443 Crashes in Roadway Sections (Non-intersection)
      - 54% Rear End Collisions
      - 11% Turning Collisions
      - 9% Animal Collisions
      - 8% Fixed Object
      - 5% Sideswipe Same Direction
      - 4% Angle Collisions
      - 10% Other

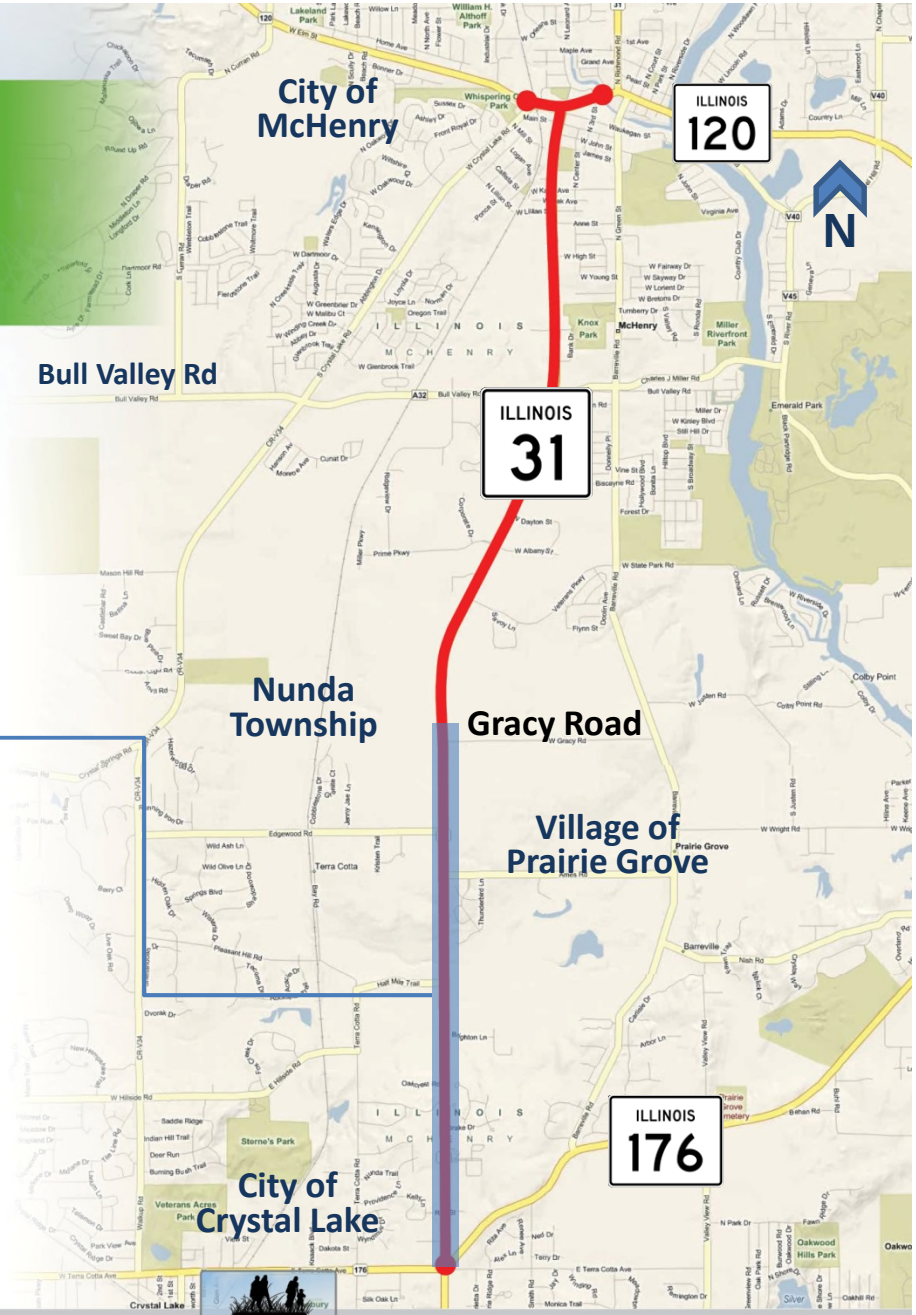
    - 6 Fatalities, 54 Incapacitating Injuries, 350 Total Injuries

Safety Deficiencies

Top 5% Crash Location for 2009

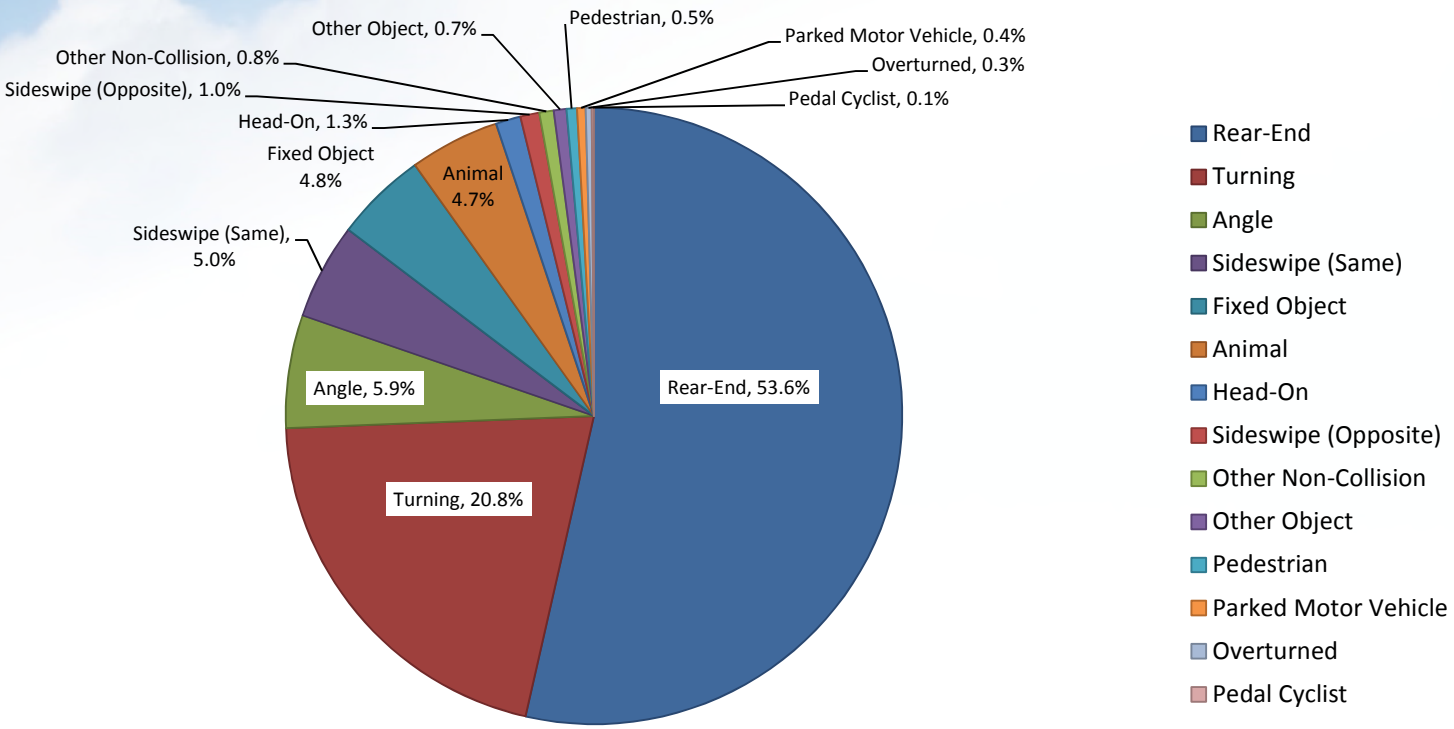
Illinois Route 31

IL 176 to Gracy Rd



Safety Deficiencies - Continued

- Roadway Crashes by Type 2006-2009



Safety Deficiencies - Continued

- Crash Injuries from 2006-2009

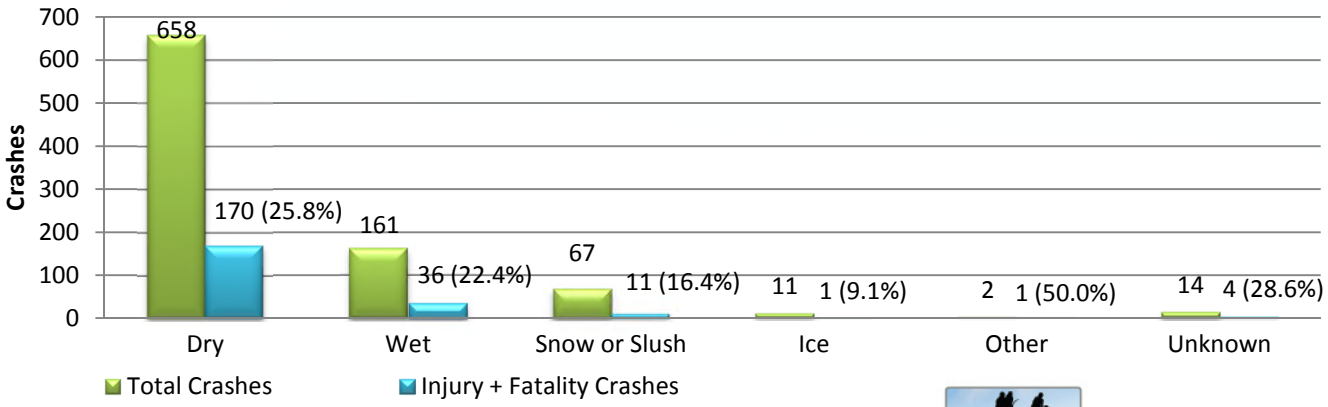
Year	Total Crashes		Injury + Fatality Crashes		Injury Crashes by Type				Injuries	Number of Injuries by Type			
	Total	Frequency	Total	Frequency	K	A	B	C	Total	K	A	B	C
2006	250	27.4%	54	24.2%	2	8	13	31	84	2	9	22	51
2007	253	27.7%	72	32.3%	4	12	32	24	111	4	14	59	34
2008	260	28.5%	48	21.5%	0	10	21	17	82	0	16	32	34
2009	150	16.4%	49	22.0%	0	11	17	21	73	0	15	30	28
Total	**913**	**100.0%**	**223**	**100.0%**	**6**	**41**	**83**	**93**	**350**	**6**	**54**	**143**	**147**

  - » Changes in Illinois law regarding the completion and processing of police crash reports that were implemented in 2009 resulted in the considerable reduction in crashes reported in 2009 when compared to previous years.

Safety Deficiencies - Continued

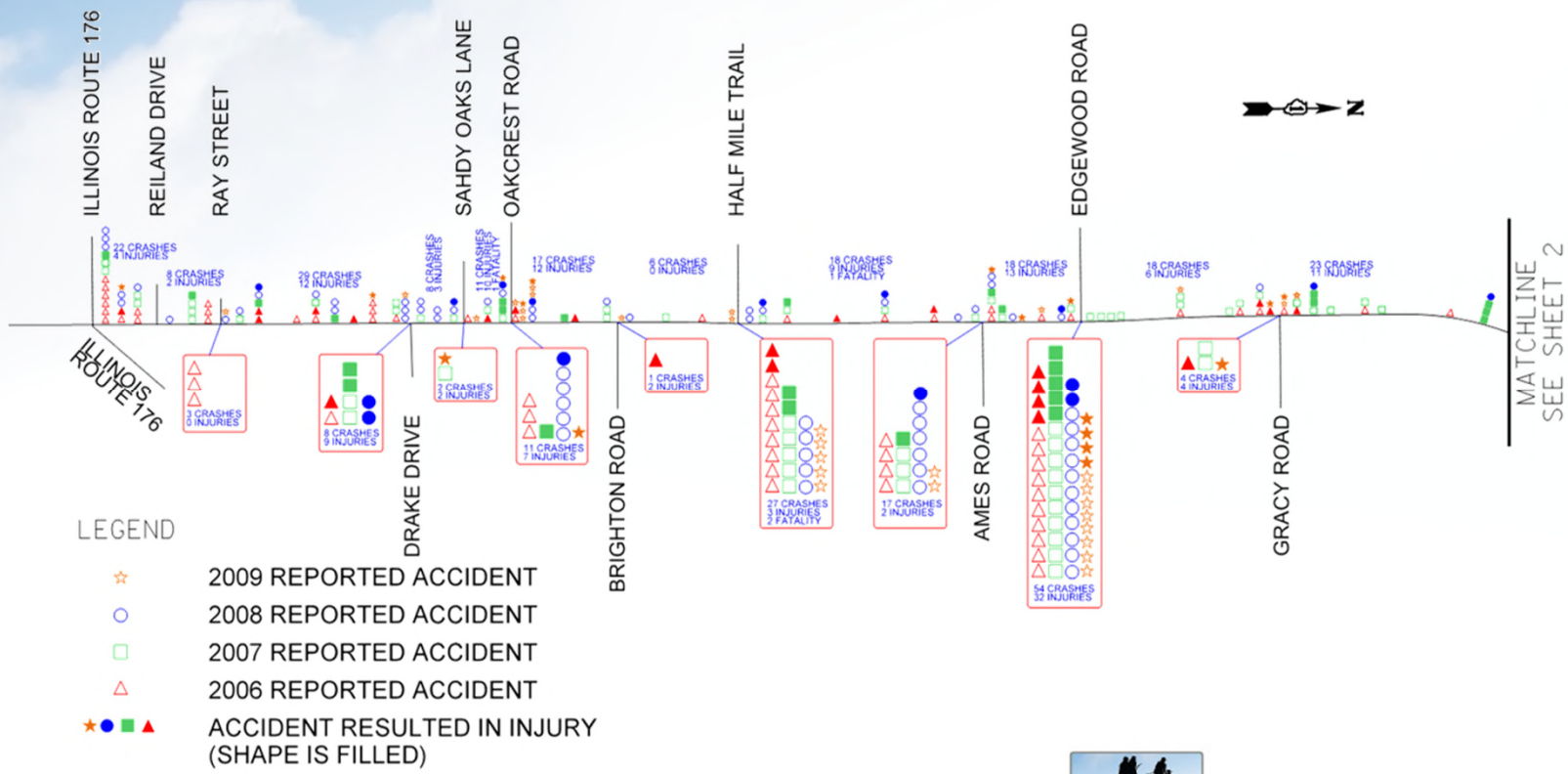
- Crashes by Pavement Condition 2006-2009

Roadway Surface Condition	Total Crashes		Injury + Fatality Crashes		Injury Crashes by Type			
	Total	Frequency	Total	Frequency	K	A	B	C
Dry	658	72.1%	170	76.2%	5	28	65	72
Wet	161	17.6%	36	16.1%	0	7	13	16
Snow or Slush	67	7.3%	11	4.9%	1	5	3	2
Ice	11	1.2%	1	0.4%	0	0	0	1
Other	2	0.2%	1	0.4%	0	0	0	1
Unknown	14	1.5%	4	1.8%	0	1	2	1
Total	**913**	**100.0%**	**223**	**100.0%**	**6**	**41**	**83**	**93**



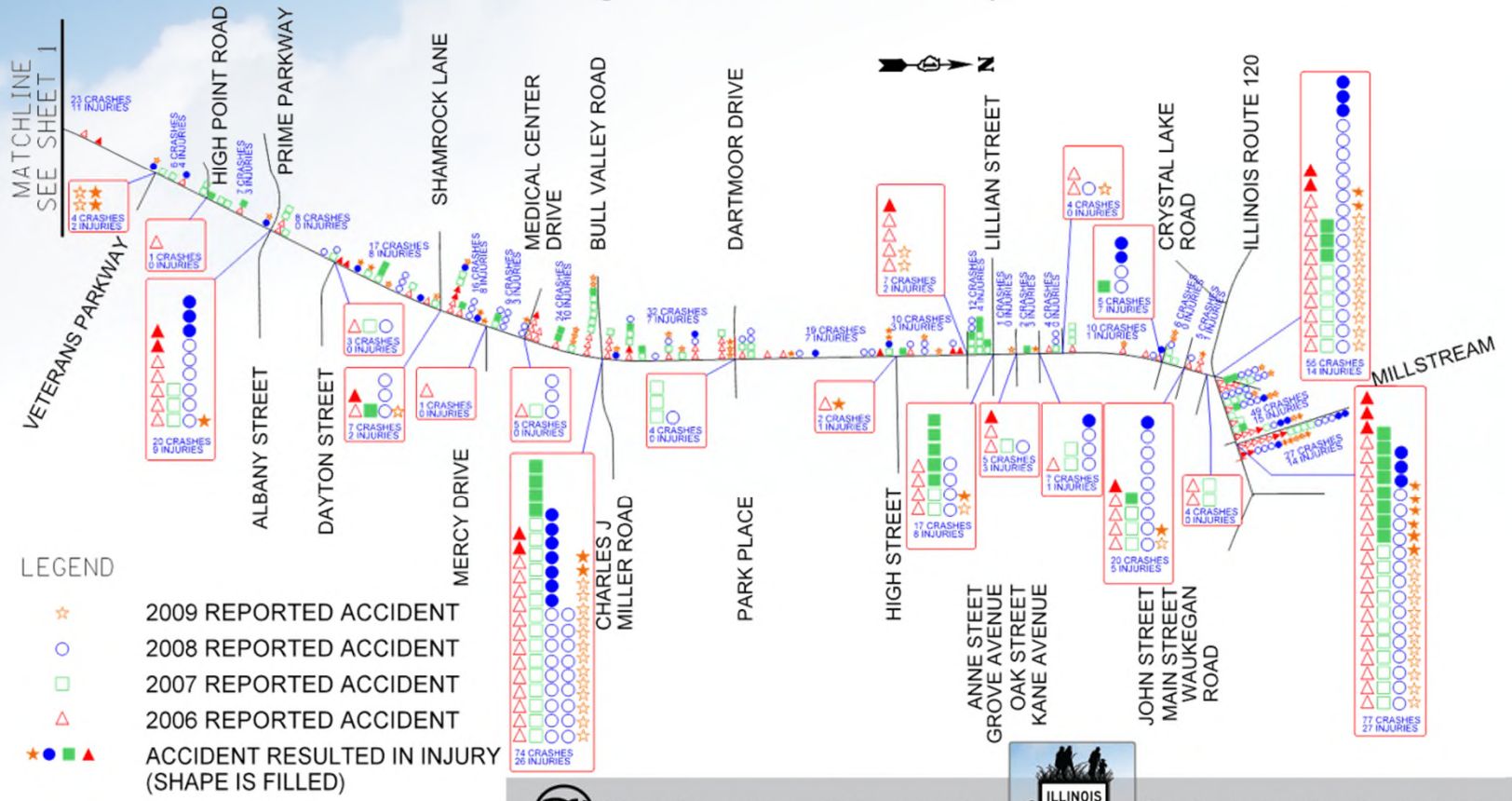
Safety Deficiencies - Continued

- Crash Cluster Diagram – IL 176 to Gracy Rd.



Safety Deficiencies - Continued

- Crash Cluster Diagram – Gracy Rd. to IL 120



Roadway – Traffic Operations

- Roadway Section Level of Service (LOS) Analysis

Illinois Route 176 to Gracy Road	Roadway Configuration	Existing Traffic Volume	2040 Traffic Volume (With Bypass)	2040 Traffic Volume (No Bypass)
	Existing Two Lanes	E (91.7 PTSF)	F (96.6 PTSF)	E (93.5 PTSF)
	Proposed Four Lanes	- -	D (27.4 pc/mi/ln)	C (24.3 pc/mi/ln)
	Proposed Six Lanes	- -	B (17.4 pc/mi/ln)	B (16.2 pc/mi/ln)

Gracy Road to Bull Valley Road	Roadway Configuration	Existing Traffic Volume	2040 Traffic Volume (Bypass)	2040 Traffic Volume (No Bypass)
	Existing Two Lanes	E (88.2 PTSF)	E (91.1 PTSF)	E (92.5 PTSF)
	Proposed Four Lanes	- -	B (16.0 pc/mi/ln)	C (22.5 pc/mi/ln)
	Proposed Six Lanes	- -	A (10.7 pc/mi/ln)	B (15.0 pc/mi/ln)

Bull Valley Road to Illinois Route 120	Roadway Configuration	Existing Traffic Volume	2040 Traffic Volume (Bypass)	2040 Traffic Volume (No Bypass)
	Existing Two Lanes	E (86.6 PTSF)	E (90.4 PTSF)	E (91.3 PTSF)
	Proposed Four Lanes	- -	C (18.2 pc/mi/ln)	C (18.2 pc/mi/ln)
	Proposed Six Lanes	- -	B (12.1 pc/mi/ln)	B (12.1 pc/mi/ln)

PTSF: Percent Time Spent Following
pc/mi/ln: Passenger cars per mile per lane

Roadway – Traffic Operations

- Intersection Capacity Analysis (HCS) for Existing and Future No-Build Condition

	AM Peak Hour				PM Peak Hour			
	Existing (2009)		Future No-Build (2040)		Existing (2009)		Future No-Build (2040)	
Intersection	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
IL Route 176	Intersection not included in study							
Half Mile Trail	767.8	F	23,570	F	761.7	F	17,554	F
Edgewood Road	126.4	F	87.3	F	70.5	F	110.6	F
Albany Street/Prime Parkway	16.2	B	24.9	C	27.5	C	48.2	D
Shamrock Lane	18	B	39.4	D	11.8	B	16.9	B
Bull Valley/Charles Miller Road	33.8	C†	39.4	D*	39	D†	18.9	D*
Lillian Street/Grove Avenue	32.3	C**	37.9	D	37.1	D**	39.5	D
IL Route 120	44.3	D**	51.4	D	78.1	E**	174.9	F

Ex. Conditions
- 2 Int. LOS F
- 1 Int. LOS E
- 2 Int. LOS D

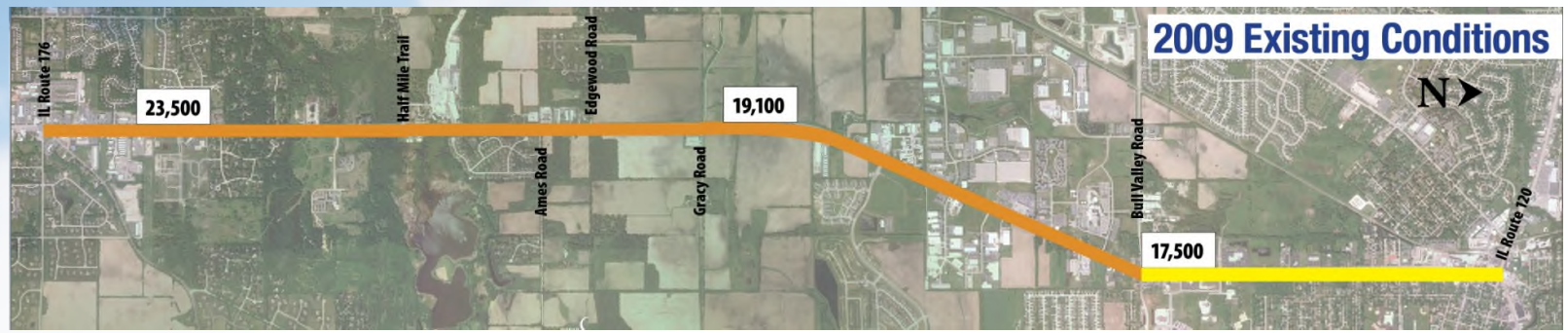
Future No-Build
- 3 Int. LOS F
- 3 Int. LOS D

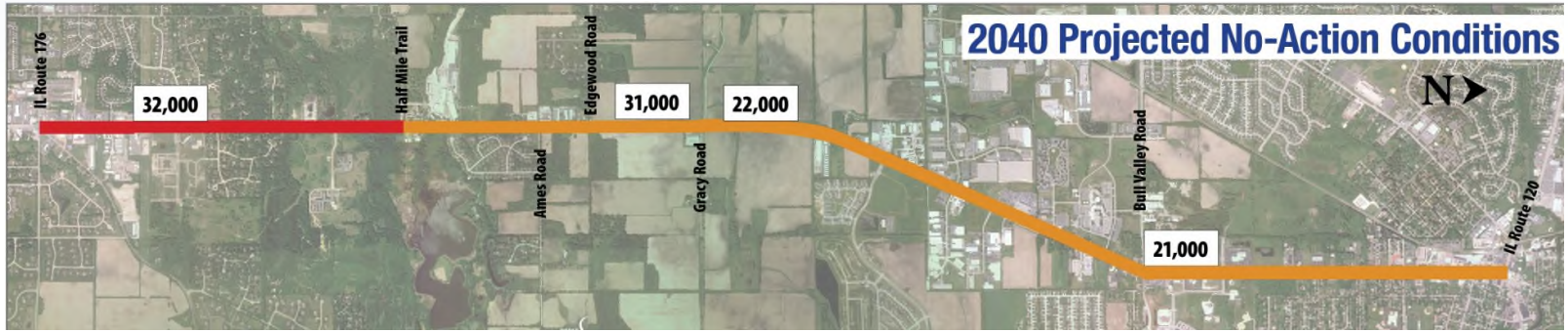
Excessive Delay at Intersections

† Based on 2007 Traffic Data
* Based on 2030 Traffic Projections
** Based on 2011 Traffic Data

Roadway – Traffic Operations

- Corridor Level of Service Map



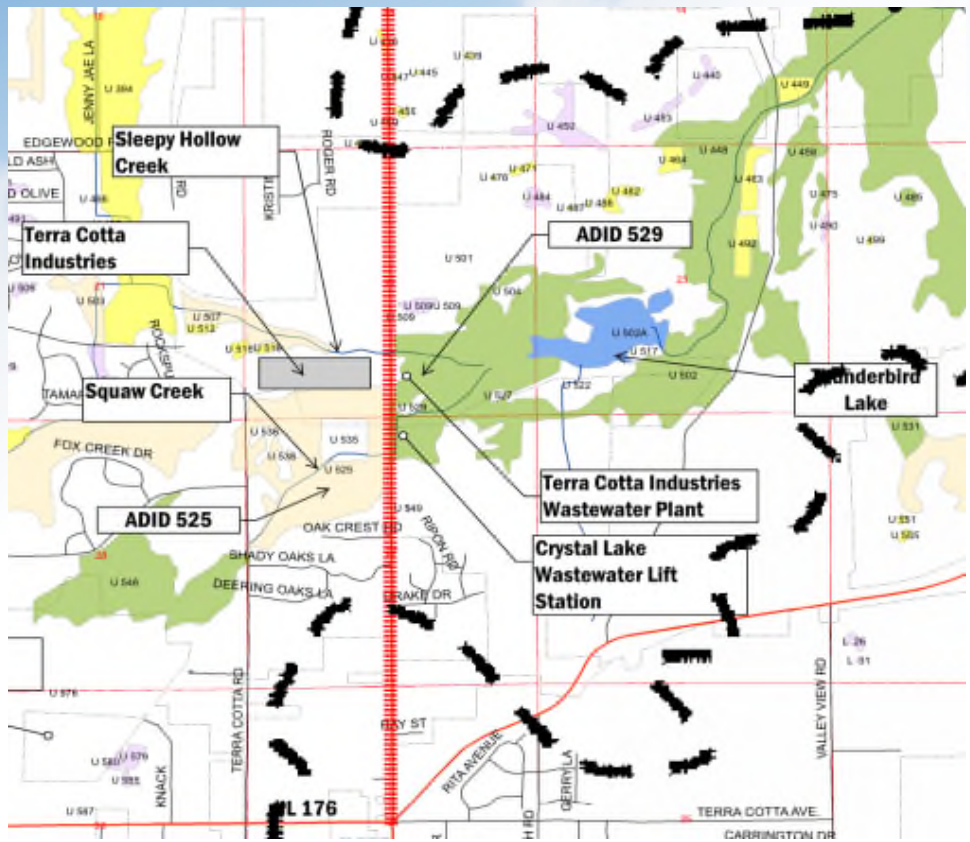


2009 Existing and 2040 No-Action Average Daily Traffic Volume and Traffic Level of Service Comparison

IL Route 31 – Access Management

- Generally, no access management provided along IL Route 31
- 184 driveways and 33 intersections within the study area
- No barrier medians, right-in/right-out provided at 8 driveway locations

ADID Wetlands Map



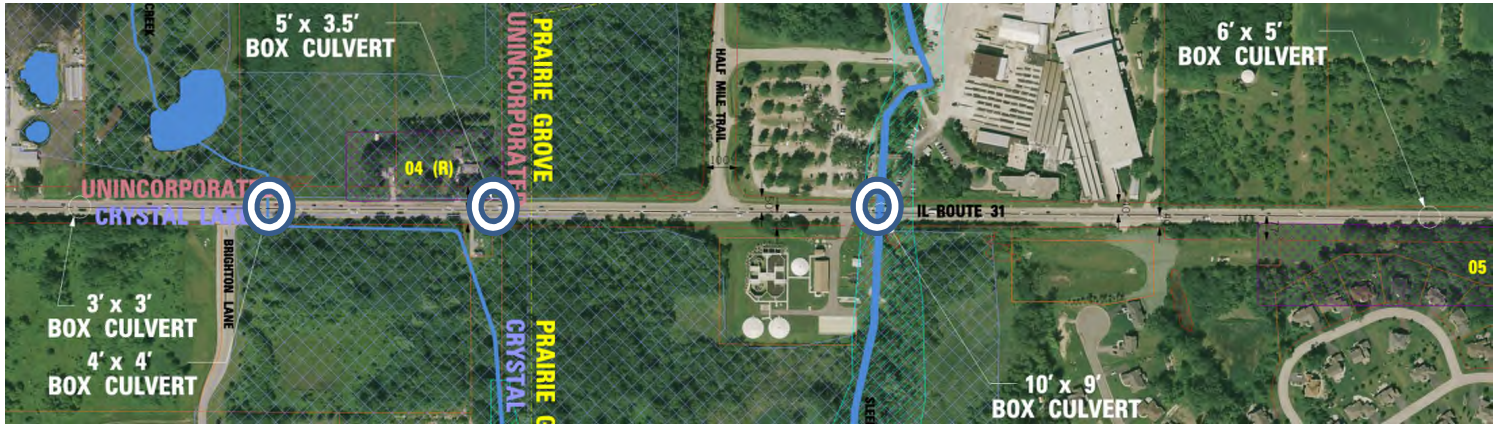
- Eastern Prairie Fringed Orchid
  - Past two environmental surveys from IL 176 to Bull Valley Road found no evidence of EPFO within the watershed

Stream Crossings Near ADID Wetlands

Squaw Creek Crossing
Existing 4’x4’ Box Culvert

Sleepy Hollow Creek Crossing
Existing 10’x8’ Box Culvert

Squaw Creek Channel
Along IL Route 31

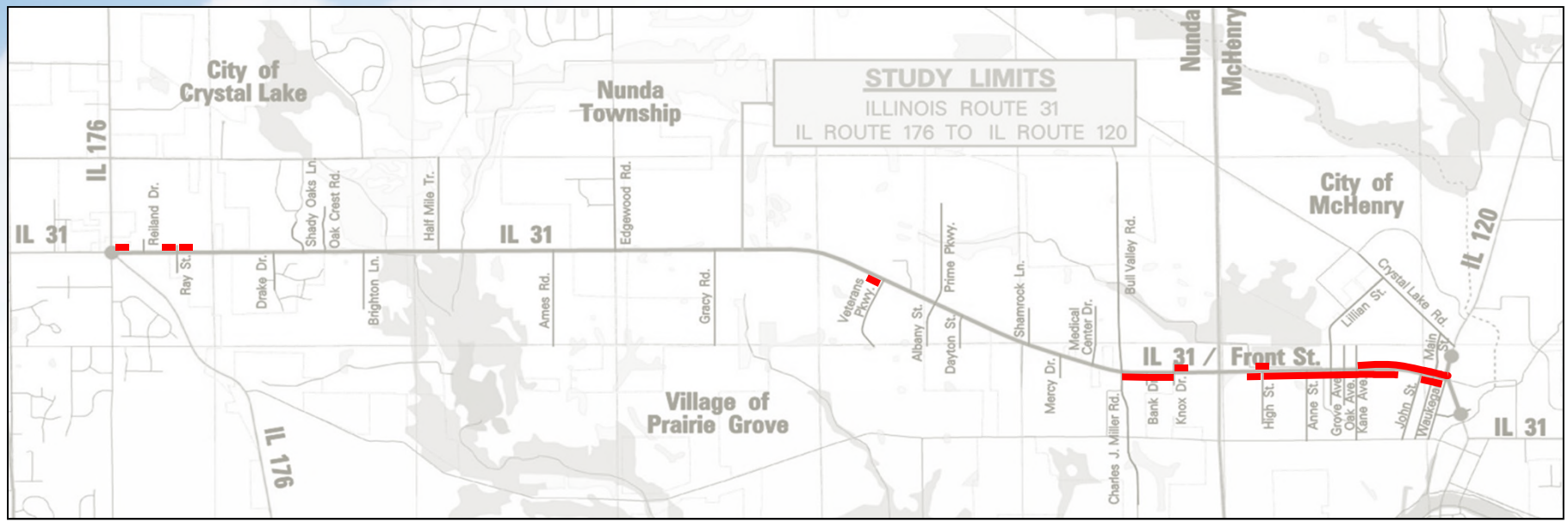


IL Route 31 – Existing Design Deficiencies

- Roadway Capacity
- Roadway Safety
  - » Lack of channelization lanes
  - » Insufficient storage lengths
- Vertical Curves
  - » Stopping sight distance
- Superelevation
  - » Horizontal curve at Bull Valley Rd.
- Intersection Sight Distance
  - » Main Street and John Street

IL Route 31 – Pedestrian Accommodations

- Existing Sidewalk Locations



Existing Sidewalk Locations

IL Route 31 – Purpose and Need

- Developed from existing deficiencies and public involvement at CAG meetings and Public Meeting 1
- The Purpose and Need for the proposed action is to:
  - » Improve Roadway Safety
  - » Expand Roadway Mobility (Capacity and Accessibility) and Address Traffic Issues
  - » Correct Existing Roadway Design Deficiencies
  - » Improve opportunities for multimodal connectivity

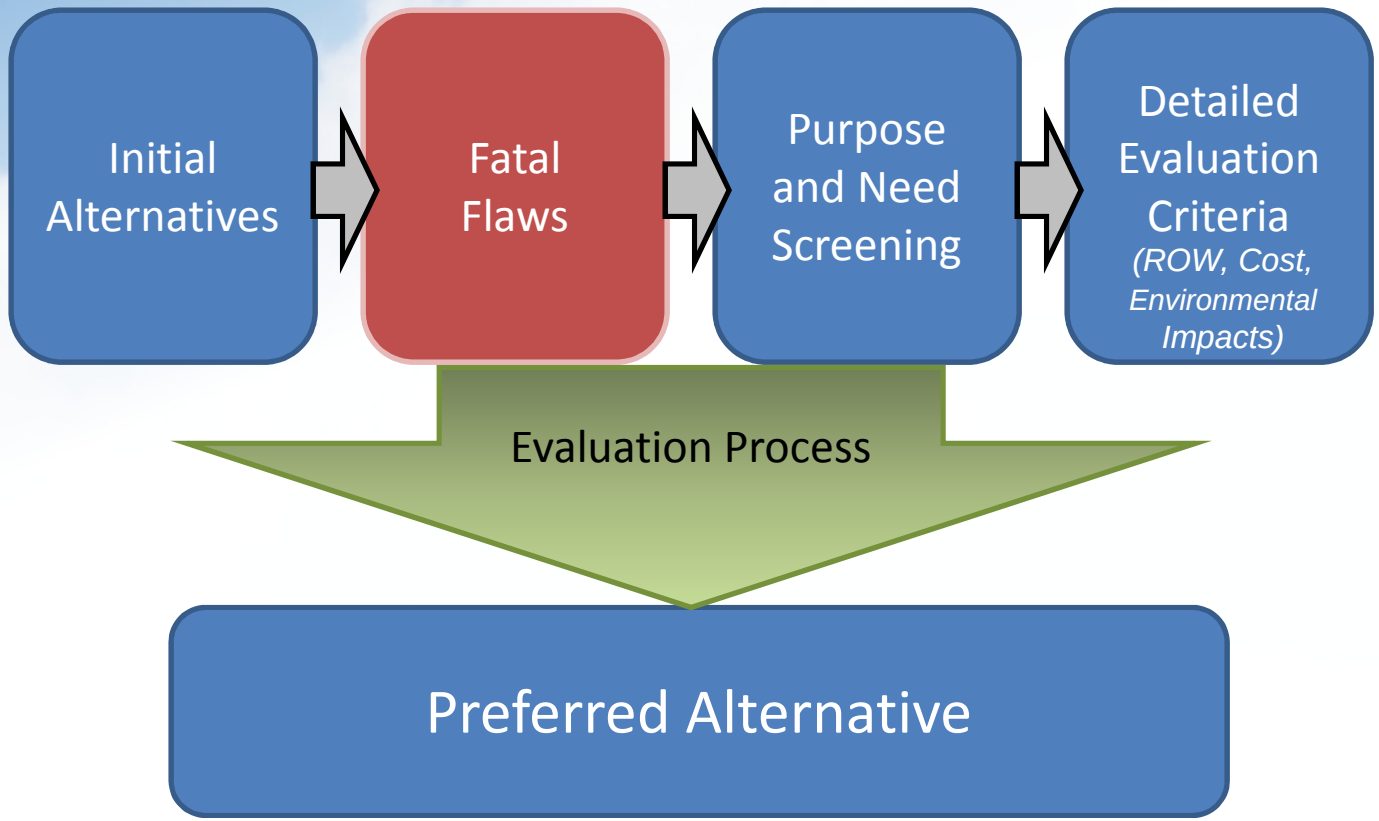
IL Route 31 – Measurable Objectives

- Improve Roadway Safety
  - » Substantial Reduction in Projected Crashes and Fatalities
- Expand Roadway Mobility (Capacity and Accessibility) and Address Traffic Issues
  - » Substantial Reduction in Projected Traffic Delays
- Correct Existing Roadway Design Deficiencies
  - » Meet All SRA Design Requirements as Practicable Based on Project Constraints
- Improve opportunities for multimodal connectivity
  - » Maintain and Improve Connectivity to Existing Mass Transit Facilities

IL Route 31 Purpose and Need

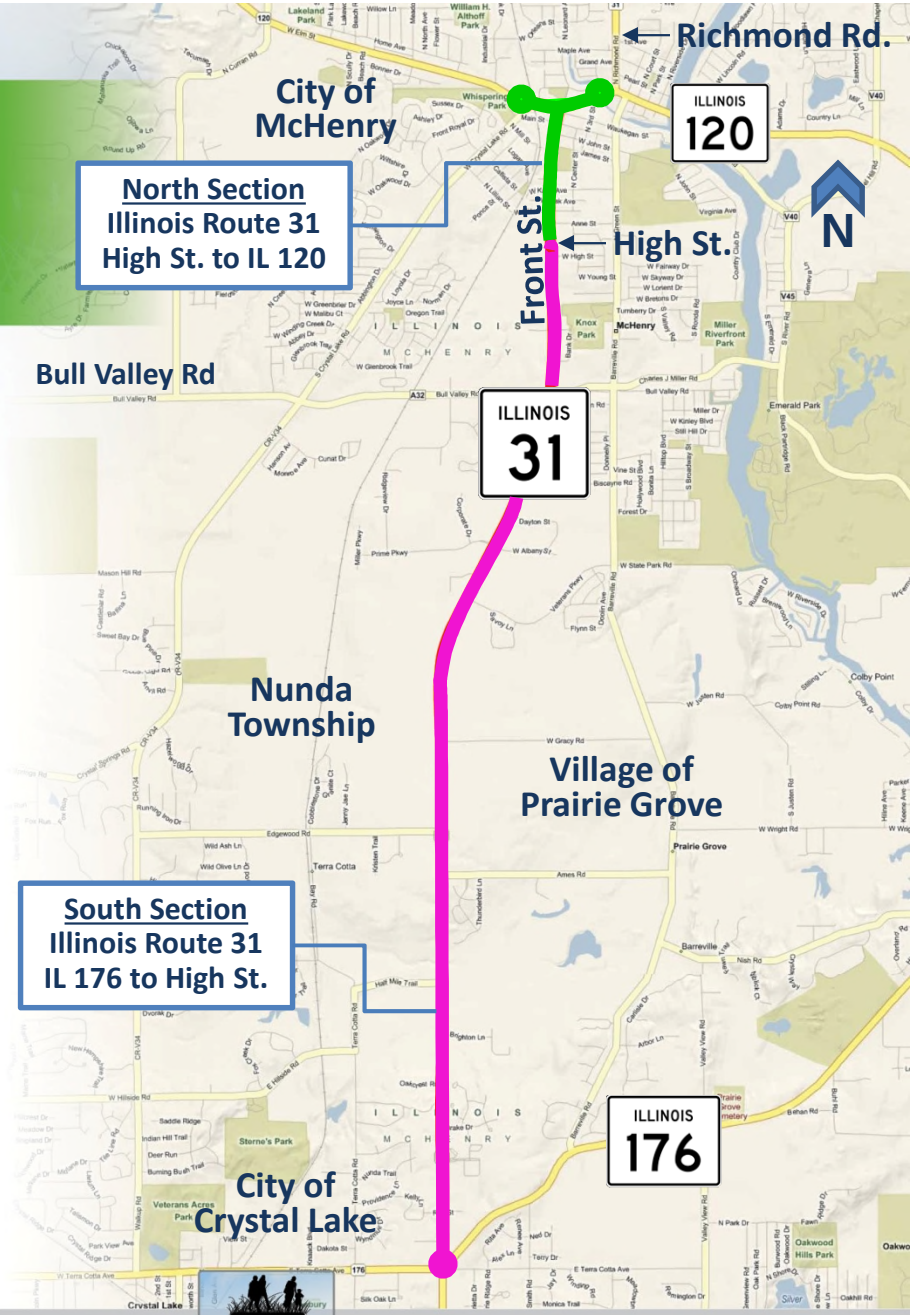
Concurrence Point

Alternates Development Evaluation Process



Alternatives

- South Section
  - » IL Route 176 to High Street
  - » Agricultural and residential
  - » Right-of-way acquisition does not require building takes
- North Section
  - » High Street to IL Route 120
  - » Urban and commercial
  - » Right-of-way acquisition requires building takes



Alternatives Development

- South Study Area
  - » 4 lanes with 30’ median, 5 lanes with TWLTL median
  - » Urban and rural sections, depending on current development
  - » Multi-use paths and sidewalks
- North Study Area
  - » Urban section
  - » Wide range of lane and intersection configurations
  - » Minimize building removals while providing path and sidewalk
  - » Roundabout evaluations at Lillian/Grove and IL 120
  - » Development of a comprehensive traffic model in Synchro

Thank You!

www.ILRoute31.com

Illinois Department of Transportation

Illinois Route 31

ROUTE 176 TO ROUTE 120

McHenry County

NEPA/404 Merger Meeting

Alternatives to be Carried Forward
June 25, 2013

Alternatives Chapter
Presentation Slides
Meeting Summary – See Coordination Section

2.1 Introduction

This chapter describes the alternatives considered for the IL Route 31 Study. The project is being developed following a Context Sensitive Solutions (CSS) approach. Based on the CSS approach and evaluation of the existing conditions, the Project Purpose and Need was defined as *"The purpose of the proposed project is to improve safety, address roadway capacity and mobility, correct existing geometric deficiencies and encourage multi-modal transportation along IL Route 31 from the intersection of IL Route 176 to the intersection of IL Route 120, in eastern McHenry County."* Public input was obtained on various project elements and treatments evaluating their effectiveness for meeting the project Purpose and Need. From these project elements, the build alternatives were developed.

2.2 No-Action Alternative

Throughout the development of this project, consideration has been given to the No-Action Alternative as a base condition against which resulting effects of the preferred build alternative may be measured. The No-Action Alternative is the retention of the present roadway configuration and the performance of routine maintenance to keep the roadway operational. It includes rehabilitating the existing pavement and other short term-improvements. These improvements would include the resurfacing the roadway pavement with minor patching, intermittent curb and gutter and sidewalk repairs, and possible replacement of damaged drainage structures. The No-Action Alternative can be described as a maintenance type of improvement, providing short-term fixes rather than a 20-year design. It does not include intersection improvements, signal modernization or coordination, any widening or capacity improvements, addition of pedestrian / bicycle accommodations, or lighting.

Selection of the No-Action Alternative would result in:

- continued high crash potential resulting from a lack of through lane roadway capacity, numerous driveway entrances and conflict points, lack of channelized turn lanes for some intersections, and lack of modernized or coordinated traffic signals; as well as the lack of a barrier median to separate opposing traffic
- continued heavy congestion (reduced mobility) along roadway segments and intersections within the study limits
- continued design deficiencies including substandard vertical curves (sight distance problems) and poor drainage conditions along certain sections of the project
- continued lack of, or poor and unsafe access for all users (including vehicles, bicyclists, and pedestrians) for the land uses and public facilities that exist or are planned throughout the project area

If problems associated with traffic congestion and safety remain unaddressed, IL Route 31 from IL Route 176 to IL Route 120 would continue to experience poor vehicle mobility and high crash potential. The No-Action Alternative does not meet the Purpose and Need of the project, but will be carried forward throughout for comparison purposes to the build alternatives.

2.3 Congestion Management Process Alternative

The provision of 23 CFR 450.320 places restrictions on the use of federal funds for projects in Transportation Management Areas (TMAs) designated as non-attainment for carbon monoxide and/or ozone. In these areas, federal funds may not be programmed for any project that would significantly increase capacity for single

occupancy vehicles (SOVs) unless the project is evaluated through a Congestion Management Process (CMP). The CMP is required to provide an appropriate analysis of alternatives to the proposal for adding SOV capacity, including all reasonable congestion management strategies. If the analysis demonstrates that other alternatives and/or congestion management strategies cannot fully satisfy the need for additional capacity and that additional SOV capacity is warranted, the CMP must identify all reasonable strategies that would maintain the functional integrity of the additional lanes. All identified reasonable strategies must be incorporated into the project.

Individual projects involving the addition of SOV capacity were evaluated, selected, and prioritized in the course of developing the Fiscal Year 2010-2015 Transportation Improvement Program (TIP) and the long range 2040 Regional Transportation Plan (RTP) for Northeastern Illinois. The Northeastern Illinois CMP is documented via the following materials, which are available through the Chicago Metropolitan Agency for Planning (CMAP):

- Congestion Management System for Northeastern Illinois, Technical Supplement, October 1997
- Congestion Management Handbook, September, September 1998
- Congestion Management System for Northeastern Illinois, July 2006 Status Report

As indicated in the documents listed above, the development process for the TIP and Regional Transportation Plan constitutes the CMP for Northeastern Illinois. This process documents warranted projects for adding SOV capacity, as applicable, and also documents that regional and/or project specific alternatives such as Transportation Demand Management (TDM) measures, High Occupancy Vehicle (HOV) measures, Transit Capital Improvements, Congestion Pricing, Growth Management, and Incident Management would not obviate the need for adding SOV capacity. Planned projects resulting from the CMP are documented in the annual CMS status report, referenced above. For this project, it has been determined that stand-alone CMS alternatives would not satisfy the project Purpose and Need and, therefore, this undertaking is a warranted project for adding SOV capacity.

Reasonable project specific CMP strategies have been incorporated into this project to the extent practical. Specific strategies incorporated include the following:

- increased turn lane storage capacities
- traffic signal modernization
- consolidation of access points, street and driveways
- channelized intersections with left and right turn lanes
- barrier medians for access control
- right-in and right-out access control

As documented in the above information, this project results from the CMP for Northeastern Illinois as a warranted project for adding SOV capacity and all reasonable congestion management strategies have been incorporated into the project to sustain its effectiveness.

2.4 Range of Alternatives

The project elements and treatments, as derived from the CSS approach and stakeholder involvement process, were used to develop a full range of alternatives. The generation of alternatives considered environmental, social and cultural resources. Project elements considered when determining the range of alternatives included existing roadway characteristics, adjacent land use, and available right-of-way. The alternative development

process also included a review of the engineering tools or treatment options that can be incorporated into the design to improve the roadway. This collection of engineering tools was defined as the "Engineering Toolbox."

The Engineering Toolbox was separated into three categories: Pedestrian Safety Improvement, Roadway Safety Improvement, and Capacity Improvement. Pedestrian Safety Improvement Tools include treatment options i.e. Sidewalks, Bike Lanes, Shared-Use Paths, Crosswalks, and Crosswalk Signals. Roadway Safety Improvement Tools include features i.e. Raised Medians, Left Turn Lanes, Access Management, Improved Sight Distance, Geometric Realignments, Traffic Signal Installation / Modernization, and Roadway Lighting. Lastly, Capacity Improvement Tools include the addition of through lanes, the addition of turn lanes at intersections, modifying turn lane storage lengths and tapers, and the construction of roundabouts at intersections.

Due to the changing adjacent land uses and density of development within the corridor, unique alternatives were identified for three separate sections of the study area. These include the "South Section" from north of IL Route 176 to south of Bull Valley Road / Charles J. Miller Road, the "North Section" from north of Bull Valley Road / Charles J. Miller Road to John Street, and the "IL Route 120 Intersection." See *Figure 2.4-1* below.

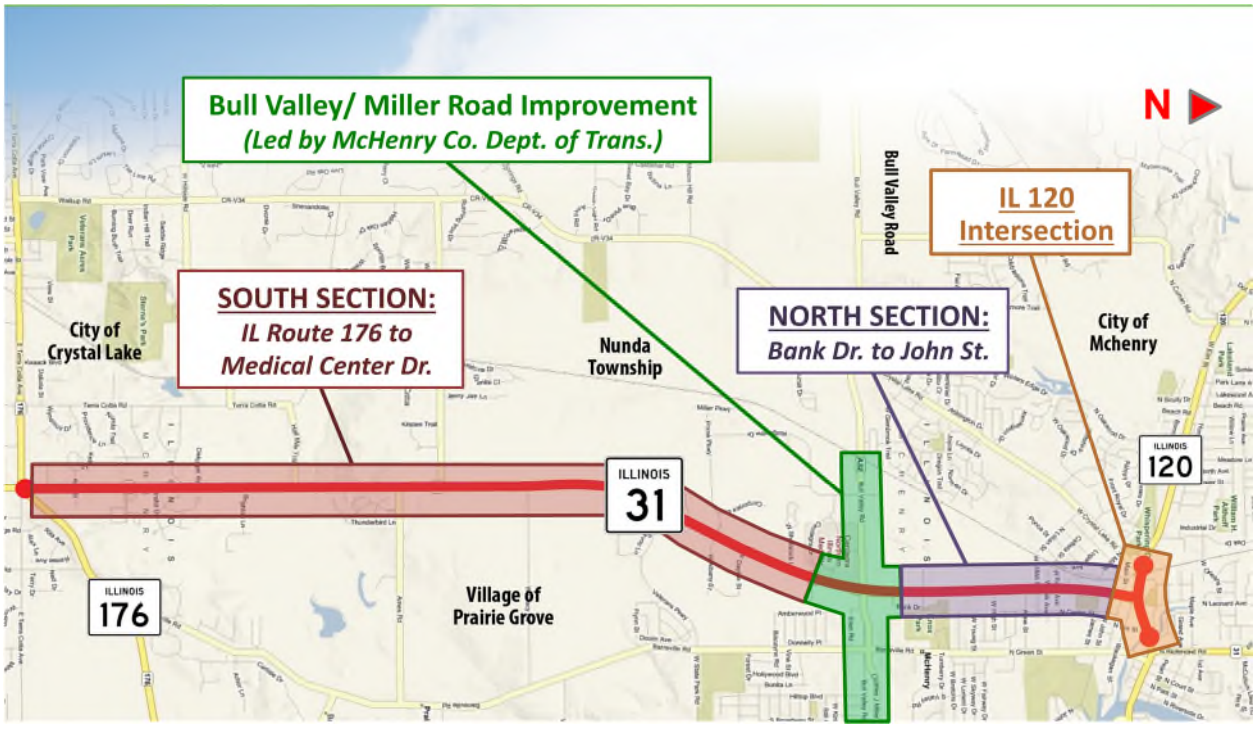


Figure 2.4-1, Study Subsections

The "South Section" begins just north of the IL Route 176 intersection where the proposed improvements will tie into separate improvements planned by IDOT for this intersection. The transition from the "South Section" to "North Section" occurs at the intersection of IL Route 31 with Bull Valley Road / Charles J. Miller Road. This intersection is being studied by the McHenry County Division of Transportation (MCDOT) as part of their Bull Valley Road / Charles J. Miller Road improvement project. The MCDOT improvements extend along IL Route 31 between Medical Center Drive and Bank Drive. South of these limits is the "South Section" for this project, while north of these limits up to south of John Street is the "North Section." Due to potential building impacts beyond

John Street and wide range of intersection alternatives, the "IL Route 120 Intersection" was separated into its own group. Alternatives for the IL Route 120 intersection extend along IL Route 120 from just east of the Metra Union Pacific Northwest (UP-NW) line commuter railroad crossing to just west of the bridge over Boone Creek. The "North Section" and "IL Route 120 Intersection" area has generally lower traffic volumes, lower traffic speeds, and limited right-of-way. In contrast, the "South Section" has comparatively higher traffic volumes, higher traffic speeds, and wider right-of-way.

The Range of Alternatives developed and considered for this study includes the following build options for the proposed roadway:

South Section: IL Route 176 to South of Bull Valley Road / Charles J. Miller Road

Alternative #	Description
S-1	6-lane with 30' & 50' Depressed Median and 10' Outside Shoulders
S-2	6-lane with 18'-22' Raised Median
S-3	4-lane with 18'-22' Raised Median
S-4	4-lane with 18'-22' Raised Median and 10' Outside Shoulders
S-5	4-lane with 30' Raised Median
S-6	4-lane with 30' Depressed Median and 10' Outside Shoulders
S-7	5-lane with Bi-directional Two-Way Left Turn Lane

North Section: North of Bull Valley Road / Charles J. Miller Road to South of John Street

Alternative #	Description
N-1	4-lane with 6' Landscaped/Planter Median
N-2	4-lane with 18' Raised Median
N-3	4-lane with 30' Raised Median
N-4	5-lane with Bi-directional Two-Way Left Turn Lane
N-5	One-way Arterial Pair with Green Street

IL Route 120 Intersection

Alternative #	Description
120INT-1	Minimum Build Alternative, Minimum Roadway Widening with No Median and 10' lanes
120INT-2	18' Raised Median (Single Left) for South Leg
120INT-3	Maximum Build Alternative, 30' Raised Median (Dual Left) for South Leg
120INT-4	Traditional signalized intersection with 3 legs (cul-de-sac north leg of intersection)
120INT-5	Roundabout with 4 legs
120INT-6	Roundabout with 3 legs (cul-de-sac north leg of intersection)
120INT-7	Various Alternatives with Free Flow Right Turn lane for South Leg

Based on the project need to improve opportunities for multi-modal connectivity, all build options for the South and North sections include accommodations for shared-use paths and sidewalks. Construction of shared-use paths and sidewalks along this right-of-way will require cost participation and long term maintenance from local agencies.

2.5 Evaluation Process and Screening

Once the full range of alternatives was developed, a screening process was initiated to narrow the range into a smaller list of the alternatives that will best meet the purpose and needs of the project. Figure *2.5-1* depicts the screening steps that were completed as part of the Alternatives Development Process for this project.

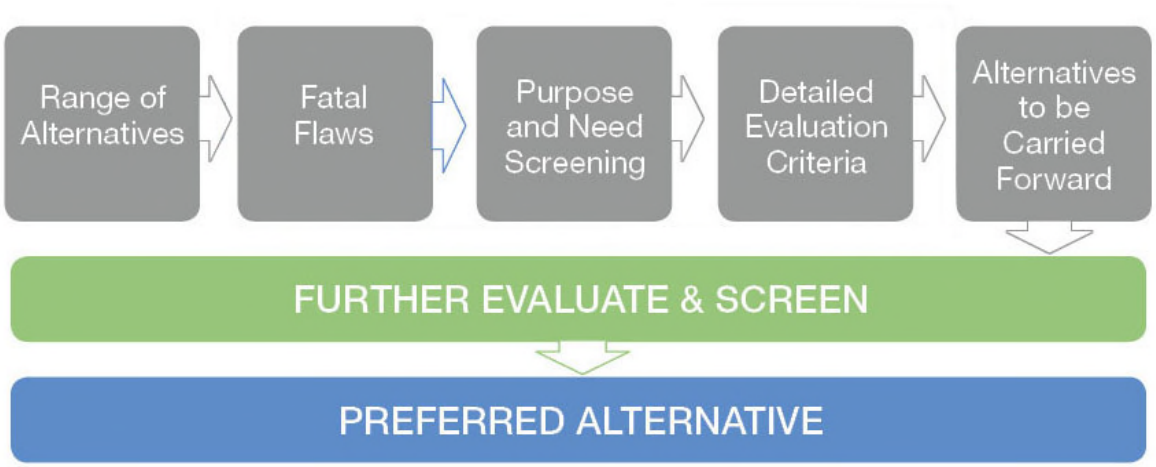


Figure 2.5-1, Alternatives Development Process

2.5.1 Fatal Flaw Screening

The screening process began by looking at each alternative and determining if the alternative contained a "Fatal Flaw." This analysis is described as a high level, low detail review investigating alternatives that would either be not feasible or contrary to the needs of the project. An alternative that involved severe impacts to social, cultural, historical, and/or environmental resources may have also been a Fatal Flaw for an alternative. All alternatives presented in the full range of build alternatives passed the Fatal Flaw Analysis.

2.5.2 Purpose and Need Screening

The Range of Alternatives was then investigated in greater detail as each alternative was evaluated against the Purpose and Need of the project. The alternatives that pass this screening should improve roadway safety, increase roadway capacity, correct design deficiencies, and improve multimodal connectivity. Several of the alternatives did not meet the Purpose and Need of the project, and were eliminated as discussed below.

<u>Alternatives S-2, S-3, and S-4: 18'-22' Median Alternatives for South Section</u>
Alternatives involving an 18'-22' median in the South Section were eliminated because they do not match the proposed improvements (cross section including a 30' median) at the IL Route 176 and Bull Valley Road / Charles J. Miller Road intersections. In addition, the 18'-22' median does not meet current and future traffic demands for turning movements at the intersections; an 18'-22' median cannot accommodate dual left turn lanes. High projected peak hour turning volumes at the Half Mile Trail intersection require a northbound dual left turn lane at this location. Furthermore, most of the open land between Half Mile Trail and Gracy Road within the Village

of Prairie Grove is expected to be subdivided and developed with commercial and residential properties over the next 10 to 20 years as McHenry County continues to grow. In addition, within the City of Crystal Lake, plans for commercial and residential development exist along River Birch Boulevard and Brighton Lane. Similarly, within the City of McHenry, development along Veterans Parkway is also planned. As these developments are constructed, dual left turn lanes along IL Route 31 will likely be required to access them. An 18'-22' median would not be able to accommodate these dual turn lanes.

Alternative N-1: 6' Median Alternative for North Section
The narrow 6'-8' planter median alternative for the north section was eliminated since it would decrease safety and capacity of the roadway by not providing opportunities for channelized left turn lanes at intersections.

2.5.3 Detailed Evaluation Screening

Detailed evaluation of the remaining alternatives was conducted and several of these alternatives were eliminated as described below.

South and North Section Alternatives:

Alternatives S-7 and N-4: Two Way Left Turn Lane (TWLTL) Alternatives for the South Section and North Section
The detailed evaluation of these two alternatives focused on more in-depth capacity analysis and included the latest innovations in safety analysis as outlined in the Highway Safety Manual (HSM). The safety analysis compared alternatives with a Two Way Left Turn Lane (TWLTL) to alternatives with a divided median (Raised Curb or Depressed). The anticipated crash rate for median options is 66% lower than TWLTL options. Analysis of the TWLTL alternatives through the HSM described a distinct decline in the level of safety these alternatives provide compared to alternatives with medians. Additionally, the projected traffic volumes described a roadway saturation that would offer little opportunity for a turning vehicle to complete a turning maneuver. In both safety and capacity analysis, alternatives involving a TWLTL median were less effective than non-traversable or divided median alternatives in meeting the Purpose and Need of this project.

Additionally, for the South Section of the project, a TWLTL will not accommodate dual left turn lanes at intersections. As discussed in Section 2.5.2, the mainly open lands in the South Section include plans for development that may require dual left turn lanes in the future. Also for the North Section of the project, the construction of a 4-lane roadway with a center TWLTL will result in similar impacts to the 18' Raised Median option. Based on safety benefits of alternatives with a divided median, it was determined that any options involving the use of a TWLTL median along IL Route 31 should be eliminated.

Alternative N-3: 30' Median Alternative for North Section
A 30' median in the North Section was not necessary throughout this section and was eliminated, since intersections in this area do not require dual left turn lanes. Lillian Street / Grove Avenue is the only signalized intersection in this section, and traffic volumes at this intersection only require a single left turn lane. Additionally, the land use in the North Section is primarily already built-up with adjacent commercial and residential properties. Plans for future development in the area will not likely require dual left turn lanes.

Alternatives S-1 and N-6: 6-Lane Alternative for South Section and One-way Arterial Pair Alternative for North Section
Any 6-lane alternative will meet the Purpose and Need but has considerably greater costs and impacts to construct compared to the 4-lane alternatives which also meet the Purpose and Need. Hence, the 6-lane alternatives were eliminated from further consideration. The final screened alternative for the North Section

was the One-way Arterial Pair alternative involving IL Route 31 and the nearby parallel roadway, Green Street. The changes in traffic flow, required reconstruction of Green Street, and large distance between the parallel streets has eliminated this alternative.

IL Route 120 Intersection Alternatives:

Alternatives 120INT-5 and 120INT-6: Roundabout Alternatives at the IL Route 120 Intersection
Additional considerations were given to roundabout alternatives for the intersection of IL Route 31 with IL Route 120, paired with a roundabout at the intersection of IL Route 31 with Lillian Street / Grove Avenue. The roundabout alternatives required detailed modeling of the surrounding roadway network. Several alternatives were modeled with both two or three lane roundabout configurations at IL Route 120, and one or two lane roundabout configurations at Lillian Street / Grove Avenue. All roundabout alternatives failed at the IL Route 120 intersection due to heavy projected traffic volumes involving high percentages of left turning movements, combined with the proximity of the at-grade railroad crossing immediately to the west of the intersection and the IL Route 120 and IL Route 31 (Richmond Road) intersection to the east of this intersection. Traditional signalized intersections at both of the intersections provide a better operational efficiency and improved Level of Service (LOS) when compared to roundabouts at these intersections. Therefore, roundabouts were eliminated from further evaluation.

Alternatives 120INT-4 and 120INT-6: Cul-de-sac Alternatives for the IL Route 120 Intersection
Three concept level alternatives were investigated for converting the north leg of the IL Route 120 intersection (Front Street) to a cul-de-sac. All three concepts had improved LOS, but the modified traffic patterns and displaced traffic movements to the surrounding roadway network were considered to be less desirable to the network as a whole. The Union Pacific Railroad to the west of the intersection and Boone Creek to the east serve as barriers to access for the residential neighborhood to the north of intersection. Converting the north leg (Front Street) to a cul-de-sac would restrict access to this neighborhood, from the west and from the south. Therefore, the concept alternatives involving cul-de-sacs were also not carried forward.

Alternatives 120INT-2 and 120INT-7: 18' Raised Median Alternative and Free Flow Right Turn Lane Alternatives for the South Leg of the IL Route 120 Intersection
Due to limited right-of-way on the south leg of the IL Route 31 and IL Route 120 intersection, various lane configurations were considered. Roadway widening alternatives that provide a 18' Raised Median (with a single left turn lane) on the south leg of this intersection provided a substantially worse LOS than 30' Raised Median alternatives (with dual left turn lanes), while providing no difference in the number of properties impacted. The failure of this alternative in meeting acceptable operational efficiency without the benefit of lesser impacts has categorized it as one that would not be carried forward.

Similarly, alternatives modeling a Free-Flow Right turn lane on the south leg provided no operational improvement in LOS but would generate additional property and pedestrian impacts. A crosswalk across the south leg of the intersection would either have to be omitted, or if it was provided, the free-flow right turn operations would be disrupted (and intersection LOS worsened) when pedestrians activated the pedestrian phase for the traffic signal. Free-Flow right turn lane alternatives were also eliminated from further consideration.

On-Street Parking near the IL Route 120 Intersection (all IL Route 120 intersection alternatives)
IL Route 31 from just south of John Street to IL Route 120 includes approximately 11 on-street parallel parking stalls along the west side of the roadway. Additionally, the east leg of IL Route 120 includes approximately 17 on-street parallel parking stalls along the north side of the roadway. The maintenance and elimination of on-

street parking along IL Route 31 and IL Route 120 near their intersection was evaluated from a safety standpoint, based on methodology outlined in the HSM. The elimination of on-street parking along IL Route 31 or IL Route 120 may reduce crashes by approximately 26%. Based on the HSM evaluation results, it was determined that any options involving the use of on-street parking along IL Route 31 or IL Route 120 should be eliminated.

2.6 Alternatives to Be Carried Forward

Evaluation and screening of the Range of Alternatives resulted in the elimination of a majority of the build alternatives as described in Section 2.5. The remaining alternatives, called the Alternatives to be Carried Forward, are highlighted on Exhibit 1A (attached) and described in detail in the proceeding sections.

2.6.1 South Section (IL Route 176 to South of Bull Valley Road / Charles J. Miller Road)

The South Section is approximately 4.9 miles in length with an existing posted speed ranging from 40 mph in the urban areas to 55 mph in the rural areas. As described in Chapter 1, adjacent land use in this section varies from commercial, industrial, residential and agricultural. Between Drake Drive and Edgewood Road, adjacent land uses include dense forest areas, streams, wetlands, and steep side slopes often protected by guardrails.

Starting north of the IL Route 176 intersection, IL Route 31 transitions from a four lane urban section (with separate channelized southbound left and right turn lanes at the IL Route 176 intersection) to a three lane rural section (one 12' through lane in each direction with a center painted median / left turn lane at the Ray Street intersection). This area includes sections of paved shoulder and right turn lanes for the various driveways and/or cross streets. North of Ray Street, the existing three lane roadway tapers down to a two lane highway. Starting at this location and continuing north to Veterans Parkway, IL Route 31 is primarily a rural road with graded shoulders, but includes intermediate sections with paved shoulders. Right turn lanes are also present at some of the cross streets and driveway entrances in this section. A center painted median and left turn lanes have been constructed from south of Brighton Lane to north of Half Mile Trail. The recently completed Edgewood Road to Ames Road Interim Safety Improvement Project has also added a center painted median and left turn lanes along IL Route 31 from south of Ames Road to north of Edgewood Road. The section from Veterans Parkway to Bull Valley Road / Charles J. Miller Road is a three lane section (one 12' through lane in each direction with a center painted median / turn lane at intersections). This area also includes portions with a paved shoulders and right turn lanes for the various driveways and/or cross streets.

The existing alignment in the South Section is generally centered within 66 feet of right-of-way in the rural areas, but widens to 100 feet or more in areas with large roadway drainage ditches or drainage outfall areas. Drainage characteristics include predominately open drainage in the mostly rural portions of the South Section, but also include areas with curb and gutter and closed drainage from north of the ComEd right-of-way to Shady Oaks Lane and in small sections of roadway between Albany Street / Prime Parkway and the Bull Valley Road / Charles J. Miller Road intersection.

There is one major drainage structure within the South Section. It is a 10-foot by 8-foot box culvert, 42 feet long. The structure carries Sleepy Hollow Creek under IL Route 31 approximately 500 feet north of Half Mile Trail. This structure will be replaced with a larger structure for either selected build alternative. In addition, there are several smaller culverts under IL Route 31 within the South Section. One of these structures conveys Squaw Creek under IL Route 31 just north of Brighton Lane where the creek flows adjacent to the east side of IL Route 31 for an approximate distance of 600 feet. The proximity of the creek to the existing roadway will potentially require realignment and/or restoration of Squaw Creek to the east of its current location to

accommodate the proposed roadway widening and reconstruction. All culverts will be either extended or replaced as part of the proposed study. Details regarding proposed hydraulic studies, the Squaw Creek realignment / restoration, and culvert designs will be included in a separate Location Drainage Study for the project.

IL Route 31 intersects with a total of nineteen side roads (as listed in *Figure 2.6.1-1* below) as well as numerous private driveway entrances within the South Section. Currently full access is allowed at each of the intersections. The Prime Parkway / Albany Street and Shamrock Lane intersections are currently signalized, while all other side roads are currently un-signalized. The intersections of IL Route 31 with Half Mile Trail and Edgewood Road meet warrants for new signal installations (based on projected traffic volumes) and new signals are planned as a part of this improvement at these intersections. New, modernized and coordinated, signals will be installed at the Prime Parkway / Albany Street and Shamrock Lane intersections. The River Birch Boulevard, Gracy Road, and Veterans Parkway intersections may include future signals based on plans for development in the area, by the local municipalities.

Intersection	Existing Signal	Proposed Signal	Potential / Future Signal
Reiland Drive			
Ray Street			
River Birch Boulevard			✓
Drake Drive			
Shady Oaks Lane*			
Oak Crest Road			
Brighton Lane			
Half Mile Trail		✓	
Ames Road			
Edgewood Road		✓	
Gracy Road			✓
Veterans Parkway			✓
Hi Point Road			
Prime Parkway / Albany Street	✓	✓	
Dayton Street			
Paxton Street			
Shamrock Lane	✓	✓	
Mercy Drive			
Medical Center Drive			

** Operation changed to right-in-right-out for Build Alternatives (See Section 2.6.1.1 for further discussion)*

Figure 2.6.1-1, South Section Intersections

As described in detail in Chapter 1, a lack of through lane roadway capacity, channelized turn lanes for some intersections, modernized or coordinated traffic signals, and barrier median to separate opposing traffic, combined with numerous driveway entrances and conflict points, cause major safety and operational issues throughout the South Section of the study.

After evaluating the range for the South Section, a majority of the build alternatives were eliminated as described in Section 2.5. The remaining Alternatives to be Carried Forward for the South Section include the No-Action Alternative, as well as a 30' Raised Median Alternative (Alt. S-5) and a 30' Depressed Median Alternative (Alt. S-6) (both described in detail in the proceeding sections).

2.6.1.1 Alternative S-5: 4-Lane with 30' Raised Median (South Section)

The 30' Raised Median Alternative (Alt. S-5) would improve IL Route 31 to include two 12' through lanes in each direction, separated by a 30' raised curb median wide enough to accommodate dual left turn lanes at intersections. This section will match the proposed improvements at the IL Route 31 and IL Route 176 intersection, as well as the improvements planned as part of the Bull Valley / Charles J. Miller Road project (led by the McHenry County Division of Transportation). This option would have a maximum posted speed limit of 45 MPH throughout the South Section, based on the presence of raised curb and gutter adjacent to the travel lanes.

This option matches the IDOT SRA study recommendation and Prairie Grove's Town Center and Transit-Oriented Development Plan (approved June 15th, 2010) for the section between IL Route 176 and Gracy Road, of two through lanes in each direction separated by a 30' wide median. The 30' wide median alternative provides the greatest flexibility in meeting current demands for dual left turn lanes at intersections, as well as future demands based on planned development of the mainly open land uses adjacent to IL Route 31 within the south section limits (as discussed in Section 2.5.2). Single left turn lanes at intersections and median openings constructed as part of this project can easily be converted to dual left turn lanes in the future, after or along with any of the planned development.

See *Figure 2.6.1.1-1* for a proposed typical section for this alternative. The South Section Build Alternatives to be Carried Forward, including the proposed horizontal roadway geometry along the entire limits of this section, can be reviewed in detail on the scaled exhibits attached to this report as Exhibit 2.

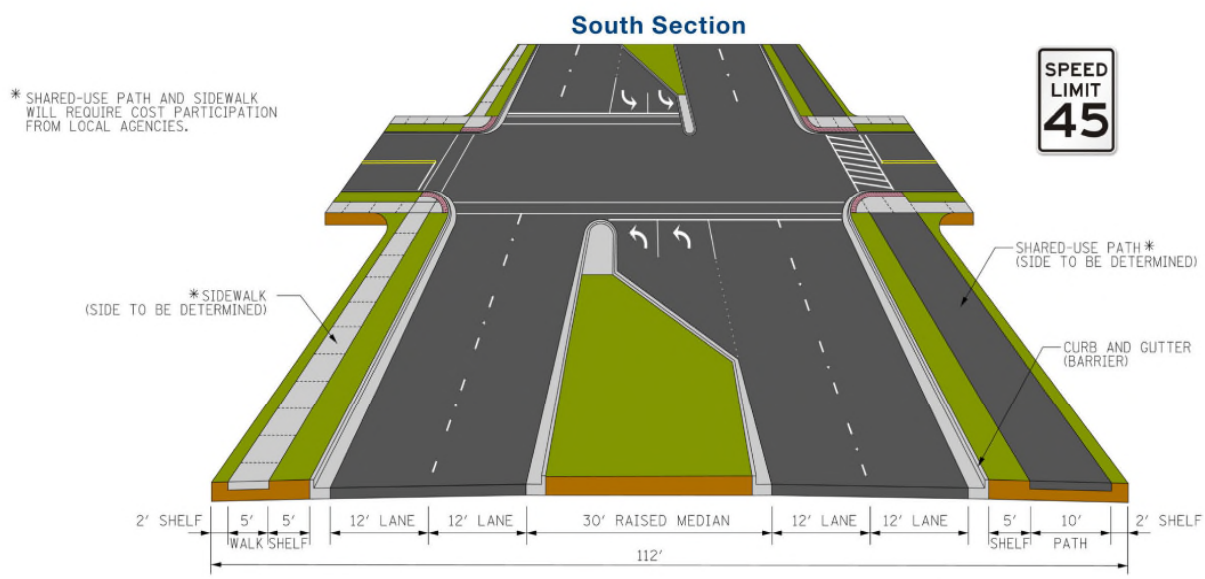


Figure 2.6.1.1-1, South Section: 30' Raised Median Typical Section (Alt. S-5)

Widening of IL Route 31 to include 2 through lanes in each direction will improve the roadway operational efficiency (between IL Route 176 and Gracy Road) from an LOS F (for the No-Action Alternative based on 2040

traffic projections) to an LOS D (for the 2040 Build Alternative). The LOS for the section between Gracy Road and Bull Valley Road / Charles J. Miller Road will improve from LOS E to LOS B. These improvements in LOS demonstrate that this selected Alternative to be Carried Forward meets the Purpose and Need of the project by addressing roadway capacity and mobility issues.

The proposed build option includes right-of-way accommodations for a sidewalk or shared-use path on either side of the roadway. Construction of both of these features will require cost participation and long term maintenance from local agencies. The above typical section and Exhibit 2 aerial drawings show the shared-use path along the east side of the roadway and sidewalk along the west side. The actual side of construction will be determined through coordination with local agencies. Construction of the shared-use path and sidewalk throughout the study limits will provide pedestrians and bicyclists safe and continuous access to residential and commercial properties, as well as public facilities, throughout the corridor. Their installation will help satisfy the project Purpose and Need to encourage multi-modal forms of transportation.

Access management principles shall be implemented for the 30' Raised Median Alternative. Median openings will be provided at desired ¼ mile spacing (per IDOT requirements for an SRA route) and left turn / u-turn lanes will be provided at a majority of the side streets and proposed median openings. The intersections of Shady Oaks Lane will not have a median opening (converted to right-in right-out access) since it is located in close proximity (a distance of less than ¼ mile) to the adjacent Oak Crest Road and Drake Drive intersections. Shady Oaks Lane is a low volume residential road with alternate access via Terra Cotta Road / Pingree Road located to the west of IL Route 31. In addition, the intersection is located in the center of the large hill along IL Route 31. Westbound vehicles on Shady Oaks Lane would experience poor sight distance for making left turns onto IL Route 31. Vehicles wishing to make left turns in and out of these side streets can utilize the median openings at adjacent side streets (Oak Crest Road and Drake Drive) to make u-turns on IL Route 31. In order to accommodate u-turn movements for passenger vehicles, 10' wide pavement bump-out areas will be provided at selected u-turn locations. These bump-out areas may also occasionally be used by police vehicles for speed limit enforcement.

Additionally, residential and commercial driveways will be converted to right in-right out access by way of a non-traversable median. Construction of the raised median combined with access management will help satisfy the Purpose and Need of the project by improving safety and capacity of the roadway.

Channelized turn lanes at intersections and median openings will improve safety and operations by moving the turning vehicles outside of the through traffic lanes. The turn lane configurations and intersection geometry at the proposed signalized intersections, as shown in attached Exhibit 2 and described below is based on a previously completed analysis with projected 2030 traffic volumes. During the development of the preferred alternative for this study, the geometry for all signalized intersections will be further analyzed based on 2040 traffic volumes and the turn lane designs adjusted accordingly.

Dual left turn lanes are planned for the south leg of the proposed signalized Half Mile Trail intersection, based on high left turn volumes at this intersection during peak hour periods. The north leg of the Half Mile Trail intersection will include a channelized right turn lane and a single channelized u-turn lane. Other proposed signalized intersections within the South Section (including Edgewood Road, Albany Street / Prime Parkway, and Shamrock Lane) will only include single left turn / u-turn lanes along IL Route 31 at this time, but the proposed 30' median will allow the easy conversion to dual left turn lanes if required in the future. The Edgewood Road and Albany Street / Prime Parkway intersections will also include channelized right turn lanes along IL Route 31.

In addition to channelized turn lanes along IL Route 31, the proposed improvements will include added turn lanes along side streets at existing and proposed signalized intersections within the South Section. Half Mile Trail will be widened at the IL Route 31 intersection approach to include a separate 12' left turn lane and a channelized 12' right turn lane, as well as two 12' receiving lanes to accommodate the northbound dual lefts from IL Route 31. Similarly, Edgewood Road will be widened to include a separate 12' right turn lane and a channelized 12' left turn lane. Prime Parkway will be widened from two east bound lanes (a shared left / through with exclusive right turn lane) to three separate 12' lanes for each movement; Albany Street will be widened from a single westbound lane to three separate 12' lanes. The lane configuration for Shamrock Lane will be maintained to include two eastbound lanes (single left with channelized right turn lane), and the storage and taper lengths will be extended. These turn lane additions at signalized intersections, along with modernized and coordinated traffic signals, will satisfy the Purpose and Need of the project by improving safety, capacity, and mobility along IL Route 31.

The proposed IL Route 31 roadway footprint of 112' (including the proposed sidewalk / share-use path areas) is wider than the existing footprint ranging from approximately 32' to 66'. Varying topography including steep side slopes, streams, drainage outfalls, and large roadside ditches will require a proposed right-of-way width between 140' in the urban areas to 265' in certain rural areas. These proposed right-of-way widths are preliminary and are anticipated to be narrowed as design alternatives are further developed. The reduction of these large right-of-way widths, via the modification of drainage ditch slopes and/or the construction of retaining walls, will be investigated during the development of the preferred alternative. The proposed roadway alignment for this alternative was developed to minimize building impacts or potentially difficult acquisition issues within the South Section of the study. Impacts to social, cultural, historical, archeological, environmental resources and other features (i.e. major utilities or structures) were also considered when developing this alternative.

In general, building and other severe impacts could be avoided by maintaining the existing centerline of the roadway, but a shift in the proposed centerline was required in several areas. The first shift of the proposed centerline is a shift 28 feet to the east near Half Mile Trail to avoid impacting the Terra Cotta Industries factory buildings located close to the existing roadway. The proposed centerline offset from the existing centerline narrows to 20 feet to the east as the roadway continues north to Edgewood Road, to avoid impacts to residential and commercial buildings located on the west side of the roadway from south of Ames Road to Edgewood Road. North of Edgewood Road, the proposed centerline is shifted approximately 30 feet to the west to avoid impacts to McMillan Cemetery on the southeast corner of IL Route 31 and Gracy Road. The proposed centerline alignment gradually returns to the existing centerline alignment after the large horizontal curve and approximately 1,000 feet south of Veterans Parkway. The next shift of approximately 21 feet to the east begins south of Shamrock Lane to avoid impacts to the NICOR gas transmission facility on the west side of the roadway across from Mercy Drive. The final shift begins south of Medical Center Drive where the proposed alignment shifts from 21 feet to the east to approximately 31 feet to the west, to match the proposed MCDOT improvements at the Bull Valley Road / Charles J. Miller Road intersection.

As noted in Chapter 1, there are four existing substandard vertical curves within the study limits. All four locations are within the South Section and will be corrected as part of the Build Alternatives to be Carried Forward, therefore satisfying another Purpose and Need for the project.

2.6.1.2 Alternative S-6: 4-lane with 30' Depressed Median (Drake Drive to Veterans Parkway) (South Section, Alternative Option)

An additional or alternative build option (Alt. S-6) has been selected to be carried forward for the South Section between Drake Drive and Veterans Parkway (a distance of three miles). This option provides a 30' depressed median with 10' wide paved outside shoulder with adjacent mountable curb and gutter to maintain the existing 50-55 MPH speed limit and rural character of the section. See *Figure 2.6.1.2-1* for a proposed typical section for this alternative. The South Section Build Alternatives to be Carried Forward, including the proposed horizontal roadway geometry along the entire limits of this section, can be reviewed in detail on the scaled exhibits attached to this report as Exhibit 2.

Figure 2.6.1.2-1, South Section: Alternative Option (30' Depressed Median) Typical Section (Alt. S-6)

The 30' Depressed Median (Alternative Option) shares a majority of the features and benefits of the 30' Raised Median Option as discussed in Section 2.6.1.1, including the roadway capacity benefits provided by the two 12' lanes in each direction; safety benefit of a non-traversable median; allowance for dual left turn lanes; accommodations for shared-use path and sidewalk; opportunities for access management; channelized turn / u-turn lanes along IL Route 31; additional turn lanes on side streets at signalized intersections; new modernized and coordinated signals; roadway centerlines shifts; and correction of existing design deficiencies.

The 30' Depressed Median has two major design features that are different than the 30' Raised Median Alternative. Firstly, the median is depressed and includes 6' wide paved / aggregate shoulders and a shallow 4' wide flat bottom ditch to collect and transport storm water. The open ditch drainage provides some water quality benefits from the closed drainage system and provides additional opportunities for Storm Water Management Best Management Practices (BMPs) in the median area. However, the use of ditch drainage is required throughout most of the project, regardless of the alternative selected. Secondly, the 30' Depressed Median Alternative includes a 10' wide paved outside shoulder. The combination of depressed median adjacent to the inside through lanes and a 10' wide paved shoulder adjacent to the outside travel lanes (increasing the

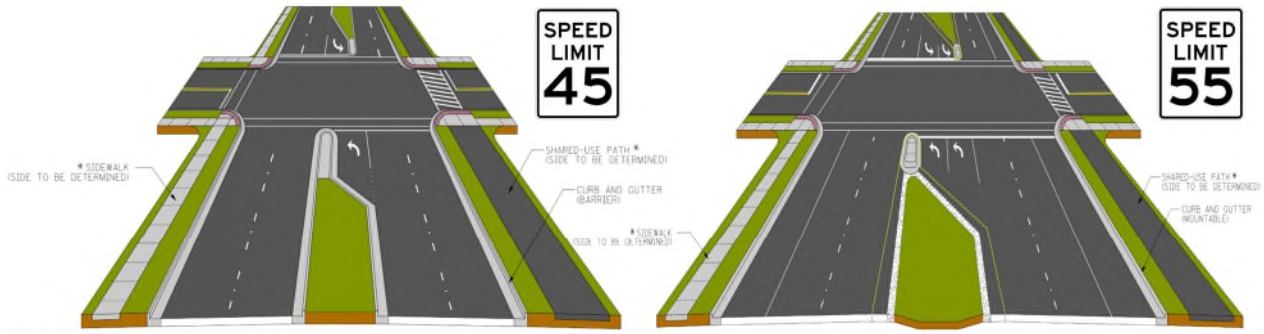
distance to the outside mountable curb and gutter) allows for IL Route 31 to maintain existing speed limits of 50 MPH and 55 MPH in the rural areas.

The 10' wide outside shoulders provide the necessary pavement width for u-turns at median openings. In this alternative there is no need for additional bump-outs. In addition, the shoulders can be used by law enforcement and stalled vehicles. The 10' wide shoulders increase the IL Route 31 cross section and footprint by approximately 20 feet (132' footprint) from the 30' Raised Median Alternative (112' footprint). The additional width increases the proposed right-of-way width to between 160' in the urban areas to 285' in certain rural areas and adds approximately 58% more impervious pavement area when compared to the 30' Raised Median Alternative.

Quantified impacts for both alternatives are presented in Section 2.6.1.3, but it should be noted that the 30' Depressed Median Alternative results in one (1) Building / Structure impact for the South Section. As noted in Section 2.6.1.1, the proposed centerline is required to shift 28 feet to the east near Half Mile Trail to avoid impacting the Terra Cotta Industries factory buildings, located close to the existing roadway. Due to the required shift in alignment and the wider cross section of the 30' Depressed Median Alternative, the proposed roadway widening will impact waste water treatment structures on the Illinois American Water treatment facility located on the west side of IL Route 31, just north of Half Mile Trail.

2.6.1.3 South Section: Comparative Analysis and Impacts

The Alternatives to be Carried Forward for the South Section share several similarities and have some unique characteristics as described in the previous sections. To summarize, Figure 2.6.1.3-1 highlights some of the key similarities and differences between the two alternatives for the South Section.



30' Raised Median Option	30' Depressed Median Option

Key Features - Both Alternatives
Two Through Lanes in Each Direction
30' Wide Median Accommodates Dual Left Turn Lanes
Sidewalk and Shared-Use Path
Outside Ditches

Key Differences	
30' Raised Median	**30' Depressed Median**
Curb & Gutter Throughout	10' Shoulder
Raised Median	Depressed Median
Narrower Cross Section	Wider Cross Section
Lower Speed Limit	Higher Speed Limit
Smaller Impervious Area	Larger Impervious Area

Figure 2.6.1.3-1, Key Similarities and Differences between South Section Build Alternatives

Similarities of both alternatives include two through lanes in each direction, a 30' wide median that can accommodate dual left turn lanes, a sidewalk and a shared-use path. Both alternatives include drainage ditches outside of the roadway footprint to collect and convey storm water from the roadway and off-site areas flowing towards the roadway. Differences provided by the 30' Raised Median Alternative includes barrier curb and gutter on both the inside and outside of travel lanes, a raised median, a narrower cross section / footprint, a lower speed limit of 45 MPH in some areas, and a smaller impervious (pavement or concrete surface) area. The 30' Depressed Median Alternative contains 10' wide outside shoulders, a depressed median, and allows for all posted speed limits to remain unchanged (with some areas higher than 45 MPH). Additional differences for the 30' Depressed Median Alternative include a larger cross section, 58% larger impervious pavement area, and better water quality benefits through enhanced ditch drainage.

Impacts to construct each build alternative vary by category. Figure 2.6.1.3-2 presents the quantified impacts.

Impact Categories	South Section Alternatives	
	30' Raised Median	30' Depressed Median
Non-ADID Wetland Impacts	1.9 Acres	2.3 Acres
ADID Wetland Impacts	4.5 Acres	5.0 Acres
100 Year Flood Plains	0.6 Acres	0.7 Acres
Direct Building Impacts	0 Buildings	1 Building
Additional ROW Required	52.6 Acres	59.1 Acres
Construction Cost **	41.9 Million	44.5 Million

** Cost Estimate Does Not Include Land Acquisition

Figure 2.6.1.3-2, South Section Build Alternative Impacts

The proposed roadway alignment for both alternatives was developed to avoid or limit building impacts, or potentially difficult acquisition issues within the South Section of the study. Impacts to social, cultural, historical, archeological, environmental resources and other features (i.e. major utilities or structures) were also considered when developing the alternatives. During the development of the Preferred Alternative for this study, further measures may be taken to reduce the impacts discussed above as the roadway design is studied in greater detail. These methods include but are not limited to reduction in the proposed roadway cross section, modifications to vertical geometry and drainage design, and construction of retaining walls in certain areas of the project.

2.6.2 North Section (North of Bull Valley Road / Charles J. Miller Road to South of John Street)

This section of IL Route 31 is 1.1 miles in length with posted speeds ranging from 30 to 45 mph; 45 mph north of Bull Valley Road / Charles J. Miller Road and decreases to 30 mph north of Kane Avenue. As described in Chapter 1, adjacent land use in this section varies from commercial and industrial to residential development. The existing roadway consists of a 12’ lane in each direction with a center painted median utilized for left turn lanes, or a TWLTL north of High Street. The existing alignment is centered within 80 feet of right-of-way from Bull Valley Road to John Street.

Drainage characteristics include both open drainage near Bull Valley Road and closed drainage near IL Route 120. One stream crossing is encountered within these limits, resulting in the need to replace or widen the two existing box culverts (one 10-foot by 4-foot and the other a 4-foot by 2-foot) conveying the unnamed stream under IL Route 31, located between Anne Street and Lillian Street / Grove Avenue.

IL Route 31 intersects with a total of eight side roads (as listed in *Figure 2.6.2-1* below) and numerous private entrances within the North Section. Only the Lillian Street / Grove Avenue intersection is signalized; all other side roads are currently un-signalized. Currently full access is allowed at all eight of the intersections.

Intersection	Existing Signal	Proposed Signal
Bank Drive		
Dartmoor Drive / Park Place		
High Street		
Anne Street*		
Lillian Street / Grove Avenue	✓	✓
Oak Avenue*		
Kane Avenue		
Meadow Lane		

** Operation changed to right-in-right-out for Build Alternatives (See Section 2.6.2.1 for further discussion)*

Figure 2.6.2-1, North Section Intersections

A lack of through lane roadway capacity, channelized turn lanes for some intersections, modernized or coordinated traffic signals, and barrier median to separate opposing traffic, combined with numerous driveway entrances and conflict points, result in major safety and operational issues throughout the North Section of the study.

After evaluating the Range of Alternatives for the North Section, the remaining Alternatives to be Carried Forward include the No-Action Alternative and a 18' Raised Median Alternative (Alt. N-2).

2.6.2.1 Alternative N-2: 4-Lane with 18' Raised Median (North Section)

The 18' Raised Median Alternative (Alt. N-2) would improve IL Route 31 to include two 12' through lanes in each direction, separated by a 18' raised curb median wide enough to accommodate a single left turn lane at intersections. The 4-lane with 18' median section will transition to meet the improvements (4-lanes with 28' or 30' Raised Median) planned as part of the Bull Valley Road / Charles J. Miller Road project (led by the MCDOT), at the Bank Drive intersection.

See *Figure 2.6.2.1-1* for a proposed typical section for this alternative. The North Section Build Alternative to be Carried Forward, including the proposed horizontal roadway geometry along the entire limits of this section, can be reviewed in detail on the scaled exhibits attached to this report as Exhibit 2.

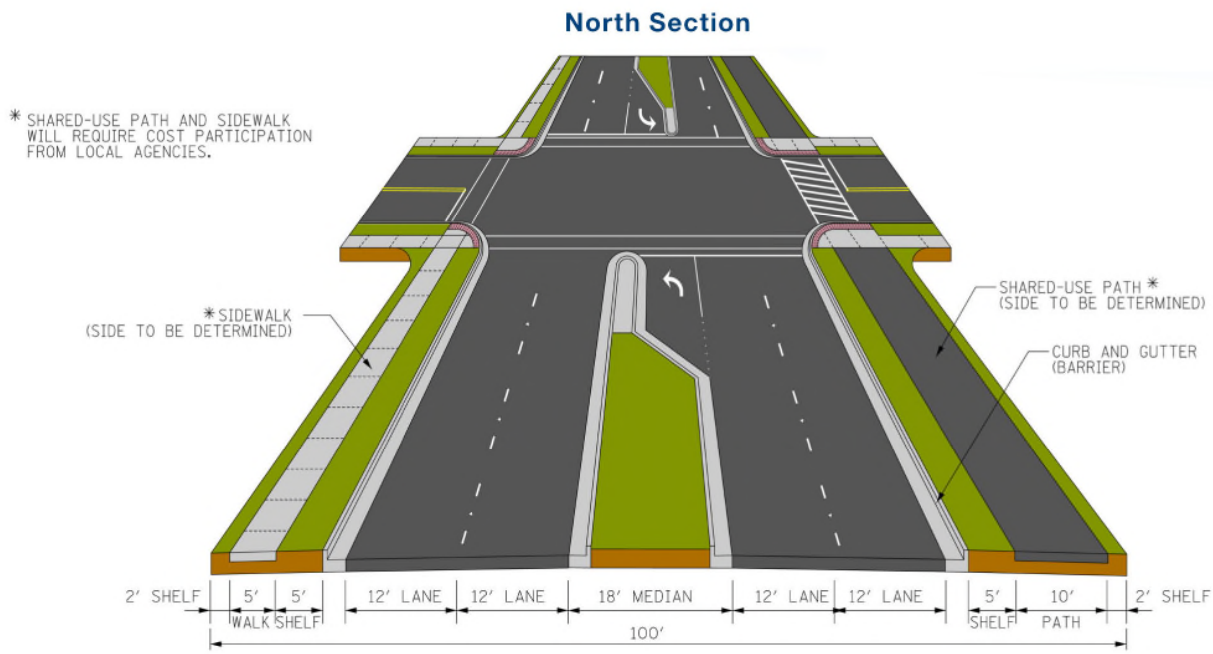


Figure 2.6.2.1-1, North Section: 18' Raised Median Typical Section (Alt. N-2)

Widening of IL Route 31 to include 2 through lanes in each direction will improve the roadway operational efficiency (between Bull Valley Road / Charles J. Miller Road and IL Route 120) from an LOS E (for the No-Action Alternative based on 2040 traffic projections) to an LOS C (for the 2040 Build Alternative). This improvement in LOS demonstrates that this Build Alternative meets the Purpose and Need of the project by addressing roadway capacity and mobility issues. The construction of channelized left turn lanes along IL Route 31 at all intersections and median openings will also improve safety and operations by moving the turning vehicles outside of the through traffic lanes.

The proposed build option includes right-of-way accommodations for a sidewalk or shared-use path on either side of the roadway. Construction of both of these features will require cost participation and long term maintenance from local agencies. The above typical section and Exhibit 2 aerial drawings show the shared-use path along the east side of the roadway and sidewalk along the west side. The actual side of construction will be determined through coordination with local agencies. Construction of the shared-use path and sidewalk throughout the study limits will provide pedestrians and bicyclists safe and continuous access to residential and commercial properties, as well as public facilities, throughout the corridor. Their installation will help satisfy the project Purpose and Need to encourage multi-modal forms of transportation.

Access management principles shall be implemented for the 18' Raised Median Alternative. Median openings will be provided at desired ¼ mile spacing (per IDOT requirements for an SRA route) and left turn / u-turn lanes will be provided at most of the side streets and proposed median openings. The intersections of Anne Street and Oak Avenue will not have median openings (converted to right-in right-out access) since they are located in close proximity to the adjacent signalized Lillian Street / Grove Avenue intersection. This close proximity does not allow enough room to provide additional median openings and left turn lane channelization along IL Route

31. Vehicles wishing to make left turns in and out of these side streets can utilize the median openings at adjacent side streets to make u-turns on IL Route 31. Anne Street and the east leg of Oak Avenue can also be accessed via the existing local roadway network (as shown in Exhibit 1B). The intersection of Meadow Lane will include a median opening / northbound left turn lane, even though it does not meet the desired ¼ mile spacing requirement. Alternate access to Meadow Lane or the McHenry Public Library immediately north of the intersection is not available.

In order to accommodate u-turn movements for passenger vehicles, 10' wide pavement bump-out areas are required and will be provided at selected u-turn locations. U-Turn movements will be allowed at all intersections other than for southbound vehicles at Bank Drive and for both northbound and southbound vehicles at Lillian Street / Grove Avenue. A u-turn for southbound vehicles at Bank Drive is not required since there are no existing commercial or residential driveways located between Bank Drive and Dartmoor Drive / Park Place. Construction of bump-outs at the Lillian Street / Grove Avenue intersection and northeast corner of the Bank Drive intersection would result in building or parking impacts.

Additionally, residential and commercial driveways will be converted to right in-right out access by way of a non-traversable median. Construction of the raised median combined with access management will help satisfy the Purpose and Need of the project by improving safety and capacity of the roadway.

The only signalized intersection within the North Section limits is the Lillian Street / Grove Avenue intersection; additional turn lanes are not required along either side street to accommodate projected 2040 traffic. The construction of an additional through lane in each direction along IL Route 31 will improve the capacity of the intersection from a LOS D (with 40 seconds average vehicle delay) to a LOS B (with 20 seconds average vehicle delay). Along with the installation of a modernized and coordinated traffic signal, the intersection safety and capacity will be improved, satisfying the study Purpose and Need.

The proposed IL Route 31 centerline follows the existing centerline from Bank Drive to south of John Street. The proposed IL Route 31 roadway footprint of 100' (including the proposed sidewalk / share-use path areas) is wider than the existing footprint of approximately 66'. The proposed roadway typical section will require a proposed right-of-way width between 115' to 145'. Existing drainage problems in this section, near the unnamed stream crossing between Anne Street and Lillian Street / Grove Avenue will be improved by the installation of new drainage structures in this location.

2.6.2.2 North Section: Comparative Analysis and Impacts

Since the North Section only includes one Build Alternative to be Carried Forward, impacts from the improvements along this section have been quantified and combined with impacts from the IL Route 120 Intersection build alternatives to allow for a comparative analysis between two build alternatives. See Section 2.6.3.3 for further discussion.

2.6.3 IL Route 120 Intersection (includes section of IL Route 31 including John Street and north)

IL Route 31 intersects IL Route 120 (another SRA route) in a limited right-of-way location within the downtown area of the City of McHenry. This section of the study is 0.5 miles in length along IL Route 31 and 0.4 miles in length along IL Route 120, with a posted speed of 30 mph. The state highways share designation for approximately 0.3 miles east of this intersection.

The existing IL Route 31 alignment from John Street to IL Route 120 is centered within 66 feet of right-of-way. IL Route 31, in this section, consists of a 12' lane in each direction with a flush median utilized for left turn lanes. As the roadway approaches the IL Route 120 intersection, it widens to include a separate channelized right turn lane. In addition, IL Route 31 from just south of John Street to IL Route 120 includes approximately 11 on-street parallel parking stalls along the west side of the roadway. The north leg of the intersection (Front Street) is a collector roadway and includes one 12' lane in each direction with a channelized left turn lane.

Both east and west legs of IL Route 120 consist of two 12' through lanes in each direction and single left turn lanes. The east leg of IL Route 120 includes approximately 17 on-street parallel parking stalls along the north side of the roadway. The existing IL Route 120 alignment is slightly off center within 70-75 feet of right-of-way on the west leg and 80 feet of right-of-way on the east leg. Roadway drainage along both IL Route 31 and IL Route 120 in this section is a closed system.

IL Route 31 intersects with a total of three side roads and IL Route 120 with two side roads, within the IL Route 120 intersection area as listed below (not including the IL Route 31 and IL Route 120 intersection), as well as numerous driveway entrances. All side roads are currently un-signalized and do not meet warrants for new signal installations. Currently full access is allowed at each of the intersections, unless indicated below.

IL Route 31:

- John Street
- Main Street*
- Waukegan Road † **

IL Route 120:

- Borden Street (* for Max Build Alternative)
- 3rd Street / Millstream Drive #

† *Right-in access only*
* *Operation changed to right-in-right-out for Build Alternative (See Section 2.6.3.1 for further discussion)*
** *Access shall be Cul-de-sac in Build Alternatives (See Section 2.6.3.1 for further discussion)*
\# *Operation changed to right-in right-out as part of separate IL Route 120 and IL Route 31 (Richmond Road) intersection improvement project (led by the City of McHenry)*

A lack of through and channelized turn lane roadway capacity and a modernized traffic signal, combined with poor access management, numerous driveway entrances, conflict points, and on-street parking, all result in major safety and operational issues in the IL Route 120 intersection area.

After evaluating the Range of Alternatives for the IL Route 120 Intersection, a majority of the build alternatives were eliminated as described in Section 2.5. The remaining Alternatives to be Carried Forward for the North Section include the No-Action Alternative, a Minimum Build Alternative (Alt. 120INT-1), and a Maximum Build Alternative (Alt. 120INT-3).

2.6.3.1 Alternative 120INT-1: Minimum Build Alternative (IL Route 120 Intersection)

The Minimum Build Alternative (Alt. 120INT-1) involves minimum widening of the roadway with restriping of the intersection approaches to include additional but narrower lanes. This option removes on-street parking on IL Route 31 and IL Route 120 and does not include direct building impacts.

See *Figure 2.6.3.1-1* for an aerial plan view of this alternative. IL Route 120 Intersection Build Alternatives to be Carried Forward, including the entire limits of the proposed improvements, can be reviewed in detail on the scaled exhibits attached to this report as Exhibit 2.

Figure 2.6.3.1-1, IL Route 120 Intersection: Minimum Build Alternative (Alt. 120INT-1)

IL Route 31 transitions from the 18' Raised Median Alternative, approximately 600' south of the John Street intersection, to a five lane cross section with two 10' through lanes in each direction and a continuous center left turn lane at the south leg of the John Street intersection. This section continues to the IL Route 120 intersection. Channelized left turn lanes are provided for both legs of the John Street intersection and for the south leg of IL Route 120, but are not provided at the Main Street intersection. Main Street is located in close proximity to both the John Street and the IL Route 120 intersections. The required left turn storage (based on high left volumes) at the IL Route 120 intersection does not allow enough room for a left turn lane for either approach at Main Street. As IL Route 31 approaches IL Route 120, the northbound outside through lane becomes the right turn lane. This alternative includes converting the Waukegan Road intersection from a right-in access to a cul-de-sac with no access from IL Route 31. This modification to Waukegan Road is necessary due to its very close proximity to IL Route 120 and its impact to safety and operations at the IL Route 120 intersection.

The lane configuration for the north leg of the IL Route 120 intersection (or Front Street), matches the existing configuration of a shared southbound through / right turn lane and a single channelized left turn lane. Improvements along the east leg of IL Route 120 include the removal of on-street parking, minor widening along

both sides of the roadway, and restriping the existing lanes to a minimum of 11' wide lanes in order to provide dual left turn lanes on the east leg of the intersection. Improvements on the east leg will tie into the proposed improvements for the IL Route 120 and IL Route 31 (Richmond Road) intersection (led by the City of McHenry). The tie in point is located immediately west of the 3rd Street / Millstream Drive intersection. Improvements along the west leg of IL Route 120 match the existing lane configuration of two through lanes in each direction, with separate channelized left and right turn lanes. The storage and taper lengths for both turn lanes are extended for this alternative.

The construction of an additional through lane in each direction for the south leg of the intersection and the construction of an additional left turn lane will improve the capacity of the intersection from a LOS F (with 175 seconds average vehicle delay) for the No-Action scenario, to a LOS E (with 71 seconds average vehicle delay) for the Minimum Build Alternative. Along with the installation of a modernized traffic signal, the intersection safety and capacity will be improved, satisfying the study Purpose and Need.

The proposed build alternative includes sidewalks of various widths adjacent to the proposed roadway. Generally a 7' sidewalk behind the back of curb can be provided, especially along IL Route 120. Sections along IL Route 31 include narrow sidewalk widths of 5.5' and a 250' long portion with 4' wide sidewalk located directly behind the back of curb, adjacent to a through lane of traffic (see Exhibit 2 for locations of narrow sidewalk). The shared-use path cannot be provided for this alternative in this section of the project, since its installation will result in building impacts along IL Route 31 and IL Route 120. Construction of sidewalks will require cost participation and long term maintenance from local agencies. Construction of sidewalks throughout the IL Route 120 intersection area will provide pedestrians safe and continuous access to residential and commercial properties, as well as the McHenry Metra Station and public facilities throughout the area. In addition, crosswalks and pedestrian signals will be provided for all legs of the IL Route 120 intersection. The installation of these features will help satisfy the project Purpose and Need to encourage multi-modal forms of transportation.

Access management principles shall be implemented in this section by converting residential and commercial driveways to right in-right out access. The proposed continuous center left turn lanes, for the closely spaced intersections, will restrict full access to driveways. Additional proposed access management features include the conversion of Waukegan Road to a cul-de-sac and the conversion of Main Street to right in-right out access. Access to and from these side streets is available via alternate roadways within the local network. U-Turn movements will not be allowed at the intersection of IL Route 120 or other side street intersections within the section limits.

The proposed IL Route 31 and IL Route 120 centerlines follow the existing centerline within the IL Route 120 intersection area. The existing curb line along the west side of IL Route 31 is maintained to avoid direct impacts to adjacent buildings, particularly the locally important building on the northwest corner of IL Route 31 and Main Street (3902 Main Street). Although not officially classified as historic on the national list of historic buildings, this building is locally important to the City of McHenry due to its age and architectural renovations that have taken place. It has been designated as an "honorary historic" building per the City of McHenry Landmark Commission. Minor widening is required along the east side of IL Route 31, but direct building impacts are also avoided. Minor right-of-way acquisition along IL Route 31 is required to construct new curb and gutter and sidewalks. The proposed right-of-way width for the south leg of the intersection varies from 75' to 80'. No additional right-of-way is required for the north leg of the intersection.

The proposed widening along IL Route 120 is designed to avoid direct building impacts. In order to accomplish this near the IL Route 31 and IL Route 120, the through lanes require a slight offset as they cross the intersection for both eastbound and westbound traffic. The eastbound through lanes are offset 6.2' (or a 31:1 taper) and the

westbound offset is 4.8' (or a 47.1:1 taper). The proposed right-of-way widths along IL Route 120 range between 88' and 105' for the Minimum Build Alternative.

2.6.3.2 Alternative 120INT-3: Maximum Build Alternative (IL Route 120 Intersection)

The Maximum Build Alternative (Alt. 120INT-3) involves full reconstruction and widening along both IL Route 31 and IL Route 120 to include a 30' median to accommodate dual left turn lanes for the south and east legs of the intersection, as well as standard 12' lanes for all approaches. On street parking along IL Route 31 and IL Route 120 is removed for this alternative and multiple buildings are directly impacted by the proposed widening. See *Figure 2.6.3.2-1* for an aerial plan view of this alternative. IL Route 120 Intersection Build Alternatives to be Carried Forward, including the entire limits of the proposed improvements, can be reviewed in detail on the scaled exhibits attached to this report as Exhibit 2.

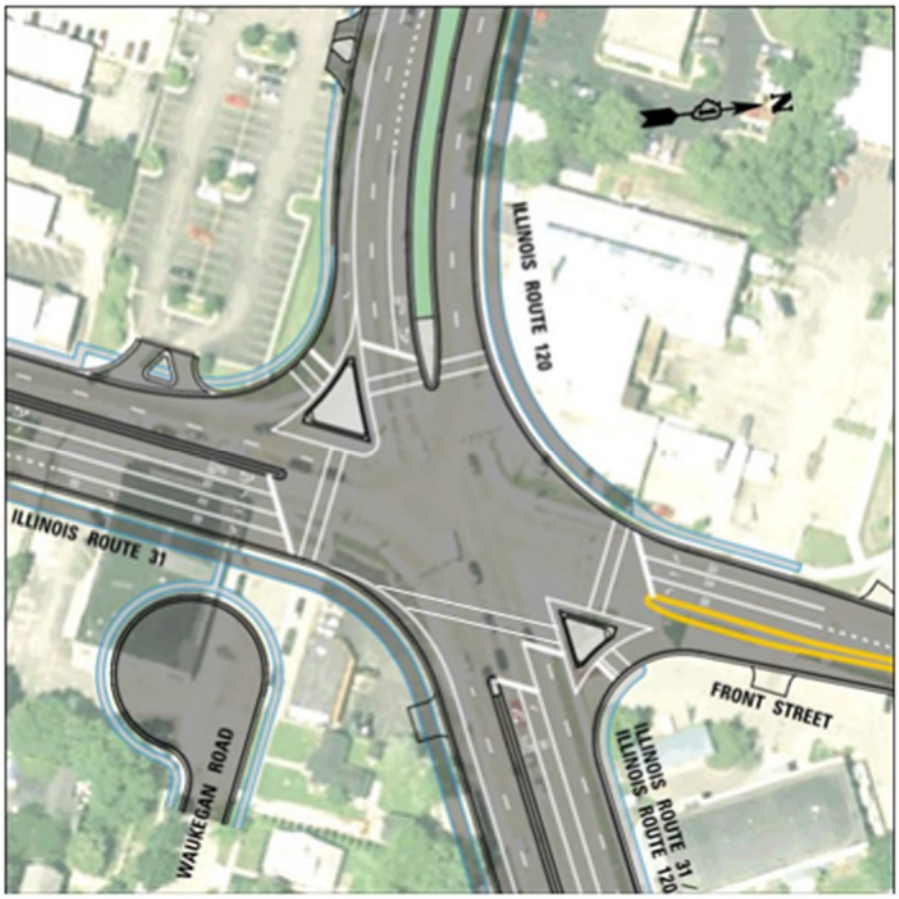


Figure 2.6.3.2-1, IL Route 120 Intersection: Maximum Build Alternative (Alt. 120INT-3)

IL Route 31 transitions from the 18' Raised Median (North Section Alternative), approximately 2,000' south of the John Street intersection, to a 30' Raised Median with two 12' through lanes in each direction. This 30' median is wide enough to accommodate two 12' left turn lanes and a 6' wide raised median for the south leg of the IL Route 120 intersection. Similar to the Minimum Build Alternative, single channelized left turn lanes are provided for both legs of the John Street intersection but are not provided at the Main Street intersection. Also

like the Minimum Build Alternative, the IL Route 31 outside through lane becomes the right turn lane at IL Route 120 and the Waukegan Road intersection is converted to a cul-de-sac.

The lane configuration for the north leg of the IL Route 120 intersection (or Front Street), includes a 12' through lane with separate 12' channelized left and right turn lanes. Improvements along the east leg of IL Route 120 include widening of the roadway to provide a 30' Raised Median, dual 12' left turn lanes and a 6' wide raised median. On the east leg of the intersection, two 12' through lanes in each direction will be maintained. Improvements on the east leg will tie into the proposed improvements for the IL Route 120 and IL Route 31 (Richmond Road) intersection (led by the City of McHenry). The tie in point is located immediately east of the 3rd Street / Millstream Drive intersection. A 10' wide pavement bump-out area is provided near the southeast corner of the intersection to accommodate u-turns for vehicles in the inside westbound left turn lane. Improvements along the west leg of IL Route 120 include widening of the roadway to provide a 30' Raised Median with two 12' through lanes in each direction and separate 12' channelized left and right turn lanes at the intersection.

The proposed improvements will improve the capacity of the intersection from a LOS F (with 175 seconds average vehicle delay) for the No-Action scenario, to a LOS C (with 35 seconds average vehicle delay) for the Maximum Build Alternative. Along with the installation of a modernized traffic signal, the intersection safety and capacity will be improved, satisfying the study Purpose and Need.

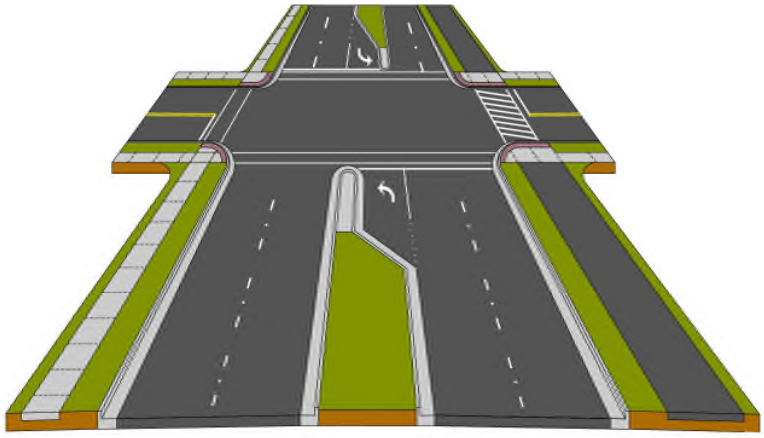
The proposed build option includes either a 7' wide sidewalk behind the back of curb or a 10' wide shared-use path on each side of the roadway. For this alternative, paths and sidewalks are required to be constructed on the side of roadway as shown on Exhibit 2. The shared-use path is located on the east side of IL Route 31 up through the IL Route 120 intersection. Along IL Route 120, the path is located on the north side of the roadway for the west leg and on the south side of the roadway for the east leg. Construction of the shared-use path on the opposite side of the roadway would result in additional building impacts. Construction of both of these features will require cost participation and long term maintenance from local agencies. Construction of shared-use paths and sidewalks throughout the IL Route 120 intersection area will provide pedestrians safe and continuous access to residential and commercial properties, as well as the McHenry Metra Station and public facilities throughout the area. Similar to the Minimum Build Alternative, crosswalks and pedestrian signals will be provided for all legs of the IL Route 120 intersection. The installation of these features will help satisfy the project Purpose and Need to encourage multi-modal forms of transportation.

Also similar to the Minimum Build Alternative, access management principles shall be implemented by converting residential and commercial driveways to right in-right out access. The proposed center 30' Raised Median will restrict full access. Additional proposed access management features include the conversion of Waukegan Road to a cul-de-sac and the conversion of Main Street to right in-right out access. Access to and from these side streets is available via alternate roadways within the local network. U-Turn movements will be allowed at the IL Route 120 and John Street intersections.

For the south leg of the intersection, the existing curb line along the west side of IL Route 31 is maintained to avoid direct impacts to adjacent buildings, particularly the locally important building (as described in Section 2.6.3.1) on the northwest corner of IL Route 31 and Main Street (3902 Main Street). This requires a shift of the proposed roadway centerline to the east by approximately 15.5 feet. The proposed right-of-way width for the south leg of the intersection varies from 115' to 145' and from 66' to 130' on the north leg. The existing centerline of IL Route 120 is maintained for the Maximum Build Alternative with proposed right-of-way widths along IL Route 120 ranging from 105' to 175'.

2.6.3.3 IL Route 120 Intersection: Comparative Analysis and Impacts

Since the North Section only includes one Build Alternative to be Carried Forward, impacts from the improvements along this section have been quantified and combined with impacts from the IL Route 120 Intersection build options to allow for a comparative analysis between two build alternatives. Figure 2.6.3.3-1 highlights some of the key features of the North Section Alternative (Alt. N-2).



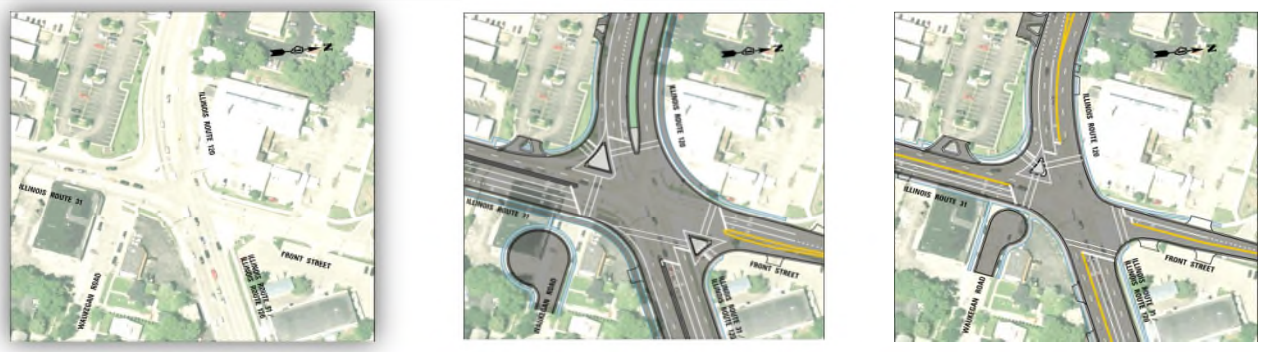
18' Raised Median Option

Key Features
Turn Volumes Require Single Left at Intersections
Barrier Median Provides Greatest Safety Benefit
Multi-modal Enhancements Including Sidewalk and Shared-Use Path

Figure 2.6.3.3-1, Key Features of the North Section Build Alternative (Alt. N-2)

As discussed in detail in Section 2.6.2.1, the 18' Raised Barrier Median Alternative (Alt. N-2) allows for a single left turn lane at intersections within the section limits, since turning volumes in this section are lower than that of the South Section. This alternative includes a barrier median to provide safety benefits and access management, as well as provides accommodations for multi-modal enhancements (including shared-use paths and sidewalks).

The Alternatives to be Carried Forward for the IL Route 120 Intersection were discussed in detail in Section 2.6.3.1 and Section 2.6.3.2. Figure 2.6.3.3-2 highlights some of the key features of the IL Route 120 Intersection Build Alternatives, compared to the No-Action Alternative.



No-Build Option	Min-Build Option	Max-Build Option
Year 2040 Delay = 175 sec. (LOS F)	Year 2040 Delay = 79 sec. (LOS E)	Year 2040 Delay = 35 sec. (LOS C)
Existing Delay = 52 sec. (LOS D)	Narrow 10' or 11' Lanes	Standard 12' Lanes
No Building Impacts	No Direct Building Impacts	12 Direct Building Impacts
Maintains On-Street Parking	Eliminates On-Street Parking	Eliminates On-Street Parking
No U-Turns Allowed	No U-Turns Allowed	U-Turns Allowed
No Shared-Use Path	No Shared-Use Path	Shared-Use Path

Figure 2.6.3.3-2, Key Features of the IL Route 120 Intersection Alternatives

Key features of the No-Action (or No-Build) Alternative is that it maintains one lane in each direction (two lanes each direction on IL Route 120), on-street parking, and a single left turn lanes on all legs. The No-Action Alternative does not include a shared-use path and does not allow for u-turns at the IL Route 120 intersection. No buildings are impacted with the No-Action Alternative. Key features of the Minimum Build Alternative (Alt. 120INT-1) is that it increases the number of through lanes in each direction along IL Route 31 to two lanes in each direction and adds a dual left turn lane for the east leg of the intersection. In order to provide these additional lanes and not impact any adjacent buildings, all lanes are proposed to be 10' wide on IL Route 31 or 11' wide on IL Route 120. The Minimum Build Alternative eliminates on-street parking on IL Route 31 and IL Route 120, will not allow for u-turns at the IL Route 120 intersection, and does not include accommodations for a shared-use path.

Key features of the Maximum Build Alternative (Alt. 120INT-3) includes the addition of two through lanes in each direction along IL Route 31, an additional northbound left turn lane, as well as an additional westbound left turn lane. This option provides these features while maintaining 12' wide lane widths, providing raised curb medians throughout, and sidewalk or shared-use paths throughout the entire section limits. Additionally, the Maximum Build Alternative includes the ability to perform u-turn movements on all SRA intersection legs.

The operational efficiency or level of service (LOS) of the intersection was evaluated for each alternative and was modeled for 2040 projected traffic volumes. The No-Action Alternative provides a LOS F (175 seconds average vehicle delay, the Minimum Build Alternative performs at a LOS E (79 seconds average vehicle delay) while the Maximum Build Alternative provides a LOS C (35 seconds average vehicle delay).

Figure 2.6.3.3-3 presents the quantified impacts of the North Section including the IL Route 120 Intersection Build alternatives.

Impact Categories	North Section / IL Route 120 Intersection Alternatives	
	Minimum Build	Maximum Build
Non-ADID Wetland Impacts	0.4 Acres	0.4 Acres
ADID Wetland Impacts	0 Acres	0 Acres
100 Year Flood Plains	0.3 Acres	0.3 Acres
Direct Building Impacts	0 Buildings	12 Buildings
Additional ROW Required*	8.7 Acres	11.8 Acres
Construction Cost **	11.9 Million	15.1 Million

* Additional ROW required does not include full parcel areas for building displacements
** Cost Estimate Does Not Include Land Acquisition

Figure 2.6.3.3-3, North Section with IL Route 120 Intersection Build Alternative Impacts

The proposed roadway alignment for both build alternatives was developed to avoid or limit building impacts, or potentially difficult acquisition issues within the North Section and IL Route Intersection area of the study. Impacts to social, cultural, historical, archeological, environmental resources and other features (i.e. major utilities or structures) were also considered when developing the alternatives. During the development of the Preferred Alternative for this study, further measures may be taken to reduce the impacts discussed above as the roadway design is studied in greater detail. These methods include but are not limited to reduction in the proposed roadway cross section, modifications to vertical geometry and drainage design, and construction of retaining walls in certain areas of the project.

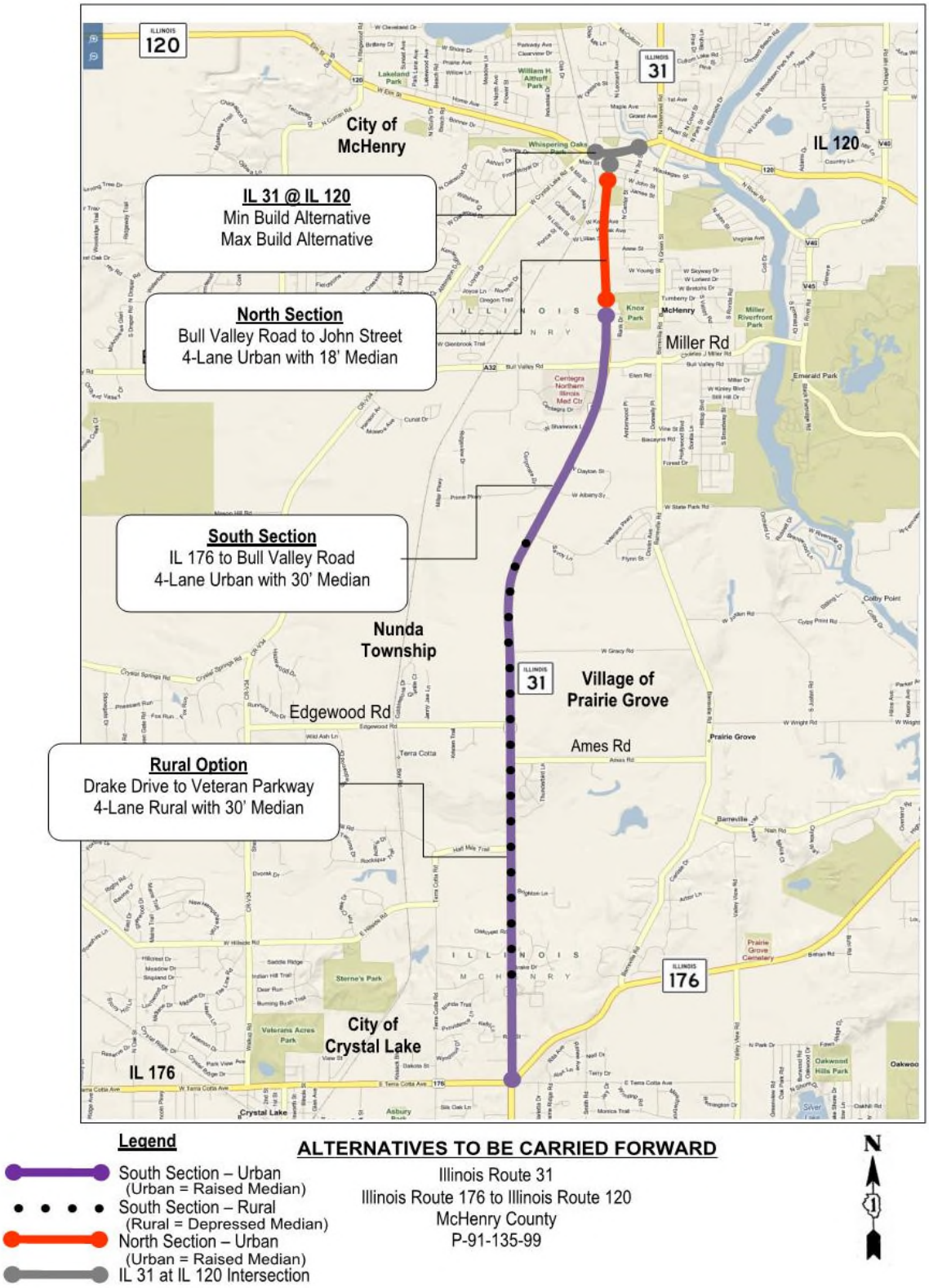
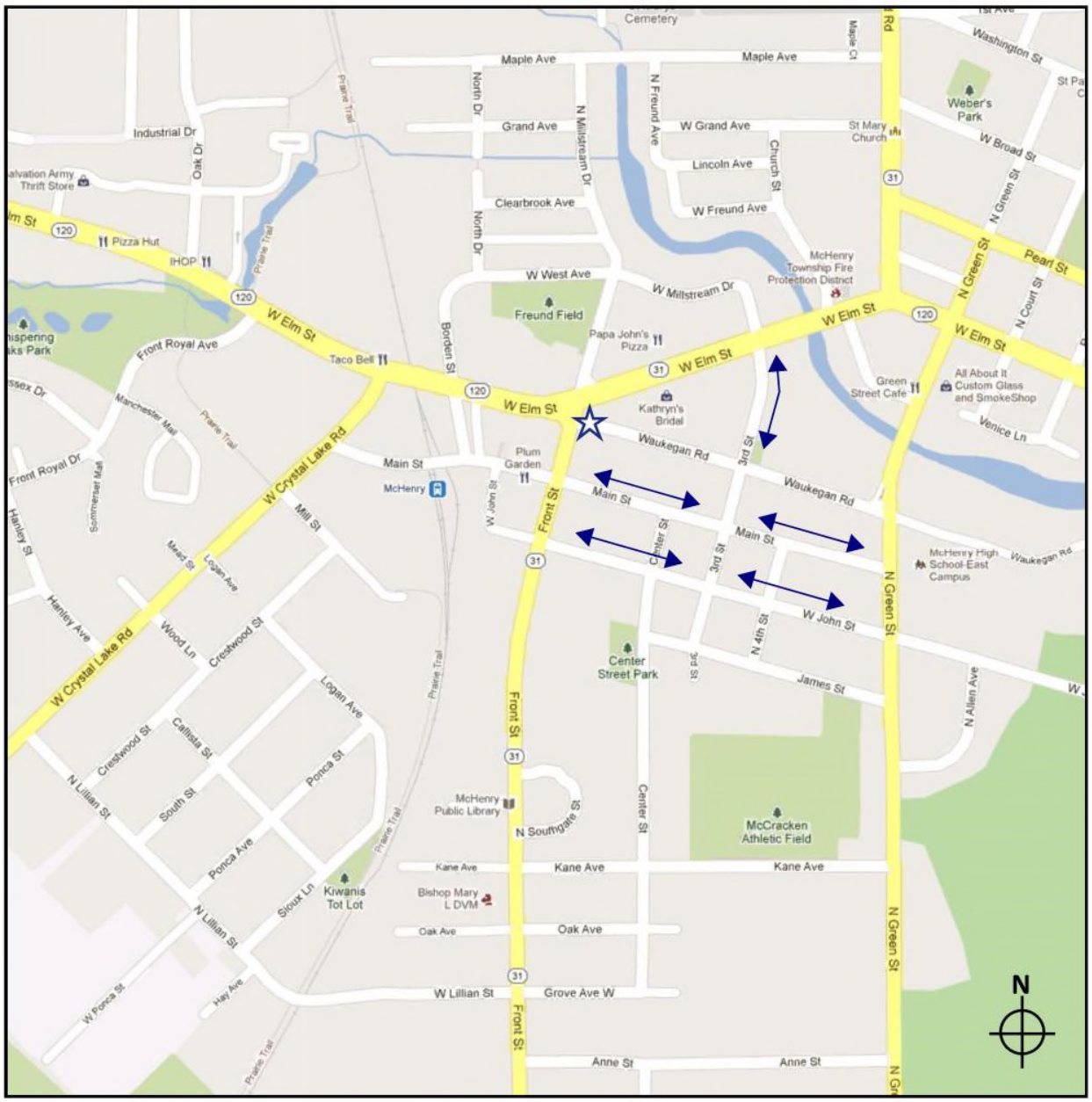

ILLINOIS 120
ILLINOIS 31
City of McHenry
IL 120
IL 31 @ IL 120
Min Build Alternative
Max Build Alternative
North Section
Bull Valley Road to John Street
4-Lane Urban with 18' Median
Miller Rd
South Section
IL 176 to Bull Valley Road
4-Lane Urban with 30' Median
Nunda Township
Village of Prairie Grove
Edgewood Rd
Ames Rd
Rural Option
Drake Drive to Veteran Parkway
4-Lane Rural with 30' Median
ILLINOIS 176
City of Crystal Lake
IL 176
Legend
South Section – Urban
(Urban = Raised Median)
South Section – Rural
(Rural = Depressed Median)
North Section – Urban
(Urban = Raised Median)
IL 31 at IL 120 Intersection
ALTERNATIVES TO BE CARRIED FORWARD
Illinois Route 31
Illinois Route 176 to Illinois Route 120
McHenry County
P-91-135-99
N

Exhibit 1A



LOCATION MAP

IL ROUTE 31 AND IL ROUTE 120 INTERSECTION AREA

LEGEND

☆ Proposed Cul-de-sac location

↔ Alternate routes for access

Exhibit 1B

Illinois Department of Transportation

NEPA - 404 Merger Alternatives to be Carried Forward

June 25, 2013

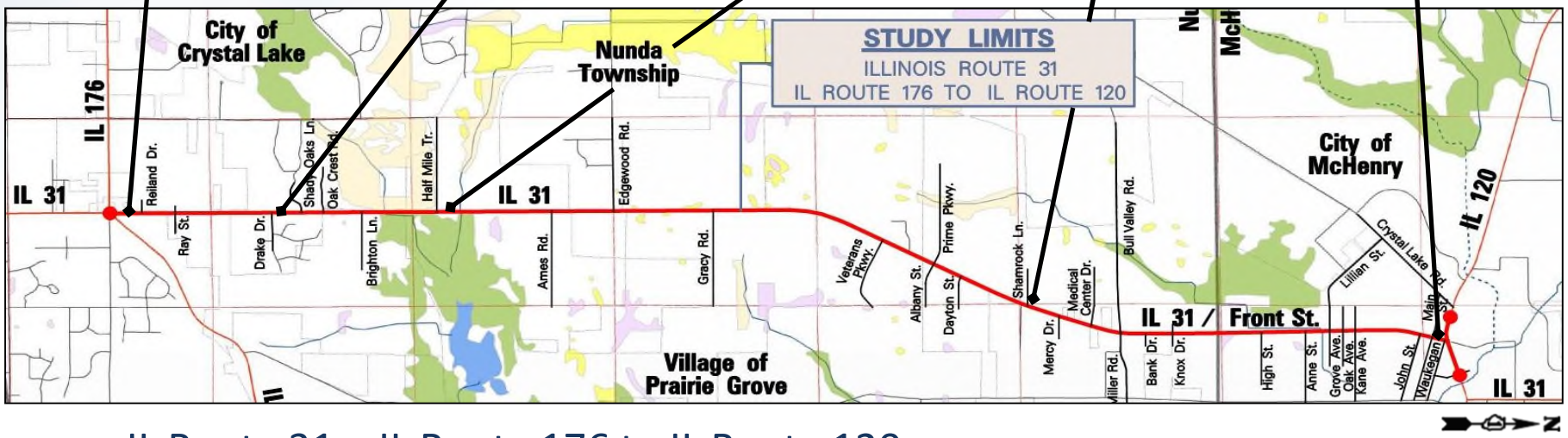
Illinois Route 31

ROUTE 176 TO ROUTE 120

www.ILRoute31.com

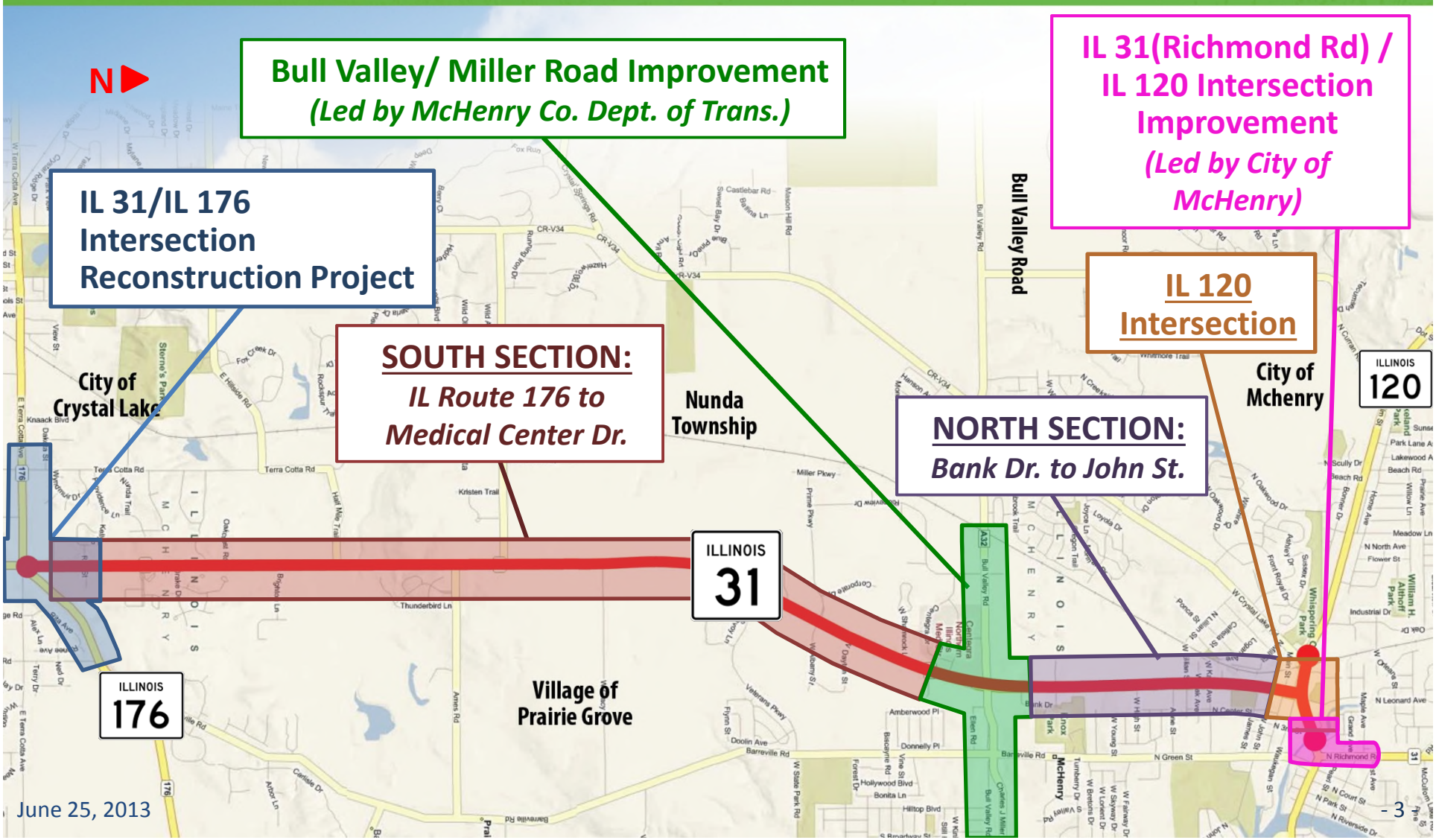
McHenry County

Project Overview and Study Area



- IL Route 31 – IL Route 176 to IL Route 120
- SRA Route

Adjacent Projects & Study Subsections



Deficiencies

- Safety Deficiencies
  - » 913 Total Crashes (2006-2009)
  - » 34% Injury Crashes; 350 Total Injuries
  - » 6 Fatalities (3 head-on; No barrier median)
  - » Majority of Crashes were Rear End
  - » IL 176 to Gracy Rd – Top 5% Crash Location
- Lack of Pedestrian and Bicycle Accommodations
- Vertical Sight Distance
  - » IL Route 31 and Drake Drive
  - » IL Route 31 South of Ames Road
- Capacity Deficiencies
  - » Poor Segment LOS
    - ❖ Existing: "E" for South Section and "D" for North Section
    - ❖ 2040 No-Build: F" for south of Gracy Rd. and "E" north of Gracy Rd.
  - » Poor Intersection LOS
    - ❖ Existing and 2040 No-Build: "F" for several locations
- Intersection Sight Distance
  - » Main Street and John Street

Access Management

- Generally, no access management provided along IL Route 31
- 184 driveways and 33 intersections within the study area
- No barrier medians, right-in/right-out provided at 8 driveway locations

Purpose and Need

- IL Route 31 Project – Purpose

  The purpose of the proposed project is to improve safety, address roadway capacity and mobility, correct existing geometric deficiencies and encourage multi-modal transportation along IL Route 31 from the intersection of IL Route 176 to the intersection of IL Route 120, in eastern McHenry County.

- IL Route 31 Project – Needs
  - Improve Roadway Safety
  - Expand Roadway Capacity and Address Traffic Issues
  - Correct Existing Roadway Design Deficiencies
  - Improve Opportunities for Multimodal Connectivity

NEPA Approved P&N at March, 2012 Merger Meeting

Project Study Schedule

PROJECT MILESTONES

- Establish Problem Statement, Identify Deficiencies
- Develop Purpose and Need
- Identify Possible Alternatives
- Evaluate and Screen Alternatives
- Preferred Alternative
- Environmental and Engineering Report
- Design Approval

PUBLIC INVOLVEMENT

SUMMER 2011 **FALL 2011** **SPRING 2012** **2013** **FALL 2014**

Public Meeting #1 (June 2011)
- Overview of study process
- Solicit issues and concerns
- Present public involvement opportunities

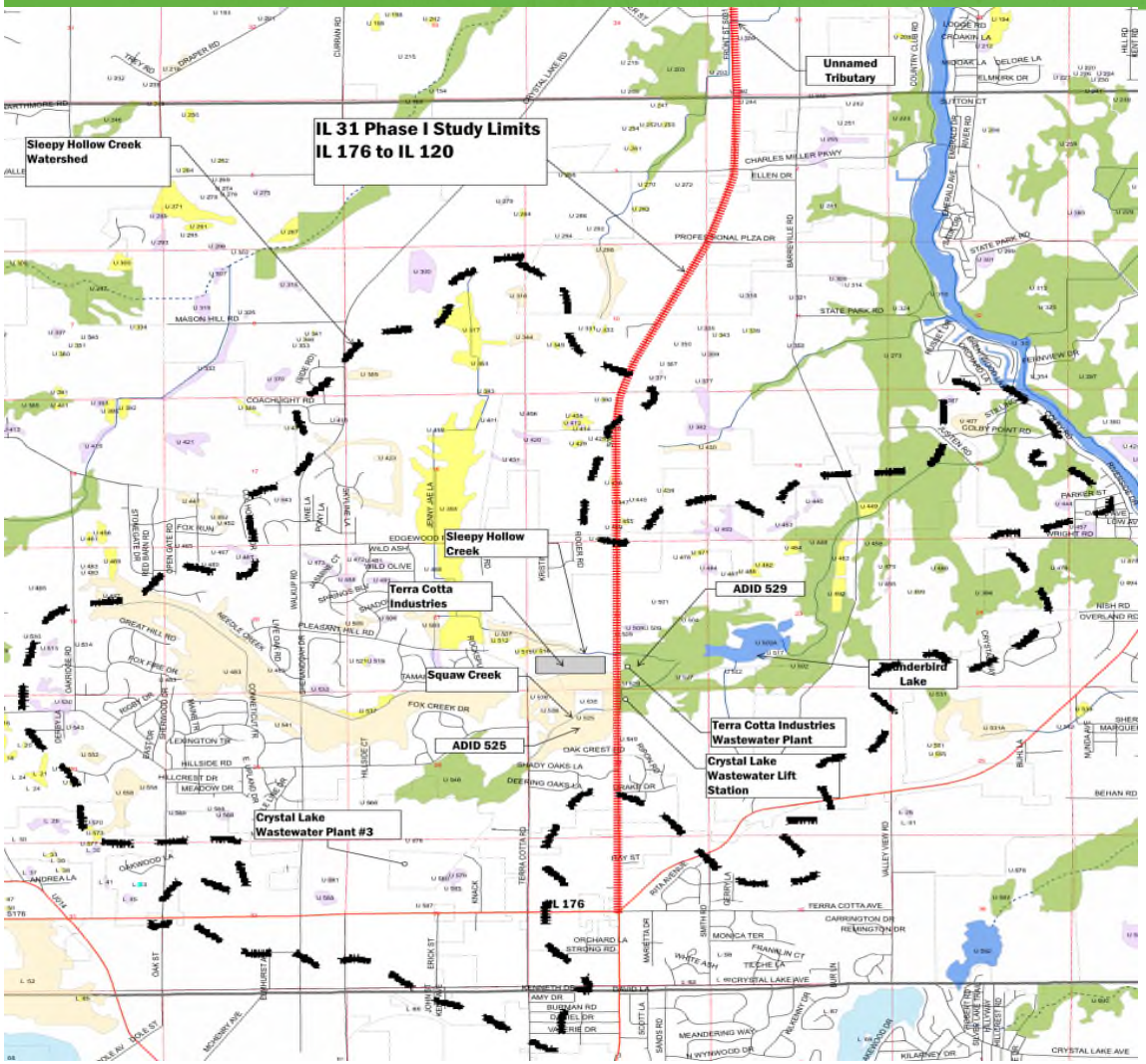
Public Meeting #2 (November 2012)
- Present the project Purpose & Need
- Review the alternative evaluation process
- Display the alternatives to be carried forward
- Solicit public input

Public Hearing (Spring 2014)
- Present the preferred alternative
- Present environmental report
- Solicit public input

We Are Here **CAG Meeting Schedule** **NEPA Meeting Schedule**

Environmental Evaluation:

ADID Wetlands Map



Legend

Wetland Type

- ADID High Habitat Value
- ADID High Functional Value
- Farmed Wetland
- Wetland
- High Quality Lake
- Lake

Rivers & Streams

- River/Stream
- ADID High Quality River/Stream
- Township Boundaries

Roads, Highways & Political Boundaries

- Interstates, Expressways & Freeways
- State & US Highways
- County & Local Roads
- Municipal Boundary
- Sections

CorLands
Corporation for Open Lands

Chicago Metropolitan Agency for Planning
233 S. Wacker Drive, Suite 800
Chicago, IL 60606

US Army Corps of Engineers

Date of Map Creation 13, January, 2007

Additional Notes Related to This Map Have Been Removed for Presentation Purposes

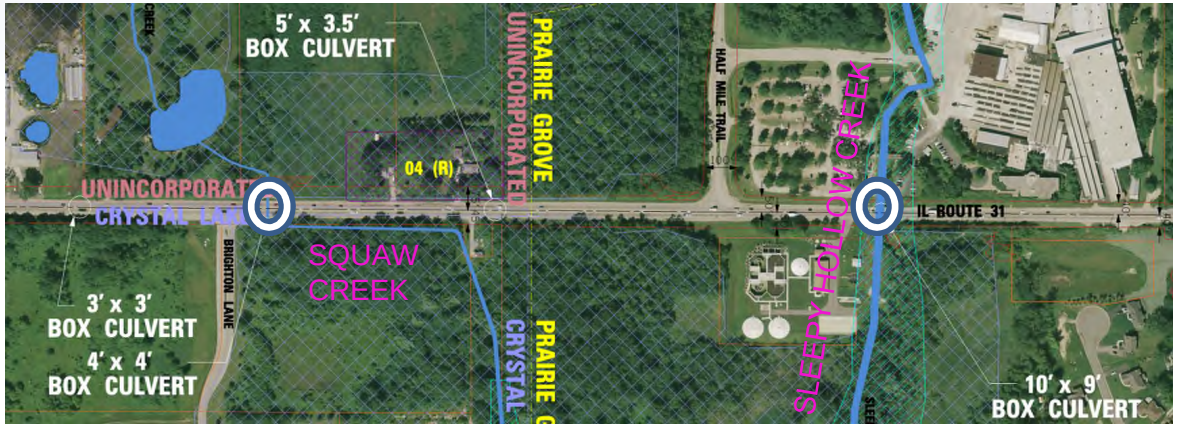
- Eastern Prairie Fringed Orchid
  - Past two environmental surveys from IL 176 to Bull Valley Road found no evidence of EPFO within the watershed. Latest survey was performed in 2012.

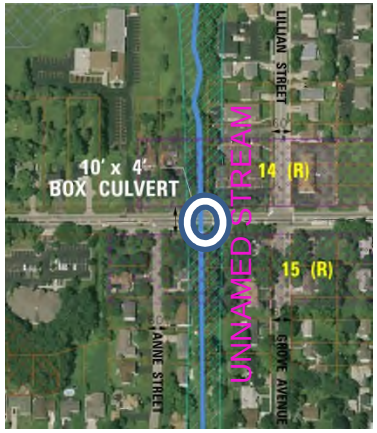
Environmental Evaluation:
Stream Crossings and Surface Waters

Squaw Creek Crossing
Existing 4’x4’ Box Culvert

Sleepy Hollow Creek Crossing
Existing 10’x8’ Box Culvert

Unnamed Stream Crossing
Existing 10’x 4’ Box Culvert
& 4’ x 4’ Box Culvert





Environmental Evaluation:
Other Potential Impacts

- Agricultural Land
  - » Village of Prairie Grove (under plans for development)
- Noise
  - » Numerous Sensitive Receptors – Many Residential Properties are Adjacent to the Corridor
- Special Waste
  - » Numerous Gas Stations (Existing & Abandoned) throughout Corridor
- Special Lands
  - » McMillan Cemetery & Freund Field
- Seep locations near Thunderbird Lake
- Property Impacts

Alternatives Evaluation:
Range of Alternatives

- South Section (IL Route 176 to South of Bull Valley Road)
  - » 6-lane with 30’ & 50’ Depressed Median and 10’ Outside Shoulders
  - » 6-lane with 18’-22’ Raised Barrier Median
  - » 4-lane with 18’-22’ Raised Barrier Median
  - » 4-lane with 18’-22’ Raised Barrier Median and 10’ Outside Shoulders
  - » 5-lane with Two Way Left Turn Lane (TWLTL)
  - » 4-lane with 30’ Raised Barrier Median
  - » 4-lane with 30’ Depressed Median and 10’ Outside Shoulders
  - » No-Build Alternative

Alternatives Evaluation:
Range of Alternatives

- North Section (North of Bull Valley Road to John Street)
  - » 4-lane with 6’ Landscaped/Planter Median
  - » 4-lane with 18’ Raised Barrier Median
  - » 4-lane with 30’ Raised Barrier Median
  - » 5-lane with Two Way Left Turn Lane (TWLTL)
  - » One-Way Arterial Pair with Green Street
  - » No-Build Alternative

Alternatives Evaluation:
Range of Alternatives

- IL Route 120 Intersection
  - » Minimum Build Alternative, Minimum Roadway Widening with No Median and 10’ lanes for South Leg
  - » 18’ Raised Median (Single Left) for South Leg
  - » Maximum Build Alternative, 30’ Raised Median (Dual Left) for South Leg
  - » Traditional intersection with 3 legs (cul-de-sac north leg)
  - » Roundabout with 4 legs
  - » Roundabout with 3 legs(cul-de-sac north leg)
  - » Various Alternatives with Free Flow Right Turn Lane for South Leg
  - » No-Build Alternative

Alternatives Evaluation Findings

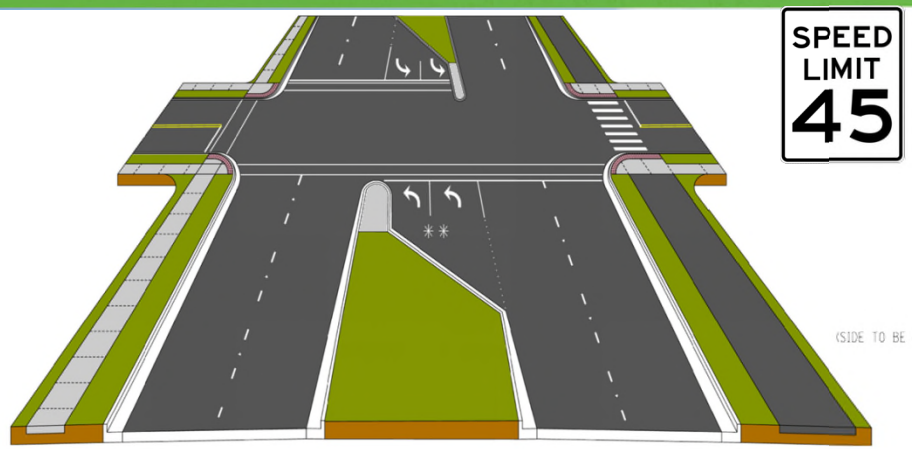
- Number of Lanes
  - » Six Lane options eliminated based on cost and potential impacts
- Median Width
  - » 18’-22’ Median (South Section) eliminated since:
    - Does not match Bull Valley Road intersection improvements
    - Dual lefts required at Half Mile Trail intersection
    - Village of Prairie Grove development plans
  - » 6’ Median (North Section) eliminated since:
    - Does not provide channelized left turn lanes at intersections
  - » 30’ Median (North Section) eliminated since
    - Dual lefts not required at intersections
    - Adjacent land is primarily already built up

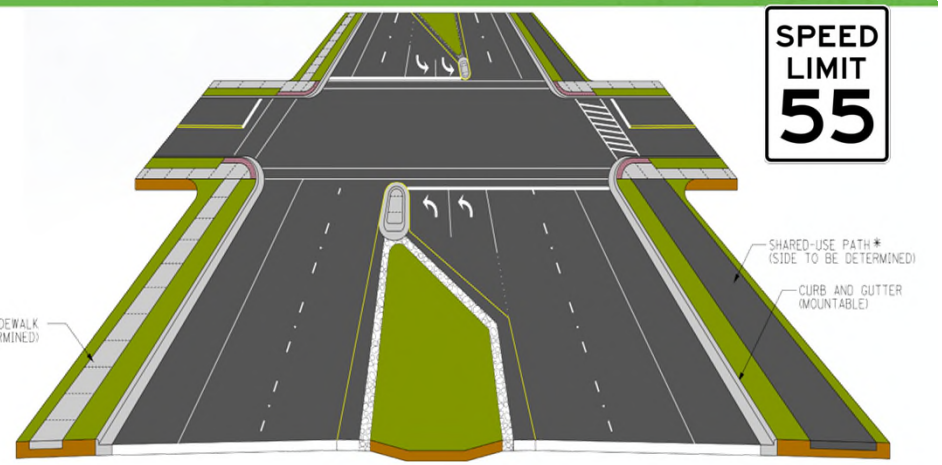
Alternatives Evaluation Findings (Cont.)

- Roundabouts vs. Signalized Intersections
  - » Traffic modeling results show better performance for Signalized Intersections
    - ❖ Turning Patterns at Intersections
    - ❖ Large Traffic Volumes
- Flush Median (or TWLTL) vs. Non-traversable Median
  - » Raised or depressed median has a 66% lower crash rate
- On-Street Parking
  - » Elimination of on-street parking statistically shows a reduction in crashes by 26%

Alternatives To Be Carried Forward:

South Section (IL Route 176 to South of Bull Valley Road)



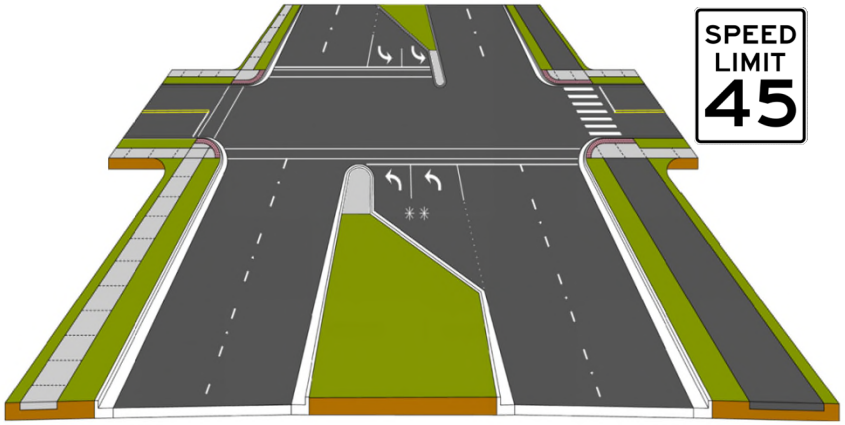


30' Raised Median **IL 176 to South of Bull Valley Rd.**
Key Features - Both Alternatives
Two Through Lanes in Each Direction
30' Wide Median Accommodates Dual Left Turn Lanes
Sidewalk and Shared-Use Path
Outside Ditches or Swales *
BMP Opportunities

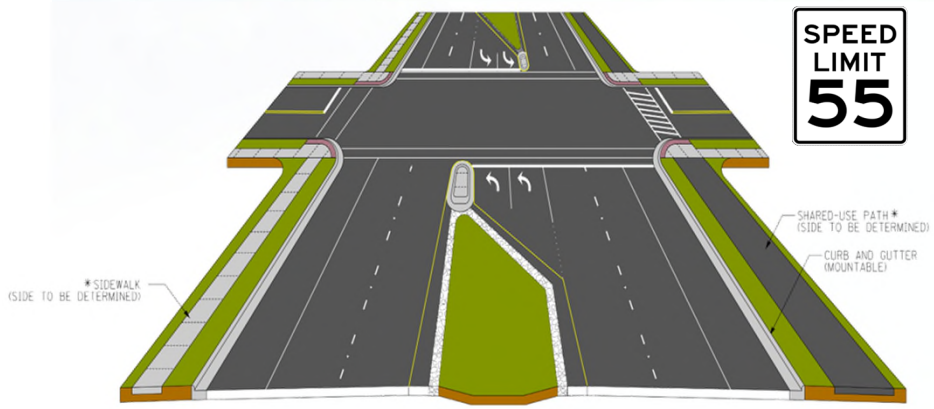
30' Depressed Median **Drake Dr. to Veterans Pkwy.**	
Key Differences	
30' Raised Median	**30' Depressed Median**
Curb & Gutter Throughout	10' Shoulder
Raised Median	Depressed Median
Narrower Cross Section	Wider Cross Section
Lower Speed Limit	Higher Speed Limit
Smaller Impervious Area	Larger Impervious Area

Alternatives To Be Carried Forward:

South Section (Continued)



30' Raised Median



30' Depressed Median

VILLAGE OF PRAIRIE GROVE

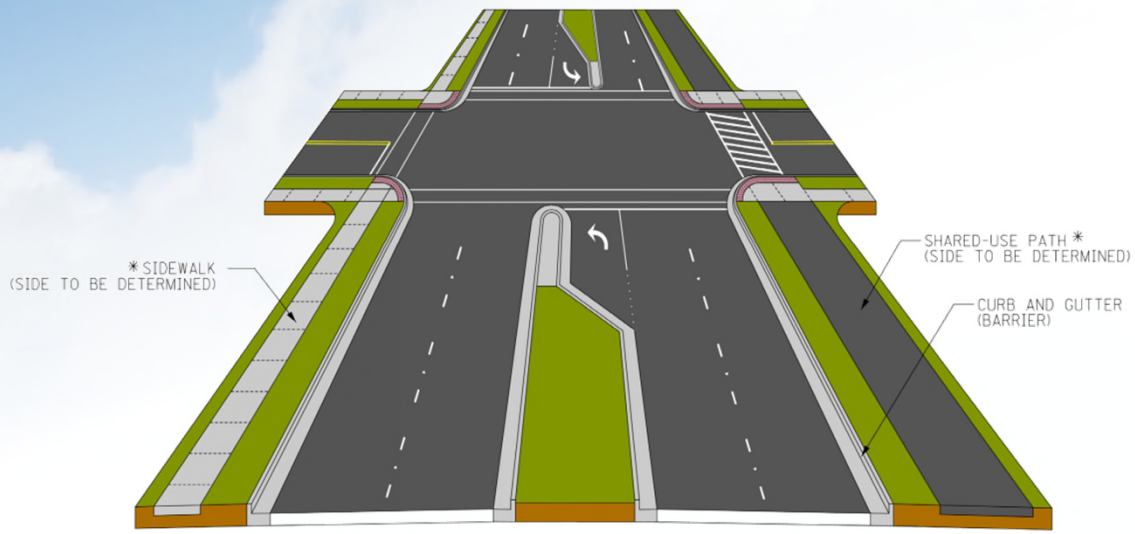
30' Raised Median Alternative preferred by Village of Prairie Grove

Impact Categories	South Section Alternatives	
	30' Raised Median	30' Depressed Median
Non-ADID Wetland Impacts	1.9 Acres	2.3 Acres
ADID Wetland Impacts	4.5 Acres	5.0 Acres
100 Year Flood Plains	0.6 Acres	0.7 Acres
Direct Building Impacts	0 Buildings	1 Building
Additional ROW Required	52.6 Acres	59.1 Acres
Construction Cost **	41.9 Million	44.5 Million

** Cost Estimate Does Not Include Land Acquisition

Alternatives To Be Carried Forward:

North Section (North of Bull Valley Road to John Street)



18' Raised Median **North of Bull Valley Rd. to John St.**
Key Features
Turn Volumes Require Single Left at Intersections
Barrier Median Provides Greatest Safety Benefit
Multi-modal Enhancements Including Sidewalk and Shared-Use Path

Alternatives To Be Carried Forward:

IL Route 120 Intersection

No-Build Option	Min-Build Option	Max-Build Option
Year 2040 Delay = 175 sec. (LOS F)	Year 2040 Delay = 79 sec. (LOS E)	Year 2040 Delay = 35 sec. (LOS C)
Existing Delay = 52 sec. (LOS D)	Narrow 10’, 10.5’, & 11’ Lanes	Standard 12’ Lanes
No Building Impacts	2 Direct Building Impacts	15 Direct Building Impacts
Maintains On-Street Parking	Eliminates On-Street Parking	Eliminates On-Street Parking
No U-Turns Allowed	U-Turns Allowed Only for WB Traffic	U-Turns Allowed (NB, EB, & WB)
No Shared-Use Path	No Shared-Use Path	Shared-Use Path

Alternatives To Be Carried Forward:

North Section + IL Route 120 Intersection Comparative Analysis

Impact Categories	North Section / IL Route 120 Intersection Alternatives	
	Minimum Build	Maximum Build
Non-ADID Wetland Impacts	0.4 Acres	0.4 Acres
ADID Wetland Impacts	0 Acres	0 Acres
100 Year Flood Plains	0.3 Acres	0.3 Acres
Direct Building Impacts	2 Buildings	15 Buildings
Additional ROW Required*	8.7 Acres	11.8 Acres
Construction Cost **	11.9 Million	15.1 Million

* Additional ROW required does not include full parcel areas for building displacements
** Cost Estimate Does Not Include Land Acquisition

Minimum Build Alternative preferred by City of McHenry

Public Meeting #2

- 69 Attendees, 39 Written Comments
- Comment Summary
  - » Proposed roadway configuration (barrier medians) limiting access to properties
  - » Pedestrian and Bicycle Accommodations
  - » Stormwater Management and Environmental Resources
  - » Other proposed “bypass” projects within the project area
  - » IDOT Land Acquisition Process
  - » Study Schedule and Funding

Ongoing Coordination with Local Municipalities, as well as Watershed and Environmental Groups

Impact Reduction Efforts

- Utilized So Far:
  - » Alignment Shifted at Constraint Locations
  - » Retaining Walls in few locations
  - » Reduced lane widths at IL Route 120 intersection
  - » Sidewalk moved to behind back of curb in some locations, mainly near IL 120 intersection

- To Be Considered:
  - » Typical Section Modifications to balance Safety and Impacts
    - Reduce Lane Widths
    - Reduce Median Widths
    - Reduce Path Width
    - Move path and/or sidewalk closer to curb
    - Modify ditch slopes
  - » Reduce Proposed ROW
  - » Add Retaining Walls

Best Management Practices (BMPs)

- To Be Considered:
  - » Grassed Swales and Ditches with Native Plants
  - » Grassed or Vegetated Filter Strips
  - » Water Quality Basins
  - » Pre-Treatment into Existing Permeable Soils
  - » Stream Relocation with Riffle and Pool Complexes (Squaw Creek)

What's Next

- City of McHenry Presentation and Other Local Agency Coordination
- Ongoing work on Drainage Study
- Meetings with Local Watershed and Environmental Groups
- Develop Preferred Alternative
- NEPA/404 Meeting – Study Update (September 2013)
- CAG Meeting #5 (T.B.D.)
- NEPA/404 Meeting – Preferred Alternative (February 2014)

Alternatives To Be Carried Forward

Questions / Discussion

Concurrence

Thank You!

www.ILRoute31.com

Illinois Department of Transportation

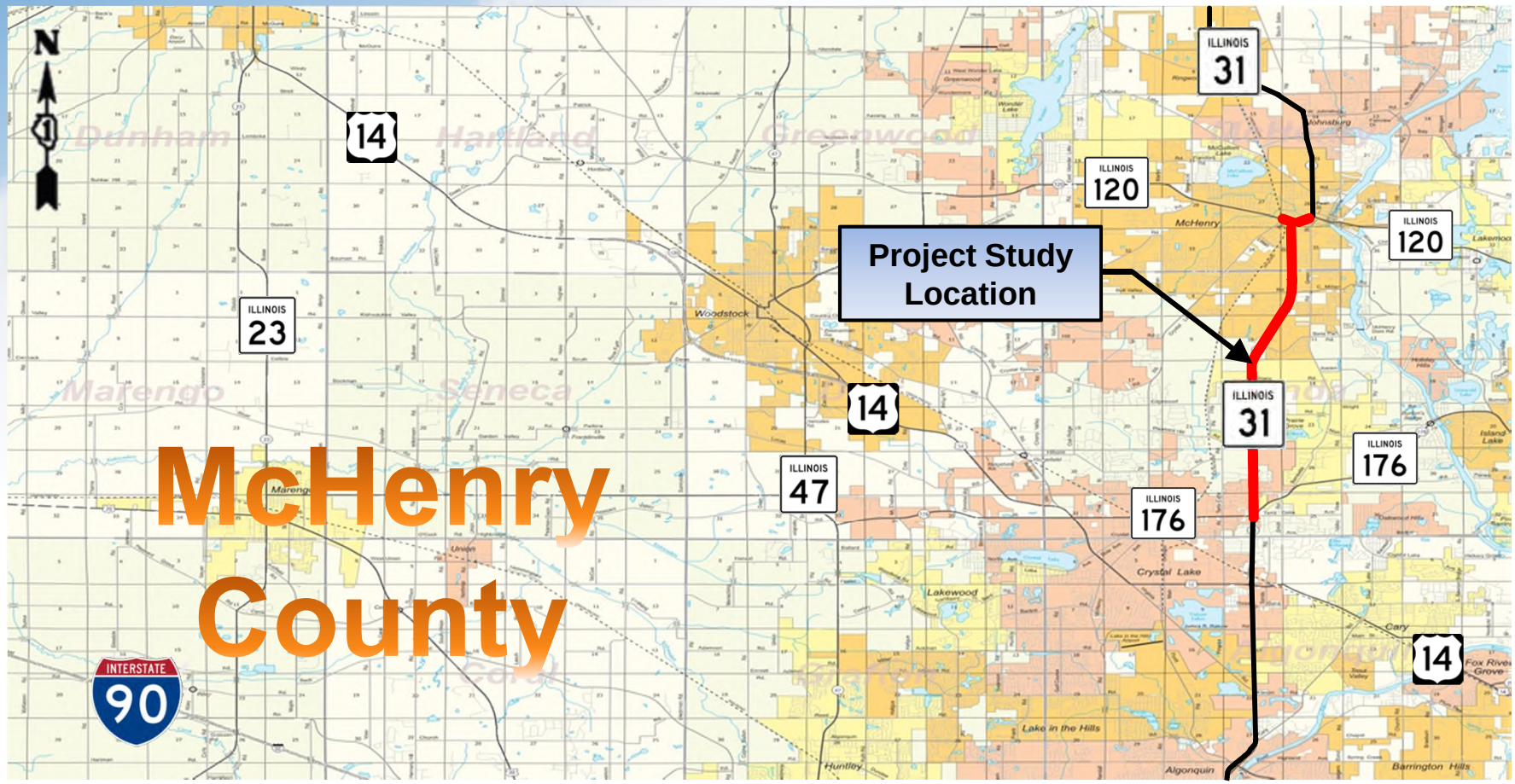
Illinois Route 31

ROUTE 176 TO ROUTE 120

McHenry County

Supplemental Slides
(If Needed During Q&A)

Strategic Regional Arterial (SRA)

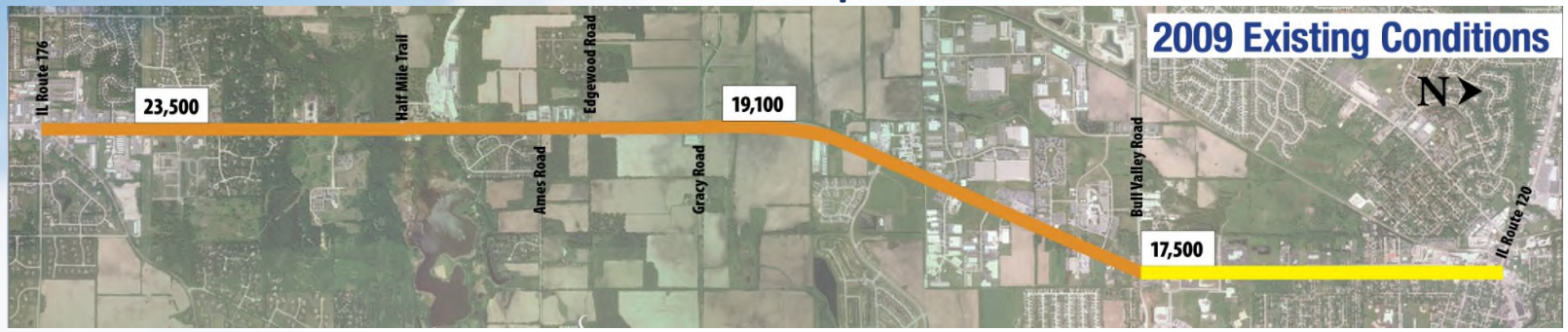


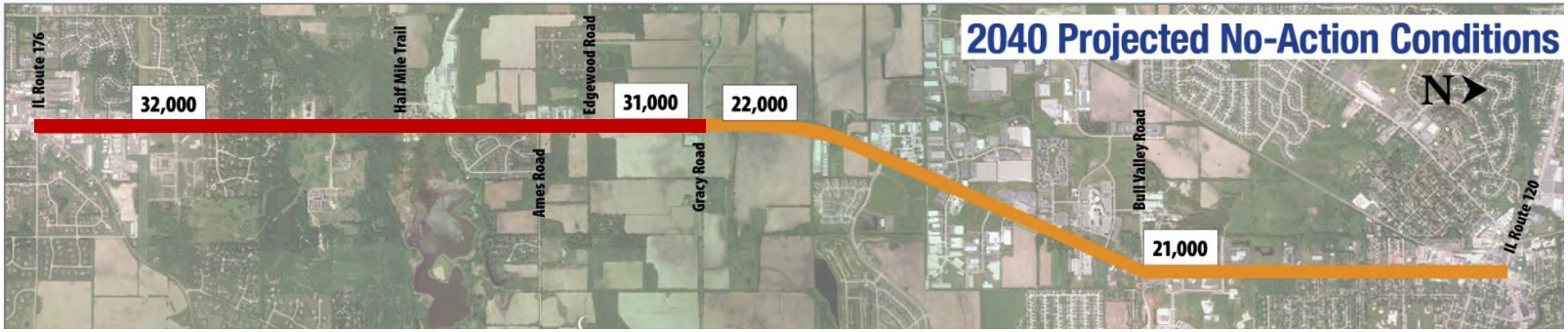
Safety Deficiencies

- Crash Statistics (2006-2009)
  913 Total Crashes
  - » 34% of all Crashes were Injury Crashes
    - 6 Fatalities (3 head-on)
    - 350 Total Injuries
  - » IL 31 lacks barrier to help prevent head-on crashes
  - » Majority of Crashes were Rear End Collisions
  - » IL 176 to Gracy Road – Top 5% Crash Location

Capacity Deficiencies

- Corridor Level of Service Map





2009 Existing and 2040 No-Action Average Daily Traffic Volume and Traffic Level of Service Comparison

Capacity Deficiencies (Cont.)

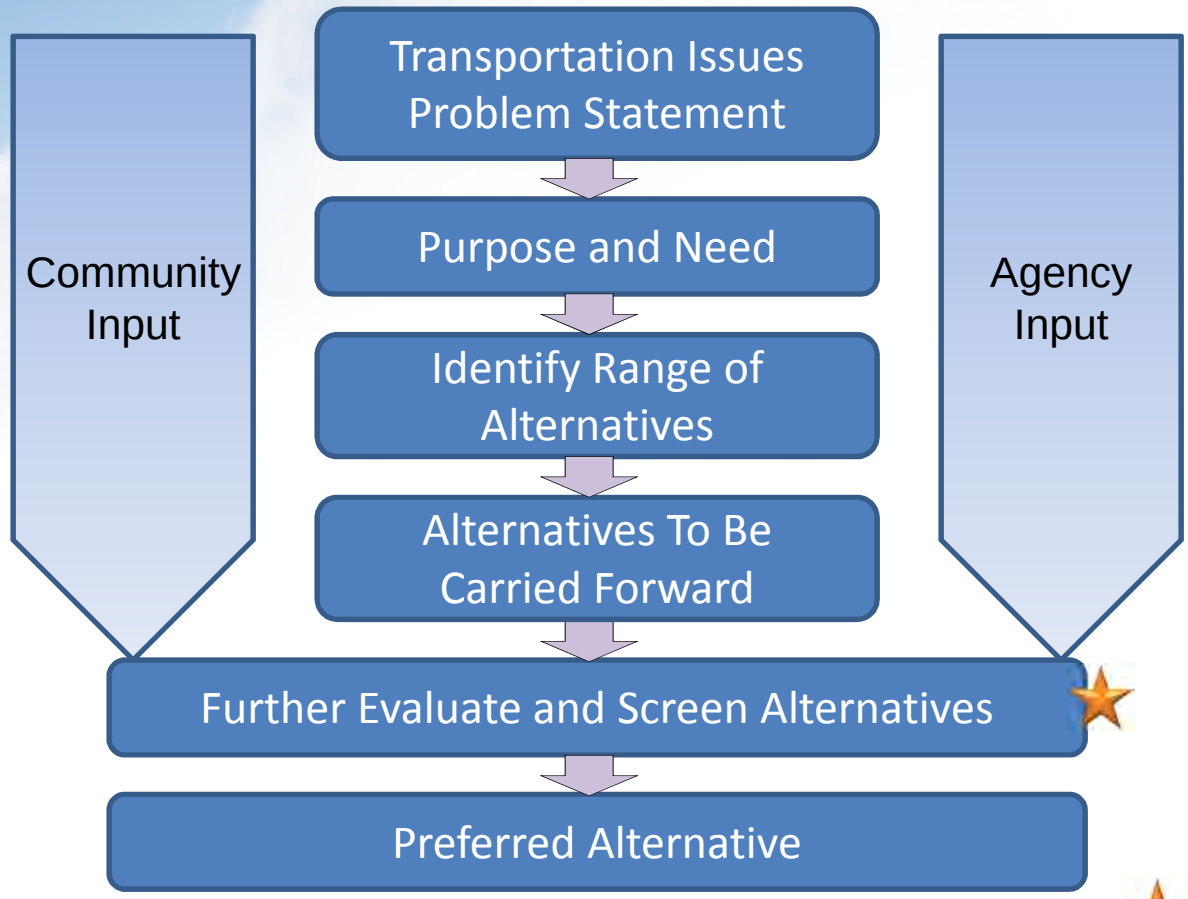
- Intersection Capacity Analysis (HCS) for Existing and Future No-Build Condition

	PM Peak Hour			
	Existing (2009)		Future No-Build (2040)	
Intersection	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
IL Route 176	Intersection not included in study			
Half Mile Trail	500+	F	500+	F
Edgewood Road	70.5	F	110.6	F
Albany Street/Prime Parkway	27.5	C	48.2	D
Shamrock Lane	11.8	B	16.9	B
Bull Valley/Charles Miller Road	39	D	18.9	D
Lillian Street/Grove Avenue	37.1	D	39.5	D
IL Route 120	78.1	E	174.9	F

IL Route 31 – Measurable Objectives

- Improve Roadway Safety
  - » Substantial Reduction in Projected Crashes and Fatalities
- Expand Roadway Mobility (Capacity and Accessibility) and Address Traffic Issues
  - » Substantial Reduction in Projected Traffic Delays
- Correct Existing Roadway Design Deficiencies
  - » Meet All SRA Design Requirements as Practicable Based on Project Constraints
- Improve opportunities for multimodal connectivity
  - » Maintain and Improve Connectivity to Existing Mass Transit Facilities

Phase 1 Study Process



We Are Here

Public Involvement

- June 9, 2011 – Public Meeting #1
  - » Project Introduction, Solicit Issues & Concerns, and Form CAG
- September 1, 2011 – CAG Meeting #1
  - » CAG Introduction and Project Problem Statement Workshop
- September 22, 2011 – CAG Meeting #2
  - » Purpose and Need, Engineer's Toolbox, Evaluation Criteria and Identify and Map Key Project Constraints Workshop
- November 3, 2011 – CAG Meeting #3
  - » Alternatives Development Workshop
- May 22, 2012 – CAG Meeting #4
  - » Present and Gain Input on Alternatives To Be Carried Forward
- November 15, 2012 – Public Meeting #2
  - » Present Purpose and Need, Alternative Evaluation Process, Alternatives To Be Carried Forward, and Solicit Input

NEPA/404 Coordination

- June 27, 2011 - Meeting #1
  - » Project Introduction
- March 1, 2012 - Meeting #2
  - » Obtained Concurrence for Purpose and Need

US Army Corps of Engineers®

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

U.S. FISH & WILDLIFE SERVICE

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois Historic Preservation Agency

Local Agency Coordination

McHenry
HEART OF THE FOX RIVER

SEAL OF THE COUNTY of McHENRY
JUNE 1837 ILLINOIS

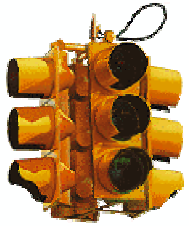
CITY OF CRYSTAL LAKE, ILLINOIS
INCORPORATED SEPTEMBER, 1914

VILLAGE OF PRAIRIE GROVE

Alternatives Development Tools

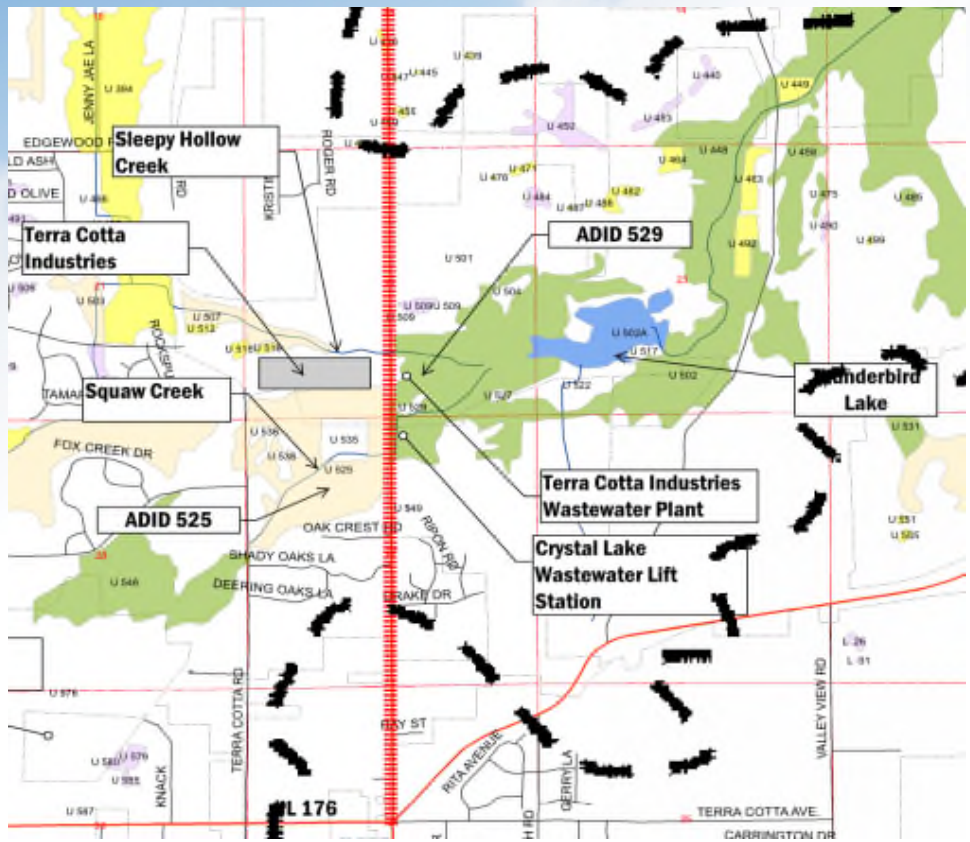
- Pedestrian Safety Improvement Tools
  - » Sidewalks / Bike / Shared-use Paths
  - » Crosswalks / Crosswalk Signals

- Roadway Safety Improvement Tools
  - » Medians
  - » Access Management
  - » Geometric Realignments
  - » Improved Sight Distance
  - » Traffic Signal Installation / Modernization
  - » Additional Turn Lanes



- Capacity Improvement Tools
  - » Add Through Lanes
  - » Add Turn Lanes at Intersections
  - » Modify Turn Lane Storage Lengths and Tapers

Environmental Evaluation:
ADID Wetlands Map (Cont.)



- Eastern Prairie Fringed Orchid
  - Past two environmental surveys from IL 176 to Bull Valley Road found no evidence of EPFO within the watershed

Adjacent Property Constraints

- Terra Cotta Industries Building
- McMillan Cemetery
- Nicor Gas Facility
- Locally Important Building in City of McHenry

Proposed Roadway Alignment Shifted to Avoid Impacts

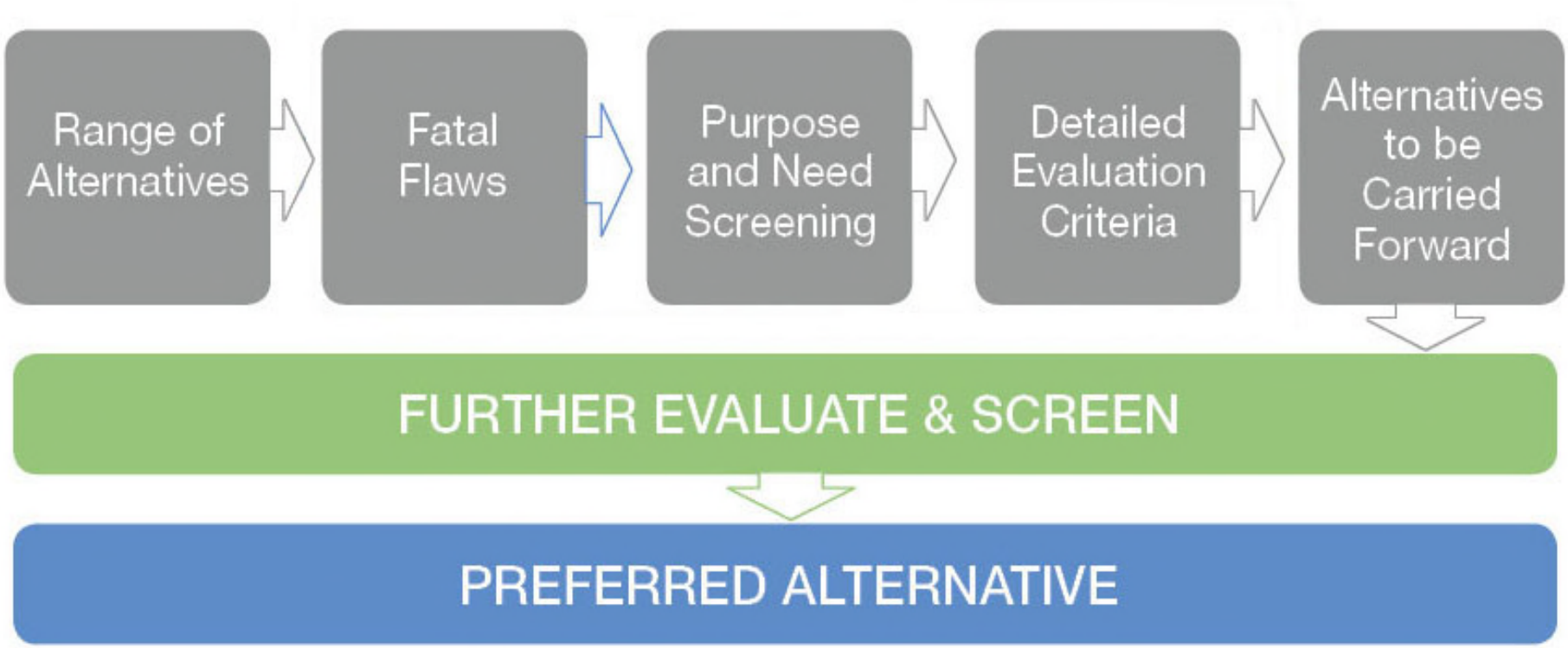
Alternatives Development

Combine:

- Stakeholder Input
- Project Elements (Engineering Toolbox)
- Problem Statement
- Environmental Analysis
- Technical Analysis
- Purpose & Need

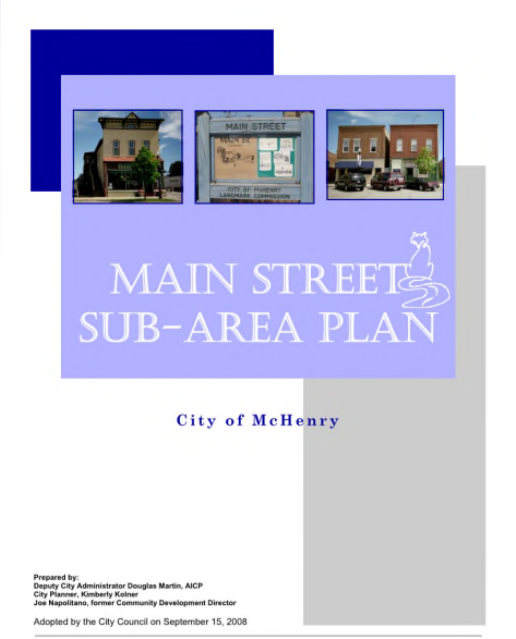
Range of Alternatives for each Study Subsection was developed

Alternatives Evaluation:
Evaluation Process



Alternatives To Be Carried Forward:
Local Agency Coordination

- City of McHenry's "Main Street Sub-Area Plan"



- Village of Prairie Grove "Town Center & Transit-Oriented Development Plan"

Alternatives To Be Carried Forward:

South Section (IL Route 176 to South of Bull Valley Road)

- No-Build Alternative
- 30’ Raised Median (Entire limits of South Section)

- 30’ Depressed Median (Drake Dr. to Veterans Pkwy.)

Alternatives To Be Carried Forward:

North Section and IL Route 120 Intersection

- North Section
  - » No Build Alternative
  - » 18’ Raised Median from Bank Drive to John Street
- IL Route 120 Intersection
  - » No Build Alternative
  - » Option #1 = Minimum Build (No Median and 10’ lanes @ IL 120)
  - » Option #2 = Maximum Build (30’ Median @ IL 120)

Coordination after Public Meeting #2

- FHWA Coordination Meeting on 12/05/12 and subsequent coordination with IDOT Geometrics
- Various conversations with business owners near IL 120 intersection
- Incorporated plans for IL 31 (Richmond Rd) improvement project (led by City of McHenry)

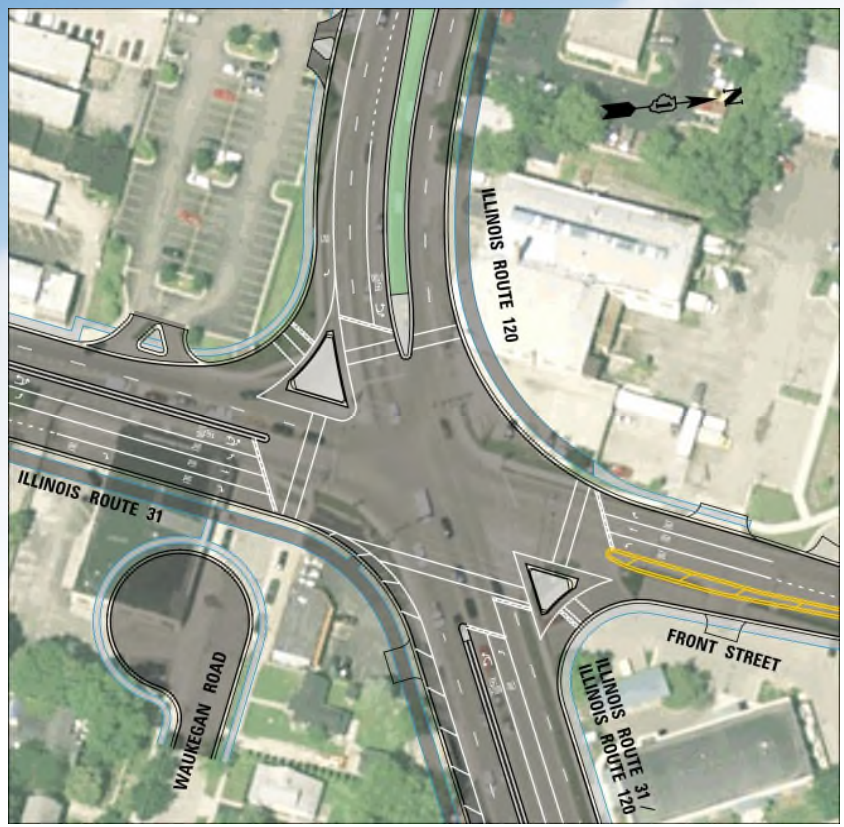
All of above resulted in slight modifications to IL Route 120 Intersection Alternatives

Revised IL Route 120 Intersection Alternatives: Minimum Build

Minimum Build Option

- 2 Direct Building Impacts
  - » Due to damage to remainder of property
- 11’ lanes on west leg and 10.5’ lanes on east leg
- 4’ barrier median on east leg
- Additional pavement on southeast corner to allow westbound u-turns
- Parking eliminated on east leg
- Match IL 31 (Richmond Rd) project
- Waukegan Rd cul-de-sac revised

Revised IL Route 120 Intersection Alternatives: Maximum Build



Maximum Build Option

- 3 Additional Direct Building Impacts (15 Buildings Total)
  - » Due to damage to remainder of property
- No barrier median on north leg
- Parking eliminated on east leg
- Match IL 31 (Richmond Rd) project

Coordination after Public Meeting #2 (Cont.)

- Village of Prairie Grove Board Meeting
  - » Formal letter supporting 30’ Raised Median Option for the south section of the study
    - Request maintaining a 45 mph speed limit
    - Consider addition of water quality features of 30’ Depressed Median Option (i.e. infiltration basins and natural drought resistant plantings)
    - Major Concerns of Village
      - ❖ Ensure continuity of improvements to avoid bottlenecks
      - ❖ Request long-term maintenance plan for median from IDOT

Coordination after Public Meeting #2 (Cont.)

- City of McHenry staff meeting
  - » Based on public concerns, no longer support raised barrier median alternative within their limits
    - Especially in urban area north of Lillian / Grove
    - Request modification of design to include a flush median or TWLTL
  - » Against Maximum Build Alternative for IL Route 120 Intersection due to building impacts (prefer Min. Build)
  - » Project Team to prepare conceptual cross access study for driveways
    - Study to consider combining driveway access to median openings
  - » To present alternatives with city limits at future McHenry Transportation Subcommittee meeting

Drainage Improvements

Squaw Creek Crossing
Existing 4’x4’ Box Culvert

Sleepy Hollow Creek Crossing
Existing 10’x8’ Box Culvert

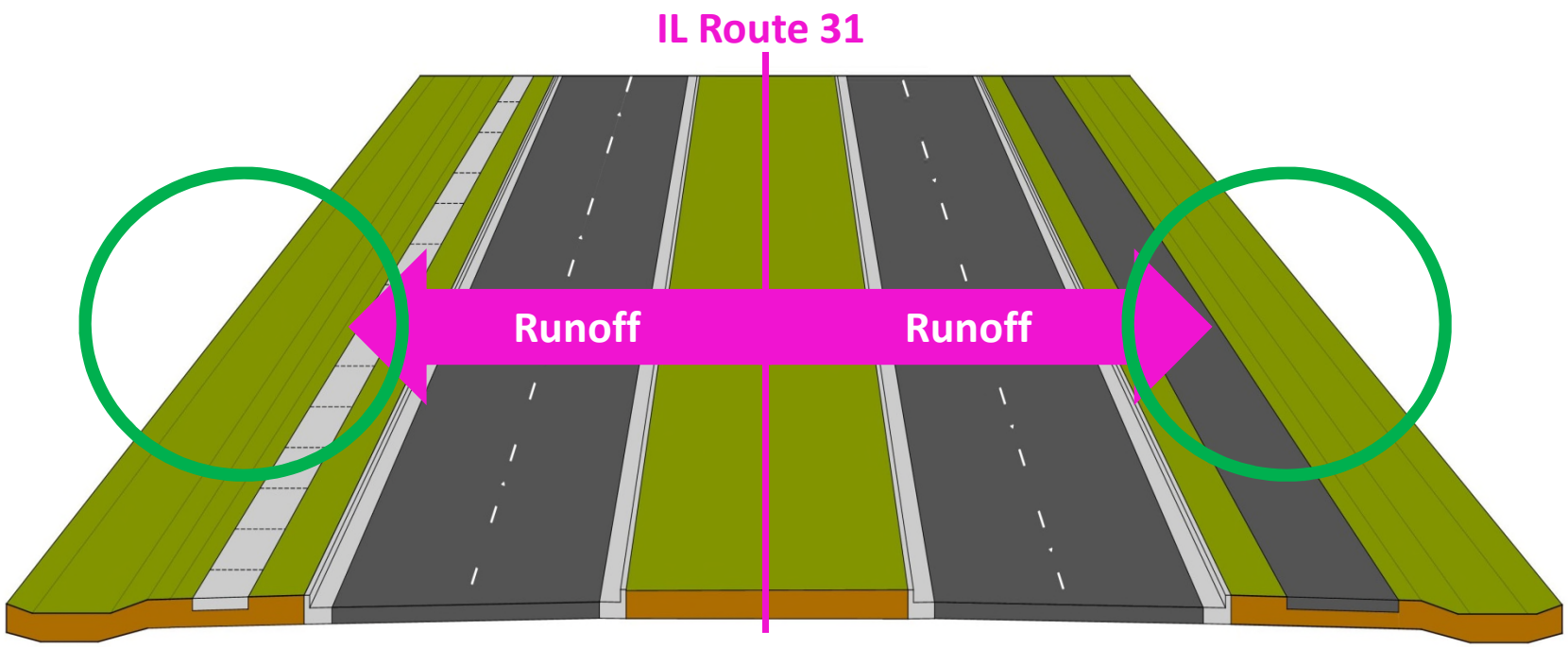
Unnamed Stream Crossing
Existing 10’x 4’ Box Culvert
& 4’ x 4’ Box Culvert

Squaw Creek Channel
Along IL Route 31

Sleepy Hollow Creek Channel
East of IL Route 31

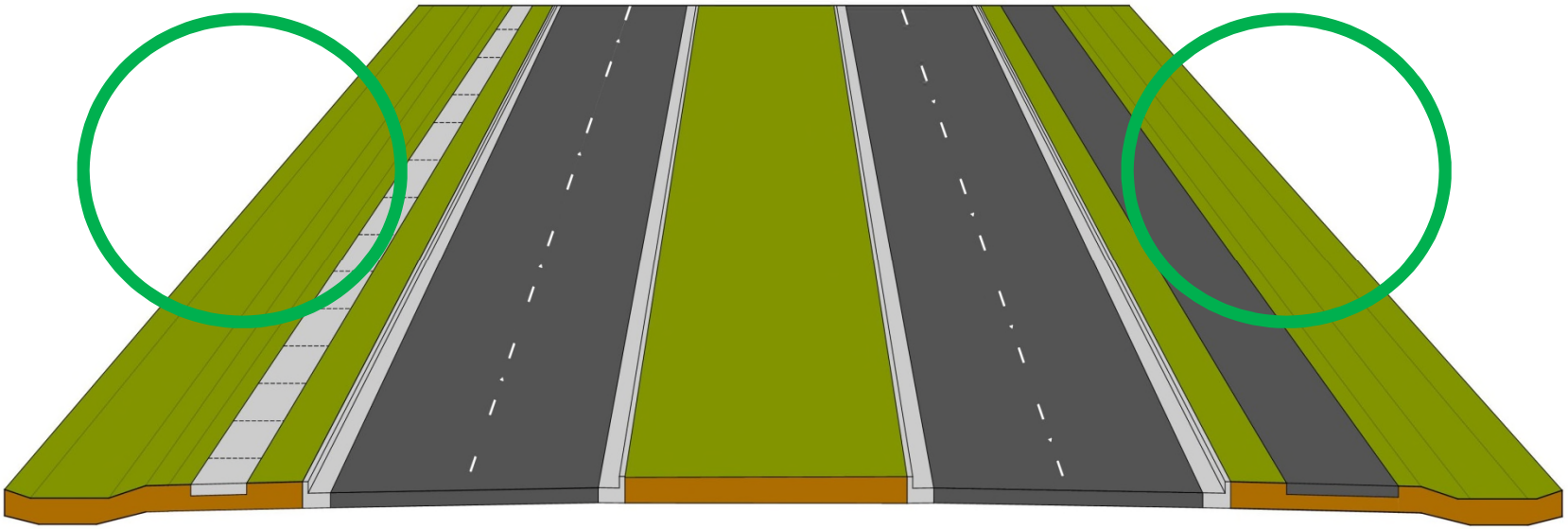
Unnamed Steam Channel
East of IL Route 31

BMPs To Be Considered



GRASSED SWALES OR DITCHES

BMPs To Be Considered

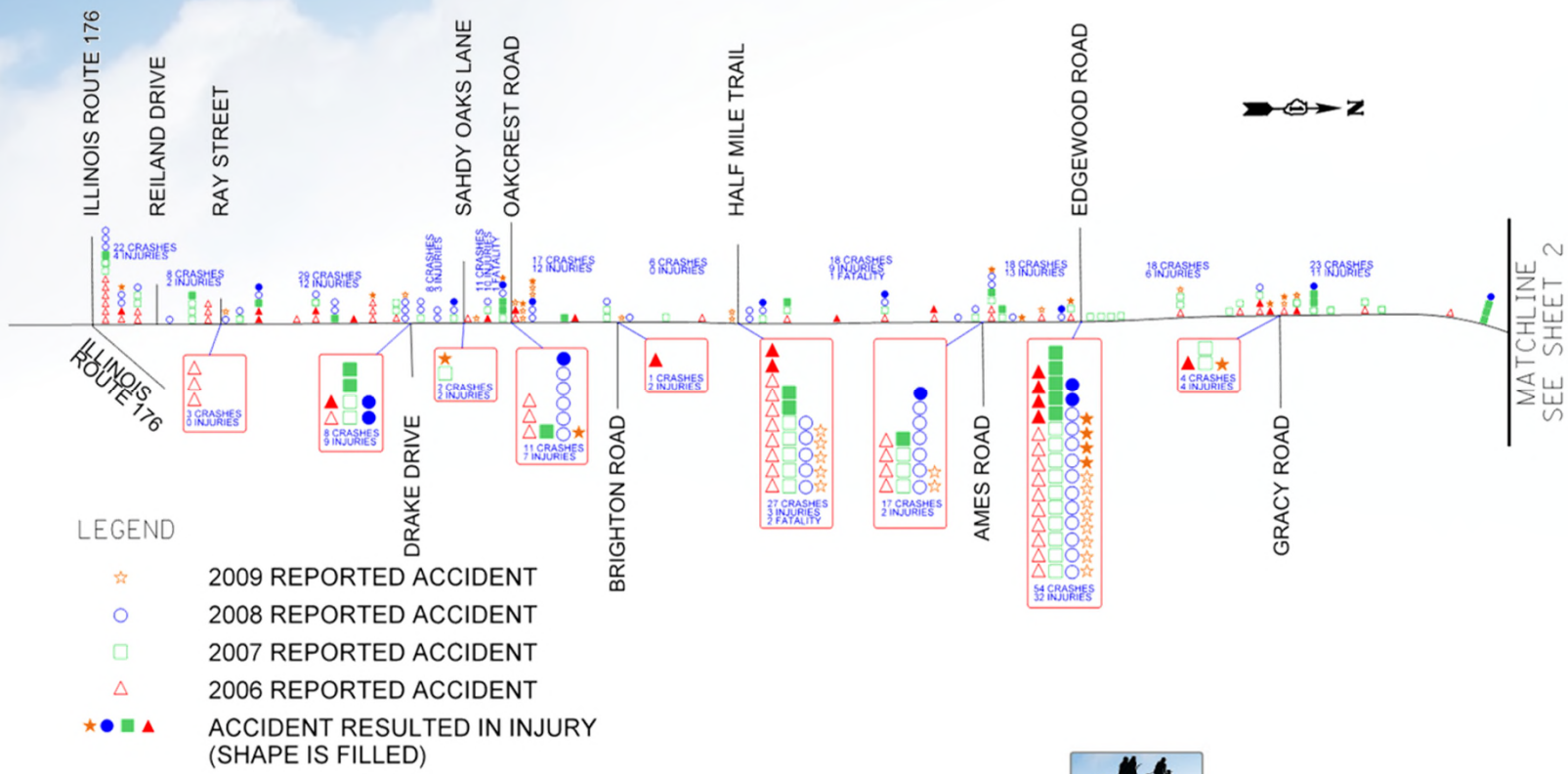


Ditches can include Bio-swales with native plants, Vegetated Filter Strips, Rain Gardens, or Constructed Wetlands at Sensitive Outfall Locations.

Meeting to be scheduled with local environmental groups to discuss stormwater management for the project during development of the preferred alternative.

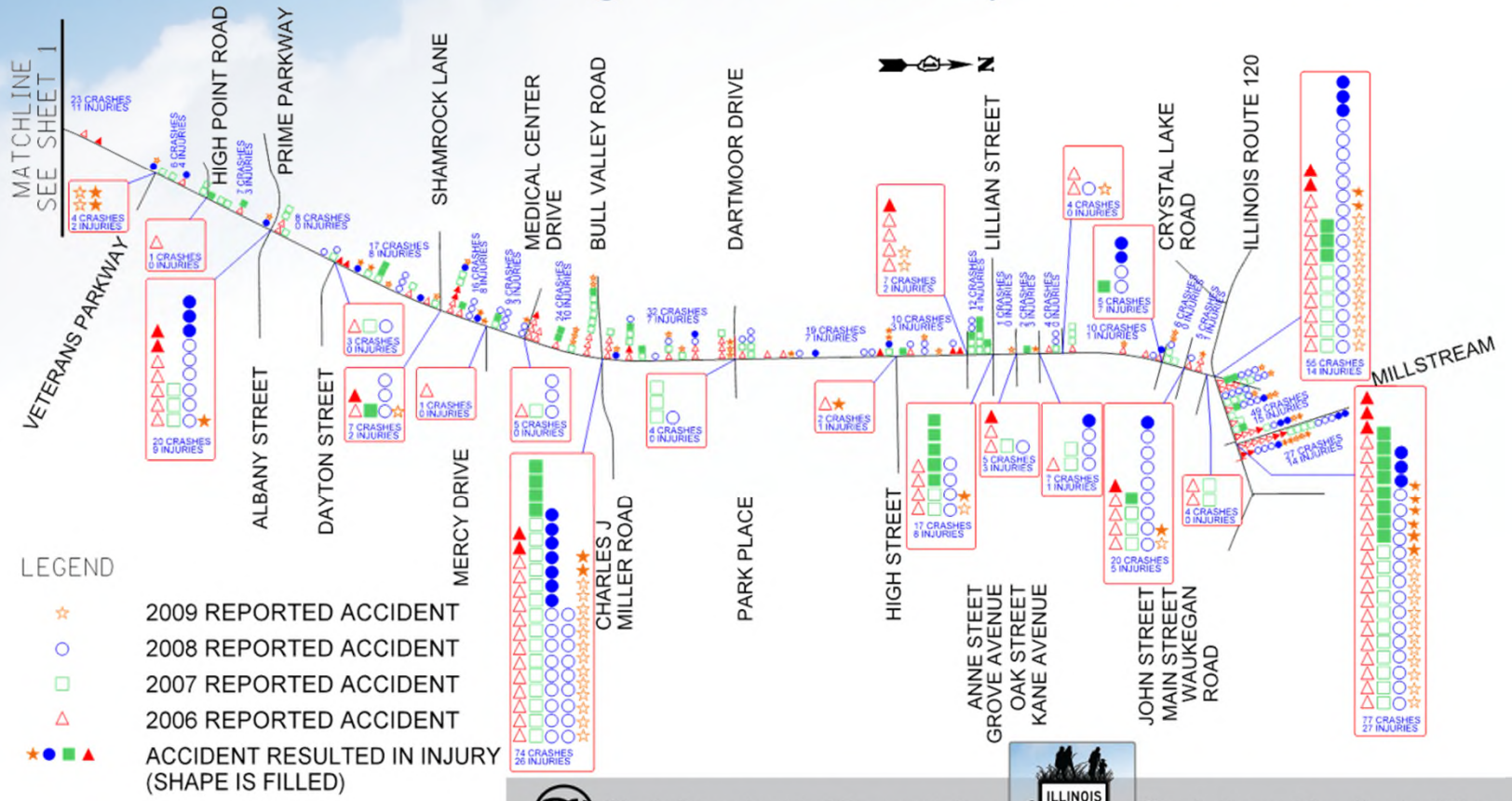
Safety Deficiencies - Continued

- Crash Cluster Diagram – IL 176 to Gracy Rd.



Safety Deficiencies - Continued

- Crash Cluster Diagram – Gracy Rd. to IL 120



NEPA/404 Merger Meeting

Preferred Alternative
June 25, 2014

Preferred Alternative Chapter
BMP Map
Coordination
Presentation Slides
Meeting Summary – See Coordination Section

Preferred Alternative

NEPA/404 Merger: Concurrence Point
June 2014 Meeting

Illinois Route 31 Phase I Study

Illinois Route 176 to Illinois Route 120
McHenry County, Illinois

Project No: P-91-387-10
PTB No: 155-015

Prepared For:

Illinois Department of Transportation
201 W. Center Ct.
Schaumburg, IL 60196

Prepared By:

August 2014

TABLE OF CONTENTS

I. Introduction 1

II. Description of Alternatives Carried Forward 2

Range of Alternatives Evaluation Summary 2
Alternatives Carried Forward 3
Summary of Alternatives Carried Forward 7
Geometric Refinements of the South Section 30' Raised Median Alternative 7

III. Environmental Resources Impact Analysis 9

IV. Summary of Environmental Resource Impacts by Alternative 16

South Section Alternatives: 30' Raised and 30' Depressed Median Alternatives 16
28' and 18' Raised Median Options (Geometric Refinements of the 30' Raised Median Alternative) . 21
North Section and IL Route 120 Intersection Alternatives 25

V. Public and Local Agency Input 29

Village of Prairie Grove 29
City of McHenry 29
Local Agencies and Environmental Groups 29

VI. Preferred Alternative Recommendation 30

North Section/IL Route 120 Intersection 30
South Section 30
Best Management Practices for the Preferred Alternative 31

FIGURES

Figure 1 Alternatives Screening Process 1
Figure 2 Location Map and Project Description 2
Figure 3 South Section 30' Raised Median Alternative: Typical Section 4
Figure 4 South Section 30' Depressed Median Alternative: Typical Section 4
Figure 5 North Section 18' Raised Median Alternative: Typical Section 5
Figure 6 IL Route 120 Intersection Build Alternative A: Plan View 6
Figure 7 IL Route 120 Intersection Build Alternative B: Plan View 7
Figure 8 Wetland Impacts – South Section Alternatives 17
Figure 9 Oak Tree Stand Impacts – South Section Alternatives 19
Figure 10 Water Tank Impact at Illinois American Water – South Section Alternatives 20
Figure 11 Wetland Impacts – 18' and 28' Raised Median Option 23
Figure 12 Residential Impacts – North Section and IL Route 120 Alternatives 26
Figure 13 Business Impacts – North Section and IL Route 120 Alternatives 27
Figure 14 Recommended Preferred Alternative 31
Figure 15 Best Management Practices 33

TABLES

Table 1 Environmental Resource Impacts Summary, South Section Alternatives 10
Table 2 Environmental Resource Impacts Summary, 18' and 28' Raised Median Alternatives, South Section 12
Table 3 Environmental Resource Impacts Summary, North Section and IL Route 120 Intersection Alternatives 14
Table 4 Wetland Impacts for Minimized Design Options, Compared to 30' Raised Median 22

ATTACHMENTS

Attachment 1 Environmental Resource Descriptions

Table A1-1 Environmental Resource Descriptions A1-1

Attachment 2 Local Agency and Public Involvement

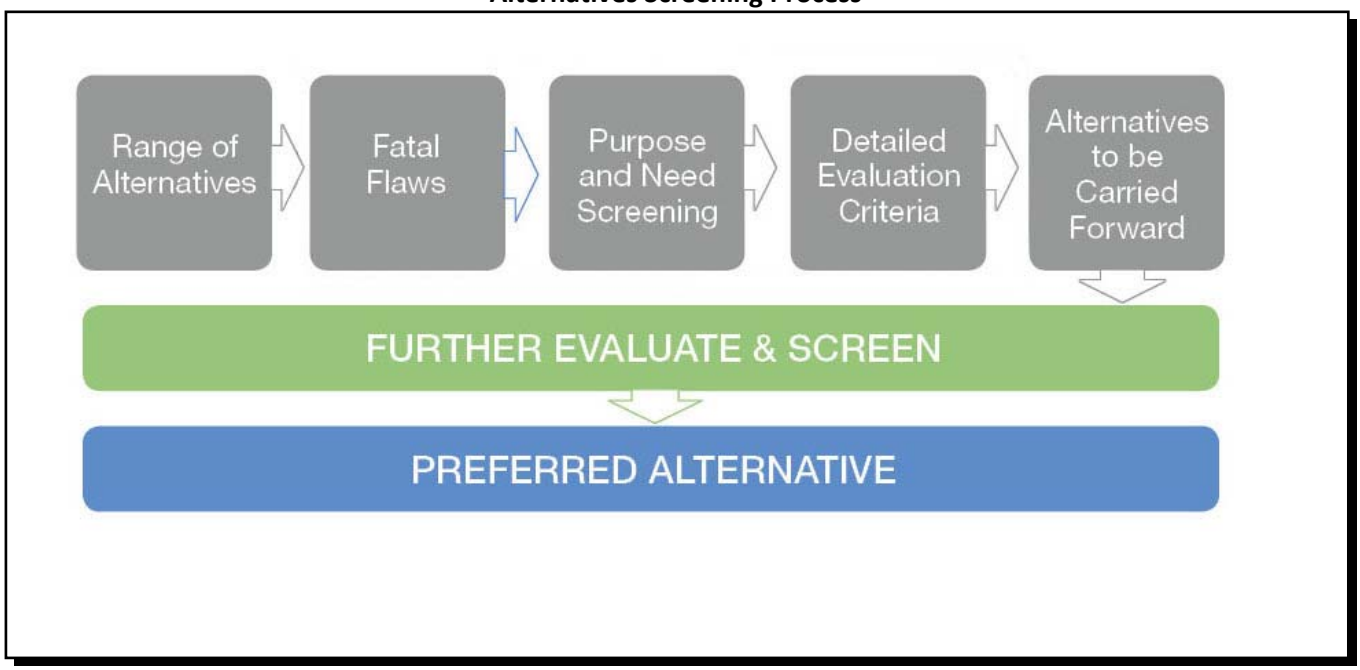
I. Introduction

The Illinois Route 31 (IL Route 31) Environmental Assessment (EA) is a transportation planning study administered by the Federal Highway Administration (FHWA) and the Illinois Department of Transportation (IDOT). The purpose of the project is to improve safety, address roadway capacity and mobility, correct existing geometric deficiencies and encourage multi-modal transportation along IL Route 31 from the intersection of IL Route 176 to the intersection of IL Route 120, in eastern McHenry County. Concurrence on the Purpose & Need Statement was received at the March 2012 NEPA/404 Merger Meeting.

After concurrence on the Purpose & Need was obtained, a range of alternatives for the project was developed. The range of alternatives included the No Action Alternative and Build Alternatives for each of the following corridor sections: South Section (IL Route 176 to south of Bull Valley Road), North Section (North of Bull Valley Road to south of John Street), and IL Route 120 intersection. Seven alternatives were identified for the North Section, five for the South Section, and seven for the IL Route 120 intersection.

The range of alternatives was screened using a seven-stage process, as identified below. Public input was obtained on various project elements and treatments evaluating their effectiveness for meeting the Purpose and Need.

Figure 1
Alternatives Screening Process



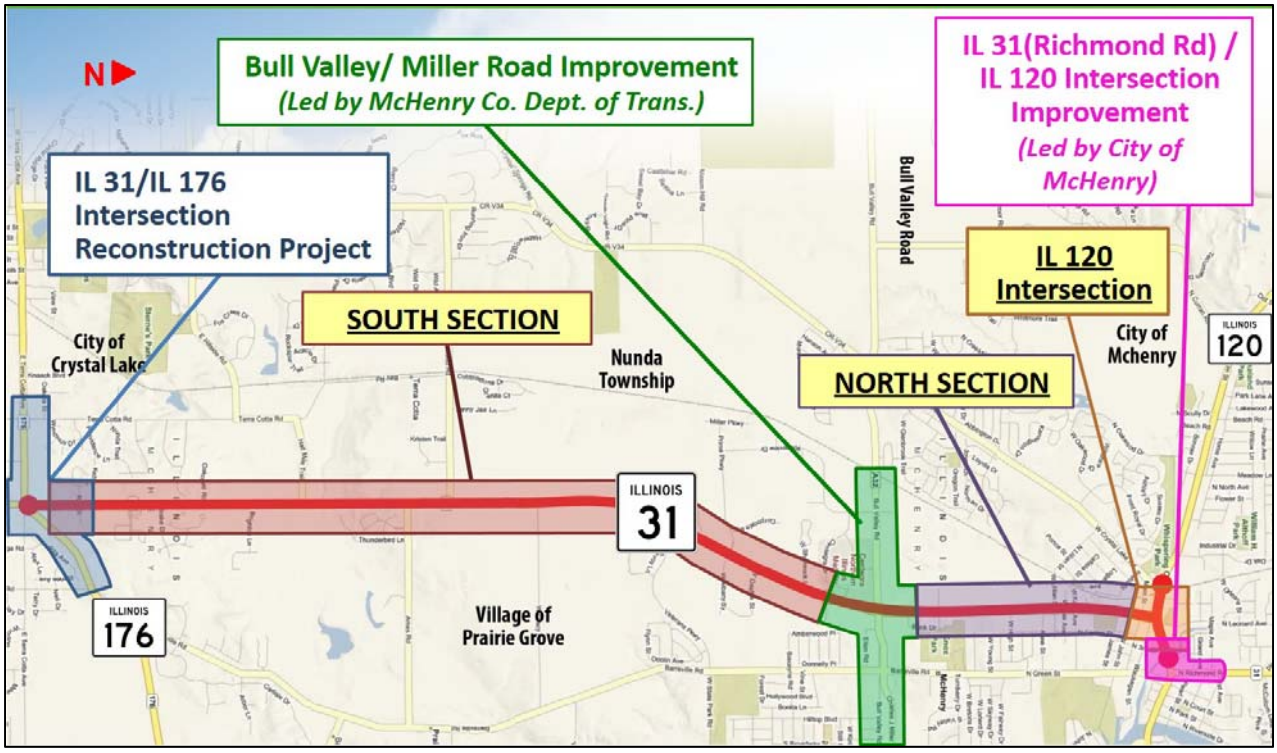
The alternatives screening process resulted in the identification of Alternatives to be Carried Forward. Concurrence on the Alternatives to be Carried Forward was received from IDNR and IDOA on June 25, 2013 with Conditional Concurrence from the U.S. Army Corps of Engineers, USEPA, and USFWS based on an agreement that avoidance opportunities and incorporation of wildlife crossings near locations of high quality wetlands would be investigated.

II. Description of Alternatives Carried Forward

The IL Route 31 project extends from IL Route 176 to IL Route 120 in McHenry County, Illinois. The corridor improvement is divided in parts, as shown in Figure 2. Three portions of the corridor will have improvement projects that are not part of this study, as described in the list below.

- IL Route 31/IL Route 176 Intersection Reconstruction Project (Led by IDOT)
- Bull Valley/Miller Road Improvement (Led by McHenry County DOT)
- IL Route 31 (Richmond Road) /IL 120 Intersection Improvement (Led by City of McHenry)

Figure 2
Location Map and Project Description



Range of Alternatives Evaluation Summary

Based on input obtained from the Community Advisory Group (CAG), stakeholders and the project study group, a range of alternatives for the project was developed for three sections of the IL Route 31 corridor:

- South Section: IL Route 176 to South of Bull Valley Road
- North Section: North of Bull Valley Road to John Street
- IL Route 120 intersection with IL Route 31

The South Section of IL Route 31 was found to need additional through lane capacity due to projected 2040 traffic volumes. The south section alternatives included six lane options, four lane options, and one five lane option with a bi-directional two-way left turn lane in addition to the No Build Alternative.

The North Section of IL Route 31 also was found to need additional through lane capacity due to future traffic demand projections. The north section alternatives included four lane options, a five-lane two-way left turn lane option, and a one-way arterial pair (couplet) in addition to the No Build Alternative. In addition to these alternatives, a roundabout and a conventional signalized intersection at Lillian Street/Grove Street were also analyzed.

The IL Route 120 intersection at IL Route 31 (Front Street) in downtown McHenry poses a design challenge. Any more than minor pavement widening at this intersection could require the demolition of multiple buildings. The range of alternatives developed for this intersection included single left and dual left turn lane options for the south intersection leg (Front Street), a traditional signalized intersection, roundabout alternatives, and various free flow right turn alternatives for the south leg in addition to the No Build Alternative.

Alternatives were screened for fatal flaws and conformance with the project Purpose and Need. A subsequent evaluation phase further refined and eliminated alternatives on the basis of human and natural environment impacts, anticipated right-of-way acquisition, design factors, local agency and residential input, and safety considerations. As previously stated, the resulting Alternatives Carried Forward received conditional concurrence from the U.S. Army Corps of Engineers, USEPA, and USFWS in June 2013.

Alternatives Carried Forward

For all three sections of the IL 31 study, the No Build Alternative was considered. The No Build Alternative assumes no transportation improvements will be made to IL Route 31. Other planned transportation projects included in the Transportation Improvement Plan (TIP) are considered to be part of the No Build Alternative.

The build alternatives included in the Alternatives Carried Forward are summarized below.

South Section (IL Route 176 to South of Bull Valley Road)

Three alternatives were identified to be carried forward for the South Section:

- No Build Alternative
- 30' Raised Median Alternative
- 30' Depressed Median Alternative

Both of the Build Alternatives for the South Section alternatives provide two through lanes in each direction (separated by a median), and provide accommodations for a sidewalk and shared-use path. The 30' Raised Median Alternative matches the geometry of the IL Route 176 and Bull Valley Road intersection improvement projects by IDOT and McHenry County, respectively, and includes a 30' wide raised median with curb and gutter. This alternative allows for a maximum speed limit of 45 mph throughout the South Section.

The 30' Raised Median Alternative includes an alignment shift at Gracy Road to avoid impacting McMillan Cemetery. The 30' Depressed Median Alternative does not include a similar alignment shift at Gracy Road to avoid the cemetery because it would require the acquisition of a residence west of the roadway.

Narrower median options of 18' and 22' in width were studied during the project's Purpose and Need screening; however, it was found that these narrower median widths would not accommodate dual left turn lanes that are anticipated to be needed as planned development in the corridor occurs.

The 30' Depressed Median Alternative is identical to the 30' Raised Median Alternative with exception of the section between Drake Drive and Veterans Parkway. A 30' wide depressed median with a 10' wide paved shoulder is proposed between Drake Drive and Veterans Parkway. This alternative would allow for maintaining existing 50 to 55 mph posted speeds from Drake Drive to Veterans Parkway, and would retain the corridor's rural character.

Both the 30' Raised Median Alternative and the 30' Depressed Alternative include grass in a majority of the wide median areas. The grassy medians will contain a swale through the middle of the median and open lid catch basins will collect the median stormwater to discharge into roadside ditches. Generally, the roadside ditches will be routed through bioswales prior to be being discharged at sensitive outfall locations.

When conditional concurrence on the Alternatives Carried Forward was provided at the June 25, 2013 NEPA/404 merger meeting, the U.S. Army Corps of Engineers requested further investigation of design options at Half Mile Trail in the south section to minimize impacts to ADID wetlands and a seep wetland adjacent to IL 31. The alternatives carried forward, as listed below, are those that were recommended to be carried forward at the June 2013 merger meeting and do not yet reflect design minimizations recommended by the U.S. Army Corps of Engineers (see page 8 for a discussion of the minimization options studied).

Figures 3 and 4 show typical sections of the 30' Raised Median Alternative and the 30' Depressed Median Alternative for the south section.

Figure 3
South Section 30' Raised Median Alternative: Typical Section

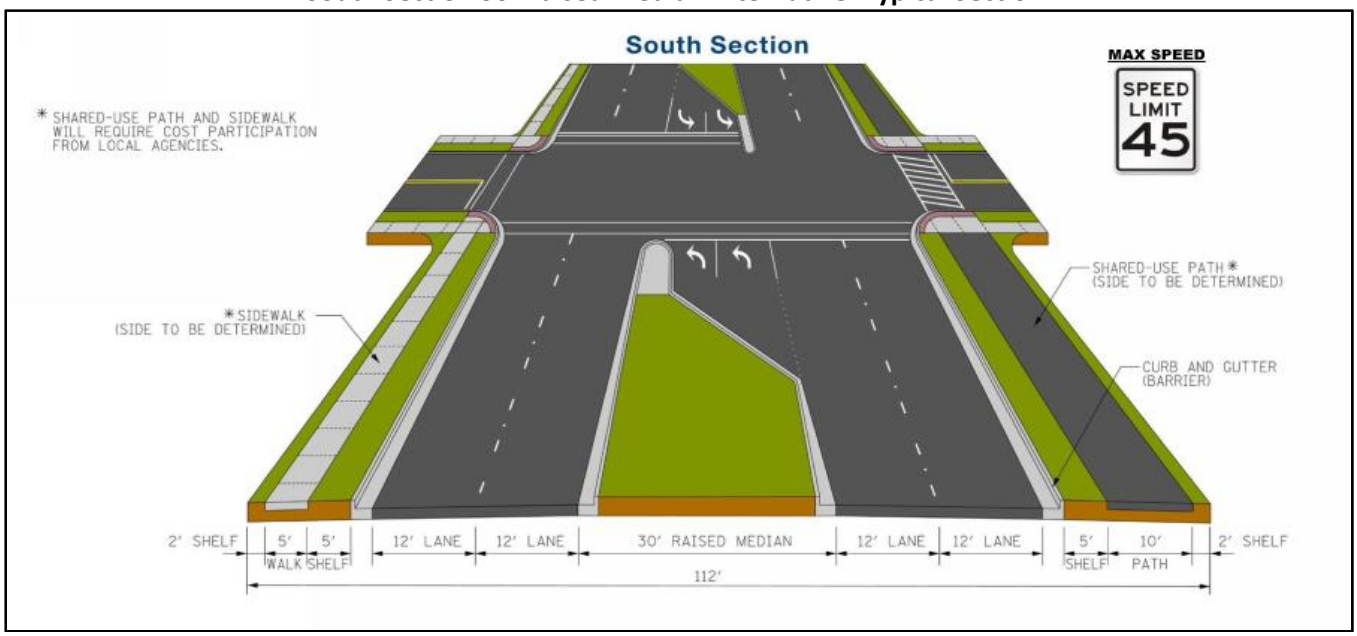
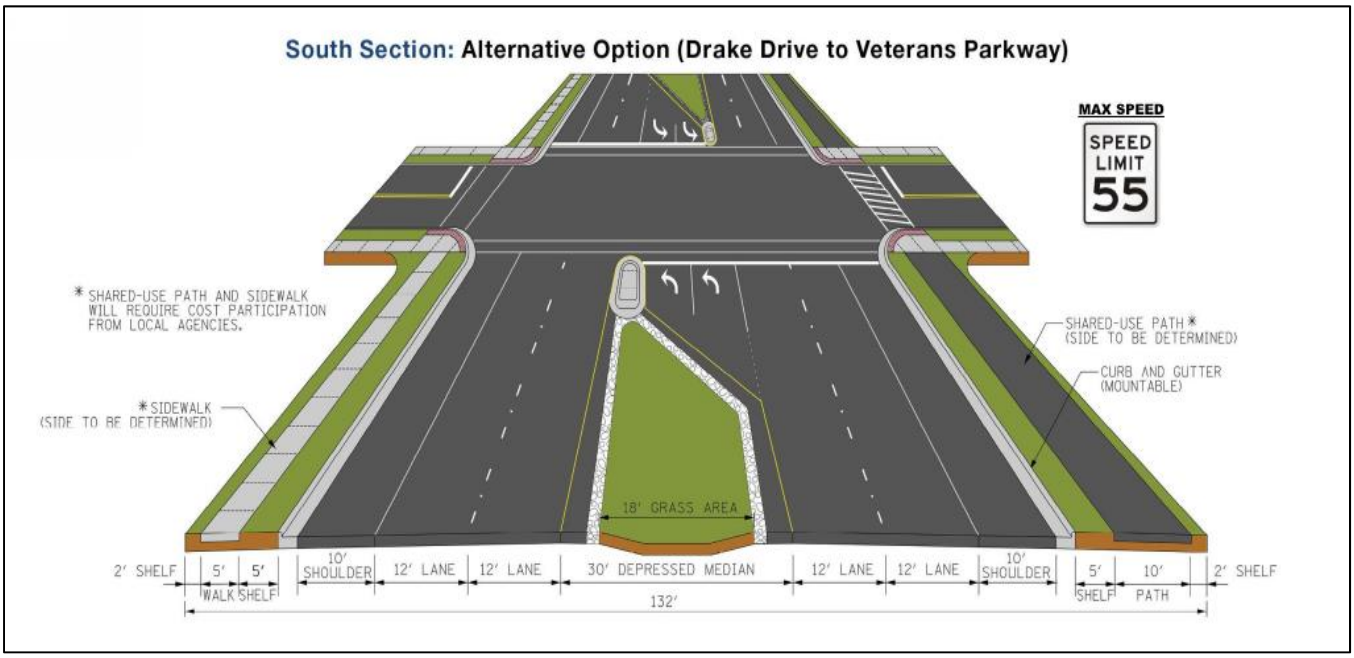


Figure 4
South Section 30' Depressed Median Alternative: Typical Section



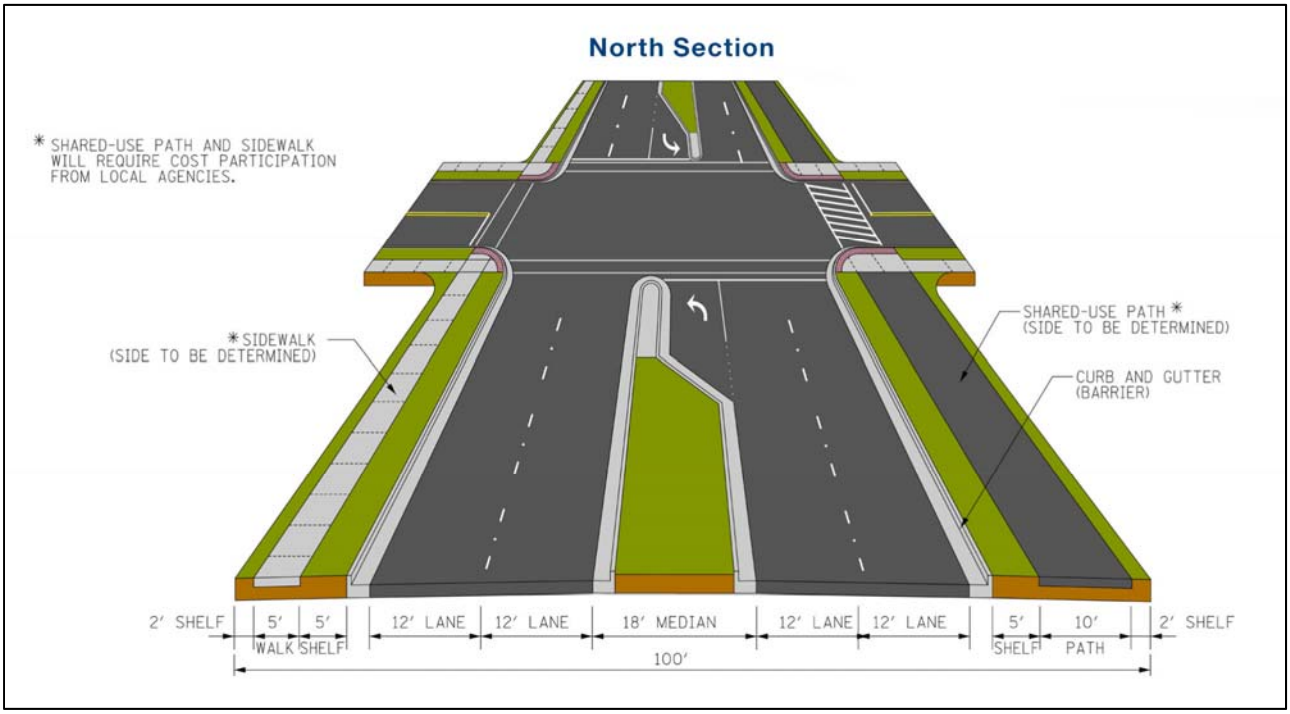
North Section (North of Bull Valley Road to John Street)

Two alternatives were identified to be carried forward for the North Section:

- No Build Alternative
- 18' Raised Median Alternative

Figure 5 is a typical section of the North Section 18' Raised Median Alternative. The 18' raised median alternative provides single lane left turn storage at intersections and two lanes in each direction to accommodate the future traffic demands. Raised barrier medians can reduce the frequency of turning, angle and head-on crashes. A flush median alternative was dismissed in this section because it would not provide a physical barrier from turning, and therefore has a higher anticipated crash frequency when compared to the raised barrier median alternative. A shared-use path and sidewalk are proposed for pedestrian and bicycle accommodations; these accommodations require cost participation from local communities.

Figure 5
North Section 18' Raised Median Alternative: Typical Section



IL Route 120 Intersection

Three alternatives were identified to be carried forward at the IL Route 120 intersection with IL Route 31:

- No Build Alternative
- Build Alternative A (South Leg – Five Lane / Flush Median)
- Build Alternative B (South Leg – Six Lane / Raised Median)

Build Alternative A includes minimum pavement widening and restriping of the south and north legs of the intersection, as well as minimum pavement widening along IL Route 120. The south intersection leg will consist of five 10' wide lanes, and the east intersection leg will be widened to six lanes 10 to 11' in width. In addition, the east leg of the intersection would have a 4' barrier median to separate the dual left turn lanes from opposing traffic and a bump-out area on the southeast corner of the intersection to allow for westbound u-turns. The improvements would include sidewalk, but would not include bicycle facilities. Year 2040 level of service with this alternative is anticipated to be an "E," compared to the year 2040 level of service of "F" that is projected with the No Build Alternative.

Build Alternative B consists of a six-lane cross section on the south, east and west legs of the intersection. Proposed 12 feet wide lanes would be constructed on all four approaches to the intersection. On street parking along IL Route 31 and IL Route 120 would be eliminated. Provisions for multi-modal accommodations would be provided in this option along IL Route 31 and IL Route 120. The level of service at this intersection in the year 2040 is anticipated to be a "C," compared to the year 2040 level of service of "F" that is projected with the No Build Alternative.

Figures 6 and 7 are plan views of the IL Route 120 Intersection Build Alternatives.

Figure 6
IL Route 120 Intersection Build Alternative A: Plan View

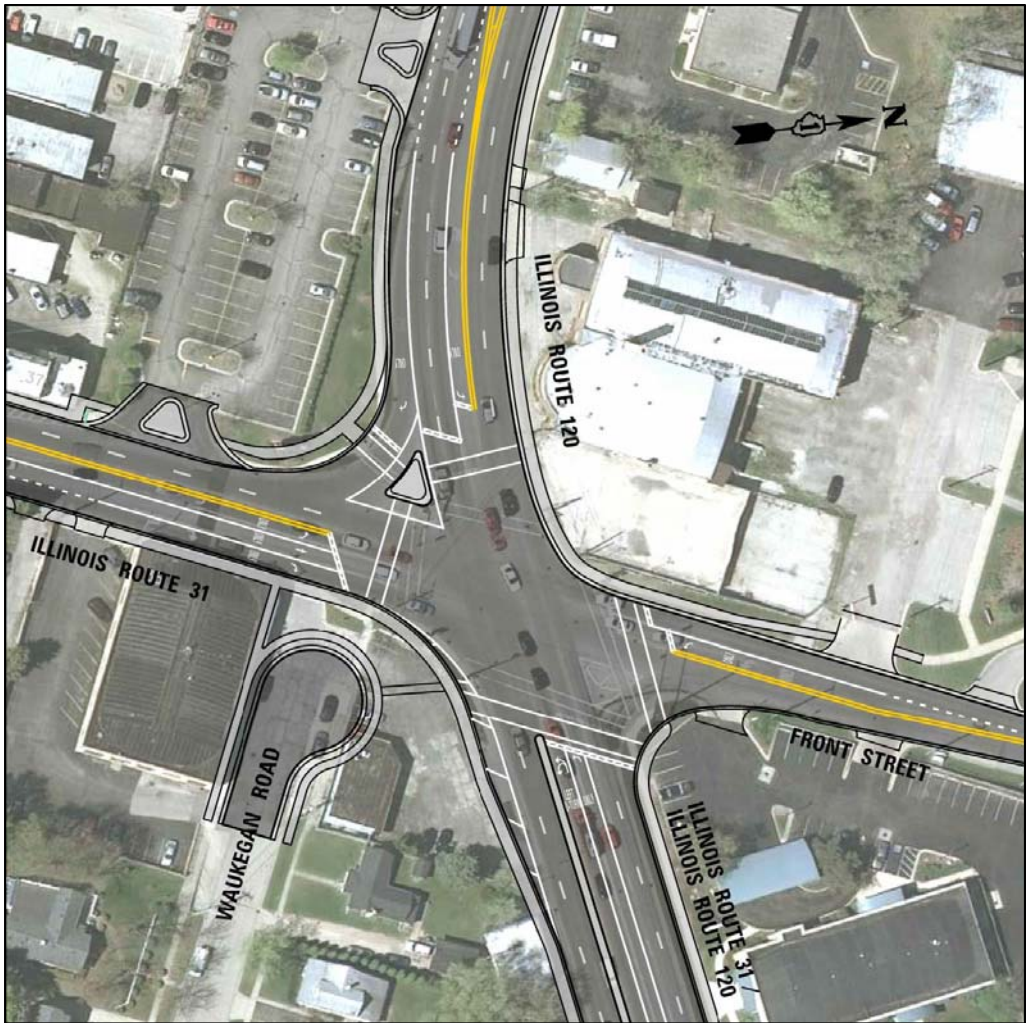
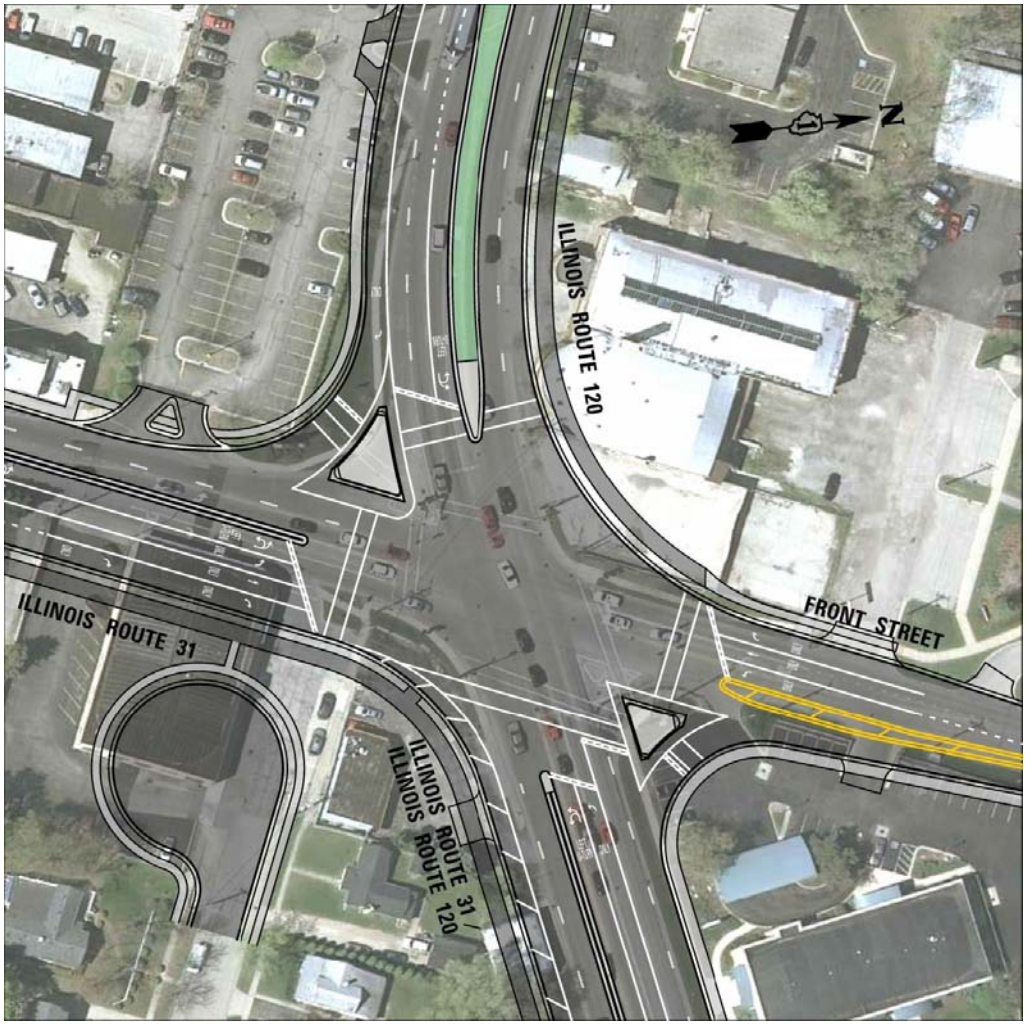


Figure 7
IL Route 120 Intersection Build Alternative B: Plan View



Summary of Alternatives Carried Forward

Five build alternatives among the three sections of the IL Route 31 corridor were selected to be carried forward for environmental resource analysis, as described in the sections above. Section III summarizes the environmental resource impacts for the alternatives carried forward.

The two build alternatives carried forward for the South Section were assessed for environmental impacts. Impacts for the 30' Depressed and 30' Raised Median Alternatives were compared to identify the Preferred Alternative.

There is only one build alternative proposed for the North Section of IL Route 31 (North of Bull Valley Road to John Street), the 18' Raised Median Alternative. Because there is no other build alternative for comparison, the North Section 18' Raised Median Alternative was combined with the two IL Route 120 Intersection alternatives for the environmental resource impacts assessment in Section III. Impacts from the North Section 18' Raised Median and the IL Route 120 Intersection Build Alternative A were compared to those from the North Section 18' Raised Median and the IL Route 120 Intersection Build Alternative B.

Geometric Refinements of the South Section 30' Raised Median Alternative

When providing conditional concurrence on the Alternatives Carried Forward during the June 25, 2013 NEPA/404 merger meeting, the U.S. Army Corps of Engineers (USACE) requested further investigation design

options near Half Mile Trail in the South Section to minimize impacts to ADID wetlands and a seep wetland adjacent to IL Route 31. Two refinements of the South Section 30' Raised Median Alternative were developed to comply with USACE's request to reduce wetland impacts, as detailed below. These "minimization options" were developed for the area between River Birch Boulevard and Medical Center Drive (south of Bull Valley Road).

28' Raised Median Option

To determine if environmental resource impacts could be significantly reduced by reducing roadway width, a 28' Median Option with 11' wide travel lanes was developed between River Birch Boulevard and Medical Center Drive (The 30' Raised Median Alternative included a 30' wide raised median with 12' wide travel lanes). For this option, the roadway centerline was shifted 13' west to avoid the seep wetland (Site 35).

18' Raised Median Option

Another minimization option was assessed to determine if impacts could be significantly reduced by reducing the raised median width to 18' between River Birch Boulevard and Ames Road, with a 28' raised median between Ames Road and Medical Center Drive. The option would have 11' travel lanes. For this option the roadway centerline was shifted 10' west to avoid the seep wetland (Site 35).

As discussed further in Section IV, a 28' raised median is recommended between Ames Road and Medical Center Drive for two reasons. First, the 28' median width allows for future construction of dual left turns lanes on IL Route 31, projected to be needed to support planned development in Prairie Grove. A median width of 18' would not allow for the later construction of dual left turn lanes. Second, the 28' median width matches roadway design plans for the IL Route 31/Bull Valley Road intersection project that is currently in development.

III. Environmental Resources Impact Analysis

Thirty environmental resource criteria were evaluated for potential impacts from the proposed alternatives. Table 1 shows the resource criteria studied for the proposed build South Section alternatives, including criteria associated with natural resources, community resources, agricultural resources, and water resources. A full listing of resource criteria, including definitions, appears in Attachment 1.

In all cases, the No Build Alternative will not result in new environmental impacts, and therefore is not included in the environmental resources impact analysis below. The No Build Alternative will not meet the Purpose and Need of the proposed project.

Resource impacts were assessed by corridor section. Table 1 presents the environmental resource impacts for the South Section alternatives carried forward.

The North Section alternatives carried forward contained one build alternative. Because of this, the North Section build alternative was combined with the two IL Route 120 intersection alternatives. Table 2 summarizes 18' and 28' Raised Median Options for the south section alternatives (between River Birch and Medical Center Drive). Table 3 summarizes the environmental resource impacts from the combined North Section and IL Route 120 intersection alternatives carried forward.

Table 1
Environmental Resource Impacts Summary
South Section Alternatives (IL Route 176 to Medical Center Drive)

Criterion	Unit of Measure	30' Raised Median Alternative	30' Depressed Median Alternative
Water Quality/ Water Resources	Floodplain (acres affected)	**1.44**	**1.48**
	Streams (number of crossings)	7	7
	Drinking Water Supplies - Private Wells within ROW (number affected)	1	1
	Number of Non-CWS well setback zones	4	4
	Wellhead Protection Areas (number affected)	5	5
	Amount of ROW in each Watershed		
	Silver Creek Watershed	12.9	12.9
	Sleepy Hollow Creek Watershed	**48.5**	**51.9**
	Fox River Watershed	**47.6**	**49.3**
	Boone Creek Watershed	0	0
	Highly Erodible Soils (acres affected)	1.0	1.0
	Sensitive Aquifer Recharge Area (acres affected)	**79.6**	**83.6**
Wetlands	Wetlands (number affected)	23	23
	Wetlands (acres affected)	**1.73**	**2.08**
	High Quality Aquatic Resources (number affected)	6	6
	High Quality Aquatic Resources (acres affected)	**0.35**	**0.50**
	Waters of the U.S. (number affected)	2	2
	Waters of the U.S. (acres affected)	**0.20**	**0.23**
T&E Species*	State and Federal Threatened and Endangered Species (number affected)	0	0
INAI Sites	Illinois Natural Area Inventory (INAI) sites (number affected)	0	0
Trees	Oak Tree Stands (acres affected)	**0.04**	**0.06**
Residences	Homes, including homes on a farmstead (number displaced)	0	0
	Homes, including homes on a farmstead (buildings displaced)	0	0

Criterion	Unit of Measure	30' Raised Median Alternative	30' Depressed Median Alternative
Environmental Justice	Minority and/or Low Income Population Impacted? (y/n)	N	N
Business	Businesses with Site Impacts Only (sites impacted)	19	19
	Businesses with Structure Acquisition (tenants acquired)	**0**	**1**
Parklands	Parklands (number affected)	0	0
Cultural Resources	Cultural Resources (number affected)	0	0
Cemeteries	Cemeteries (sq ft affected)	0	(940 square feet temporary easement and 1,880 square feet proposed right-of-way)
Special Waste	Recognized Environmental Conditions (RECs) (number affected)	40	40
Prime and Important Farmland	Prime and Important Farmland (acres affected)	**85.24**	**90.20**
Farms Otherwise Affected	Farm Parcels Otherwise Affected(acres)	28	28
Number of Agricultural Land Owners	Owners (number affected)	16	16
Uneconomical Remnants	Uneconomical Farm Remnants (number)	0	0
Centennial/ Sesquicentennial Farms	Centennial/Sesquicentennial Farms (number)	0	0
Right-of-Way	Total Right-of-Way Required (acres)	**53.84**	**59.09**

**Does not include additional T&E surveys of the project area scheduled for 2014.*

Table 2
Environmental Resource Impacts Summary
18' and 28' Raised Median Alternatives – South Section (River Birch to Medical Center Drive)

Criterion	Unit of Measure	18' Raised Median Option	28' Raised Median Option
Water Quality/ Water Resources	Floodplain (acres affected)	**1.42**	**1.44**
	Streams (number of crossings)	5	5
	Drinking Water Supplies - Private Wells within ROW (number affected)	1	1
	Number of Non-CWS well setback zones	1	1
	Wellhead Protection Areas (number affected)	5	5
	Amount of ROW in each Watershed		
	Silver Creek Watershed	3.24	3.24
	Sleepy Hollow Creek Watershed	**46.74**	**47.63**
	Fox River Watershed	45.5	45.5
	Boone Creek Watershed	0	0
	Highly Erodible Soils (acres affected)	0.83	0.84
	Sensitive Aquifer Recharge Area (acres affected)	71	71
Wetlands	Wetlands (number affected)	16	16
	Wetlands (acres affected)	**1.47**	**1.54**
	High Quality Aquatic Resources (number affected)	4	4
	High Quality Aquatic Resources (acres affected)	**0.22**	**0.29**
	Waters of the U.S. (number affected)	2	2
	Waters of the U.S. (acres affected)	**0.22**	**0.23**
T&E Species*	State and Federal Threatened and Endangered Species (number affected)	0	0
INAI	Illinois Natural Area Inventory (INAI) sites (number affected)	0	0
Trees	Oak Tree Stands (acres affected)	0.04	0.04
Residences	Homes, including homes on a farmstead (number displaced, number displaced)	0	0
	Homes, including homes on a farmstead (buildings displaced)	0	0
Environmental Justice	Minority and/or Low Income Population Impacted? (y/n)	N	N

Criterion	Unit of Measure	18' Raised Median Option	28' Raised Median Option
Business	Businesses with Site Impacts Only (sites impacted)	12	12
	Businesses with Structure Acquisition (tenants acquired)	0	0
Parklands	Parklands (number affected)	0	0
Cultural Resources	Cultural Resources (number affected)	0	0
Cemeteries	Cultural – Cemeteries (number affected)	0	0
Special Waste	Recognized Environmental Conditions (RECs) (number affected)	21	21
Prime and Important Farmland	Prime and Important Farmland (acres affected)	**73.94**	**74.74**
Farms Otherwise Affected	Farm Parcels Otherwise Affected (acres)	28	28
Number of Agricultural Land Owners	Owners (number affected)	16	16
Uneconomical Remnants	Uneconomical Farm Remnants (number)	0	0
Centennial/ Sesquicentennial Farms	Centennial/Sesquicentennial Farms (number)	0	0
Right-of-Way	Total Right-of-Way Required (acres)	**45.28**	**46.18**

**Does not include additional T&E surveys of the project area scheduled for 2014.*

Table 3
Environmental Resource Impacts Summary
North Section and IL Route 120 Intersection Alternatives (North of Bull Valley Road to IL Route 120)

Criterion	Unit of Measure	Build Alternative A	Build Alternative B
Water Quality/ Water Resources	Floodplain (acres affected)	5.54	5.54
	Streams (number of crossings)	2	2
	Drinking Water Supplies - Private Wells within ROW (number affected)	0	0
	Number of Non-CWS well setback zones	1	1
	Wellhead Protection Areas (number affected)	2	2
	Amount of ROW in each Watershed		
	Silver Creek Watershed	0	0
	Sleepy Hollow Creek Watershed	0	0
	Fox River Watershed	**21.7**	**22.5**
	Boone Creek Watershed	**5.0**	**7.7**
	Highly Erodible Soils (acres affected)	**6.5**	**8.9**
	Sensitive Aquifer Recharge Area (acres affected)	**15.7**	**18.5**
Wetlands	Wetlands (number affected)	2	2
	Wetlands (acres affected)	0.19	0.19
	High Quality Aquatic Resources (number affected)	0	0
	High Quality Aquatic Resources (acres affected)	0	0
	Waters of the U.S. (number affected)	1	1
	Waters of the U.S. (acres affected)	0.05	0.05
T&E Species*	State and Federal Threatened and Endangered Species (number affected)	0	0
INAI Sites	Illinois Natural Area Inventory (INAI) sites (number affected)	0	0
Trees	Oak Tree Stands (acres affected)	0	0
Residences	Homes, including homes on a farmstead (units displaced)	**0**	**22**
	Homes, including homes on a farmstead (buildings displaced)	**0**	**4**
Environmental Justice	Minority and/or Low Income Population Impacted? (y/n)	**N**	**Y**

Criterion	Unit of Measure	Build Alternative A	Build Alternative B
Business	Businesses with Site Impacts Only (sites impacted)	25	29
	Businesses with Structure Acquisition (tenants acquired)	**2**	**15**
Parklands	Parklands (number affected)	**0**	**1**
Cultural Resources	Cultural Resources (number affected)	0	0
Cemeteries	Cemeteries (sq ft affected)	0	0
Special Waste	Recognized Environmental Conditions (RECs) (number affected)	**31**	**34**
Prime and Important Farmland	Prime and Important Farmland (acres affected)	**19.27**	**22.65**
Farms Otherwise Affected	Farm Parcels Otherwise Affected (acres)	1	1
Number of Agricultural Land Owners	Owners (number affected)	1	1
Uneconomical Remnants	Uneconomical Farm Remnants (number)	0	0
Centennial/ Sesquicentennial Farms	Centennial/Sesquicentennial Farms (number)	0	0
Right-of-Way	Total Right-of-Way Required (acres)	**19.28**	**22.65**

**Does not include additional T&E surveys of the project area scheduled for 2014.*

The South Section alternatives impact nearly equally a land parcel owned by the Land Conservancy of McHenry County (TLC). This property is privately owned and is not open for public use, and is therefore not a Section 4(f) property.

Section IV contains a summary of the environmental resource impacts used to select the Preferred Alternative, based on Tables 1 and 2.

IV. Summary of Environmental Resource Impacts by Alternative

Differentiating environmental impacts for each of the alternatives are summarized below.

South Section Alternatives: 30' Raised and 30' Depressed Median Alternatives

The two alternatives in the South Section have different right-of-way requirements, widths, and design speeds. The 30' median will be either depressed or raised between Drake Drive and Veterans Parkway, which affects the cross section width. The size of the right-of-way directly affects the degree of environmental impacts for many of the environmental resources.

Table 1 shows the resource impacts for the South Section alternatives. Wetlands and water quality resources are of great importance in the South Section, due to a combination of factors. The majority of the IL 31 project area falls within Sensitive Aquifer Recharge Areas, which increases the potential for groundwater contamination. The south corridor section also contains six wetlands that are High Quality Aquatic Resources (HQARs), and a seep wetland.

Water Resources

The South Section alternatives only impact floodplains at one location, Sleepy Hollow Creek, which drains to Thunderbird Lake. The 30' Depressed Median Alternative impacts slightly more (0.04 acres) than the 30' Raised Median for a total of 1.48 acres of this floodplain.

There are three watershed areas within the IL Route 31 South Section: Silver Creek Watershed, Sleepy Hollow Creek Watershed, and the Fox River Watershed. Most of the South Section is located within the Sleepy Hollow Creek and Fox River tributary watersheds. Approximately 12 percent of the South Section area will route storm water to Silver Creek. The 30' Depressed Median Alternative will have an eight percent larger footprint than the 30' Raised Median Alternative in t
he Sleepy Hollow watershed. This means a larger volume of stormwater will be directed to streams in the Sleepy Hollow watershed with this build option. The 30' Depressed Median Alternative also generates additional storm water that will be directed to the Fox River tributary watershed (49.3 acres, or a five percent larger area) compared to the 30' Raised Median Alternative. The South Section alternatives each cross seven streams. The treatment of stormwater will include Best Management Practices, such as bioswales and infiltration. The relocation of Squaw Creek from north of Oak Crest Road to south of Half Mile Road is included in both alternatives; the proposed stream relocation includes enhancements with meanders to improve aquatic habitat and water quality.

Additionally, most of the IL 31 project corridor is within a sensitive aquifer recharge area. The 30' Depressed Median Alternative encompasses nearly 84 acres of sensitive aquifer recharge area (SARA), compared to approximately 80 SARA acres associated with the 30' Raised Median Alternative.

Wetlands

Wetland impacts for the South Section alternatives (30' Raised Median Alternative and 30' Depressed Median Alternative) are associated with 23 wetland sites, six of which are HQARs. Build alternatives were adjusted to avoid as many wetland areas as possible; however, ADID wetlands occur on both sides of IL 31 and cannot be completely avoided. The section of the corridor that would be most sensitive to wetland impacts (from Drake Drive to Ames Road) also has other physical constraints, including Terra Cotta Industries, homes, and the Illinois American Water wastewater treatment plant.

All of the HQARs that are impacted by the South Section alternatives are ADID wetlands, with the exception of two seep wetlands (Sites 24 and 35), which are considered HQAR because of the unique nature of these types of wetlands. None of the ADID wetlands impacted by the South Section alternatives are considered high quality

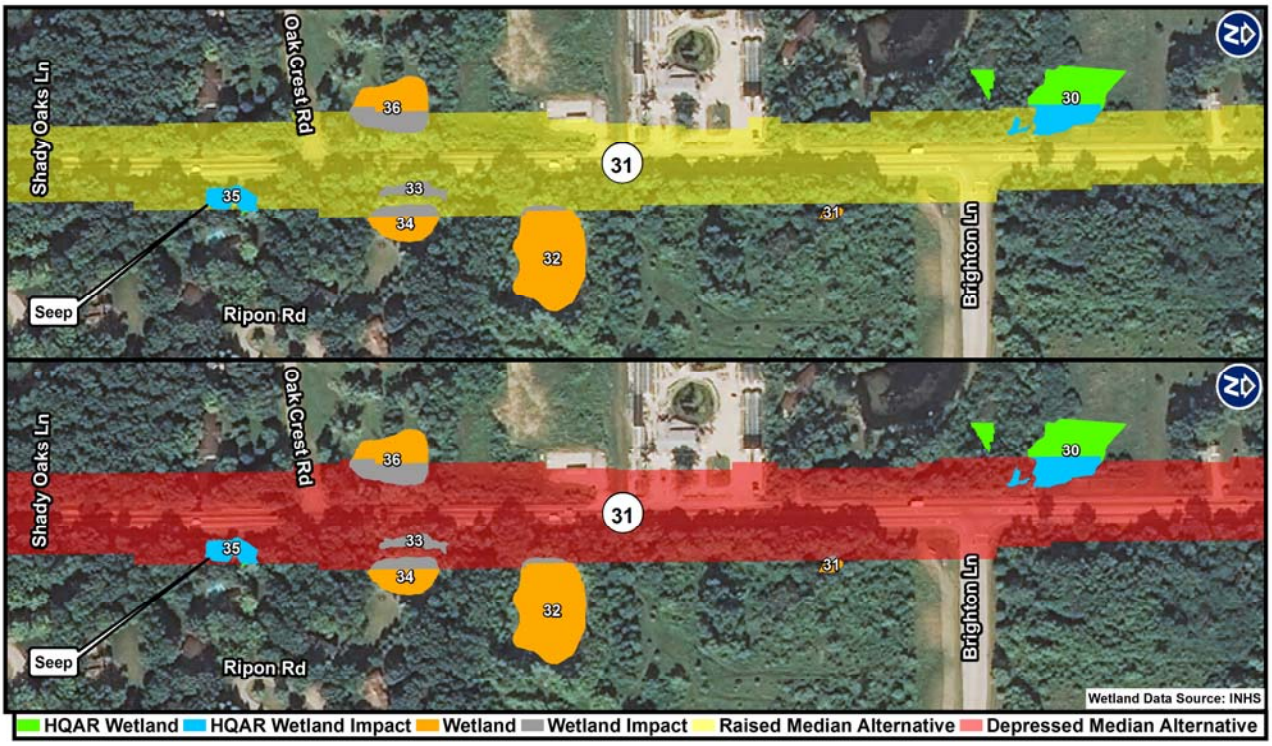
based solely on a Floristic Quality Index (FQI) over 20. The only wetland impacted by the South Section alternatives that has an FQI over 20 is Site 35, the seep wetland, which has FQI of 20.1.

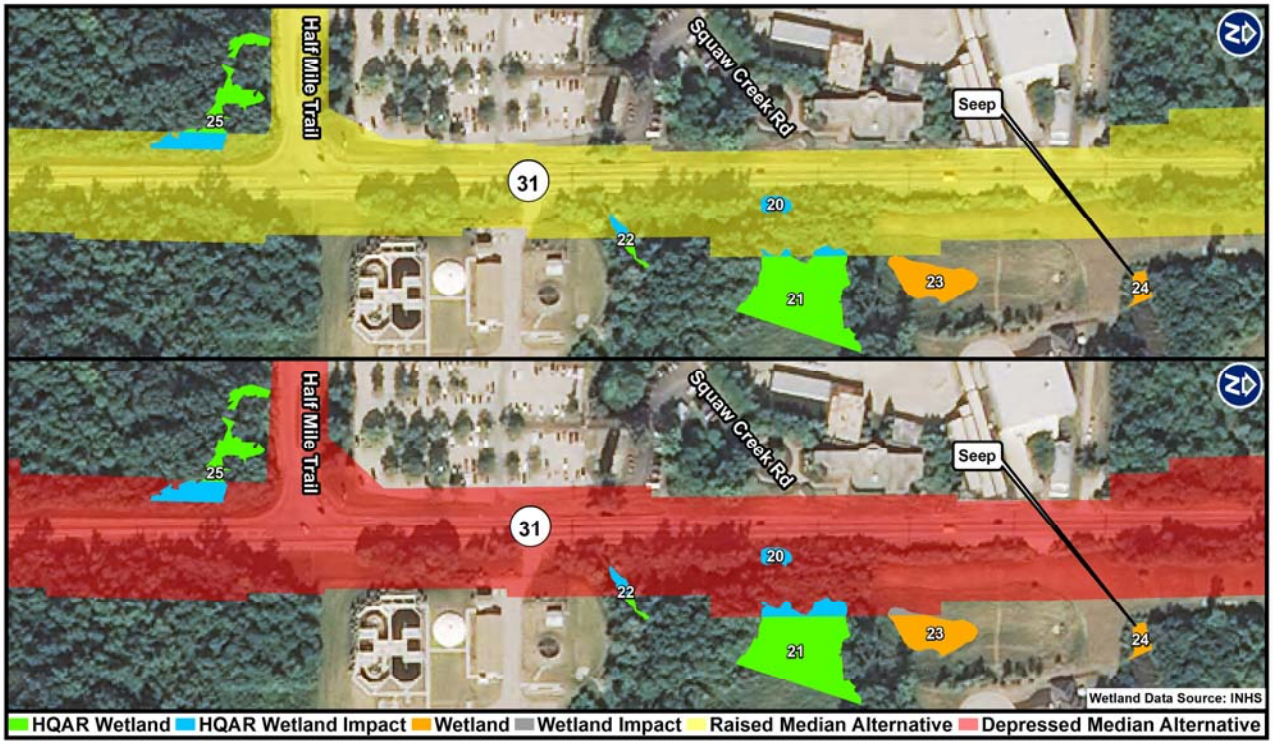
Both South Section alternatives impact 23 wetlands. The 30' Depressed Median Alternative impacts 2.08 acres of total wetlands and 0.5 acres of HQARs. The 30' Raised Median Alternative would impact 1.73 acres of total wetlands and 0.35 acre of HQARs. The most sensitive wetland area occurs near Squaw Creek and Sleepy Hollow Creek.

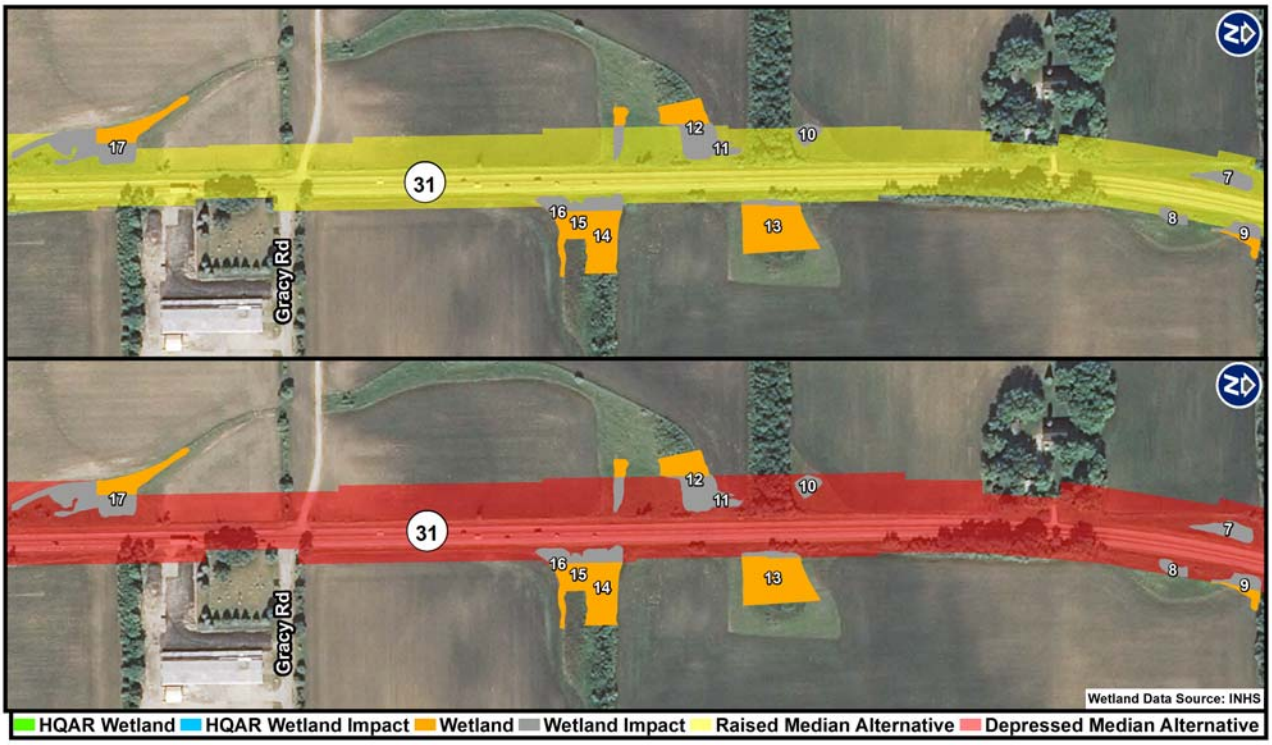
There are two seeps in the project area, Sites 24 and 35, seen in the maps below. The seep at Site 24 will be avoided by both alternatives. The seep at Site 35 will be impacted with both of the South Section alternatives that were carried forward for analysis. The seep impacts were discussed at the June 2013 NEPA/404 merger meeting, and it was suggested that refinements of the alternatives be studied that would avoid the seep wetland and minimize wetland impacts. The 18' and 28' Median minimization options are refinements of the 30' Raised Median Alternative, designed to address the agency comments from June 2013.

Figure 8 shows wetland impacts from the South Section alternatives.

Figure 8
Wetland Impacts – South Section Alternatives




Half Mile Trail
Squaw Creek Rd
Seep
31
20
21
22
23
24
25
Wetland Data Source: INHS
HQAR Wetland
HQAR Wetland Impact
Wetland
Wetland Impact
Raised Median Alternative
Depressed Median Alternative


Gracy Rd
31
7
8
9
10
11
12
13
14
15
16
17
Wetland Data Source: INHS
HQAR Wetland
HQAR Wetland Impact
Wetland
Wetland Impact
Raised Median Alternative
Depressed Median Alternative

Waters of the U.S.

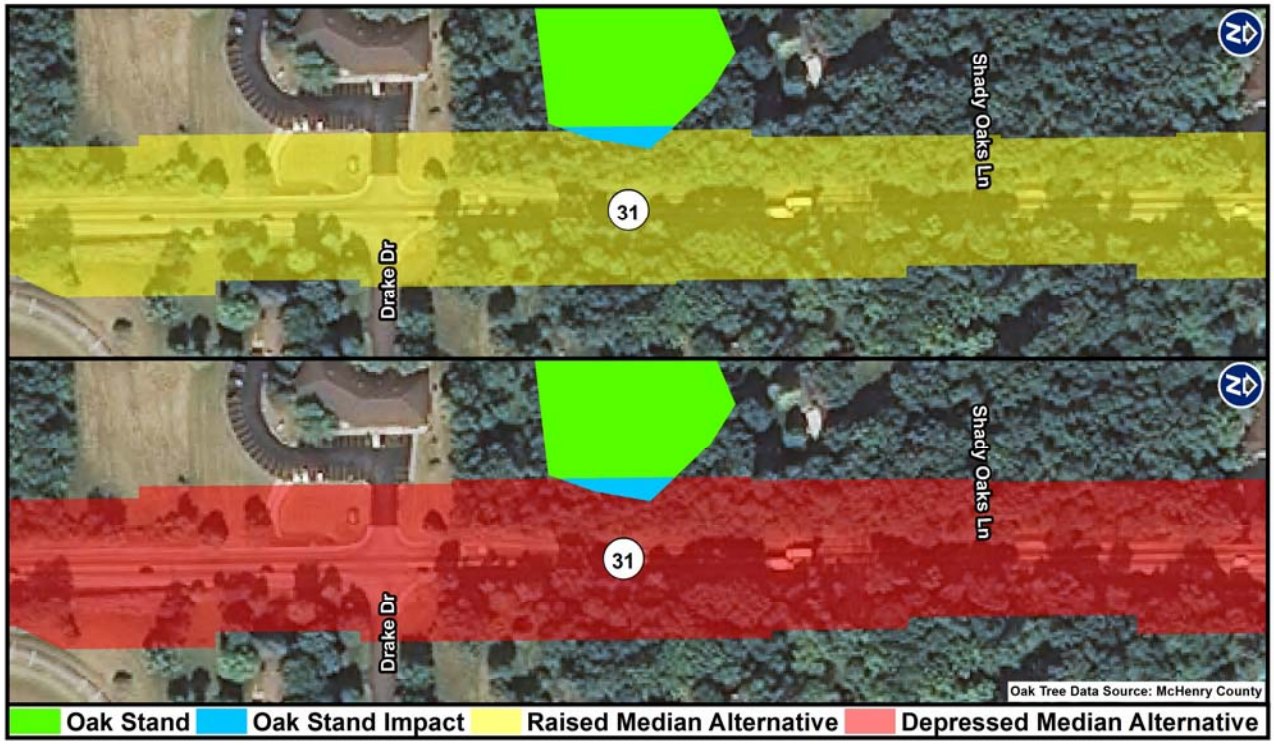
Four "Waters of the U.S." (WOUS) were delineated in the project area, including Sleepy Hollow Creek, Squaw Creek, and two other tributaries to the Fox River. All are tributaries to the Fox River. None of the WOUS identified are classified as Biologically Significant Streams. The South Section alternatives impact WOUS at two tributaries to the Fox River. The 30' Raised Median Alternative impacts 0.20 acre of WOUS, and the 30' Depressed Median Alternative impacts 0.23 acre of WOUS.

Oak Trees

The majority of the project area contains scattered trees associated with commercial and developed areas as well as some forested areas primarily associated with floodplains and riparian areas. The McHenry County Conservation District surveyed trees within the county, and developed oak tree stand data that was used for this analysis. Additional tree surveys will be conducted by the project team in 2014. Tree impacts from those surveys are not reflected in the current analysis.

Small stands of high quality trees (noted as oak tree stands by McHenry County) are adjacent to the South Section Alternatives, between Ames Road and Drake Drive. The 30' Raised Median Alternative would directly impact 0.044 acre of one oak forest and the 30' Depressed Median Alternative would directly impact 0.060 acre of the same oak forest. Figure 9 shows the location of the oak tree stand impact, at Drake Drive. It is anticipated that additional indirect oak tree impacts may occur near the project, due to soil compaction. This will be further addressed in the Environmental Assessment.

Figure 9
Oak Tree Stand Impacts – South Section Alternatives



Businesses

The 30' Depressed Median Alternative impacts several water tanks at the Illinois American Water wastewater treatment plant, located across from Terra Cotta Industries at Half Mile Trail. This impact was treated as a business structure impact. The 30' Raised Median Alternative does not impact these tanks. Figure 10 shows the water tank impacts by the 30' Depressed Median Alternative.

The South Section alternatives each impact outdoor display areas for four business sites. The alternatives impact the outdoor vehicle display areas of two car dealerships, a greenhouse, and a retailer selling sheds and related items. The South Section Alternatives impact a total of 19 business sites each, when including impacts to privately-owned parking areas in addition to outdoor display areas. The 30' Depressed Median Alternative impacts a greater area of parking areas and more parking spaces than does the 30' Raised Median Alternative. When the Preferred Alternative design is refined, retaining walls and other measures will be investigated to minimize business and parking impacts in the study area.

Figure 10
Water Tank Impact at Illinois American Water – South Section Alternatives

Cemeteries
The 30' Depressed Median Alternative South Section alternatives require a five feet wide strip of temporary easement (940 square feet) and a ten feet wide strip of proposed right-of-way from McMillan Cemetery (located at IL Route 31 and Gracy Road). The 30' Raised Median Alternative does not impact McMillan Cemetery, because the alternative was shifted west to avoid the cemetery. The 30' Depressed Median Alternative was not shifted west because doing so could impact a residence on the west side of IL Route 31, north of the cemetery.

Prime and Important Farmland Soils
There are few farms located adjacent to the IL Route 31 corridor, as much of the corridor is urbanized, but much of the corridor is considered to be comprised of prime and important farmland soils. Prime farmland has the best combination of physical and chemical characteristics for producing crops, and is available for other uses. Farmland of statewide importance is not prime farmland, but has been deemed of statewide importance for food, feed, fiber, forage, and oil seed crops.[1]

[1] U.S. Department of Agriculture, Natural Resources Conservation Service.
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ak/soils/surveys/?cid=nrcs142p2_035988

The 30' Raised Median Alternative impacts approximately 85 acres of prime and important farmland within the South Section, while the 30' Depressed Median Alternative impacts approximately 90 acres. The prime farmland soil areas are scattered throughout the South Section. The entire project corridor is within the municipal boundaries of McHenry, Crystal Lake, or Prairie Grove, or is within one mile of their boundaries. Additionally, several of the farm parcels here are planned for future urban development. For this reason, it was determined that prime and important farmland soils would not be a differentiating criterion for the project.

28' and 18' Raised Median Options (Geometric Refinements of the 30' Raised Median Alternative)

Table 2 summarizes the environmental impacts for the 18' and 28' raised median options between River Birch Boulevard and Medical Center Drive (south of Bull Valley Road).

Floodplain

The 28' Raised Median Option impacted a slightly greater area of floodplain (1.44 acres versus 1.42 acres) compared to the 18' Raised Median Option; the difference was very similar and determined to not be differentiating.

Water Resources

Three of the watershed areas within the IL Route 31 corridor are impacted by the minimized South Section alternatives. The Silver Creek Watershed and the Fox River Watershed are impacted equally by the two alternatives. The 28' Raised Median Option has more right-of-way area in the Sleepy Hollow Creek Watershed (47.63 acres, less than an acre more than the 18' Raised Median Option).

The 28' Raised Median Option impacts 0.84 acres of highly erodible soils, or nearly the same impact as that of the 18' Raised Median Option (0.83 acres of impact).

Wetlands

The impetus for alignment modifications between River Birch and Ames was wetland impacts, notably the impact of Site 35, a seep wetland. The 18' and 28' Raised Median Options avoid the corridor's seep wetlands.

Table 4 summarizes the wetland impacts, by site, that were found for the 30' Raised Median Alternative, and the minimization options of the 18' and 28' raised medians. Figure 11 illustrates the similar wetland impacts from these two options.

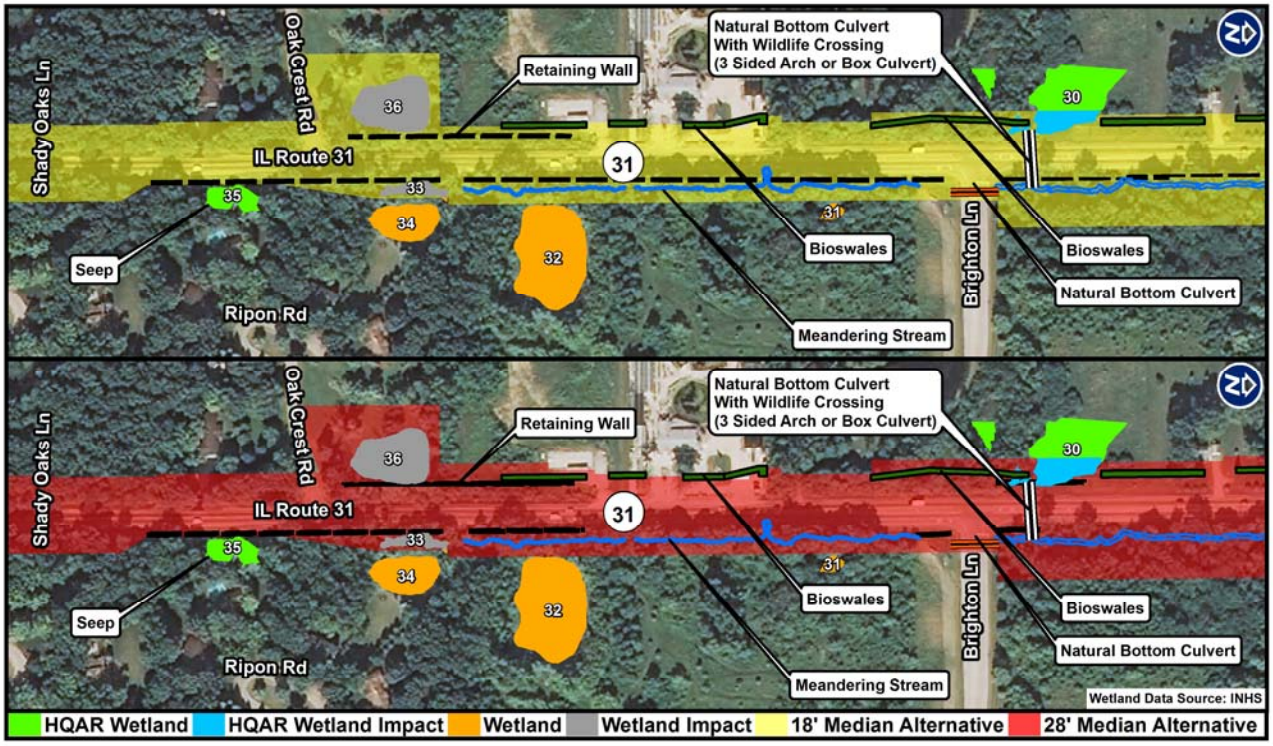
Site 36, west of IL 31, is a former detention pond that developed into a wetland pond over time. Its FQI is 8.4, and it is not an ADID wetland. Refinements of the raised median alternative (after the development of the 30' Raised Median Alternative) indicated re-grading of Site 36 would be required for stormwater detention and water quality BMPs.

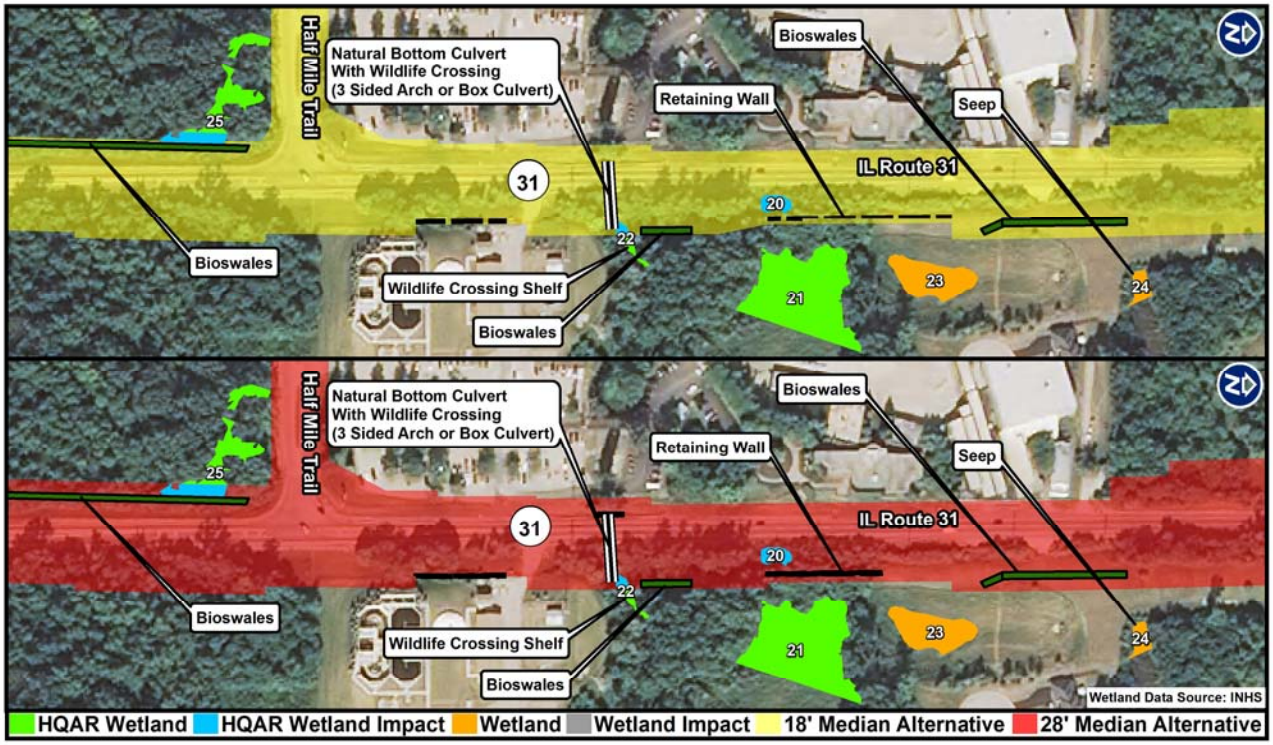
Table 4
Wetland Impacts for Minimized Design Options, Compared to 30' Raised Median
South Section Alternatives: IL 176 to Medical Center Drive (south of Bull Valley Road)

Wetland Site	Wetland Type (and FQI)	Wetland Impacts (ac) – IL 176 to Medical Center Drive		
		30' Raised Median	28' Raised Median Option	18' Raised Median Option
7	NON-ADID (8.4)	0.12	0.12	0.12
8	NON-ADID (5.5)	0.03	0.04	0.04
9	NON-ADID (4.8)	0.04	0.06	0.06
10	NON-ADID (1.8)	0.06	0.05	0.05
11	NON-ADID (2.6)	0.08	0.07	0.07
12	NON-ADID (9.2)	0.21	0.19	0.19
13	NON-ADID (8)	0.01	-	-
14	NON-ADID (9.8)	0.06	0.04	0.04
15	NON-ADID (8.1)	0.01	0.01	0.01
16	NON-ADID (4)	0.05	0.02	0.02
17	NON-ADID (7.3)	0.33	0.22	0.22
20	ADID (HQAR) (8.6)	0.03	0.03	0.03
21	ADID (HQAR) (15.9)	0.02	-	-
22	ADID (HQAR) (13.9)	0.02	0.02	0.01
23	NON-ADID (7.5)	0.00001	-	-
25	ADID (HQAR) (6.3)	0.08	0.08	0.04
30	ADID (HQAR) (12.9)	0.17	0.17	0.14
31	NON-ADID (3)	0.00001	-	-
32	NON-ADID (11.9)	0.04	-	-
33	NON-ADID (10)	0.07	0.07	0.07
34	NON-ADID (9.8)	0.08	-	-
35	**NON-ADID, SEEP (HQAR) (20.1)**	**0.11**	**-**	**-**
36	NON-ADID (8.4) (total site area of 0.37 ac)	0.14	0.37	0.37
TOTAL		**1.73**	**1.54**	**1.47**

- denotes the wetland is avoided with the design options to minimize wetland impacts
** Totals may be slightly varied due to rounding*
*** Impacts for 18' and 28' raised median options are based on refined geometry, which may differ slightly from the 30' raised median at specific locations due to additional drainage and ditch information, as well the incorporation of BMPs, identified after the development of the 30' raised median.*

Figure 11
Wetland Impacts – 18’ and 28’ Raised Median Options





Prime and Important Farmland Soils

The 28' Raised Median Option impacts less than one acre more prime and important farmland soils than does the 18' Raised Median Option. The 28' Raised Median Option impacts 74.74 acres of prime and important farmland soils, while the 18' Raised Median Option impacts 73.94 acres. As previously stated, the entire project is within the municipal boundaries of Crystal Lake, McHenry, or Prairie Grove, or is within one mile of their boundaries. For this reason, it was determined that prime and important farmland soil impacts are not differentiating for this project.

North Section and IL Route 120 Intersection Alternatives

The two alternatives for the North Section and IL Route 120 intersection have different right-of-way requirements. Build Alternative A requires less right-of-way than Build Alternative B due to minimized lane widths and other design considerations. The magnitude of the right-of-way requirement directly affects the degree of environmental impacts.

Table 3 shows the resource impacts for the North Section and IL Route 120 intersection alternatives. Social and economic resource impacts, driven by the difference in right-of-way requirements, are the largest differentiator between these alternatives.

Water Resources

The Fox River tributary, which crosses IL 31 near Lilian Street/Grove Avenue, will receive 75 to 81 percent of the IL 31 runoff from the North Section alternatives. Boone Creek tributaries will receive the remainder of the runoff from IL 31. Build Alternative B has a greater right of way requirement and therefore generates more runoff than Build Alternative A. The additional runoff generated is proposed to be managed with detention and other Best Management Practices.

Build Alternative B impacts 8.9 acres of highly erodible soils, nearly two acres of impact more than Build Alternative A.

Residences

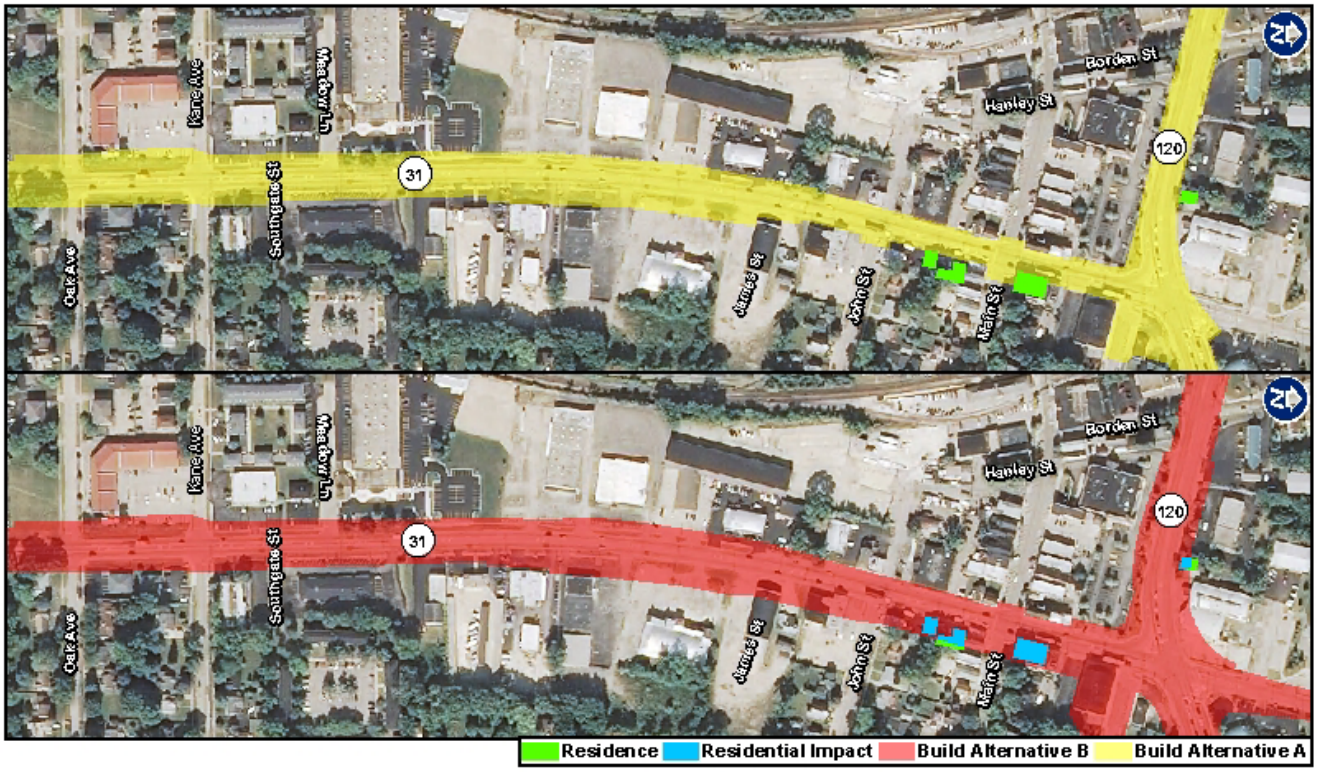
Build Alternative A would not displace any residences. Build Alternative B would displace 22 residences in McHenry, in the IL 120 Route intersection area. Twenty of the residential units impacted are multi-family residences, with sixteen units in an apartment building and the remaining four units within a house converted to multi-family use. The remaining two impacted residences are single-family homes.

Environmental Justice is disproportionately high and adverse human health or environmental impacts to low-income or minority populations. Low-income and minority populations within the project footprint were determined by assessing poverty and race and ethnicity data from the U.S. Census Bureau, and comparing the study area populations to those of the region.

Census Tract 8706.06 in the City of McHenry, within the North Section alternatives, was identified as an Environmental Justice area with both low-income and minority populations. Build Alternative A does not impact residences in Tract 8706.06; however, Build Alternative B displaces 22 residential units, all located within this tract.

Figure 12 shows residential impacts from the North Section and IL Route 120 alternatives.

Figure 12
Residential Impacts – North Section and IL Route 120 Alternatives



Businesses

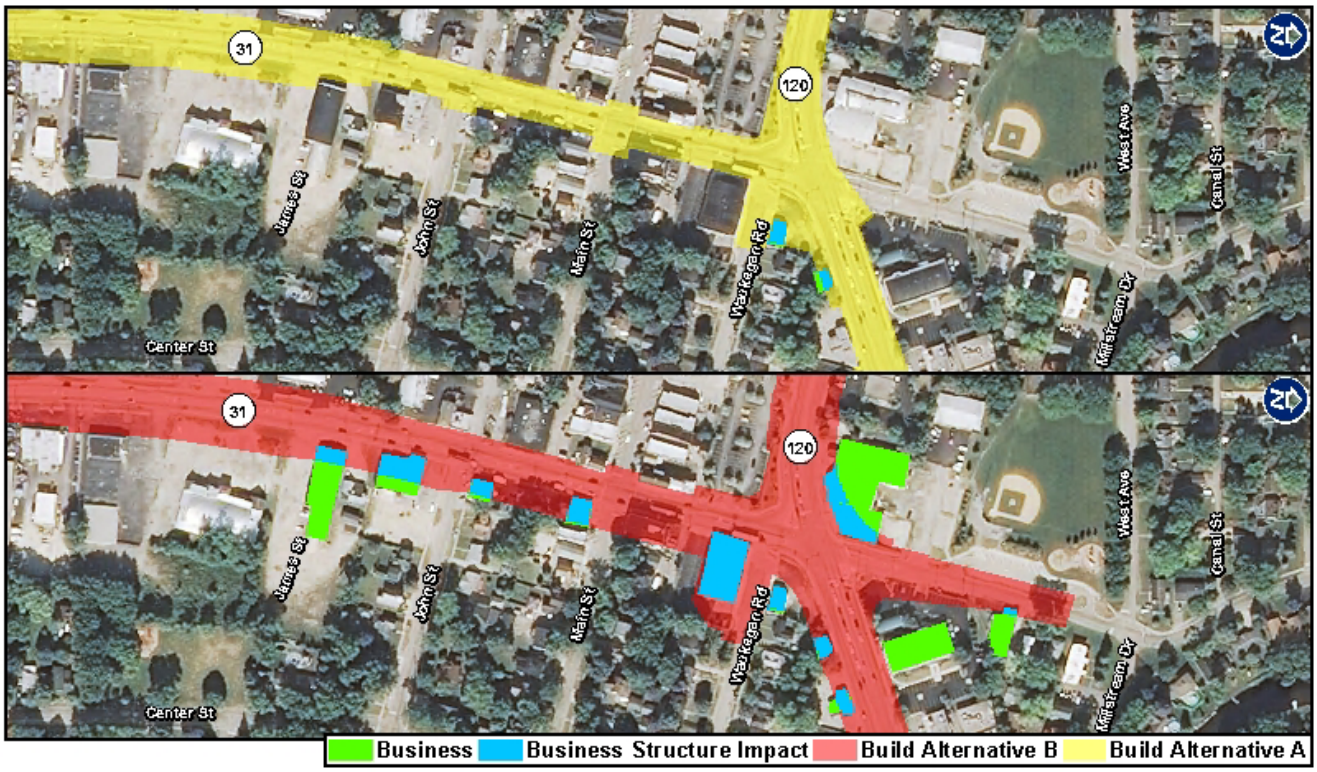
Build Alternative A would require the acquisition of two commercial structures: the AT&T building 3817 W. Elm Street[2] and the Wireless Park building at 3815 W. Elm Street. The property owner for the Wireless Park building states that building is currently leased as the engineer's office for the Richmond Road project. In comparison, Build Alternative B would require structures acquisition and removal for fifteen businesses. These fifteen impacted businesses would have their combined twelve buildings acquired and removed as part of the project. The businesses include the AT&T building (3817 W. Elm), Wireless Park (3815 W. Elm), A.W.O.L Army Surplus/McHenry Martial Arts/Cash for Gold (1104 N Front and 1112 N. Front), a vacant business (920 N. Front), CarQuest Auto Parts (926 N. Front), Butch's Auto Service (1002 N. Front), Al & Ann's Collectibles/Descubre Cell Phone and PC Repair (3819 Main), Marathon Gas (3811 W. Elm), vacant business/White Dragon Martial Arts (3908 W. Elm), vacant business (1291 N. Front), 1st National Bank (3814 W. Elm), and Millstream Coin Wash (1304 N. Front).

Additionally, Build Alternative A would impact privately-owned parking and other business amenities at 25 business sites (not including a building identified to be acquired). Build Alternative B, conversely, impacts 29 business sites (not including buildings for acquisition).

Figure 13 shows business acquisitions from the north section and IL Route 120 alternatives. When the Preferred Alternative design is refined, measures to minimize business and parking impacts will be investigated.

[2] Elm Street is IL Route 120; Front Street is IL Route 31.

Figure 13
Business Impacts – North Section and IL Route 120 Alternatives



Parklands

Impacts to publicly-owned parklands constitute a Section 4(f) impact under the 1966 U.S. Department of Transportation Act. The Act states that the Federal government cannot approve the use of publicly owned parks for Federal actions if a feasible and prudent alternative to using Section 4(f) properties exists.

Build Alternative A does not impact parklands. Build Alternative B impacts the parking area of Freund Field, a publicly-owned park located north of IL Route 120. A portion of the park's parking area falls within the existing right-of-way, and the proposed area of impact is also within the existing right-of-way. Build Alternative B would remove 12 parking spaces in this area, approximately half of the existing parking spaces for the park.

Special Waste Sites

Recognized Environmental Conditions (RECs), as defined by Illinois DOT[3], are sites that have the presence or likely presence of any regulated substances on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any regulated substances into structures on the property or into the ground, groundwater, or surface water of the property. The term includes regulated substances even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment, and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Build Alternative A impacts 31 RECs; Build Alternative B impacts two more RECs than Build Alternative A (33 RECs).

[3] Illinois Department of Transportation. Bureau of Design and Environment Manual, Chapter 27. http://www.dot.state.il.us/desenv/bde%20manual/bde/pdf/chapter%2027%20environmental%20surveys.pdf

Agricultural Resources

Much of the prime and important farmland soils in the North Section of the IL Route 31 corridor are owned by development companies or financial institutions. Several of the parcels are already platted for residential subdivisions. Build Alternative A impacts 19 acres of prime and important farmland soils; Build Alternative B impacts 23 acres of prime and important farmland soils. The difference is due to the larger right-of-way acquisition for Build Alternative B. However, the location of the differentiating impact is at the IL Route 120 intersection, an urbanized area that does not have active farmland. The prime farmland soil areas are clustered in three parts of the North Section: Knox Drive, High Street to Anne Street, and the south, east, and west legs of the IL Route 120 intersection. Nearly all of these areas are presently urbanized. The entire project corridor is within the municipal boundaries of McHenry, Crystal Lake, or Prairie Grove, or is within one mile of their boundaries. Additionally, urban development is planned to occur on much of the existing farmland here. For this reason, it was determined that prime and important farmland soils would not be a differentiating criterion for the project.

V. Public and Local Agency Input

Local agencies and the public reviewed and commented upon the alternatives carried forward, and also presented input that was used for the development of the refined alternatives. Attachment 2 contains minutes of these meetings and the comments from the local agencies and residents.

Village of Prairie Grove

The Village of Prairie Grove issued a formal letter of support on April 5, 2013 for the 30' Raised Median Alternative for the South Section of IL Route 31. The Village Board and the public support the 30' Raised Median Alternative in part because it would impact fewer natural areas and businesses.

City of McHenry

A meeting was held with the City of McHenry and IDOT on October 15, 2013 to review and collect comments from the City on the proposed IL Route 31 alternatives within McHenry. At this meeting, the City of McHenry expressed their support for Build Alternative A for the IL Route 120 intersection and requested that the PSG evaluate a five lane flush median alternative for the North Study Section, due to the change in access to existing driveways a barrier median would impose. During a prior meeting with the City (April 11, 2013), the City stated it would not support Build Alternative B for the IL Route 120 intersection because it would impact buildings, area character, and could impact future business.

Another meeting with the City of McHenry was held on March 12, 2014, where modifications to the North Study Section were presented to the public. The plan included an 18' raised barrier median north of Bull Valley Road to High Street. North of High Street, a five lane section with a bi-directional turn lane was presented. The Village was receptive to this alternative. It should be noted that the five lane flush section footprint is smaller than the 18' raised barrier median alternative and will result in a small reduction in environmental impacts.

Local Agencies and Environmental Groups

A meeting was held on January 15, 2014 with local, state, and Federal agencies and environmental groups who have expressed interest in the IL Route 31 project. Local and state groups and agencies represented included McHenry County, Chicago Metropolitan Agency for Planning, Silver and Sleepy Hollow Creeks Watershed Coalition, IDOT, Land Conservancy of McHenry County, the Village of Prairie Grove, Nunda Township, McHenry County Conservation District, Sierra Club, and the City of Crystal Lake. Federal agencies represented included the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and U.S. EPA. Private businesses in attendance included Terra Cotta Realty Company.

The meeting attendees reviewed the project alternatives, minimization options, and potential BMPs for the project corridor. The need to avoid the seep (Site 35) was discussed; the minimization options presented avoided the seep. The attendees confirmed their concern that the project could increase salt splash and spray and chlorides from roadway runoff and therefore increase impacts to groundwater and surface water; the group discussed BMPs that would reduce that impact. The anti-degradation assessment that will take place as part of the Section 401 Water Quality permitting for the project was discussed in tandem with BMP performance. The proposed meandering of Squaw Creek, and the addition of riffles and pools was discussed. The attendees stated that oak tree stands should be avoided as much as possible. Those in attendance discussed bicycle travel patterns in the project area, and compared the potential usage of bicycle facilities as part of the project to the nearby Prairie Trail.

VI. Preferred Alternative Recommendation

Preferred Alternative recommendations for the South Section of IL 31 and the North Section of IL Route 31 combined with the IL Route 120 intersection are summarized in the sections below. All sections of the Preferred Alternative include two through travel lanes in each direction.

North Section/IL Route 120 Intersection

The recommended North Section IL 31 Preferred Alternative is the 18' Raised Median (with a flush median / bi-directional turn lane in the areas requested by the City of McHenry, as noted in Section V above) and Build Alternative A at the IL Route 120 Intersection Alternative. This recommendation is made to preserve access to businesses in the North Section and because Build Alternative A has reduced residential and business impacts as compared to Build Alternative B. Build Alternative B also impacts Environmental Justice areas, and impacts the parking area of Freund Field, a publicly-owned park. Build Alternative A avoids impacting the park.

South Section

The 30' Raised Median Alternative was found to have lower environmental impacts compared to the 30' Depressed Median. Due to its smaller footprint size, the 30' Raised Median Alternative has fewer impacts to sensitive aquifer recharge areas, wetlands, high quality aquatic resources, oak tree stands, business parking areas, and prime and important farmland.

As previously stated, both 30' median South Section alternatives impact a seep wetland (Site 35); however, opportunities to minimize overall wetland impacts and avoid the seep wetland are possible. The U.S. Army Corps of Engineers requested that design options be assessed for the south section of the IL 31 corridor in order to reduce wetland impacts and avoid seep wetlands. The minimized design options for the South Section of the IL Route 31 corridor (the 18' and 28' raised median options) were successful in reducing overall wetland impacts from the project, and avoided both seep wetlands in the project corridor.

The majority of environmental resources studied for the IL Route 31 corridor were equally impacted by the 18' and 28' Raised Median Options. Where resource impacts differed, the 18' Raised Median Option was shown to have slightly reduced environmental impacts compared to the 28' Raised Median Option. However, the degree of impact reduction was small.

The 28' Raised Median Option is the recommended alternative to the 30' Raised Median Alternative between River Birch and Medical Center Drive because of wetland impact reductions; the 18' Raised Median Option is not recommended for the following reasons:

- *Traffic Demand and Planned Future Capacity:* Future planned development along the corridor for Prairie Grove and its corresponding traffic projections support future dual left turn lanes at the Half Mile Trail/IL Route 31 intersection. The 28' Raised Median Option would not preclude the future addition of dual left turn lanes at Half Mile Trail, but dual left turn lanes could not be constructed with the 18' Raised Median Option. A median wide enough to accommodate future dual left turn lanes supports Prairie Grove's Town Center and Transit Oriented Development Plan.
- *Safety:* Precluding dual left turn lanes at the Half Mile Trail/IL Route 31 intersection could lead to left turning vehicles blocking through lane traffic, resulting in traffic backups and increased potential for vehicle collisions.
- *Environmental Impacts Comparison:* The 18' Raised Median Option has slightly reduced impacts for several environmental resources; the 28' Raised Median Option has negligible additional wetland impacts as compared to the 18' median option. The 28' Raised Median Option impacts 0.3 acres of ADID

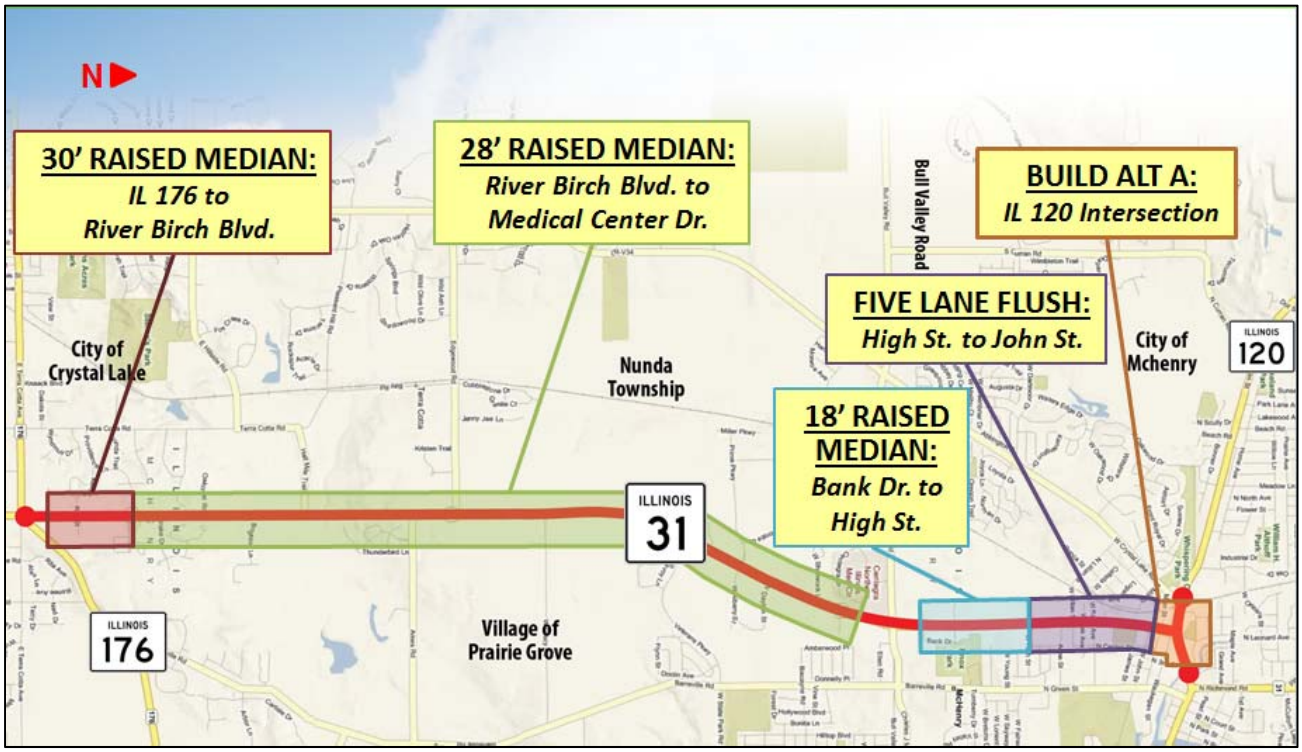
wetlands/HQAR, which is 0.08 acres additional impact than compared to the 18' Raised Median Option (0.22 ac). Both of the minimization options avoid the seep wetland site 35.

In summary, the recommended Preferred Alternative for IL Route 31 includes two travel lanes in each direction, with the following design details:

- 30' Raised Median from IL 176 to River Birch Boulevard, which matches the design of the IL 31 at IL 176 intersection project.
- 28' Raised Median (with 11' lanes) from River Birch Boulevard to Medical Center Drive (south of Bull Valley Road)
- The Bull Valley Road intersection is a separate project being completed at this time by McHenry County and includes a 28' raised median with 11' lanes.
- 18' Raised Median from Bank Drive (north of Bull Valley Road) to High Street
- A flush median from High Street to John Street
- IL Route 120 intersection improvements will have the design of Build Alternative A, and its south leg will have a flush median.

A map of the recommended Preferred Alternative is shown in Figure 14.

Figure 14
Recommended Preferred Alternative



Best Management Practices for the Preferred Alternative

As refinement of the Preferred Alternative occurs, Best Management Practices (BMPs) for water quality protection will be incorporated into the Preferred Alternative design. BMPs have been conceptualized for the corridor, in cooperation with local and state agencies and local environmental group (see Section V and Attachment 2). The present BMP concepts for the IL Route 31 Preferred Alternative are listed below and shown in Figure 15.

- Realignment of over 1,800' of Squaw Creek along IL 31 to include meanders, riffles and pools, and to restore and stabilize the stream bank.
- Inclusion of wildlife crossings at nine potential locations in the project area. These locations and number of crossings may be modified as the project progresses. The wildlife crossings would use either a three-sided box culvert (natural-bottom) with a shelf for small mammal crossings or would use an embedded box culvert. The locations proposed for wildlife crossings include:
    - Stream crossing under Brighton Lane (east of IL 31)
    - Squaw Creek crossing under IL 31 (Outfall 6)
    - Culvert under IL 31 (Outfall 7)
    - Sleepy Hollow Creek crossing under IL 31 (Outfall 9)
    - Tributary crossing under IL 31 (Outfall 12)
    - Culvert under IL 31 (Outfalls 15 and 16)
    - Culvert under IL 31 (Outfall 17)
    - Culvert under IL 31 (Outfall 22)
    - Unnamed Tributary to the Fox River crossing under IL 31 (Outfall 23)
- Bioswales
    - Approximately 7,000 feet of bioswales are planned in the Sleepy Hollow Creek and Fox River watersheds.
        - Bioswales are proposed due to the soils present in the project area. Soils in the Silver Creek/Sleepy Hollow are represented primarily (79 percent) by soils with moderately low runoff potential when wet. These soils typically include 10 to 20% clay, 59-90% sand *(Silver Creek/Sleepy Hollow Watershed Action Plan, p. 27, December 2011)*. *Figure 14* of the Plan depicts zones of soils along Il Route 31 with well-draining properties, which are conducive to allowing infiltration through the bioswales to be implemented in sensitive water resource/wetland locations.
- Infiltration trench
    - The chloride concentration in the project area streams meets all water quality standards with BMPs. Chlorides above standards (without BMPs) are projected for an unnamed tributary to Thunderbird Lake (at Outfalls 10 and 13). An infiltration trench is expected to resolve the chloride issue at the stream; the implementation of an infiltration trench will be investigated at Outfalls 10 and 13 and included as part of the stormwater treatment plan, if feasible.

As part of the Section 401 Water Quality permitting for this project, an anti-degradation assessment will be completed, incorporating BMPs and other modifications as necessary to ensure that runoff pollutants are not increased from existing levels.

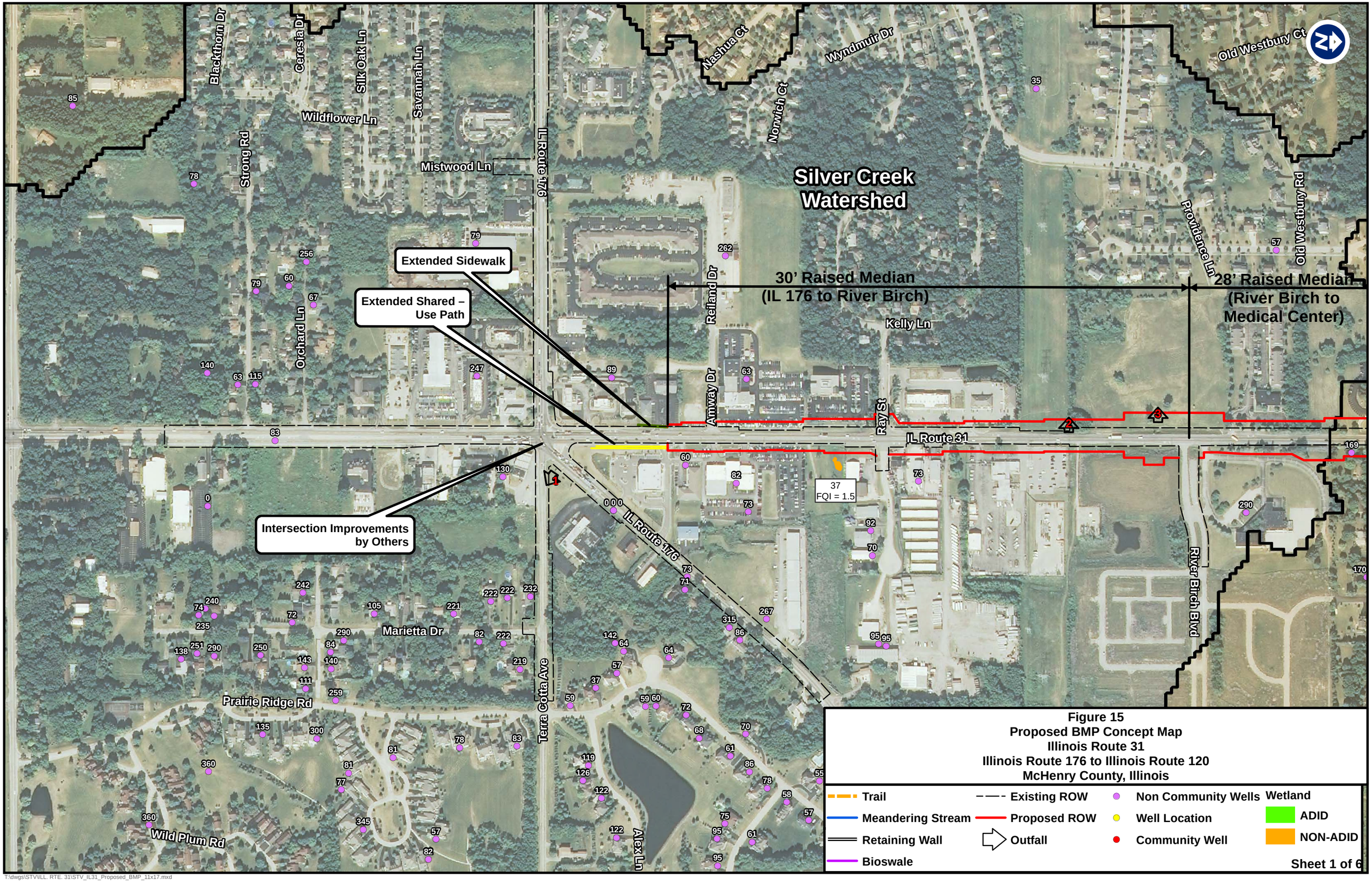


Figure 15
Proposed BMP Concept Map
Illinois Route 31
Illinois Route 176 to Illinois Route 120
McHenry County, Illinois

Trail
Meandering Stream
Retaining Wall
Bioswale
Existing ROW
Proposed ROW
Outfall
Non Community Wells
Well Location
Community Well
Wetland
ADID
NON-ADID

Sheet 1 of 6

T:\dwgs\STV\ILL. RTE. 31\STV_IL31_Proposed_BMP_11x17.mxd

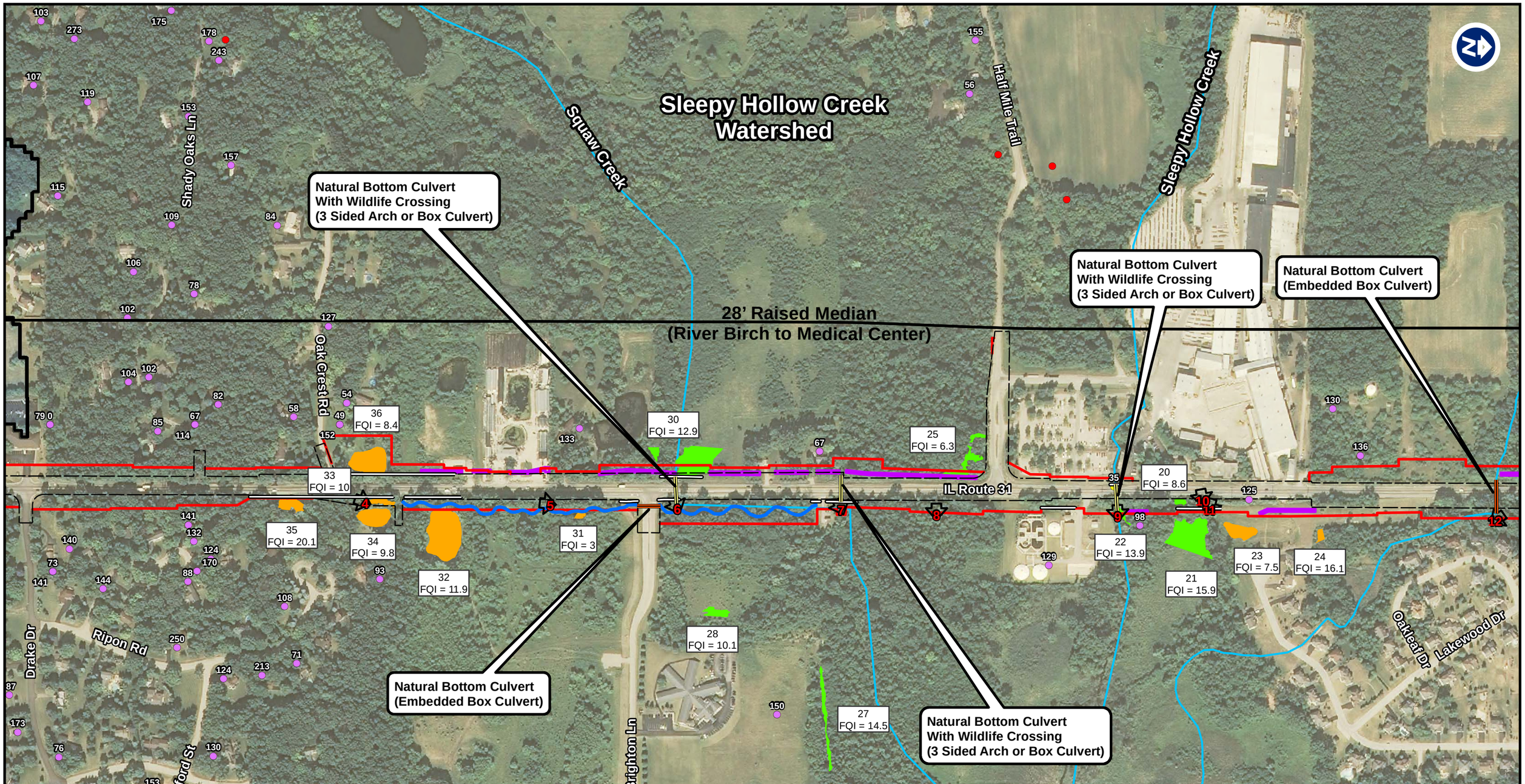


Figure 15
Proposed BMP Concept Map
Illinois Route 31
Illinois Route 176 to Illinois Route 120
McHenry County, Illinois

Trail	Existing ROW	Non Community Wells	Wetland
Meandering Stream	Proposed ROW	Well Location	ADID
Retaining Wall	Outfall	Community Well	NON-ADID
Bioswale			

Sheet 2 of 6

T:\dwgs\STV\ILL. RTE. 31\STV_IL31_Proposed_BMP_11x17.mxd

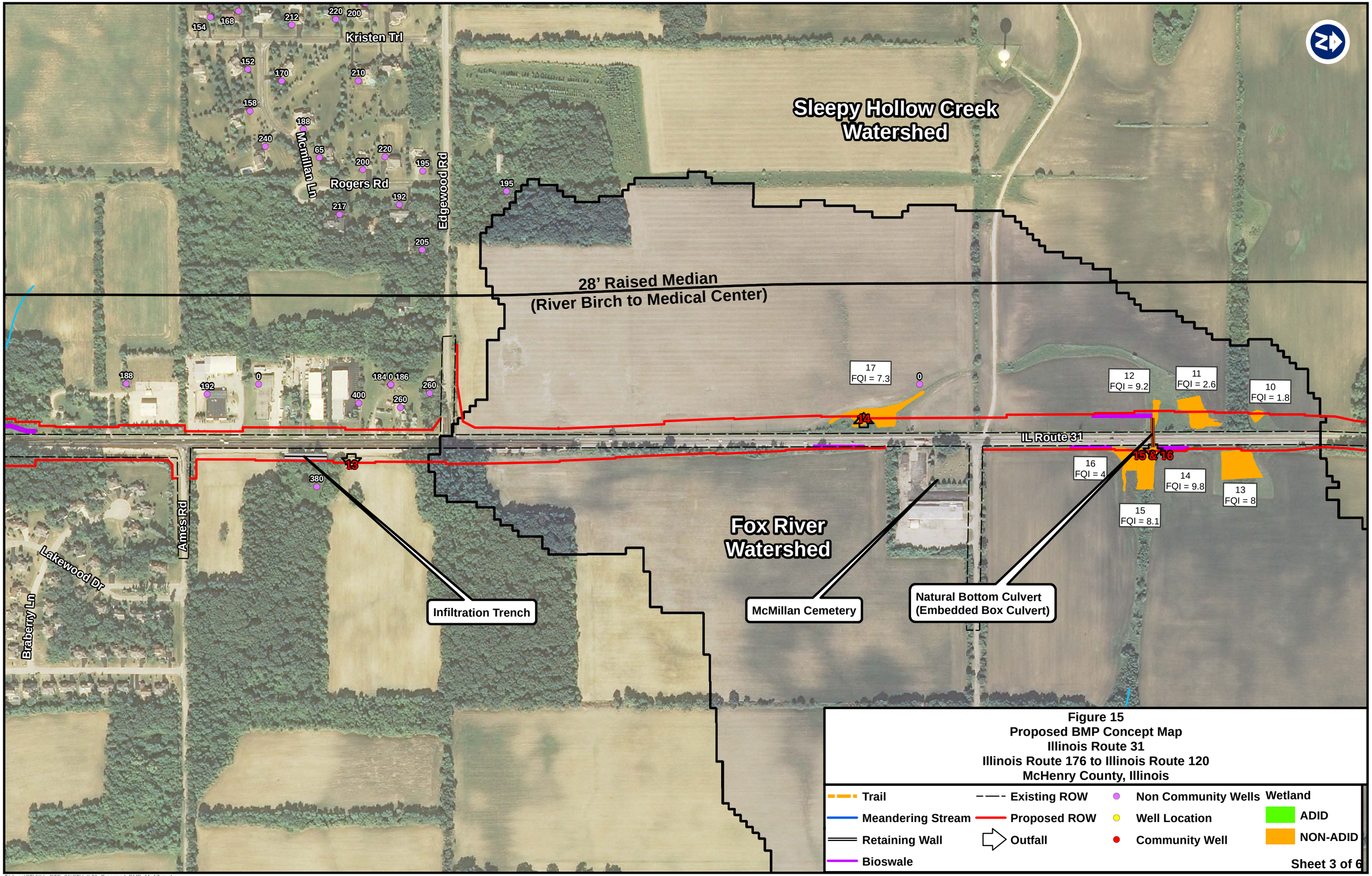


Figure 15
Proposed BMP Concept Map
Illinois Route 31
Illinois Route 176 to Illinois Route 120
McHenry County, Illinois

T:\dwgs\STV\ILL. RTE. 31\STV_IL31_Proposed_BMP_11x17.mxd

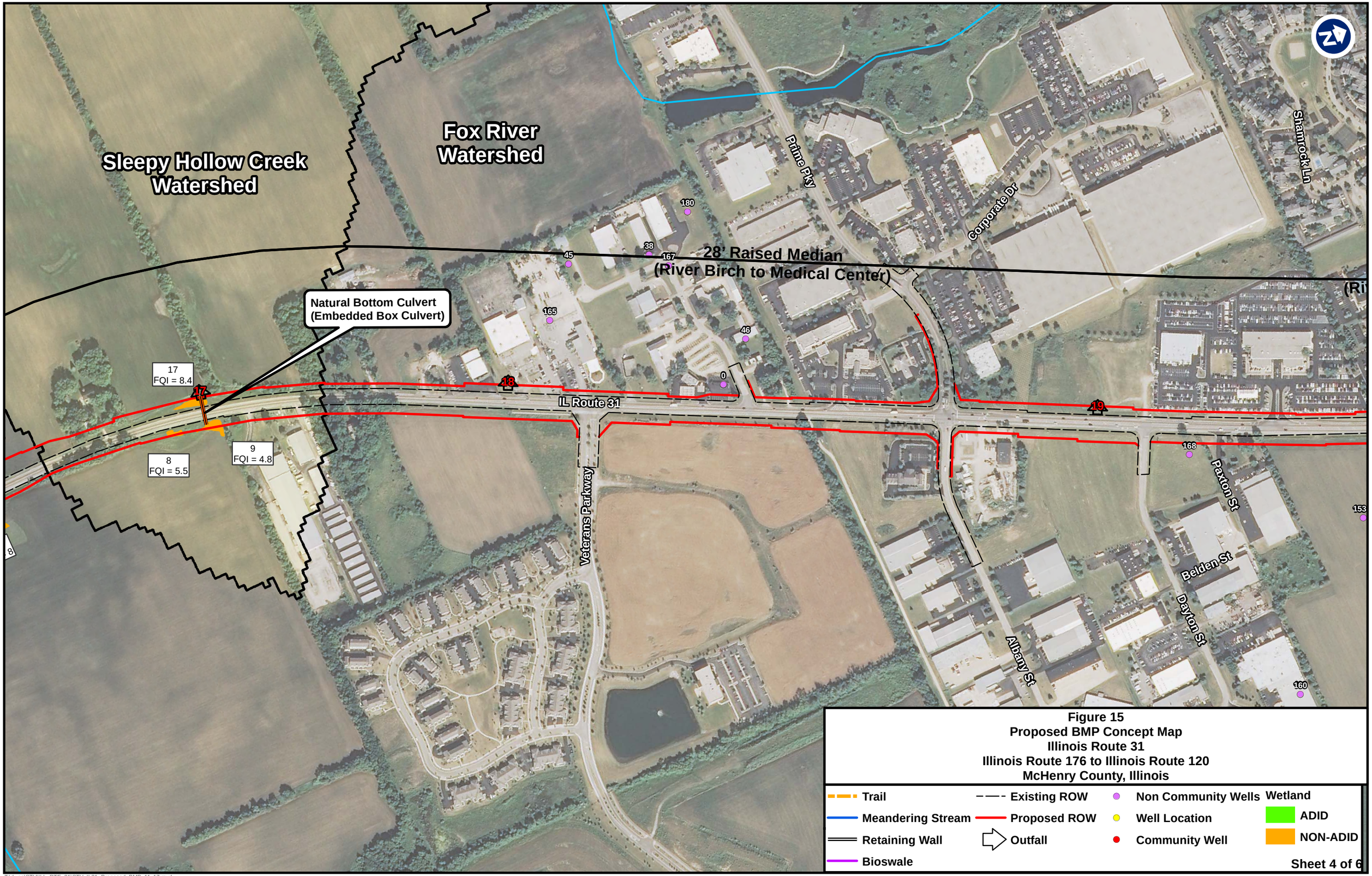


Figure 15
Proposed BMP Concept Map
Illinois Route 31
Illinois Route 176 to Illinois Route 120
McHenry County, Illinois

T:\dwgs\STV\ILL. RTE. 31\STV_IL31_Proposed_BMP_11x17.mxd

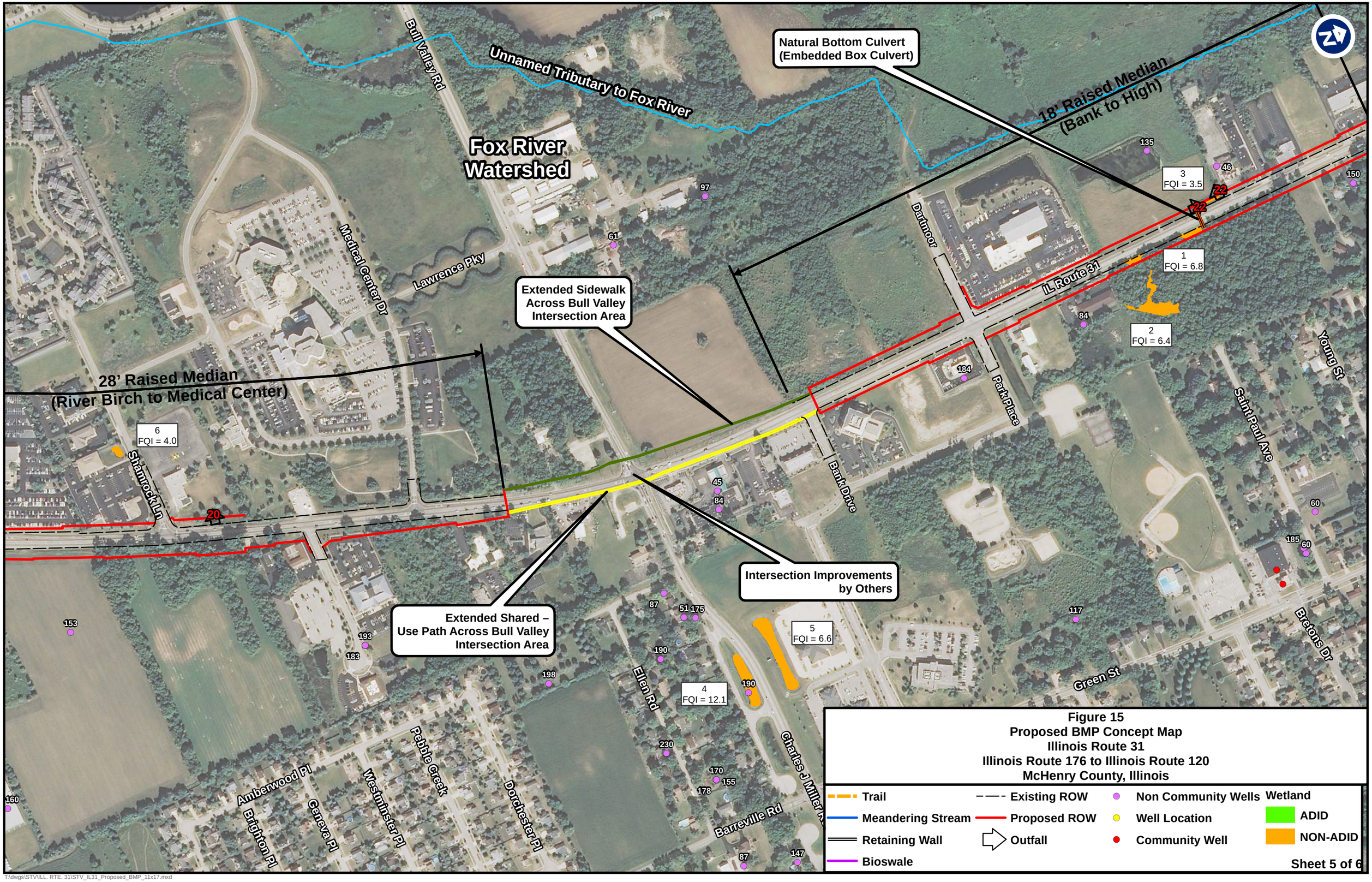


Figure 15
Proposed BMP Concept Map
Illinois Route 31
Illinois Route 176 to Illinois Route 120
McHenry County, Illinois

T:\dwgs\STV\ILL. RTE. 31\STV_IL31_Proposed_BMP_11x17.mxd

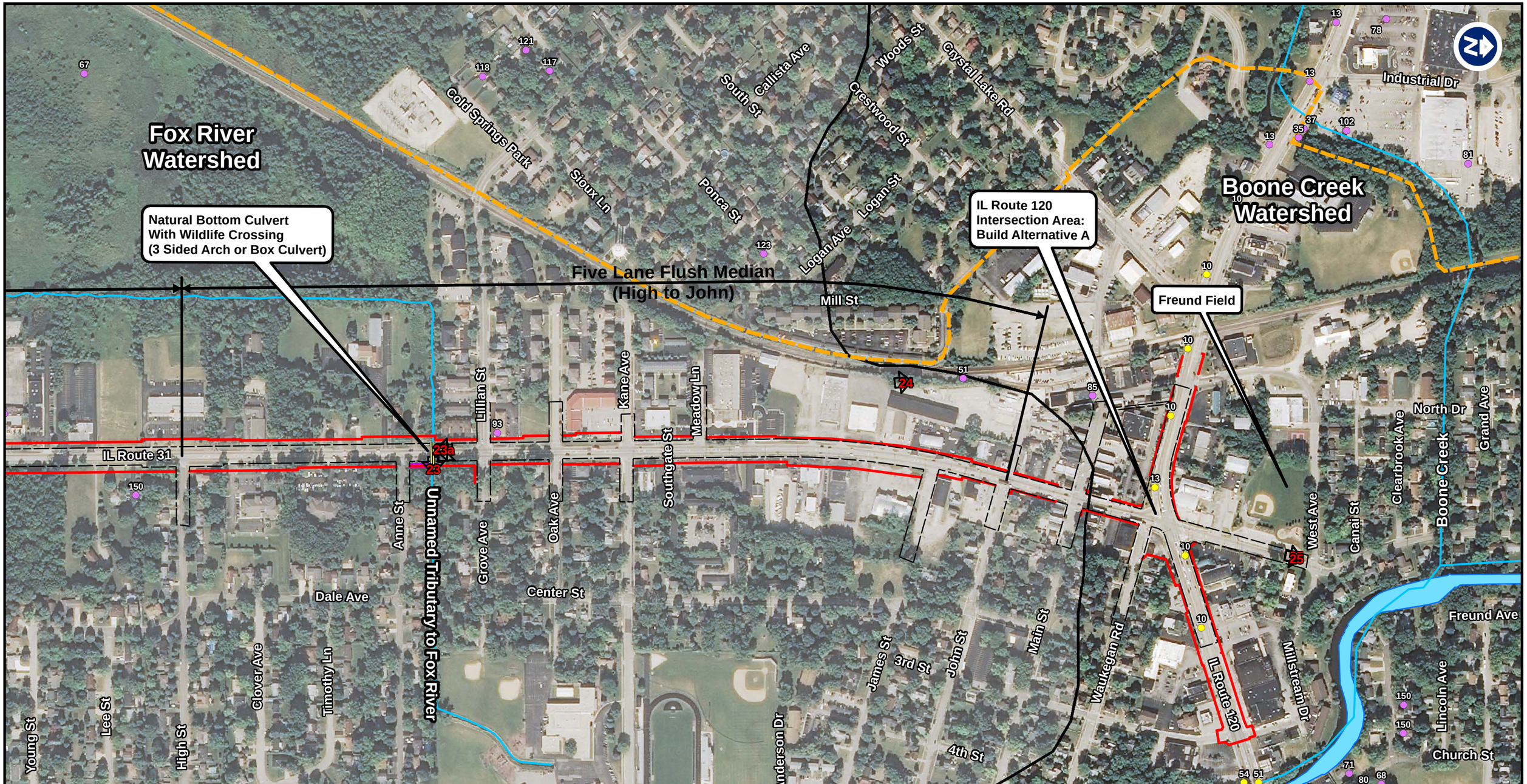


Figure 15
Proposed BMP Concept Map
Illinois Route 31
Illinois Route 176 to Illinois Route 120
McHenry County, Illinois

Trail
Meandering Stream
Retaining Wall
Bioswale
Existing ROW
Proposed ROW
Outfall
Non Community Wells
Well Location
Community Well
Wetland
ADID
NON-ADID

Sheet 6 of 6

T:\dwgs\STV\ILL. RTE. 31\STV_IL31_Proposed_BMP_11x17.mxd

Attachment 1

Environmental Resource Descriptions

Table A1-1
Environmental Resource Descriptions

Resource	Definition
Water Quality/Water Resources	
Floodplains	Floodplains within the corridors have been identified by the Federal Emergency Management Agency (FEMA). Flood Insurance Rate Maps (FIRM) from FEMA shows the limits of flooding affecting the individual communities.
Floodways	The floodway is the channel of a stream that must be kept free of encroachment to allow the 100-year flood to be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. More recent Flood Insurance Rate Maps (FIRM) from FEMA shows the limits of floodway within a particular floodplain area.
Biologically Significant Streams	Biologically Significant Streams (BSS) have been identified by the Illinois Department of Natural Resources (IDNR) based upon the integrity and diversity of their aquatic communities.
Class 1 Streams	Class 1 streams are specific waterways identified in an interagency agreement between the Illinois Department of Natural Resources (IDNR) and the Illinois Department of Transportation (IDOT). Class 1 streams typically support fish; normally has surface flow during six months of the year or more, and that contributes surface flow to another stream, lake, or other body of water.
Waters of the U.S.	Waters of the U.S. are regulated by the USEPA and the U.S. Army Corp of Engineers under the Clean Water Act. Waters of the U.S. include: all waters which may be used for interstate or foreign commerce, all interstate waters including wetlands, waters that would affect interstate commerce if impacted, the territorial sea, and tributaries to the above mentioned waters.
High Quality Aquatic Resources	High Quality Aquatic Resources (HQAR). HQARs include Advanced Identification (ADID) sites, bogs, ephemeral pools, fens, forested wetlands, sedge meadows, wet meadows, seeps, streams rated Class A or B in the Illinois Biological Stream Characterization study, streamside marshes, wet prairies, wetlands supporting Federal or Illinois endangered or threatened species, and wetlands with a floristic quality index of 20 or greater or mean C-value of 3.5 or greater as defined by the U.S. Army Corps of Engineers.
Wellhead Protection Areas	The surface and subsurface recharge area surrounding a community water supply well or well field, delineated outside of any applicable setback zones pursuant to Illinois' Wellhead Protection Program, through which contaminants are reasonably likely to move toward such a well or well field.

Resource	Definition
Non-Community Water Source	Public water source not a part of a community water system, and has at least 15 service connections used by nonresidents, or regularly serves 25 or more nonresident individuals daily for at least 60 days per year.
Natural Resources	
Wetlands	The U.S. Army Corps of Engineers (COE) (Federal Register 1982) and the U.S. Environmental Protection Agency (Federal Register 1980) jointly define wetlands as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions". Wetlands include forested areas, wet prairies, wet meadows, and a variety of habitats exhibiting the hydrology, soils, and vegetation required by the COE.
High Quality Wetlands	High Quality Wetlands include Advanced Identification (ADID) sites, bogs, ephemeral pools, fens, forested wetlands, sedge meadows, wet meadows, seeps, streamside marshes, wet prairies, wetlands supporting Federal or Illinois endangered or threatened species, and wetlands with a floristic quality index of 20 or greater or mean C-value of 3.5 or greater as defined by the U.S. Army Corps of Engineers.
ADID Wetlands	The Environmental Protection Agency initiated a program known as the Advanced Identification Study (ADID) designed to identify wetland sites that would be considered unsuitable for disposal of dredged or fill material. The identification of high quality water sites is based upon three functional values: habitat, stormwater storage, and water quality. McHenry County has adopted the ADID program.
Seep Wetland	A spring- or groundwater-fed herbaceous or thinly wooded wetland with saturated soil or inundation resulting from the diffuse flow of groundwater to the surface stratum. Often times seep wetlands are situated on or near the base of a slope.
INAI Sites	Illinois Natural Area Inventory (INAI) sites and Illinois Nature Preserves are protected by the State of Illinois and may include threatened and endangered species within their boundaries. State laws have been established to define and protect these areas.
Oak Tree Stands	The McHenry County Conservation District completed a study charting the location of oak tree stands within the county. A total of 2,888 stands were identified, but only 157 were 25 acres or greater in size. These oak tree stands represent important natural areas.
Threatened & Endangered Species	Threatened and endangered species include all types of plants and animals which face possible extinction in the near future if steps aren't taken to protect them. These species are protected by both state and federal laws, such that avoidance of these resources is required to the maximum extent possible.

Resource	Definition
Sensitive Aquifer Recharge Area	These are areas that have high potential for aquifer recharge and water infiltration. As a result, these areas also represent a potential pathway for contamination.
Highly Erodible Soils	Highly erodible soils are determined by the soils slope class, indicated as letters following the soil map unit number. The greater the slope, the higher the slope class (A indicates 0–2% slopes, B indicates 2-4% slopes, C indicates 4-6% slopes, D indicates 6-12% slopes, etc.). Slope classes C or higher are considered highly erodible. Highly erodible soils typically occur near streams and changes in topography.
Community Resources	
Businesses with Site Impacts	Impacts to businesses that require the acquisition of a portion of the site that is used for business purposes, including privately-owned parking areas.
Businesses with Structure Impacts	Impacts to businesses that are of a severity that require the acquisition of a building or other onsite structure used for the business.
Section 4(f)	Publicly owned lands within the study area that are managed as parks and recreation areas, wildlife or waterfowl refuges, or historic sites are identified as Section 4(f) properties.
Section 6(f)	Section 6(f) properties are lands that were acquired or developed with funds from the Land and Water Conservation (LAWCON) Fund (16 USC 4601-4).
Utilities	Utilities may include antenna structures, radio/microwave towers, electrical facilities (substation or similar), utility crossings, and oil tank farms.
CERCLIS Sites	CERLCIS is the abbreviation for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Information System, the United States Environmental Protection Agency's (EPA's) database and management system that inventories sites that reportedly have unlawfully accepted and stored hazardous substances or that have a record of accidental spills or dumping.
Cultural Resources	
Historic Sites	Historic sites are those listed on the National Register or those eligible for listing on the National Register. The National Register is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. The National Park Service administers the National Register of Historic Places.

Resource	Definition
Cemeteries	A cemetery is any land used for human burial and includes undeveloped areas as well as plotted areas.
Environmental Justice	The USEPA defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work."
Agricultural Resources	
Prime and Important Farmland	The Code of Federal Regulations (CFR) Title 7, Volume 6, Section 657.5(a) defines prime farmland as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. The CFR states, “Prime Farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crop when treated and managed, including water management, according to acceptable farming methods.” To be considered prime farmland, the land does not have to be cleared; however, it cannot be urbanized, paved, or permanently under water. Soils are designated as prime farmland by the county soil scientist, and therefore, may differ between counties.
Farmsteads and Farm Outbuildings	A farmstead refers to the residence located on a farm and was included in the count of residential buildings; outbuildings refer to structures separated from the farmstead and include barns, stables, sheds, and storehouses.
Farmland Severances	Severed farm operations occur when a new roadway divides a farm either laterally or diagonally, and separates one or more parcels from others within a single farm operation. If a corridor takes farm land on the edge or perimeter of a farm tract, this is not a severance.
Farm Parcels Otherwise Affected	An otherwise affected parcel is farmland affected by the right of way, but not divided into separate farm parcels.
Uneconomical Farm Remnants	Uneconomical remnants are severed portions or landlocked portions of a property where the owner is left with an interest after the partial acquisition of the owner’s property, and the acreages may have little or no value or utility to the owner.

Resource	Definition
Centennial/Sesquicentennial Farms	Centennial and Sesquicentennial Farms are those registered in the Illinois Department of Agriculture (IDOA) Centennial Farms Program. To qualify for Centennial Farm status, an agricultural property must have been owned by the same family of lineal (child or grandchild) or collateral (brother, sister, aunt, uncle, niece, nephew, or cousin) descendants for at least 100 years. Centennial Farms may also be registered as Sesquicentennial Farms, those properties that have been owned by the same family of lineal or collateral descendants for at least 150 years.

Attachment 2

Local Agency and Public Involvement

VILLAGE OF PRAIRIE GROVE

VILLAGE HALL
3125 Barreville Road
Prairie Grove, IL 60012
815-455-1411 Office
815-455-0783 Fax

April 5, 2013

Mr. Scott Czaplicki, PE
Illinois Department of Transportation
201 W. Center Court
Schaumburg, IL 60196-1096

Dear Mr. Czaplicki,

Please accept this letter as a formal response to the Route 31 Add Lanes Project request for feedback. The Village Board met during a special meeting held on Tuesday, March 19, 2013 to present the cross section alternatives to the public. There were several comments made regarding sensitivity to natural areas, protection of businesses' ROW, continuity of improvements and long-term maintenance of medians.

The Board heard each person who wished to comment and had candid discussion regarding the same. In the end, the Board concurred with the Village Engineer's recommendations (see attached) in choosing the urban cross section in Option 1; maintaining a 45mph speed limit with consideration of the water quality features of Option #2 either by building infiltration basins and/or adding natural drought resistant plantings. The major concerns of the Village are to ensure continuity of improvements to avoid creating a bottle neck along the route and to request the Illinois Department of Transportation provide the Village with a long-term maintenance plan for the median areas.

Thank you for your investment in our community. As always, please do not hesitate to contact me regarding matters of importance to you within the Village of Prairie Grove.

Truly I Am,

Jeannine M. Smith, Village Administrator
jsmith@prairiegrove.org

MEMORANDUM

BAXTER WOODMAN
Consulting Engineers

Crystal Lake Office
8678 Ridgefield Road
Crystal Lake, IL 60012
Phone: 815.459.1260
Fax: 815.455.0450

Corporate Website: www.baxterwoodman.com e-mail:info@baxterwoodman.com

DATE: May 21, 2012

TO: Jeannine Smith, Village Administrator

FROM: John Ambrose

SUBJECT: Ill Route 31 Typical Section

Jeannine,

We have reviewed the proposed alternatives for the proposed typical section along Il Route 31 and offer the following comments:

1. The south end north of Il Route 176 is developed and predominately commercial.
2. The middle section in Prairie Grove will be eventually developed with the Wild Flowers development.
3. The north end into McHenry is developed and predominately commercial.
4. The proposed plan proposes to incorporate pedestrian traffic with a sidewalk on one side and a multi-use path on the other. We would assume pedestrian crossings would be included at all signalized intersections.

With the above design considerations, we believe a 45 MPH speed limit could be justified and recommend the Village select Option #1. Illinois Route 120 east of McHenry was constructed to 4 lanes, raised curb and gutter on the outside lanes, with a reduced speed limit to 45 MPH and we are not aware of any safety issues with that segment of roadway. The additional 20 feet in Option #2 could negatively impact future development along Il Route 31 and have a greater negative impact on existing developed property.

In addition, we would recommend the planning team consider if the water quality features mentioned in Option #2 could be incorporated in Option #1 cross section.

If you have any questions or would like to discuss further, please contact us.

John V. Ambrose, PE

ILLINOIS ROUTE 31 – PHASE I STUDY
ILLINOIS ROUTE 176 TO ILLINOIS ROUTE 120
IDOT Job Number P-91-135-99
ILLINOIS DEPARTMENT OF TRANSPORTATION
Local Agency Meeting
STV #40-15012

Minutes of Meeting

DATE: April 16, 2013

MEETING DATE: April 11, 2013

LOCATION: City of McHenry
City Hall
333 South Green Street
McHenry, Illinois 60050

SUBJECT: Local Agency Meeting

ATTENDANTS:	AFFILIATION/POSITION	PHONE	E-MAIL
Kimberly Murphy	IDOT Bureau of Programming	847-705-4791	kimberly.murphy@illinois.gov
Scott Czaplicki	IDOT Bureau of Programming	847-705-4084	scott.czaplicki@illinois.gov
Jon Schmitt	City of McHenry	815-363-2186	jschmitt@ci.mchenry.il.us
Derik Morefield	City of McHenry	815-363-2186	dmorefield@ci.mchenry.il.us
Doug Martin	City of McHenry	815-363-2110	dmartin@ci.mchenry.il.us
Chad Pieper	HR Green	815-759-8346	cpieper@hrgreen.com
Sanjay Joshi	STV Incorporated	312-553-8454	sanjay.joshi@stvinc.com
Stephen Zulkowski	STV Incorporated	312-553-4161	stephen.zulkowski@stvinc.com

ITEM#		Action
	The purpose of the meeting was review and collect comments on updates to the proposed roadway alternatives (within the City of McHenry limits) made after Public Meeting #2 and to prepare for a future presentation to the City of McHenry Public Works Committee.	
1.0	IDOT began the meeting by providing a brief summary of Public Meeting #2, public comments received, and coordination efforts that have taken place with the Village of Prairie Grove.	Info
2.0	IDOT noted that Prairie Grove Council has decided to support the 30' Raised Median option within their limits, but has requested that IDOT include water quality best management practices as part of this option and methods to preserve environmental resources. IDOT noted that they would be meeting with various area environmental groups to discuss features and options for the project.	Info

3.0 The City of McHenry noted that Nunda Township is under new leadership, and specifically has a new Highway Commissioner. The City believes the Township will not likely support inclusion of the bike path within their limits due to the required 20% local cost participation and maintenance requirement. IDOT noted that the cost would only involve 20% cost for construction of the path and sidewalks, but not land acquisition. A maintenance agreement could be worked out between the Township and the Village of Prairie Grove and/or City of McHenry. STV will compile a cost estimate for the path and sidewalks within the Township limits and IDOT will talk with the new commissioner regarding them. Info/IDOT/ STV

4.0 The City of McHenry noted that the public has continued to express their concerns regarding the proposed improvements and two individuals have even attended a City Council meeting. Info

- Mr. William Busse, representing the First National Bank, expressed that the proposed plans, especially the Maximum Build option, for the IL Route 120 intersection inhibits access to the bank. He stated that the Minimum Build option would be a more accommodating, viable option and requested the support from the Mayor and Council to consider this or alternative options.
- Dr. James Mowery also addressed the council and noted that he shares Mr. Busse's concerns. He also stated that the proposed plans do not provide enough crosswalks for pedestrians to cross IL Route 31 and the proposed barrier medians restrict left had turns.

The City suggested the inclusion of crosswalks at Main Street (current crosswalk location) and High Street (no current crosswalk). IDOT noted that crosswalks were only provided at signalized locations for safety reasons. Based on the City's request, they would investigate their inclusion at High Street and maybe at John Street, instead of Main Street. The Main Street intersection is located within the northbound dual left area for the IL Route 120 intersection and would not be an appropriate location, based on safety and traffic operations.

5.0 The City expressed that based on concerns from the public; they would not support any alternative involving raised barrier medians within the city limits, especially in the urban area north of Lillian St. / Grove Ave. The City suggested that IDOT modify the design to provide a center painted median with dedicated left lanes, or a continuous two way left turn lane (TWLTL). IDOT reiterated that this option was investigated as part of the alternative development process and ruled out based on the safety benefits of a barrier median, as compared to a center painted median or TWLTL. The City expressed that regardless of engineering studies showing the safety benefits of a barrier median, the general public does not support any barrier median option since it restricts access to existing businesses and any future development in the area. Therefore, it would be difficult for the City staff and council members to support barrier median options. Info

6.0 IDOT noted that Phase II Study is now funded – Land Acquisition and Phase III are not funded at this time. Info

7.0 Exhibits showing the proposed improvements within the City of McHenry limits (between Veterans Parkway and Lillian Street / Grove Avenue) were reviewed, and potential developments / modifications to the improvement plans were noted by the City (as highlighted below): Info/IDOT/ STV

- The City noted plans for private development of an approximate 240 acre business park, in the unincorporated area south of the city limits (on the west side IL Route 31, southwest of the Veterans Parkway intersection). IDOT noted that a median opening could be provided approximately ¼ mile south of Veterans Parkway. Access of the two businesses on along the east side of IL Route 31 could be combined with a potential access agreement between the two properties.
- The City requested a 4th (west) leg be provided at the Veterans Parkway intersection. McHenry development plans show a potential signal at this location. IDOT will perform a traffic signal warrant at this intersection and consider combined access for the businesses located southwest of the intersection.
- Access to Gary Lang Auto was discussed. The city requested that a median opening be provided for full access to the dealership. IDOT noted that a median opening at this location would not meet the spacing requirement for a SRA, therefore was not provided. The driveway is located in close proximity to the opening at Dayton Street, where an apron could be provided on the west leg of the intersection for access to the dealership. If an additional median opening is required by the dealership it would be the responsibility of the dealership to pay the cost (estimated at approximately $100,000) for the construction of this opening.
- The City noted plans for development of a new fire McHenry Township Fire station on one of the incorporated parcels east of the Shamrock Lane intersection. Access to the fire department could be provided as a 4th (east) leg of the signalized intersection.
- The City noted that during the development of plans for the Charles J. Miller Road improvement project, it was agreed with the hospital that the intersection of IL Route 31 and Medical Center Drive would be converted to right-in right-out (RIRO) access. IDOT / STV will modify the proposed plan to remove the median opening at this location and convert Medical Center Drive to RIRO.
- The City noted that plans for the Charles J. Miller Road improvement plans only include sidewalks along both sides of IL Route 31, and no shared-use path. IDOT concurred that the construction of a path as part of this project would require additional ROW along IL Route 31.
- The City noted that their development plans call for a proposed signal at the Dartmoor Drive / Park Place intersection. Existing development includes a new McDonalds at the southeast corner of the intersection. Future plans include a new aquatic center located near Knox Park and the McHenry Municipal Building, as well as a new bike path through Knox Park, connecting via Park Place and Dartmoor Drive to Ridgeview Drive and the Prairie Path, located west of IL Route 31. IDOT will collect traffic counts at this intersection and perform a signal warrant analysis for a potential signal at this location.

8.0	Exhibits showing the proposed alternatives near the IL Route 120 intersection (area north of Lillian Street / Grove Avenue intersection) were reviewed. IDOT provided the city a summary of modifications to the alternatives that were made after Public Meeting #2 (as highlighted in the attached document), as well as a summary of potential displaced or impacted buildings (as highlighted in the attached document). IDOT provided a summary of meetings and telephone conversations that had taken place with a few of the impacted building owners. IDOT noted that Mr. Bykowski (owner of 4 of the potentially impacted buildings) did not express strong opinions regarding which option he preferred, but was more concerned about when a final decision would be made on the preferred alternative. In addition, IDOT noted that Ms. Roberts (owner of the 3 potentially impacted buildings at the northwest corner of the IL Route 120 intersection) supports the Maximum Build alternative. Another common concern was related to educating inquiring property owners on how the land acquisition process would work.	Info
9.0	The City staff reiterated their opposition to the proposed raised barrier median, especially in the area north of Lillian Street / Grove Avenue and further stated that they would not support the Maximum Build alternative for the IL Route 120 intersection. They expressed that this alternative impacts too many buildings in the area and would change the character of the area. In addition, the Maximum Build would make impacted properties harder to attract and keep businesses while post-construction parcels may be too small to rebuild businesses after the required land acquisition.	Info
10.0	IDOT suggested that STV complete a conceptual cross access study for the driveways within the City of McHenry limits to determine how combining driveway access to median openings could allow full access to more properties. IDOT/STV will meet with business owners to present these potential combined driveway access concepts and draft cross access agreements. This study will need to be completed prior to presenting the alternatives to the Public Works Committee.	Info/STV/ IDOT
11.0	The City noted that IDOT/STV should present both alternatives for the IL Route 120 intersection, as well as the proposed alternative throughout the city limits at the next Public Works Committee meeting. All property owners adjacent to IL Route 31, within the city limits will be invited to this meeting. STV will prepare an invite list and submit to McHenry. The City requested that the meeting be held on any alternate Monday that does not already have a scheduled Public Works Committee meeting.	Info/STV/ IDOT
12.0	IDOT asked the City on why the building on the northwest corner of IL Route 31 and Main Street is an “important building” to the city. The City noted that the building is important to the community due to its age, architectural features and restorations; it is considered an “honorary historic building.”	Info
13.0	IDOT asked the City for an updated status on the IL Route 31 (Richmond Road) improvement project. The City Engineer noted that the project letting has been pushed to June (or potentially later), due to ROW acquisition issues.	Info

14.0	IDOT asked the City regarding the scope of proposed lighting as part of the Richmond Road project. The City noted that the Richmond Road project includes lighting along IL Route 120 through the IL Route 31 (Front Street) intersection limits (as required by district review). IDOT also inquired about the City's desire for proposed lighting as part of this improvement project. The City noted that based on funding availability they would like lighting up to the Lillian Street / Grove Avenue intersection.	Info
15.0	IDOT noted that IDOT/STV would like to have a separate meeting with the City to discuss existing drainage conditions and present a proposed drainage concept. The meeting will include a representative from IDOT hydraulics. IDOT/STV will setup this meeting with the City after the required analysis is completed.	Info/IDOT/ STV
16.0	IDOT asked the City about any additional drainage or utility related concerns they may have, and about any planned utility related improvements in the area. The City noted the continued flooding issues along the unnamed stream east of IL Route 31, between Anne and Grove, as well as flooding in the roller rink parking lot. The City noted a proposed water main loop project along Oak Ave., Kane Ave., and Grove Ave. The proposed water main improvements will likely cross IL Route 31 at these side streets, but does not include any work along IL Route 31.	Info
17.0	IDOT requested the City Engineer, Chad Pieper, to provide STV existing and proposed drainage plans and CAD files for both the Richmond Road and Charles J. Miller Road improvement projects.	Info/HR Green
18.0	IDOT asked the City about their desire to include parkway trees / landscaping as part of the proposed improvement plans for this project. The City noted that they would like their inclusion, but is concerned about costs and maintenance of these features. This issue will be further coordinated during the development of the preferred alternative.	Info
19.0	The need for a crosswalk across the east leg of the IL Route 31 and IL Route 120 intersection was discussed with the City. It was determined that a crosswalk should be added for this leg.	Info/STV

These minutes are considered an accurate account of discussions and/or events that took place at this meeting. These meeting minutes shall stand as written and accepted by all parties receiving a copy of these minutes unless written notification is received from recipients of these minutes within seven (7) days of the date of issue.

Prepared by: Sanjay K. Joshi
Civil Engineering Specialist
STV INCORPORATED

Attachments: 1) IL Route 31 Phase I Study – Roadway Modifications within City of McHenry limits completed after PM#2
2) IL Route 31 Phase I Study – Potential Impacted Buildings at IL 120 intersection

Illinois Route 31
IL 176 to IL 120
McHenry County

Revisions to Alternatives after Public Meeting #2
City of McHenry
April 11, 2013

1. IL Route 120 Intersection Options (area north of John Street)

Minimum Impact (Option #1):

- 2 building impacts as a result of damage to remainder of property (these impacts were not shown on PM #2 exhibits).

- Slight modification to south leg of intersection to provide 10' lanes and maximum sidewalk widths without impacting buildings. Substandard sidewalk widths of 5' and 5.5' behind back of curb and the use of B-6.12 curb and gutter is required in order to not impact buildings along IL Route 31.

- Revision of Waukegan Road cul-de-sac radius to the design standard of 45'. This revision was possible since the AT&T building on the southeast corner of the IL Route 120 intersection is already impacted (based on damage to remainder of property) by the intersection radius return.

- Modifications to west leg of intersection to provide minimum 11' lanes and 7' sidewalk behind back of curb, without impacting buildings.

- Modifications to east leg of intersection to provide minimum 10.5' lanes and 7' sidewalk behind back of curb, as well as a minimum 4' wide barrier median separating the westbound dual left turn lanes and opposing eastbound through lanes. 10' lanes along IL Route 120 are not preferred due to high traffic volumes (IL 31 and IL 120 combined) and barrier median improves safety.

- Above modifications to the east leg of the intersection requires the elimination of 12 on-street parking spaces along IL Route 120. Elimination of these parking stalls also improves roadway safety and reduces impacts to the adjacent off-street parking.

- Inclusion of additional pavement along IL Route 120, near southeast corner of intersection to allow for westbound u-turns. Additional pavement is possible since 2 adjacent buildings are already identified as impacted based on damage to remainder.

- Modifications of east leg of intersection to transition to meet the proposed improvements as part of the IL 31 (Richmond Road) and IL 120 intersection project. This match point occurs immediately west of the 3rd Street intersection. Exact match location will be determined as proposed vertical profile along IL Route 120 is finalized. *(Need CAD file showing proposed profile along IL Route 120 from Richmond Road improvement project.)*

Maximum Build (Option #2):

- 3 additional building impacts as a result of damage to remainder of property (these impacts were not shown on PM #2 exhibits).

- Elimination of barrier median along north (Front Street) leg of intersection to allow full access to the 1st National Bank and Firestone properties.

- Elimination of 12 on-street parking spaces along IL Route 120. Elimination of these parking stalls improves roadway safety and reduces impacts to the parking lots along the north side of IL Route 120.

- Modifications of east leg of intersection to transition to meet the proposed improvements as part of the Richmond Road project. This match point occurs immediately east of the 3rd Street / Millstream Drive intersection. Exact match location will be determined as proposed vertical profile along IL Route 120 is finalized. *(Need CAD file showing proposed profile along IL Route 120 from Richmond Road improvement project.)*

- Shared use path along the east leg transitions to 7' sidewalk behind back of curb prior to match point.

2. Revisions to design for area between Veterans Parkway and John Street

- Added northbound u-turn lane and pavement bump-out at Bank Drive. *Since this area falls outside of our project limits, and within the Bull Valley Road Intersection area, MCDOT will need to incorporate the modifications into their design and construction plans.*

- Also at Bank Drive, modified southbound left turn lane median design from painted median to barrier median.

- Added median break at Meadow Lane to allow northbound access to the McHenry library.

S:\WP\p&es\CONSULT\Projects - Active\IL 31 (IL 176 to IL 120)\Meetings\2013-04-11 McHenry (Alts)\Roadway modifications completed after PM 2.doc

Illinois Route 31
IL 176 to IL 120
McHenry County

Option 1 – Minimum Impact
Option 2 – Maximum Build

POTENTIAL DISPLACED BUILDINGS

IL 31 (Front St) and IL 120 Intersection

Building No.	Business Name & Address	Owner Name	Direct Building Impact	Damage to Remainder (Not Shown at PM#2)
1	AT&T Store 3817 W. Elm St.	Ron Bykowski		Option 1 and Option 2
2	Wireless Park 3815 W. Elm St.	Ron Bykowski	Option 2	Option 1
3	A.W.O.L. Army Surplus 1104 N. Front St. McHenry Martial Arts 1104 N. Front St. Cash For Gold 1112 N. Front St.	Ron Bykowski	Option 2	
4	Apartment Building 1102 N. Front St. & 3816 W. Main St.	Warren Moulis	Option 2	
5	Vacant Business 920 N. Front St.	Joseph & Joan Rubino	Option 2	
6	CarQuest Auto Parts 926 N. Front St.	Joseph & Joan Rubino	Option 2	
7	Butch's Auto Service 1002 N. Front St.	Joel & Kathleen Zank	Option 2	
8	Residential 1004 N. Front St.	Joel & Kathleen Zank	Option 2	
9	Al & Ann's Collectibles 3819 Main St. #1 Descubre Cell Phone & PC Repair 3819 Main St. #2	Heaney Properties LLC	Option 2	
10	Marathon Gas 3811 W. Elm St.	Ron Bykowski	Option 2	
11	Residential 3910 W. Elm St.	Patti Roberts	Option 2	
12	Vacant Business 3908 W. Elm St. White Dragon Martial Arts 3908 W. Elm St.	Patti Roberts	Option 2	
13	Vacant Business 1291 N. Front St.	Patti Roberts	Option 2	
14	1st National Bank 3814 W. Elm St.	William Busse		Option 2 (Drive-Thru)
15	Millstream Coin Wash 1304 N. Front St.	Joseph & Marie Brahm		Option 2

ILLINOIS ROUTE 31 – PHASE I STUDY
ILLINOIS ROUTE 176 TO ILLINOIS ROUTE 120
IDOT Job Number P-91-135-99
ILLINOIS DEPARTMENT OF TRANSPORTATION
Local Agency Meeting
STV #40-15012

Minutes of Meeting

DATE: November 25, 2013

MEETING DATE: October 15, 2013

LOCATION: City of McHenry
City Hall
333 South Green Street
McHenry, Illinois 60050

SUBJECT: Local Agency Meeting

ATTENDANTS:	AFFILIATION/POSITION	PHONE	E-MAIL
Kimberly Murphy	IDOT Bureau of Programming	847-705-4791	kimberly.murphy@illinois.gov
Scott Czaplicki	IDOT Bureau of Programming	847-705-4084	scott.czaplicki@illinois.gov
Lori Brown	IDOT Bureau of Programming	847-705-4477	lori.s.brown@illinois.gov
Perry Masouridis	IDOT Hydraulics Engineer	847-705-4474	Eleftherios.Masouridis@illinois.gov
Santos Batista	IDOT Hydraulics Engineer	847-705-4764	Santos.Batista@illinois.gov
Jon Schmitt	City of McHenry	815-363-2186	jschmitt@ci.mchenry.il.us
Derik Morefield	City of McHenry	815-363-2100	dmorefield@ci.mchenry.il.us
Doug Martin	City of McHenry	815-363-2110	dmartin@ci.mchenry.il.us
Rich Stull	City of McHenry	815-363-2186	rstull@ci.mchenry.il.us
Chad Pieper	HR Green	815-759-8346	cpieper@hrgreen.com
Jean-Alix Peralte	STV Incorporated	312-553-8431	Jean-Alix.Peralte@stvinc.com
John Clark	STV Incorporated	312-553-8437	John.Clark@stvinc.om
Sanjay Joshi	STV Incorporated	312-553-8454	sanjay.joshi@stvinc.com

ITEM# Action

The purpose of the meeting was review and collect comments on updates to the proposed roadway alternatives (within the City of McHenry limits) made after the previous McHenry meeting in April 2013 and to prepare for a future presentation to the City of McHenry Public Works Committee. In addition, existing and proposed drainage plans within the city limits were reviewed.

1.0 Exhibits showing the proposed improvements within the City of McHenry limits were reviewed, and potential developments / modifications to the improvement plans were noted by the City (as highlighted below): Info/IDOT/ STV

- The City noted plans for private development of an approximate 240 acre business park, in the unincorporated area south of the city limits (on the west side IL Route 31, southwest of the Veterans Parkway intersection). The City questioned if a traffic signal at this location would be allowed by IDOT. It was noted that typical spacing for traffic signals on an SRA is ½ mile, so an additional signal would most likely not be allowed. IDOT noted that a median opening could be provided approximately ¼ mile south of Veterans Parkway. Access of the two businesses along the east side of IL Route 31 could be combined with a potential access agreement between the two properties. Future development on the west side could utilize the opening for access, but the location would be too close to Veterans Parkway for an additional traffic signal. Per the ¼ mile spacing requirement for median openings, an additional median opening could be provided approximately ¼ mile north of Gracy Road (as noted in the exhibits). Construction of this additional opening would have to be paid for by the developer if it serves only one property.
- The City noted plans for development of a new fire McHenry Township Fire station on one of the incorporated parcels east of the Shamrock Lane intersection. Access to the fire department could be provided as a 4th (east) leg of the signalized intersection, but there could be cross access issues when adjacent parcels are developed since combined access with the fire station is not desirable for station operations.
- Access to Gary Lang Auto was discussed. The city requested that a median opening be provided for full access to the dealership, not just a ¾ access as currently shown. IDOT noted that a ¾ access was provided as a compromise, even though the location does not meet the ¼ mile median opening spacing requirement for an SRA. The driveway is located in close proximity to the opening at Dayton Street, where an apron could be provided on the west leg of the intersection for access to the dealership. Vehicles exiting the dealership in the northbound direction could use Dayton Street or the existing cross access driveway connecting the dealership to the property to the north, adjacent to Shamrock Lane. McHenry noted access at these locations is currently restricted with a locked gate and would not adequately accommodate both customers and delivery trucks. McHenry also noted that each parcel within the dealership complex has a separate car company as an operator (i.e. GMC, Kia, etc.). IDOT noted if an additional median opening, with full access, is required by the dealership it would be the responsibility of the dealership to pay the cost (estimated at approximately $100,000) for the construction of this opening, since the opening would be a private benefit. McHenry noted the open development area, across from the dealership, east of IL 31 would also want full access to IL 31. McHenry expressed that since the dealership currently has full access, they believe it should be put back in as part of this project. They further expressed that full access is very important to both the owner and to the City and that they would not sign-off on any plans without full access at this location.
- The implementation / construction of cross accesses within the McHenry limits

was discussed. IDOT noted that they cannot force cross access and that it would be responsibility of the City to coordinate cross access agreements with property owners. In addition, IDOT will not provide construction funding for cross access driveways. McHenry noted that they currently do not have the money to build these accesses at each location and would have to figure out how to acquire the necessary funds.

- Access to the 1st National Bank of McHenry, located between Medical Center Drive and Bull Valley /Charles J. Miller Road, was discussed. It was decided to add a new ¾ access, along with a new relocated driveway at Sta. 381+50 RT. This new driveway access would be located along the southern property line for the Center Medical Arts Complex. A new access drive would be required to be constructed between the Medical office building and the 1st National Bank property. In addition an access drive could be constructed to connect the bank and the used car business to the north. The new ¾ access would then be able to provide access to 4 different properties. STV to provide concept sketch of new access and cross access driveways, along with cost estimate to McHenry.
- McHenry noted that they do not like the proposed barrier median in the section north of Park Place / Dartmoor Drive to High Street. They would prefer a 5 lane section with a center TWLTL. They were concerned with the restricted access to the Super 8 motel north of Park Place. IDOT & STV noted that a TWLTL was not provided in this section since there are many undeveloped parcels and this section does not include closely spaced driveways, similar to the area north of High Street. Vehicles traveling SB on IL 31 and wishing to access the Super 8 motel could make a U-turn at Dartmoor / Park Place. Vehicles leaving the motel and wishing to continue south could go north on IL 31 and make a U-turn at High Street. It was agreed by meeting attendees that the 'Potential Median Break' noted in this section would be moved further south to approx. Sta. 421+25. A future median break at this location could serve future development of the vacant parcels on both sides of the roadway. In addition, when the property is developed on the east side of the road, a cross access driveway could be constructed to provide shared access to the Super 8 motel.
- Median opening with ¾ access to be added at approx. Sta. 427+50 along with new shared driveway for Centegra Health Systems building (213 Front Street) and 31 North Banquet Center (217 Front Street).
- McHenry expressed concern with the proposed barrier median along the east leg of IL 120 and how it restricted access to businesses. STV noted that this design was developed for increased safety along this section of roadway and that it is standard IDOT design practice for locations with dual left turn lanes. In addition, the barrier median would match the proposed barrier median for the Richmond Road intersection project by HR Green. Vehicles traveling WB on IL 120 can u-turn at the Front Street intersection to access businesses on the south side of the roadway, but vehicles traveling EB on IL 120 would not be able to u-turn at Richmond Road due to proposed signal phasing. Additionally, HR Green noted that the design for the barrier median through the Millstream / 3rd Street was modified to provide a traversable median (with 2" mountable curb). This design would discourage but allow full access to both side streets, especially for emergency vehicles. STV expressed their concern with this design, especially

since the intersection of IL 120 with Millstream / 3rd is the location with the highest number of crashes along the entire project limits.

- It was decided that STV would investigate alternate options for the section of IL 120 near Millstream / 3rd that would include the opportunity for EB vehicles to make a u-turn to access businesses on the north side of IL 120. STV to develop design alternatives and submit exhibits to IDOT and then McHenry for review.

2.0 McHenry concurred that the project team should move forward with the presented alternative as the 'Preferred Alternative' within the city limits, with the requested modifications discussed in Item 1.0 above. The 'Minimum Build Alternative' at the IL 31 and IL 120 intersection is the 'Preferred Alternative.' — Info

3.0 Meeting attendees agreed that the next step for the project, related to the 'Preferred Alternative' was a presentation to the Public Works Committee. Invitees shall include all property owners adjacent to the proposed improvements (along IL 31 & IL 120) within the McHenry city limits as well as business owners along Main Street. McHenry reminded IDOT & STV that Mr. Ron Bykowski owns a lot of the property near the IL 31 and IL 120 intersection. The Public Works Committee presentation should be scheduled for Tuesday or Thursday at 5:30 p.m. or 6:00 p.m. — Info

4.0 IDOT asked the City regarding the scope of proposed lighting as part of the Richmond Road project. The City noted that the Richmond Road project includes lighting along IL Route 120 through the IL Route 31 (Front Street) intersection limits (as required by district review). IDOT also inquired about the City's desire for proposed lighting as part of this improvement project. The City noted that based on funding availability they would like lighting up to the Lillian Street / Grove Avenue intersection. STV to send preliminary roadway geometry CAD files to Chad Pieper at HR Green so they can use to coordinate their planned lighting improvements. — Info/STV

5.0 McHenry noted that they would support the inclusion of the shared use path and sidewalks within their limits and would begin the process of finding funding for their share of the construction costs. IDOT noted that a 10' shared use path typically costs $35 / L.F., of which 20% would be the city's responsibility, plus 15% engineering fee. — Info

6.0 STV presented the Existing Drainage Plan (EDP) and concept Proposed Drainage Plan (PDP) to McHenry. The plans were not discussed in detail but were left with the City for their independent review and comment. — Info

McHenry then discussed existing drainage problems along IL 31 as noted below.

7.0 McHenry noted the ditches in the area near Dayton Street do not drain well and will need to be re-cut as part of this project. STV noted that all roadway ditches will be redesigned / constructed for efficient drainage. — Info

8.0	McHenry noted that after a 4”-6” rain event flooding occurs along Anne Street as well as IL 31 from the unnamed stream to the roller rink south of James Street, a distance of approximately 1800’. After a 2”-3” storm ditches are full and water doesn’t move very fast. Water then backs up onto Anne Street and floods homes along Anne Street. Overtopping of Anne Street occurs after a rain event of 3 ½” or more and IL Route 31 overtops after a larger storm. For the most recent 6” storm, an approximate 1’ depth of flooding occurred along IL Route 31. McHenry pointed out that there is not as much flooding along the west side of IL 31 as there is along the east side. In addition they noted drainage problems at Water Tower Plaza as well as Remax Plaza on the southwest corner of Kane and IL 31. Existing PVC pipes under the sidewalk are inadequate, become clogged, and often result in flooding.	Info
9.0	IDOT requested that STV investigate raising the centerline profile of IL 31 to meet the 3’ freeboard requirement for a 50 year flood, and determine the extent of impacts to adjacent properties as a result of this profile adjustment. At a minimum the profile should be raised to an elevation where the EOP meets the 100 year flood elevation.	Info/ STV
10.0	McHenry noted the following additional existing drainage conditions: • Outlet 24 ends up flowing behind Boncoski Oil Company off of Main Street, into a ditch on the west side of the railroad. From this point, the City believes stormwater runoff flows along Mill Street and goes west under Crystal Lake Road, but does not know exactly how this area drains and has no record of storm sewer pipes at this location. • The culvert in front of the roller skating rink flows west behind the south side of Alexander Lumber, and then drains north along an open ditch along railroad property. • A 24” storm sewer at James Street flows east through the McCracken Football field. • The storm sewer along the west side of Front Street, north of IL 120 is not in the best of condition.	Info
11.0	McHenry added dual culvert system conveying unnamed stream under Edgebrook Elementary School and Kane Avenue, combining with storm sewers under McCracken Football field, and then outletting to golf course on east side of Green Street. McHenry to provide plans and calculations for the design of this system to STV.	Info/ McHenry

These minutes are considered an accurate account of discussions and/or events that took place at this meeting. These meeting minutes shall stand as written and accepted by all parties receiving a copy of these minutes unless written notification is received from recipients of these minutes within seven (7) days of the date of issue.

Prepared by: Sanjay K. Joshi
Civil Engineering Specialist
STV INCORPORATED

Attachments: 1) Attendance Roster

Illinois Department of Transportation

Attendance Roster

Bureau: Programming

Section: Project & Environmental Studies

Project/Topic: IL31; City of McHenry Preferred Alt + Drainage

Date: 10-15-13

Time: 2:00 p.m.

Location: McHenry City Hall

	Attendees	Representing	Phone Number	Email Address
1.	Scott Czaplicki	IDOT/ consultant	(847) 705-4084	scott.czaplicki@illinois.gov
2.	Lori Brown	IDOT- Programming	(847) 705-4477	Lori.S.Brown@illinois.gov
3.	Kimberly Murphy	IDOT-Programming	847-705-4791	Kimberly.Murphy@illinois.gov
4.	JEAN-ALIX PERALTE	STV INC	312-553-8431	JEAN.ALIX.PERALTE@STVINC.COM
5.	Doug Martin	City of McHenry	815.363.2110	dmartin@ci.mchenry.il.us
6.	Rich Stull	City of McHenry	815-363-2186	rstull@ci.mchenry.il.us
7.	Jon Schmitt	City of McHenry	815-363-2186	jschmitt@ci.mchenry.il.us
8.	DERIK MOREFIELD	CITY OF McHenry	815 363-2100	dmorefield@ci.mchenry.il.us
9.	CHAD PIEPER	HR Green/City of McHenry	815-385-1778	cpieper@hrgreen.com
10.	Sanjay Joshi	STV Inc.	312 553-0655	sanjay.josh.@stvinc.com
11.	Santos Batista	IDOT-Hydraulics	847 705-4764	santos.batista@illinois.gov
12.	PEIRIZI MASOURIDIS	IDOT/PROG/HYD	847 705-4474	eleftherios.masouridis@illinois.gov
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				

Huff & Huff, incorporated
environmental engineers and consultants

915 Harger Road, Suite 330
Oak Brook, IL 60523
Phone (630) 684-9100
Fax (630) 684-9120
Website: http://huffnhuff.com

MEETING MINUTES

Date: January 15, 2014

Location: IDOT District 1, 4th floor conference room, Schaumburg, IL

Subject: IL Route 31 Phase I Study-Environmental Interest Group Meeting

Attendees: For attendees presenting the meeting in person, see attached sign-in sheet
Attendees via webinar include:

- Shawn Cirton, U.S. Fish and Wildlife Service (USFWS)
- Soren Hall, U.S. Army Corps of Engineers (USACE)
- Cory Horton, McHenry County
- Dawn Thompson, Chicago Metropolitan Agency for Planning (CMAP), Silver and Sleepy Hollow Creeks Watershed Coalition

---

I. Introduction
   a. Introduction of attendees
   b. Meeting purpose: Review environmental resources in project area, the minimization and mitigation efforts, the currently proposed design, and solicit feedback upon the proposed Best Management Practices (BMPs) and design elements.
   c. Project status update
      - A summary of the current project status and design changes to minimize impacts was provided by John Clark from STV.
      - Clark presented the project schedule. A Community Advisory Committee meeting is planned to be held in Spring 2014. The public hearing is planned to be held in Winter 2014/Spring 2015. The project will be presented at the June 2014 NEPA/404 merger meeting.
      - Norm West (U.S. EPA) asked if a depressed median had been considered for the design. Clark responded that a rural road section with a depressed median had at one time been considered, but that alternative resulted in greater environmental impacts than a narrower urban road section. An urban road section has a curbed median, but may still be turf.

II. Environmental Resources Presentation

a. Linda Huff (Huff & Huff) presented an overview of watersheds in streams in the project area. She discussed the area's watershed goals and how the roadway design is compatible with watershed goals.

b. Jim Novak (Huff & Huff) presented a summary of wetlands and wetland impacts in the project area. Thirty-five wetlands were identified in the project area, with 19 wetlands impacted by the project. The wetland impacts affected 19 wetlands; the largest wetland impact among the 19 wetlands was 0.38 acre. Only one of the wetlands surveyed in the project area had a Floristic Quality Index (FQI) greater than 20, which is associated with a High Quality Aquatic Resource (HQAR). Two seep wetlands were identified in the project area. One seep (#35) is in close proximity to IL 31, while the second seep (#24) is outside the project limits. The project's ultimate design will avoid both of the seep wetlands, as seep wetland impacts are considered not mitigitable. The project team has developed design modifications (alignment shifts, lane width reductions, and median width reductions in the area between River Birch and Ames Road) to reduce wetland impacts and avoid both seep wetlands in the project area.

- Liz Pelloso (U.S. EPA) asked if there is potential for incidental impacts to the seep wetlands due to the proximity of the roadway. Scott Czaplicki (IDOT) stated that erosion control measures and a retaining wall will be placed between the road and the wetland, and a buffer between the road and the wetland will also be provided.
- Cindy Skrukrud (Sierra Club) stated that the wetland may experience impacts from salt spray.
- Dennis Dreher (Silver and Sleepy Hollow Creeks Watershed Coalition) asked that downgradient wetlands that could be impacted by chlorides be studied in order to protect groundwater. The Boone Creek Watershed Coalition has developed salt impacts research that should be used for this project. Huff responded that the proposed Best Management Practices (BMPs) in the project and improved IDOT deicing practices are anticipated to reduce chloride runoff.
- West asked if direct impacts of the project included construction. The project team responded yes.

c. Huff continued the presentation by identifying several BMPs currently proposed as part of the project: natural bottom culverts, vegetated swales, and meandering Squaw Creek.

- Pelloso asked what IDOT's specifications for natural bottom culverts are and asked if there will there be excavation of 2-3 feet in depth with riprap.

Vanessa Ruiz (IDOT) responded that IDOT can use three-sided or buried culverts to achieve a natural bottom culvert. Pelloso requested more information as to the extent of the use of riprap. Clark added that hydraulic analysis also factors into the design of natural bottom culverts due to scour. STV will continue to develop culvert alternatives for the project, but will take these comments into consideration.

- Huff stated that vegetated swales are being considered at key locations where there could be discharge from the road into the stream. The meandering of Squaw Creek is being evaluated along the approximate 1900 feet it runs along the east side of IL 31to slow stream flow and reduce erosion. Currently, Squaw Creek is a channelized stream with eroded banks. Clark added that riffles will also be added to the meandering stream, further slowing the stream flow.
- Pelloso asked if Squaw Creek is currently a ditch, and if the meandered stream is expected to also function as a ditch or if there will be a separate ditch for IL 31. Clark stated the meandered stream will continue to function as a drainage point with the proposed improvements.
- Randy Schietzelt (Land Conservancy of McHenry County) asked how IDOT will ensure that the vegetated swales from becoming all phragmites, as there is some present near Thunderbird Lake. Novak responded that this will be considered in the restoration plan; the area needs native plantings that aren't invasive.
- Jeannine Smith (Village of Prairie Grove) asked will the IDOT maintenance be used or a separate maintenance contract. IDOT maintenance will be used.
- Dreher stated that the project area has much reed canary grass, and a long term maintenance plan is needed that contains performance criteria to control invasive species.
- Dreher asked that the McHenry County Conservation Map with Green Infrastructure Vision (GIV) plan be used for the project
- Pelloso suggested that a two-stage channel design be considered for the meandering of Squaw Creek to provide a secondary filtration area. Sanjay Joshi (STV) stated that the road is being designed to direct all runoff through swales or other BMPs in this area. Pelloso asked how close the meandered Squaw Creek would be to IL 31; as the stream concept develops, it should consider that streams move over time so it is designed correctly. She prefers using natural open cell articulated revetment block mat and not rip rap for stabilization if possible.

- Clark described the proposed shared-use path that extends along IL 31 as part of the project. Skrukrud stated that local bicycle groups have stated they would not use a trail adjacent to IL 31 due to the proximity of the existing Prairie Trail. Skrukrud commented that she is interested in the cost comparison of bike path versus oak trees. Czaplicki responded that the IL 31 shared-use path was proposed to comply with the IDOT Complete Streets policy and is part of the project's purpose and need. IDOT determined the Prairie Trail was a regional bicycle facility, and did not accommodate all local bicycle traffic from residential areas along IL 31. Because an on-street bicycle facility was not appropriate along IL 31 due to traffic, a shared-use path was proposed. Each signalized crossing of IL 31 is proposed to include bicycle and pedestrian crossings. He continued that local agencies may choose to opt out of the shared-use path, if desired. Eric Morimoto (Crystal Lake) commented that Crystal Lake is in the process of developing a bike plan. Smith stated that the Village of Prairie Grove does not desire to have a path south of Sleepy Hollow Creek.
- Dreher asked if there were design criteria or design targets for pollutant removal for the BMPs identified to be included in the project. He is in favor of improving filtration for the length of the corridor, and suggested that swales be included for the entire length. Huff responded that since the project will have a Section 404 individual permit, a pollutant loading analysis is required, and all proposed BMPs will be evaluated to determine pollutant loadings as part of the anti-degradation permit analysis. It may not be in the area's best interest to infiltrate everything to the groundwater; sending some water to streams may be preferable to protect seeps and private wells. Cirton concurred with Huff, stating that the project team should be concerned with both groundwater and surface water preservation. He suggested that more BMPs be considered for infiltration in addition to the vegetated swales.
- West asked if the county has regulatory guidelines. Horton responded that McHenry County is evaluating its hydrology to determine where infiltration is beneficial. He mentioned two recent studies: 1) IWGS-groundwater simulation study, 2) McHenry County GIS study.
- Skrukrud asked if IDOT can provide a commitment to reduce salt use. Ruiz responded that IDOT could investigate such items during IEPA permitting in the design phase of the project.
- Pelloso asked the project team to summarize the proposed stormwater detention in the project area. Clark stated that the project team identified

seven sensitive outlets in the project area. The north area of the project corridor (Bull Valley Road to IL 120) is considered one sensitive outlet due to existing flooding problems. The project team will identify sites for regional detention ponds. The soil is very sandy, so clay liners could be used in stormwater facilities if chlorides were a concern in the area of the detention facility, which are projected to be wet-bottom facilities with native plantings.

- Dreher asked if the McHenry County stormwater ordinance was considered when creating stormwater detention for the project. Horton added that detention may help to dilute pollutants, but a plan is needed to minimize IDOT salt use on the roads. McHenry County has been experimenting with methods to reduce salt use, and has found that prewetting salt can reduce its use by 30%. Horton also stated that IDOT does not need to follow the county ordinance, but they ask that IDOT consider doing so.
    - Morimoto stated that Crystal Lake has received many complaints of flooding from area residents. Residents could view the road project as exacerbating the situation, and Smith concurred.
    - Horton stated that although IDOT is exempt from McHenry County local requirements, the county is willing to review proposed plans.
- West asked if the truck traffic on IL 31 was high, and if there is a concern for spills from vehicles. Clark responded that truck traffic is high, and Smith stated there was a recent spill in the project area due to a vehicle crash.
- Smith asked if the project had design funding. Czaplicki stated that there is funding for design, but not for land acquisition or construction.
- Schietzelt asked how wetland mitigation for the project would occur. Novak and Ruiz responded that it would likely occur in wetland banks within the Fox River watershed, as that is the USACE's preferred mitigation method. Dreher responded that the Silver and Sleepy Hollow Creeks Watershed Coalition's watershed plan states that their preferred mitigation will occur within their subwatershed. Skrukrud stated that Steven Byers from the Illinois Nature Preserves Commission asked if wetland mitigation for the IL 31 project could occur at Stearns Fen. Ruiz stated that IDOT has worked with McHenry County Conservation District on similar projects in the past, and that method works if MCCD has an existing project where the mitigation can occur. Cirton stated that mitigation at Sternes Fen could be potentially be accepted by USACE; a

wetland bank is their first option but they could consider other options. Novak indicated that the IWPA does not allow for fee-in-lieu, unlike the USACE and local ordinance. Novak concluded that IDOT has to comply with IEPA.

d. Czaplicki stated that a proposed drainage plan is being developed and the project is going above and beyond typical IDOT standards. Novak summarized the environmental surveys expected to take place in the project area in 2014, including Eastern prairie fringed orchid (EPFO) and Blanding's turtle surveys, as well as tree surveys.
    - Shawn Cirton (US FWS) stated that EPFO surveys occurred in the project area in 2012. Ruiz concurred that EPFO was completed in 2012, but since the Blanding's turtle would be surveyed near Thunderbird Lake in 2014, IDOT will also survey for EPFO in conjunction with that survey.
    - Skrukrud asked what impacts are proposed to the existing oak trees along IL 31. Dreher and Jeannine Smith (Village of Prairie Grove) stated that the project team should use GIS files from McHenry County, notably files that show stream buffers, aquifer protection areas, and remnant woodlands. The project team will obtain these files and add to project maps. Cory Horton (McHenry County) stated the project team could contact him for files.
    - Smith continued that the Village of Prairie Grove has ideas for reuse of trees removed as part of the IL 31 project. She asked that IDOT provide the village notification of when trees will be removed so the trees may be removed by others and reused rather than removed and chipped by IDOT contractors. Novak added that a volunteer acorn collection effort in the project area could be started, and the acorns can be used to develop seedlings for replanting impacted trees here.

A copy of the presentation and exhibits from the meeting are available for review on the project website: http://ilroute31.com/othermeetings.html

Illinois Route 31 Environmental Assessment
Environmental Resources Meeting
January 15th, 2014 2:30 PM

NAME	REPRESENTING	E-MAIL
Linda Huff	Huff & Huff	lhuff@huffnhuff.com
Lindsay Birt	Huff & Huff	lbirt@huffnhuff.com
Jim Novak	Huff + Huff	jnovak@huffnhuff.com
Scott Czaplicki	IDOT/consultant	scott.czaplicki@illinois.gov
Sanjay Joshi	STV Inc.	sanjay.joshi@stvinc.com
John Clark	STV Inc	john.clark@stvinc.com
Randy Schietzelt	Land Conservancy of McHenry County	Lvroak@aol.net
Jeannine Smith	Village of Prairie Grove	jsmith@prairiegrove.org
" "	Sleepy Hollow/Silver Watershed Coalition	
Loki Brown	IDOT- Programming	Loki.S.Brown@illinois.gov
Lee Jennings	Nunda Township	LEEJENNINGS@NUNDATOWNSHIP.COM
Kathleen Martinez	Terra Cotta Realty Co.	kathym@tcindustries.com
Jamie Bents	Huff & Huff	jbents@huffnhuff.com
Norm West	U.S. EPA	west.norman@epa.gov
Liz Pelloso	USEPA	pelloso.elizabeth@epa.gov
Dennis Dreher	Geosynte Consultants Silver-Sleepy Hollow Wtsd.	DDreher@Geosyntec.com
Santos Batista	IDOT- Hydraulics	santos.batista@illinois.gov
Val Siler	McHenry County Conservation District	vsiler@mccdistrict.org
Kimberly Murphy	IDOT	Kimberly.Murphy@illinois.gov
Vanessa Muiz	IDOT	VANESSA.MUIZ@illinois.gov
Tyler Petersen	IDOT	tyler.petersen@illinois.gov
Cindy Skrukrud	Sierra Club	cindy.skrukrud@sierraclub.org

Illinois Route 31 Environmental Assessment
Environmental Resources Meeting
January 15th, 2014 2:30 PM

NAME	REPRESENTING	E-MAIL
ERIK MORIMOTO	crystal Lake	emorimoto@crystallakeil.org

PUBLIC WORKS COMMITTEE MEETING
March 12, 2014
City Council Chambers at the Municipal Center, 6:00 p.m.

In Attendance:	Committee Members: Chairman Alderman Blake, Alderman Santi arrived at 6:07 pm and Alderman Wimmer arrived at 6:15 pm
Staff in Attendance:	Public Works Director Schmitt, Street Superintendent Stull, Administrative Assistant Lorch
Others in Attendance:	Personnel from Illinois Department of Transportation: Kimberly Murphy, Scott Czaplicki, Lori Brown Personnel from STV Incorporated: John Clark, Sanjay Joshi

Chairman Alderman Blake called the meeting to order at 6:04 p.m.

Public Comment: None

Agenda Item 1: Illinois Route 31 (Front Street) Phase 1 Engineering - Illinois Department of Transportation Resolution of Support

Alderman Blake began the meeting by introducing Director Schmitt to the audience; he in turn introduced his staff. STV Incorporated and Illinois Department of Transportation (IDOT) personnel were also introduced.

Director Schmitt explained that the purpose of the meeting is to inform business owners and residents on the status of the Illinois Route 31 (Front Street) project. IDOT considered suggestions and comments received at the previous meetings to come up with one preferred plan.

Director Schmitt then introduced John Clark from STV Engineering. He spoke about the three original alternatives and gave a brief overview of the changes made. Some of the changes were made due to City and business owners concerns and suggestions. These changes include geometric modifications, and a change of the Waukegan Road cul-de-sac radius for better turning movement. Signage will be posted to restrict traffic from Main Street turning onto Route 31 for safety reasons. There will be a barrier median installed to meet the Richmond Road improvement which is just west of the bridge. Other medians will be installed near First National Bank, Mercy Drive, and Gary Lang Chevrolet. In order for Gary Lange to keep full access to the business he may have to participate in the cost because this would only benefit Gary Lang. Near Bank Drive there would be bump outs, and a painted median will be changed to a barrier median. Modifications were also made to the west and east legs of Route 120. He said that only right turns onto side streets would be allowed just west of the bridge. The Fountain Shop's driveway opening will be lined up with High Street. Mr. Clark summarized that a lot of time was spent listening to the comments from the community. The National Environmental Policy Agency (NEPA) is taking all of the information into account and will help guide IDOT to the preferred alternative.

Mr. Clark invited everyone to look at the roll plots of the project and to ask questions if desired.

Alderman Blake reconvened the meeting at 6:45 pm.

IDOT representative said that the earliest construction would begin is in the year 2020 and will take two years. A business owner would like to see the project done in one year and have the project done in segments to lessen the affect on the businesses.

Alderman Blake said he doesn't think the committee is ready to approve the Resolution of Support for this project. The Committee and city staff thinks that Gary Lang Chevrolet should continue to have full access from Route 31 with no cost to the dealership or the City. Drainage between Anne Street and John Street is a concern especially for the residents on Anne Street. There will be a barrier between High Street and Park Place which will severely limit access to residents and businesses. Another concern is the frontage at Butch's Auto Shop that will be impinged upon. All of these issues need to be addressed before the Public Works Committee will approve the Resolution of Support. Alderman Blake asked for a motion to table the vote for the Resolution of Support.

Motion by Alderman Wimmer, seconded by Alderman Santi, to table the vote for the Resolution of Support for the Route 31 Improvement Project.

Voting Aye: Alderman Blake, Alderman Wimmer, Alderman Santi
Voting Nay: None
Absent:

Motion carried.

Director Schmitt replied no when Alderman Blake asked if there was any new business.

Alderman Blake stated that if there are not any more questions, he will ask for a motion to adjourn the meeting.

Motion by Alderman Wimmer, seconded by Alderman Santi to adjourn the meeting.

Meeting was adjourned at 6:55 pm.

Voting Aye: Alderman Blake, Alderman Wimmer, Alderman Santi
Voting Nay: None
Absent:

Motion carried.

Respectfully submitted,

Alderman Blake, Chairman

Public Works Committee

Agenda

Date: March 12, 2014

Time: 6:00 pm

Place: McHenry Municipal Center
333 South Green Street, McHenry, IL
City Council Chambers

Purpose: Public Input (5 minute limitation)

1. Illinois Route 31 (south) Phase 1 Engineering Presentation and Recommendation of Resolution of Support to City Council.
2. New Business
3. Adjournment

Department of Public Works
Jon M. Schmitt, Director
1415 Industrial Drive
McHenry, Illinois 60050
Phone: (815) 363-2186
Fax: (815) 363-2214
www.ci.mchenry.il.us

COMMITTEE AGENDA SUPPLEMENT

DATE: March 12, 2014

TO: Public Works Committee

FROM: Jon M. Schmitt, Director of Public Works

RE: Illinois Route 31 Phase I Engineering

ATT: STV Incorporated Memo and IDOT Resolution of Support

BACKGROUND: The Illinois Route 31 Phase I project corridor is located in Illinois Department of Transportation (IDOT) District One. The project begins 0.15 miles north of the intersection of Illinois Route 176 and Illinois Route 31 in Crystal Lake and extends north through the Village of Prairie Grove to Illinois Route 120 in downtown McHenry. The total project length is approximately 6.6 miles. Highway improvements are proposed for this section of Route 31 to accommodate existing and anticipated year 2040 traffic demands. Sections of Illinois Route 31 had annual average daily traffic (ADDT) as high as 23,500 vehicles per day in 2009.

At the July 2, 2012 Public Works Committee Meeting, representatives from IDOT and the engineering firm of STV Incorporated presented alternatives to the proposed improvements to the section of Route 31 located in the City of McHenry. At that meeting it was the consensus of the Public Works Committee to invite property owners, business owners and residents potentially affected by the proposed improvements to a future Public Works Committee Meeting.

At Public Works Committee on August 13, 2012, representatives from IDOT and the engineering firm of STV Incorporated presented alternatives to the proposed improvements to the section of Route 31 located in the City of McHenry to property owners, business owners and residents potentially affected by the proposed improvements. Comments and suggestion were gathered by IDOT and STV Incorporated representatives to be considered in the preferred engineering design plans.

Since the last Public Works Committee meeting concerning this project, staff and the City's Engineer has met with IDOT and STV Incorporated representatives to provide additional comments and suggestions to be included in the preferred engineering design plans.

The attached memo prepared by STV Incorporated for IDOT outlines the revisions to the plans that were presented at the August 13, 2012 Public Works Committee meeting. A presentation will be provided by IDOT and STV Incorporated representatives explaining the preferred engineering design to the road improvement. Staff sent out approximately 260 invitations to property owners, business owners and residents along the Route 31/120 corridor including the downtown business area of Main Street to attend this presentation.

Therefore, if the Public Works Committee concurs with the preferred engineering design plans as presented, IDOT Officials are requesting a Resolution of Support be sent to the City Council for consideration.

Illinois Route 31
IL 176 to IL 120
P-91-135-99
McHenry County

Revisions to Alternatives completed after PWC Meeting (August 2012)
and Public Meeting #2 (November 2012)
City of McHenry Public Works Committee Meeting
March 12, 2014

1. IL Route 120 Intersection Options (area north of John Street)

Three (3) Alternatives were presented at the City of McHenry PWC Meeting (August 2012)

1. Minimum Build
2. Maximum or Full Build
3. Intermediate Build (Alternative not carried forward or presented at PM #2 since impacts from this alternative are similar to Max Build, with a lesser intersection performance improvement.)

Two (2) Alternatives were presented at Public Meeting #2 (November 2012)

1. Minimum Build (Selected as Preferred Alternative with modifications as noted below)
2. Maximum or Full Build (Not selected as Preferred Alternative based on impacts to businesses, public comments received, and opposition from City of McHenry.)

Preferred Alternative (modifications made to minimum impact alternative):

- 2 building impacts as a result of damage to remainder of property (these impacts were not shown on PM #2 exhibits). Impacted buildings / businesses:
  - AT&T, 3817 W. Elm St.
  - Wireless Park, 3815 W. Elm St.

- Slight modification to south leg of intersection to provide 10' lanes and maximum sidewalk widths without impacting buildings. Substandard sidewalk widths of 5' and 5.5' behind back of curb and the use of B-6.12 curb and gutter is required in order to not impact buildings along IL Route 31.

- Revision of Waukegan Road cul-de-sac radius to the design standard of 45'. This revision was possible since the AT&T building on the southeast corner of the IL Route 120 intersection is already impacted (based on damage to remainder of property) by the intersection radius return.

- Inclusion of signage at the intersection of IL 31 and Main Street to restrict movements to and from the side street (No southbound left onto Main St. from IL 31 and movements from Main St. restricted to right turns only). These restrictions are necessary for safety and traffic operations along the south leg of the IL 31 and IL 120 intersection. Alternate access to and from Main Street are available via the local roadway network (including Borden St., Crystal Lake Rd., John St., Center St., and 3rd St.).

- Modifications to west leg of intersection to provide minimum 11' lanes and 7' sidewalk behind back of curb, without impacting buildings.

- Modifications to east leg of intersection to provide minimum 10.5' through lanes, 10' wide dual-left turn lanes, and 7' sidewalk behind back of curb, as well as a minimum 5' wide barrier median separating the westbound dual left turn lanes and opposing eastbound through lanes. 10' through lanes along IL Route 120 are not preferred due to high traffic volumes (IL 31 and IL 120 combined) and barrier median improves safety.

- Above modifications to the east leg of the intersection requires the elimination of 12 on-street parking spaces along IL Route 120. Elimination of these parking stalls also improves roadway safety and reduces impacts to the adjacent off-street parking.

- Inclusion of additional pavement along IL Route 120, near southeast corner of intersection to allow for westbound u-turns. Additional pavement is possible since 2 adjacent buildings are already identified as impacted based on damage to remainder.

- Modifications of east leg of intersection provide barrier median between Front Street and Richmond Road, and to transition to meet the proposed improvements as part of the IL 31 (Richmond Road) and IL 120 intersection project. This match point occurs immediately west of the Boone Creek Bridge. Barrier median improves safety.

- Modifications of east leg of intersection provide median opening at 3rd Street / Millstream Drive intersection. Median opening will allow eastbound u-turns and maintain left turns from IL 120 to the side streets. Movements from the side streets will be restricted to right turns only (via signage). This restriction will improve safety at the intersection. Modifications at this intersection will likely maintain driveway access from Millstream Drive to the strip mall on the northwest corner of IL 120 and Millstream, but will result in impacts to 2 parallel parking stalls in front of Verlo Mattress Factory Store.

2. Revisions to design for area between Gracy Road and John Street

- Modification of roadway typical section between High Street and John Street from a section including a 18' raised barrier median to one that includes a 13' flush median with continuous Two-Way Left Turn Lane (TWLTL). This TWLTL will allow access to the various closely spaced driveways and/or intersections within these limits.

- Added private benefit median opening to provide full access to Gary Lang Auto (1103 S. Route 31). Cost participation may be required.

- Removed median opening at Medical Center Drive and converted access to right-in, right-out. This design will match that proposed by the McHenry County Bull Valley Road / Charles J. Miller Road improvement project.

- Added median opening to provide southbound access to businesses (including Center Medical Arts Complex, 1st National Bank of McHenry, and Route 31 Auto Sales) along the east side of IL 31 between Medical Center Drive and Bull Valley Road. Construction of new shared access driveway and cross access driveways between properties will be required by others.

- Eliminated or reduced lengths for u-turn pavement bump-outs at various intersections between Gracy Road and High Street

- Added northbound u-turn lane and pavement bump-out at Bank Drive. Since this area falls outside of our project limits, and within the Bull Valley Road Intersection area, MCDOT will need to incorporate the modifications into their design and construction plans.

- Also at Bank Drive, modified southbound left turn lane median design from painted median to barrier median.

- Added median opening to provide northbound access to businesses (including vacant Las Palmas restaurant, Centegra Health Systems office complex, and 31 North Banquet & Conference Center) along the west side of IL 31, approximately 300' south of the High Street intersection. Construction of new shared access driveway and cross access driveway between properties will be required.

- Potential relocation of driveway for Fountain Shoppes of McHenry to median opening at High Street.

I:\Projects\4015012\4015012_0001\80_Reports & Studies\802_Public Meetings\City of McHenry Meetings\Roadway modifications completed after PWC Mtg during Aug 2012 and PM 2.doc

Illinois Department of Transportation

NEPA - 404 Merger

Preferred Alternative

June 25, 2014

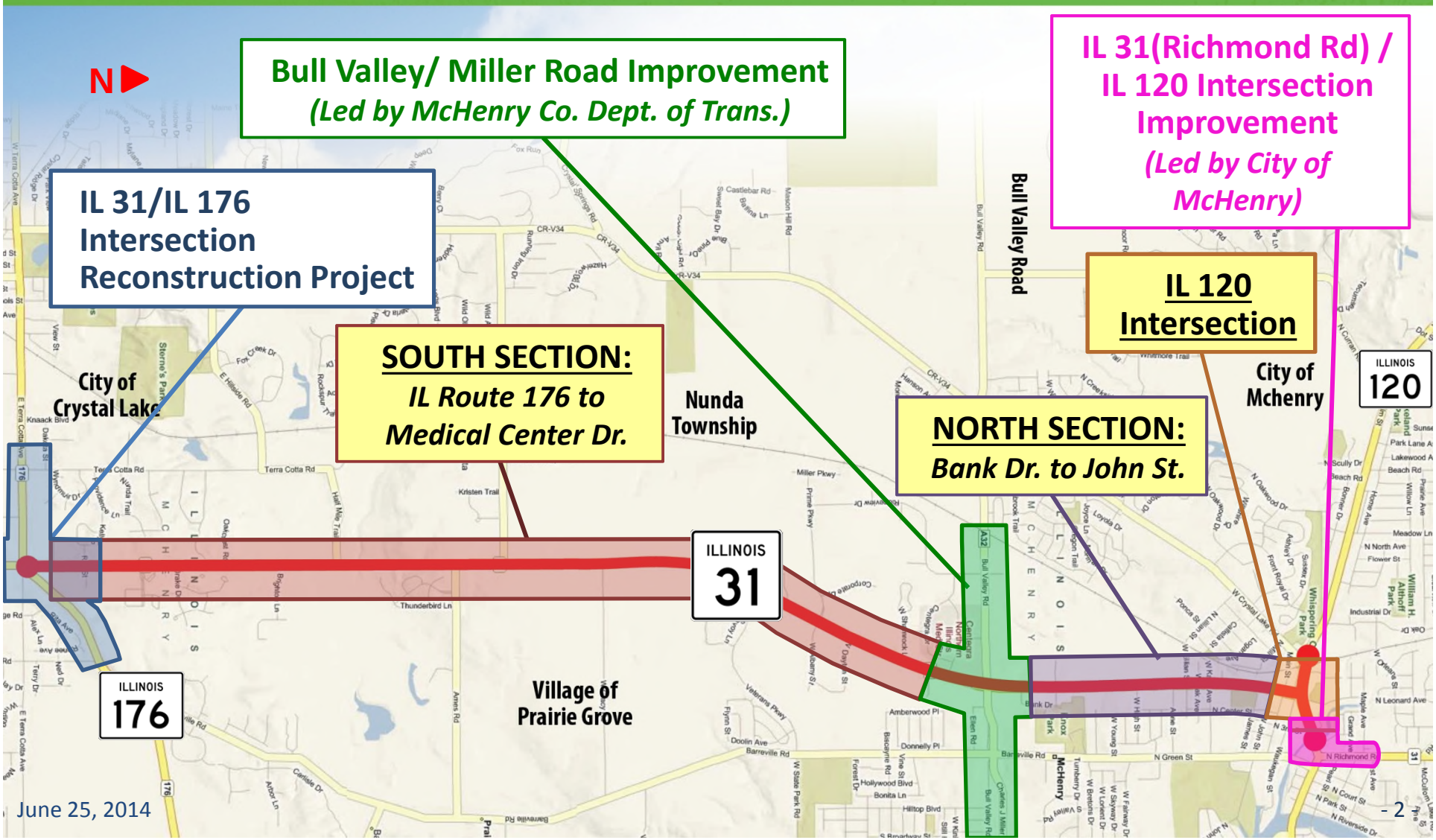
Illinois Route 31

ROUTE 176 TO ROUTE 120

www.ILRoute31.com

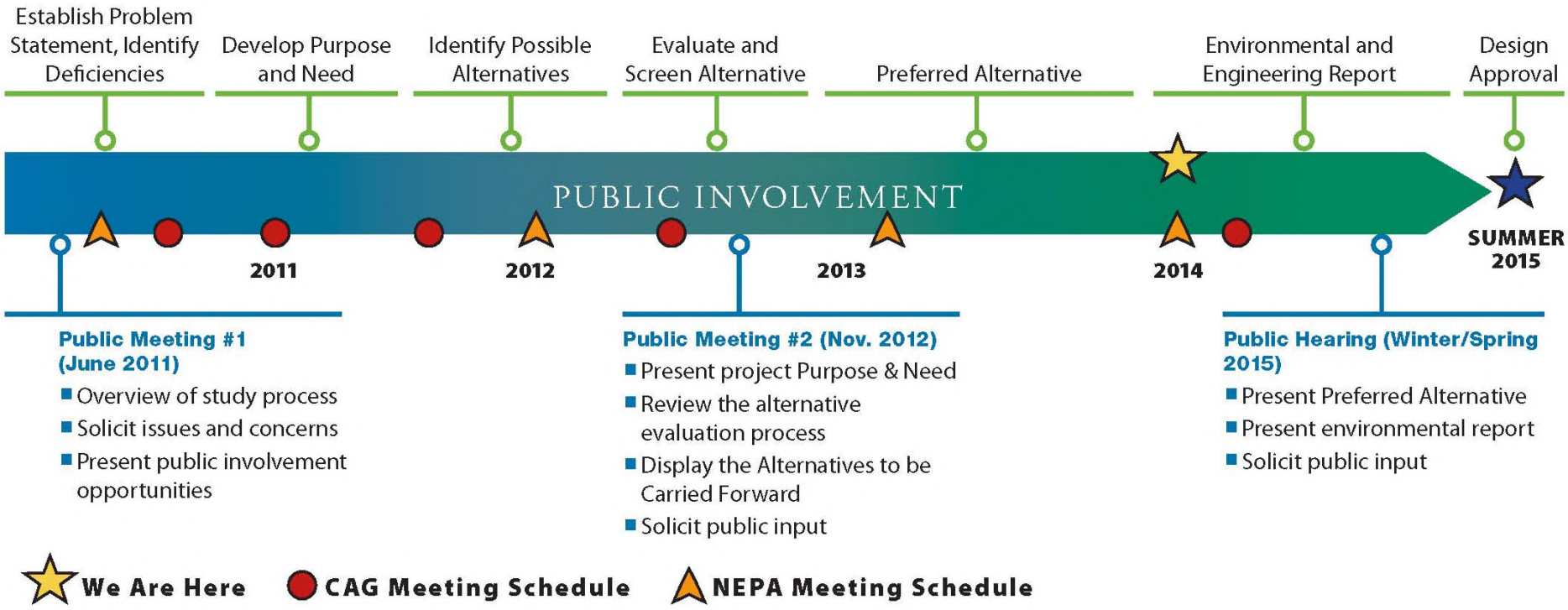
McHenry County

IL 31 Phase I Sections, Adjacent Projects



Project Study Schedule

PROJECT MILESTONES



Purpose and Need

- IL Route 31 Project – Purpose

  The purpose of the proposed project is to improve safety, address roadway capacity and mobility, correct existing geometric deficiencies and encourage multi-modal transportation along IL Route 31 from the intersection of IL Route 176 to the intersection of IL Route 120, in eastern McHenry County.

- IL Route 31 Project – Needs
  - Improve Roadway Safety
  - Expand Roadway Capacity and Address Traffic Issues
  - Correct Existing Roadway Design Deficiencies
  - Improve Opportunities for Multimodal Connectivity

Concurrence on P&N at March 2012 Merger Meeting

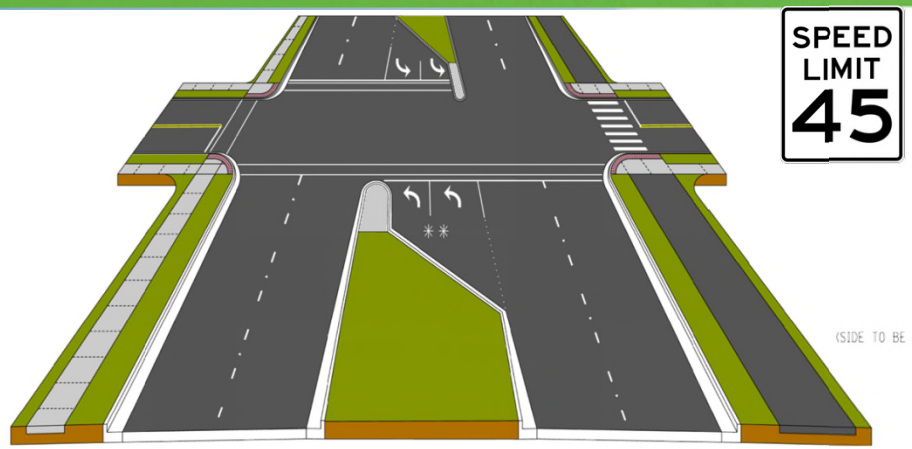
Alternatives Carried Forward

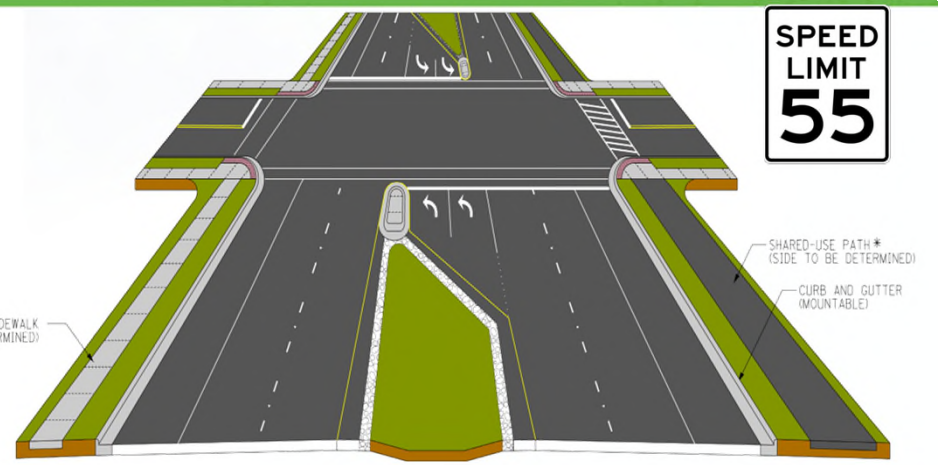
Concurrence on Alternatives Carried Forward: June 2013 Merger Meeting

- Concurrence obtained from IDNR and IDOA
- Conditional concurrence obtained from USACE-Chicago, USEPA, and USFWS
  - » Agreement to refine alternatives to avoid/minimize wetland impacts

Build Alternatives Carried Forward

South Section (IL Route 176 to South of Bull Valley Road)



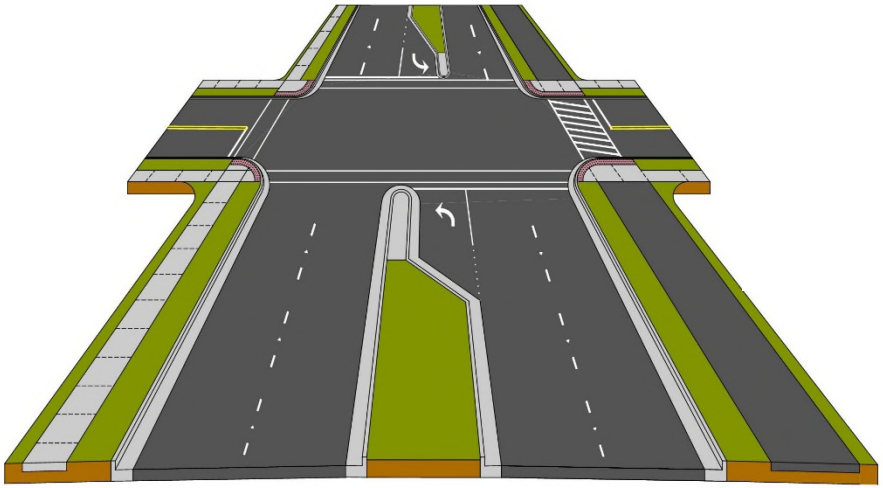


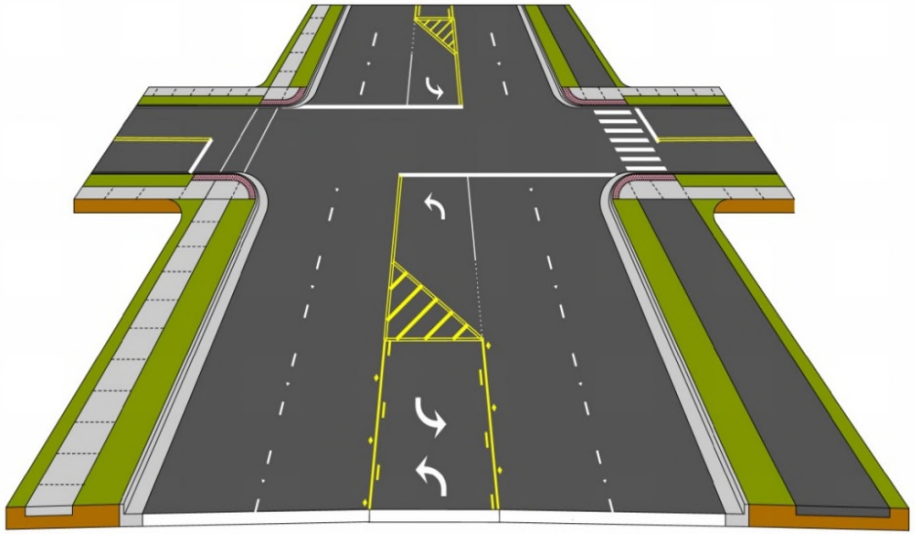
30’ Raised Median IL 176 to South of Bull Valley Rd.
Key Features - Both Alternatives
Two Through Lanes in Each Direction
30’ Wide Median Accommodates Dual Left Turn Lanes
Sidewalk and Shared-Use Path
Outside Ditches or Swales
BMP Opportunities

30’ Depressed Median Drake Dr. to Veterans Pkwy.	
Key Differences	
30’ Raised Median	**30’ Depressed Median**
Curb & Gutter Throughout	10’ Shoulder
Raised Median	Depressed Median
Narrower Cross Section	Wider Cross Section
Lower Speed Limit	Higher Speed Limit
Smaller Impervious Area	Larger Impervious Area

Build Alternative Carried Forward

North Section (North of Bull Valley Road to John Street)





18' Raised Median
North of Bull Valley Rd. to High St.

Key Features
Turn Volumes Require Single Left at Intersections
Barrier Median Provides Greatest Safety Benefit
Includes Sidewalk and Shared-Use Path

Five Lane Flush Median
High St. to John St.

Key Features
Turn Volumes Require Single Left Turns (LT/TWLTL)
Flush Median Addresses Business and Community Input
Includes Sidewalk and Shared-Use Path

Build Alternatives Carried Forward

IL Route 120 Intersection

Build Alternative A
Year 2040 Delay = 79 sec. (LOS E)
Narrow 10’, 10.5’, & 11’ Lanes
Eliminates On-Street Parking
U-Turns Allowed Only for WB Traffic
No Shared-Use Path

Build Alternative B
Year 2040 Delay = 35 sec. (LOS C)
Standard 12’ Lanes
Eliminates On-Street Parking
U-Turns Allowed (NB, EB, & WB)
Shared-Use Path

Alternatives Studied
Preferred Alternative Analysis

- "South Section Alternatives"
  - » South Section 30' Raised Median
  - » South Section 30' Depressed Median
- "North Section and IL Route 120 Intersection Alternatives"
  - » Build Alternative A = (North Section 18' Raised Median + North Section Five Lane Flush Median) + Build Alternative A for IL 120 Intersection
  - » Build Alternative B = (North Section 18' Raised Median + North Section Five Lane Flush Median) + Build Alternative B for IL 120 Intersection

Environmental Resources Studied

- Water Quality/Water Resources
- Wetlands
- T&E Species*
- Trees*
- Residences
- Environmental Justice
- Business
- Public Lands/Parklands
- Cultural Resources
- Cemeteries
- Special Waste
- Prime and Important Farmland
- Farms and Ag Land Owners
- Centennial/Sesquicentennial Farms

** Additional surveys planned for 2014*

Wetlands and Other Surveys

- 2011 INHS Wetland Delineation identified 37 sites
  - » FQI ranged from 1.8 to 20.1
  - » One wetland with FQI > 20 (Seep, Site 35)
  - » 7 ADID wetlands, 2 seeps identified
- 2014 Environmental Surveys
  - » Blanding's Turtle/Avian Surveys
  - » Tree Survey
  - » NLEB Roost Tree and Habitat Assessment (Thunderbird Lake)

Preliminary Impact Findings
South Section Alternatives

- 30’ Raised Median has lower impacts and narrower footprint than 30’ Depressed Median

Floodplain (1.44 v. 1.48 ac)	Oak Tree Stands (0.04 v. 0.06 ac)	Businesses (0 v. 1 structure)
Watershed ROW	Wetlands (1.73 v. 2.08 ac)	Cemetery (avoidance v. impact)
Sensitive Aquifer Recharge Area (80 v. 84 ac)	High Quality Aquatic Resources (0.35 v. 0.5 ac)	Total ROW (54 v. 59 ac)

- 30’ Raised Median was selected for further refinements/impact minimization

South Section Minimization Options
Preferred Alternative Analysis

- USACE requested strategies to avoid and minimize impacts to wetlands
- Two South Section minimization options (from River Birch to Ames)
  - » 18’ Raised Median
  - » 28’ Raised Median
- Design modifications included:
  - » Urban roadway section
  - » Horizontal shift (to avoid seep wetland)
  - » Median and lane width reductions
  - » Retaining walls

Wetland Impacts

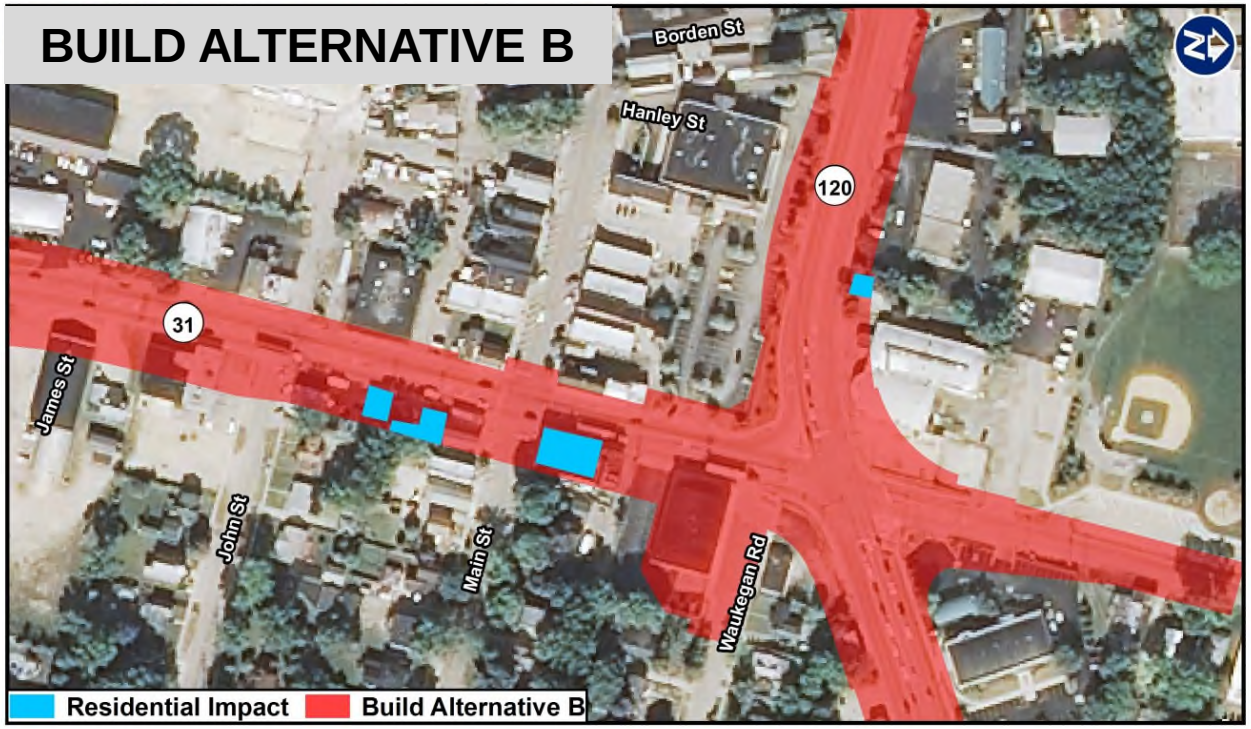
18’ and 28’ Median Minimization Options (South Section)

- Minimization options developed to reduce wetland impacts and avoid seeps
- Both options include roadway centerline shift
- Wetland impacts nearly equal between two options:

Wetland Impacts *IL 176 to South of Bull Valley*	**18’ Median Impacts**	**28’ Median Impacts**
Seep Impacts (ac)	0	0
HQAR Impacts (ac)	0.22	0.30
Total Wetland Impact (ac)	1.26	1.35
Number of Impacted Wetlands	16	17

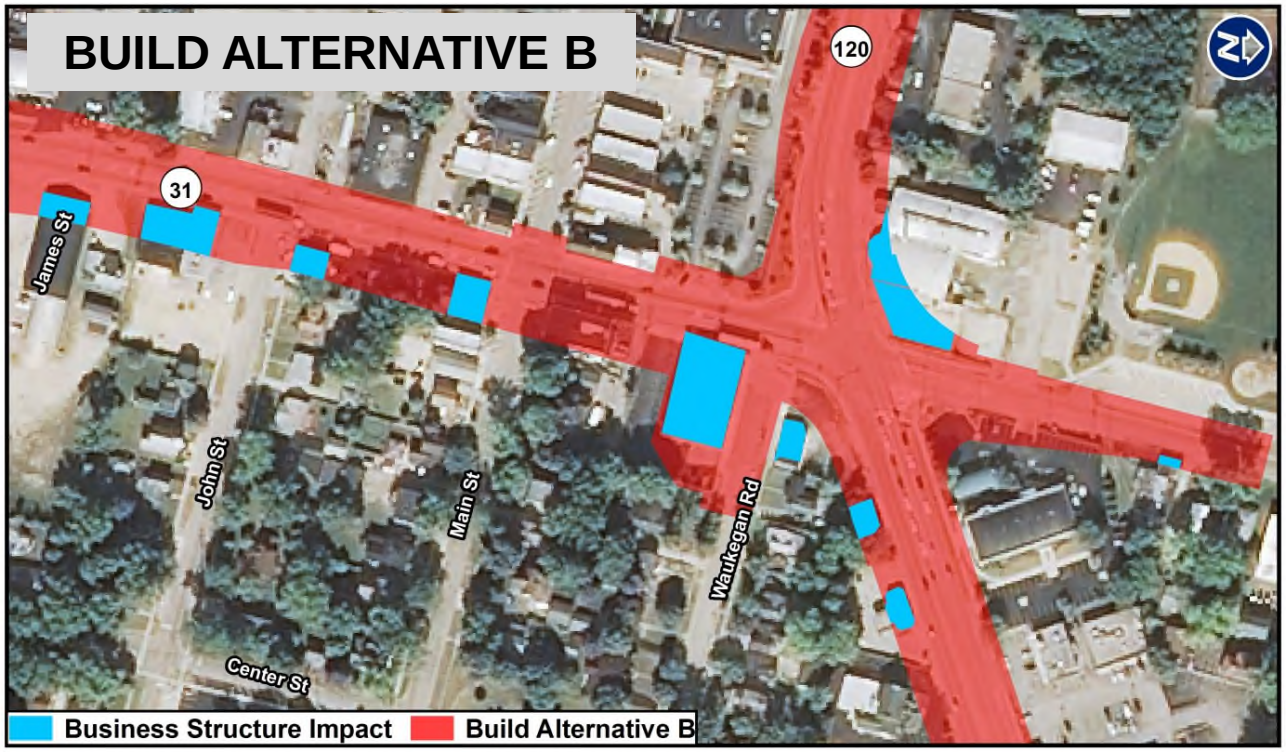
Residential Impacts
IL Route 120 Intersection

- Build Alternative A does not displace residences
- Build Alternative B displaces 22 residences in 4 buildings



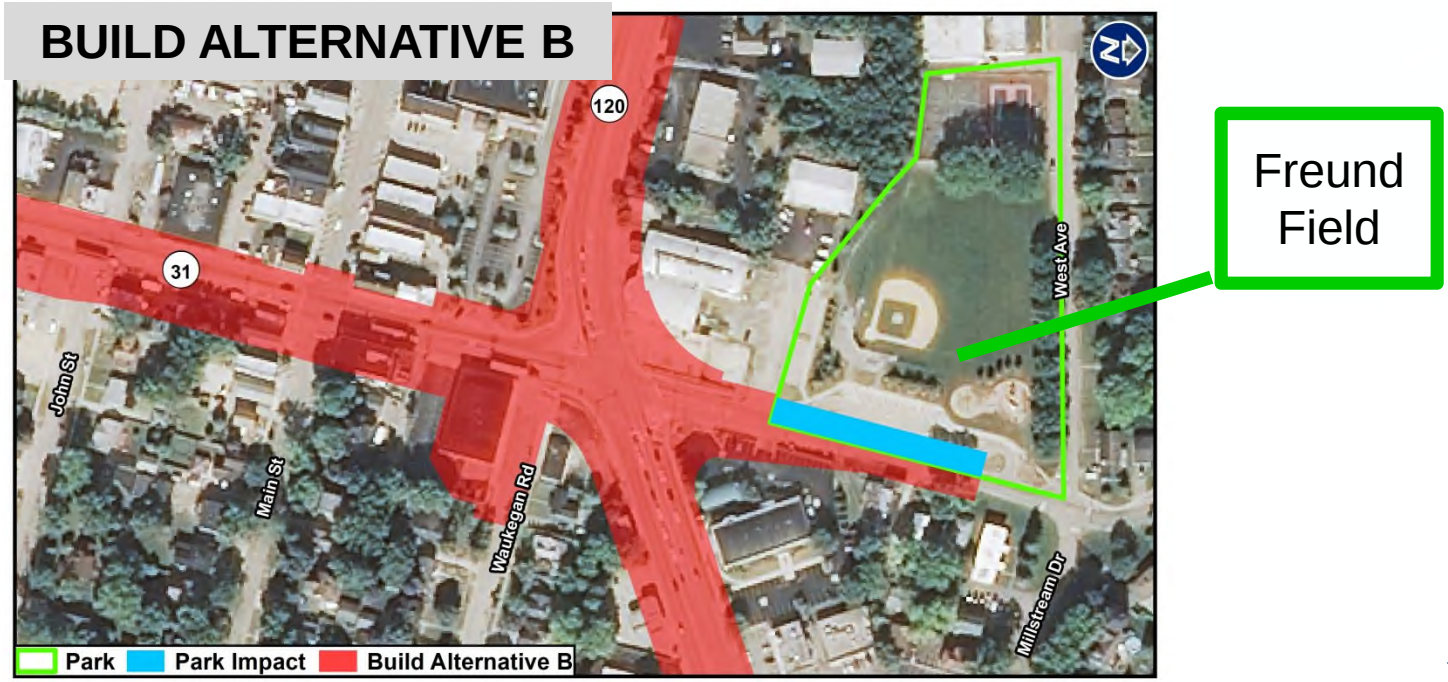
Business Impacts
IL Route 120 Intersection

- Build Alternative A displaces two businesses in two buildings
- Build Alternative B displaces 15 businesses in 12 buildings



Park Impacts
IL Route 120 Intersection

- A parking area for Freund Field, owned by City of McHenry, is impacted by Build Alternative B.
  - » The parking area is partially located within existing roadway ROW
- Build Alternative A does not impact this area.

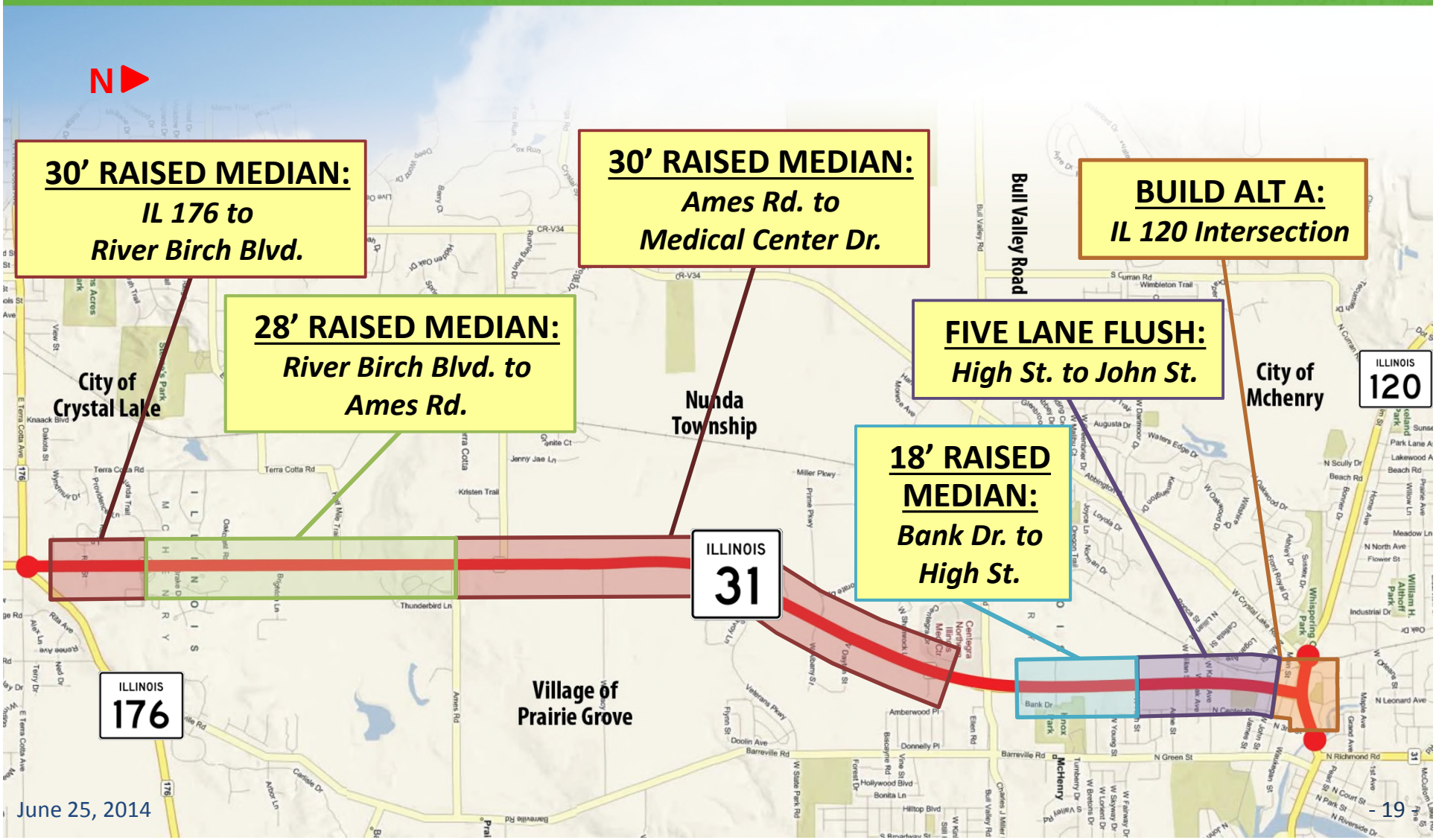


IL Route 31
Recommended Preferred Alternative

- IL 176 to South of Bull Valley Road
  - » 30’ Raised Median (IL 176 to River Birch)
  - » 28’ Raised Median with 11’ lanes (River Birch to Ames)
  - » 30’ Raised Median (Ames to South of Bull Valley)
- North of Bull Valley to John Street
  - » 18’ Raised Median (North of Bull Valley to High)
  - » Five Lane Flush Median (High to John)
- IL Route 120 Intersection
  - » Build Alternative A (South leg – Five Lane / Flush Median)

IL Route 31

Recommended Preferred Alternative



Environmental Interest Group Meeting
January 15, 2014

- Agencies, environmental groups, and project team
- Preferred Alternative, environmental resources, BMP concepts
- Comments from interest groups include:
  - » Chloride impacts to groundwater and surface water
  - » Salt spray impacts to wetlands
  - » Two-stage channel design for Squaw Creek meandering (secondary filtration)
  - » Protect oak tree stands
  - » Wetland mitigation at Sternes Fen
  - » Re-use of wood resources from tree removal

Project Goals and BMPs

- Goal: Protect/Maintain Water Quality
  - » Filter Strip
  - » Vegetated Swales
  - » Meander Squaw Creek
  - » Infiltration Trench
- Goal: Restore/Protect Wildlife/Aquatic Habitat
  - » Wildlife Crossings
  - » Natural Bottom Culverts (3 sided or buried)
  - » Meander Squaw Creek

BMP: Natural Bottom Culverts

- Eight major culvert crossings
- Four locations contain a natural streambed (3-Sided Arch/Box Culvert)
  - » May accommodate small terrestrial animals (oversized to include dry bank)
- Promoted by USFWS
- Condition of Section 404 permit
- Remaining four locations: natural bottom culverts (Embedded Box Culvert)

Benefits:
Supports fish passage, preserves natural streambed, terrestrial wildlife movement

BMP: Vegetated Swale

- Drainage swales planted with natural vegetation
- Propose 3,355 feet of IL Route 31 vegetated swales

BMP: Meandering Squaw Creek

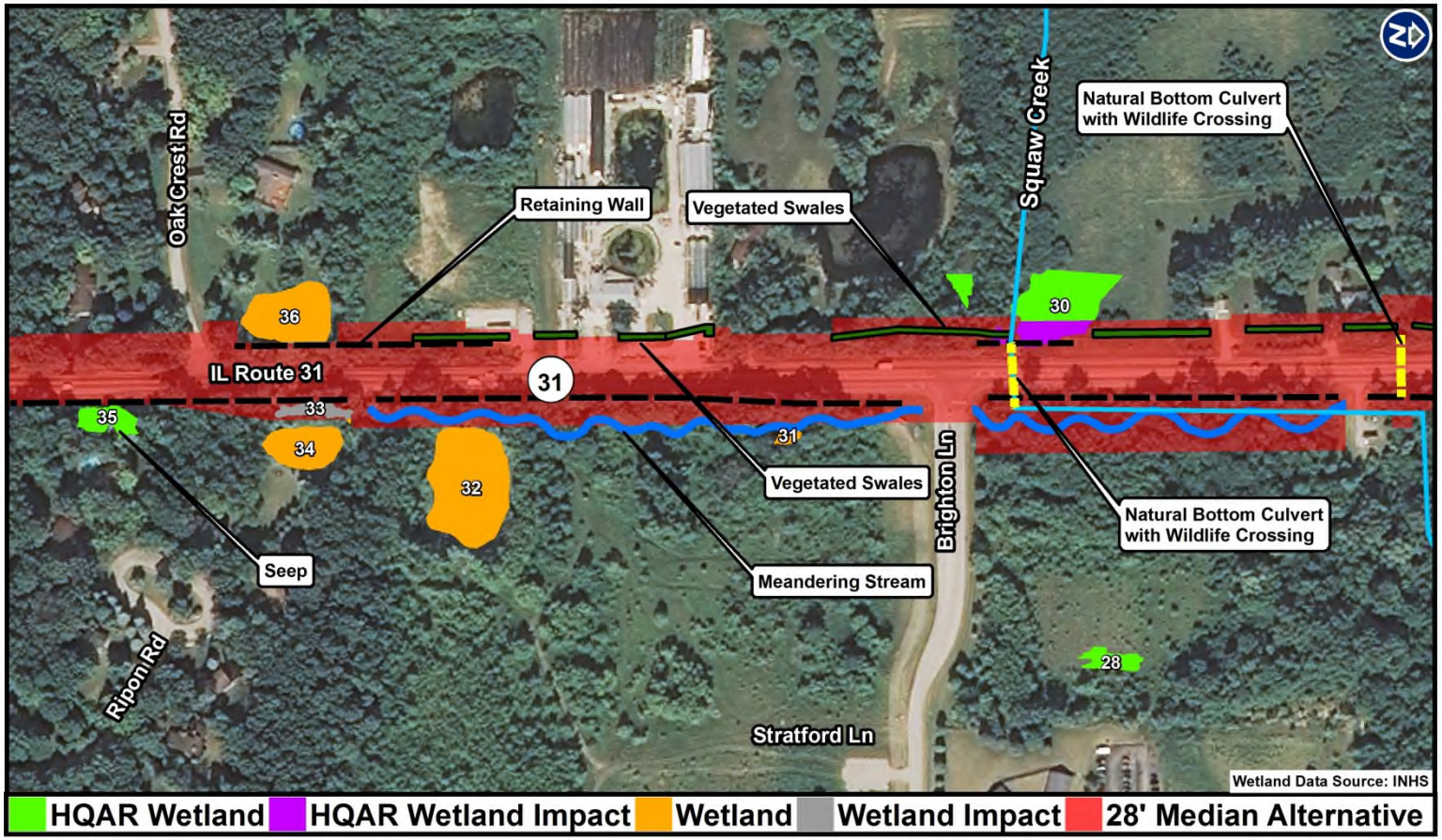
- Meandering stream, riffles and pools, streambank stabilization

Propose 1,810 ft of meandering stream

BMP: Infiltration

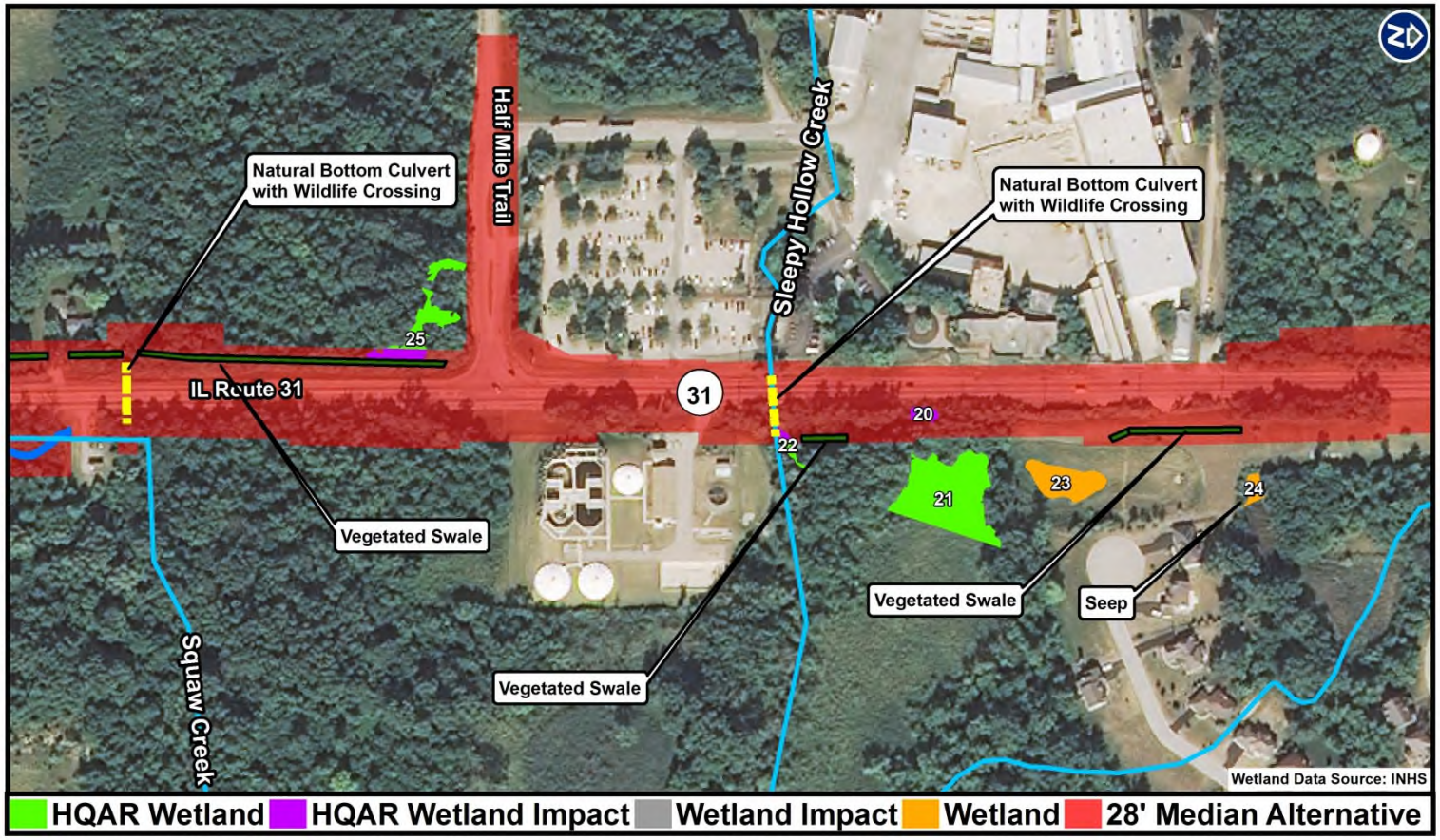
- Chloride concentration in project area streams meet all water quality standards <u>with BMPs</u>
  - » Chlorides above standards (without BMPs) projected for an unnamed tributary to Thunderbird Lake (Outfalls 10, 13)
- Infiltration can resolve chlorides at unnamed tributary to Thunderbird Lake
- Will be studied for Preferred Alternative

Currently Proposed Best Management Practices
Represented Locations from River Birch and Ames



Currently Proposed Best Management Practices

Represented Locations from River Birch and Ames



What's Next

- Development of EA Document
- CAG Meeting and Environmental Interest Group Meeting (July 2014)
- Final EA Submittal (August 2014)
- Public Hearing (Winter 2014/Spring 2015)
- Design Approval (Summer 2015)

Preferred Alternative

Questions / Discussion

Concurrence

Thank You!

www.ILRoute31.com

Illinois Department of Transportation

Illinois Route 31

ROUTE 176 TO ROUTE 120

McHenry County