City of Decatur

Brush College Road Improvement Study

Section 09-00933-00-BR

Combined Design Report – Volume 1 of 2

Combined Design Report Text and Appendices A, B and C

March 2015

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COMBINED DESIGN REPORT

City of Decatur – Brush College Road Improvement Study

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1 Introduction

1.1 Description and Location of the Project

The City of Decatur requested and accepted proposals in December of 2009 for a preliminary design study to determine the most feasible option for providing adequate capacity to handle present and future traffic volumes in a safe and efficient manner for the Brush College Road crossing of the Norfolk Southern track yard south of Faries Parkway. In January 2010, URS Corporation was selected to perform the study. URS received notice to proceed on October 22, 2010. The study was funded by the Illinois Jobs Now program.

Brush College Road (FAU 7448) is a north-south minor urban arterial located on the east side of Decatur in Macon County. The road extends from East Lake Shore Drive, just south of William Street (Illinois 105), and extends north to IL Route 48, just south of Interstate 72. It provides access to a residential area, several commercial and industrial areas, Richland Community College, and the grounds for the Farm Progress Show (Progress City). The road also provides northern access from the Decatur Airport. Refer to Exhibit A-1 and Exhibit A-2.

An underpass carries Brush College Road under the Norfolk Southern (NS) rail yard approximately 1,600 feet south of Faries Parkway. The roadway crosses a single NS track at grade on the north leg of the Faries Parkway intersection. The crossing is not protected by gates and the traffic signals are synchronized to turn red when a train is approaching.

A single Illinois Central Railroad (ICRR) track runs in a north-south direction along the west side of Brush College Road. The track services Tate & Lyle. The Canadian National (CN) acquired the Illinois Central Railroad, but according to the CN the track is owned by Illinois Central and should be referred to as an ICRR track. CN/IC refers to this track as the “Staley Lead Track”. The layout of the existing track has been studied and there is not any way to re-route the track that would not involve using the lines of other carriers. Tate & Lyle does not want to lose access to the Canadian National / Illinois Central Railway. Alignment and structure options considered assumed that the tracks will remain at their existing location.

The ICRR track passes under the NS rail yard via the underpass and crosses Faries Parkway and the single NS track at grade. The roadway crossing at Faries Parkway is not protected by gates and the traffic signals are synchronized to flash red when a train is approaching. A small gate is present across the ICRR track on the north side of the diamond at the ICRR and NS track and is generally in the down position

The proposed improvement extends along a 1.21-mile section of Brush College Road, generally between William Street (Illinois Route 105) on the south and Faries Parkway on the north. Intersection improvements at William Street and Faries Parkway will result in roadway changes

immediately south of William Street and north of Faries Parkway. Major project components include adding two lanes to Brush College Road between Williams Street and Faries Parkway, replacing the existing underpass at the Norfolk Southern (NS) railroad yard with an overpass, constructing a grade-separated interchange at Faries Parkway and the existing NS track at that intersection, adding additional turn lanes at the William Street intersection, and adding a traffic signal and turn lanes at the entrance to the Archer Daniels Midland Company (ADM) James Randall Research Center (JRRC). The total length of the Project, including improvements to intersecting roadways, is 2.0 miles.

1.2 Project History

Brush College Road was originally constructed in the 1920s as a two-way asphalt pavement having a width of 18 feet with variable shoulder widths.

A portion of the existing underpass, carrying the Norfolk Southern rail yard over Brush College Road and an Illinois Central Railroad track, was constructed around 1929 and remains in service today. In the early 1950's, the original underpass was extended to the south and a new 78-foot wide section was constructed approximately 54 feet to the north. The underpass provided two 10-foot lanes for Brush College Road. Today the Norfolk Southern rail yard is the largest flat switching yard in North America and the existing underpass carries 8 tracks over Brush College Road and the Illinois Central Railroad track. See Exhibit A-4.

In 1983 and 1984, Brush College Road was reconstructed from William Street to Harrison Avenue just north of Faries Parkway. See Exhibit A-3. As part of the reconstruction, the underpass was widened from two 10 foot wide lanes to two 11 foot wide lanes. A portion of the east abutment footing was removed to gain the additional two foot of roadway. A concrete parapet was added along the east edge of roadway to provide a 2'-4" wide walkway along the underpass. North-bound and south-bound lanes were widened and a variable width bi-directional left turn lane was added north and south of the underpass. As part of the reconstruction project, the intersections at Faries Parkway/Brush College Road and William Street/Brush College Road were upgraded by adding turn lanes and traffic signals.

In the early 1990s, the section of Brush College Road from Faries Parkway north to IL Route 48 was upgraded from a two-lane two-way roadway to a five-lane roadway with two 12-foot thru-lanes in each direction and a 12-foot bi-directional left turn lane. This improvement included additional widening of Brush College Road from Olive Street north to Faries Parkway and reconstruction of the Brush College Road/Faries Parkway intersection. Additional lanes were added at the intersection and traffic signals were upgraded.

In 2004 a planning study was prepared by Blank, Wesselink, Cook & Associates Inc. for future improvements of Brush College Road between William Street and Faries Parkway. Although the

study considered improvements along alternate alignments, the conclusion was that maintaining the existing alignment offered significantly less construction costs and had the least social and economic impact on the area.

1.3 Discussion of Design Criteria

The design criteria utilized for developing the proposed improvement was established based on the criteria set forth in the Illinois Department of Transportation (IDOT) Bureau of Local Roads & Streets Manual (2012 Edition) and the Bureau of Design Environment (BDE) Manual (2012 Edition). Criteria for new construction was used for the following roadway classifications:

Brush College Road	Minor Arterial (Urban)
Brush College Road – south of William Street	Local Road
Faries Parkway – west of Brush College Road	Minor Arterial
Faries Parkway – east of Brush College Road	Collector
William Street	Other Principal Arterial
Other residential streets and access roads	Local Road

1.4 Project Development Process

This Design Report is a summary of the study of engineering alternatives, including the No-Build Alternative. The study includes the selection of a roadway alignment and design features based on the best combination of social, environmental and engineering aspects of the project. In order to assure that the final decisions on the project are made in the best overall public interest, public input was an important element of this study.

To accomplish the task of alternative analysis and selection, the following process was used:

- Establish and study preliminary alignments and grade separation options within the study corridor based on preliminary engineering, environmental and socio-economic aspects of the project.
- Present preliminary alternatives to the public and obtain public information and comments.
- Evaluate the final engineering, environmental, and socio-economic aspects of the project along with the public input. Prepare the Draft Environmental Assessment (EA) and obtain approval of geometrics from IDOT/Federal Highway Administration (FHWA).
- Complete the Environmental Assessment (EA). The Illinois Department of Transportation and Federal Highway Administration approved the EA on January 17, 2014.

- Present the most desirable improvement alternative at a public hearing. The public hearing was held on April 22, 2014.
- Obtain Finding of No Significant Impacts (FONSI).
- Complete the Combined Design Report and submit for approval.

2 Purpose and Need for Improvement

2.1 Conditions on Existing Roadway Network

Brush College Road (FAU 7448) is a minor urban arterial located on the east side of Decatur. It is a major north-south route extending from IL Route 48, just south of Interstate 72, to William Street Road (IL 105) and is the only north-south roadway between William Street and Faries Parkway from IL Route 121 (22nd Street) east to Lake Decatur. Refer to Exhibit A-2. According to the Economic Development Corporation of Decatur and Macon County (EDC), potential industries looking to locate in this area of the City have expressed concern about the lack of a good north-south route. In addition, there are industrial-zoned parcels along Brush College Road with growth capacity. Improving Brush College Road between Faries Parkway and William Street Road will help provide needed north-south system linkage that will facilitate future industrial development along Brush College Road.

The portion of the Brush College Road corridor between Olive Street and William Street is restricted to two 11-foot lanes at the underpass at the Norfolk Southern railroad yard. North and south of the underpass, Brush College Road consists of variable width north-bound and south-bound lanes with a bi-directional left turn lane. The northbound lane varies in width from 11 feet to 13 feet and the southbound lane varies in width from 11 feet to 17 feet. The bi-directional left turn lane varies in width from 0 to 15.5 feet. The roadway is constructed of 10-inch Portland Cement Concrete. North of Faries Parkway to IL Route 48, Brush College Road consists of two northbound lanes and two southbound lanes each having a width of 12 feet and a bi-directional left turn lane having a 12 foot width. Type B-6.24 combination concrete curb and gutter are present along the outside edges of the pavement. The roadway is constructed of 12-inch Portland Cement Concrete. See Exhibit A-5 for typical sections.

Brush College Road is classified as a “Minor Arterial (Urban)” except for the section south of William Street where it is classified as a “Local Road”. Faries Parkway is classified as a “Minor Arterial” west of Brush College Road and as a “Collector” east of Brush College Road. William Street Road is classified as “Other Principal Arterial”. The existing intersection of Brush College Road and Faries Parkway is a signalized intersection fully actuated by loops and cameras. The intersection also includes at-grade rail crossings which consists of an east-west NS crossing in the north leg of the intersection and a north-south ICRR crossing in the west leg of the intersection. This intersection has special signal timings to accommodate the at-grade train movements. The existing intersection of Brush College Road and William Street is a signalized intersection fully actuated by loops and cameras. The side streets intersecting Brush College Road are controlled by stop signs. See Table 2.1-1 and 2.1-2.

Table 2.1-1 - Traffic Control at Brush College Road Intersections

ID	Crossing Street	Traffic Control Type
1	E. Faries Parkway	Signal, Fully-Actuated, Isolated*
2	E. Logan St.	Stop
3	E. Olive St.	Stop
4	E. Hikory St.	Stop
5	E. Grand Ave.	Stop
6	E. Marietta St.	2-Way Stop
7	E. Cerro Gordo St.	Stop
8	Elementary School	Stop
9	Filling Station	Stop
10	E. William St.	Signal, Semi-Actuated, Isolated*

SOURCE: URS field data collection; City of Decatur.
* Isolated indicates that the traffic signal is currently not part of an interconnected or coordinated system.

Table 2.1-2 - Intersection Lane Configuration

Direction of Travel	*Brush College Road Intersection at:*	
	Faries Parkway	**William Street**
Northbound	• Dedicated left-turn lane • Dedicated dual thru lanes • Dedicated right-turn lane	• Shared left, thru, right-turn lane
Southbound	• Dedicated left-turn lane • Dedicated thru lane • Shared thru right-turn lane	• Shared left thru lane • Dedicated right-turn lane
Westbound	• Dedicated dual left-turn lanes • Dedicated thru lane • Shared thru right-turn lane	• Dedicated left-turn lane • Dual thru lanes • Dedicated right-turn lane
Eastbound	• Dedicated dual left-turn lanes • Dedicated dual thru lanes • Dedicated dual right-turn lanes	• Dedicated left-turn lane • Dedicated thru lane • Shared thru right-turn lane

SOURCE: URS field data collection.

Speed Limit

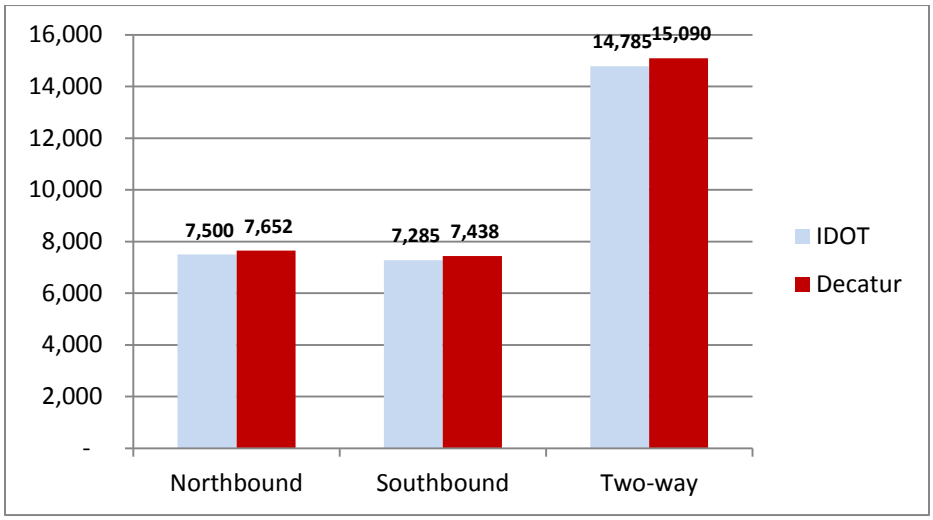
The posted speed limit along Brush College Road is 35 mph from a point just north of Faries Parkway to the south and 45 mph from that point north to IL Route 48.

2.2 Existing Traffic and Capacity Deficiencies

Twenty-four hour traffic counts and intersection turning movements were collected in November 2010. The intersection turning movements were collected in three hour time periods in the morning (6:30 a.m. to 9:30 a.m.) and late afternoon (3:30 p.m. to 6:30 p.m.). It was determined that the a.m. peak hour occurs between 7:00 a.m. and 8:00 a.m. The p.m. peak hour occurs between 4:30 p.m. and 5:30 p.m. The peak direction of travel during the a.m. peak hour is northbound while the peak direction of travel during the p.m. peak hour is southbound. IDOT

also provided traffic count data for Brush College Road that was collected in September 2010. See Exhibit A-6 for the IDOT Average Daily Traffic (ADT) Map. Figure 2.2-1 displays the Brush College Road raw traffic counts observed at the NS yard underpass.

Figure 2.2-1 - Brush College Road Raw Traffic Counts at NS Rail Yard Underpass



SOURCE: IDOT traffic count (September 2010) and
City of Decatur traffic count (November 2010)
NOTE: These are raw counts and do not include seasonal adjustments.

Raw traffic counts along Brush College Road, collected near the NS Rail Yard underpass, range between 14,785 and 15,090 vehicles per day (vpd). IDOT applied a seasonal adjustment factor to the 14,785 vpd count and arrived at an Average Daily Traffic (ADT) of 13,900 vpd. The IDOT ADT map shows an ADT of 13,900 vehicles near the NS underpass at Brush College Road. The 13,900 vpd is the baseline volume that was used to develop the future year (2035) Brush College Road NS crossing design volume.

For a Design Hour Vehicle (DHV) rate calculated to be 1390, four lanes are already warranted along Brush College Road. A projected annual 1.25% growth rate was used for the design period, which results in an ADT of 18,950 for the design year of 2035. Table 2.2-1 shows existing and forecast traffic.

Table 2.2-1 – Existing and Future Traffic
Existing (2010) Traffic

Roadway	ADT*	SU	%SU	MU	%MU
Brush College Road	13,900	650	4.7%	375	2.7%
Faries Parkway (West Leg)	8,400	550	6.5%	275	3.3%
Faries Parkway (East Leg)	6,400	225	3.5%	200	3.1%

Forecasted Traffic (ADT)

Roadway	Existing ADT (2010)	Design Year ADT (2035)	% Increase	Expected Year 4-Lane Threshold Would Be Met
Brush College Road	13,900	18,900	36	Already Met

*DHV taken as 10% of ADT; SU = Single Units; MU = Multi Units

2.2.1 Truck Traffic

Brush College Road, Faries Parkway, and William Street are designated as a Class II Truck Route. A Class II route is approved for all load widths of 8'-6" or less and a wheel base no greater than 55 feet. Raw traffic count data at the NS underpass shows that between 7.4% and 8.8% of the combined two-way traffic volume consists of trucks. The data also shows that truck traffic is almost twice as high in the southbound direction as compared to the northbound. Based on IDOT seasonal adjustments, 1,025 trucks (650 single unit trucks and 375 multi-unit trucks) use Brush College Road on a daily basis. This represents 7.4% of the 13,900 vpd traveling along Brush College Road.

Truck traffic is heaviest between 4:00 p.m. and 5:00 p.m. Further breakdown by direction of travel shows the majority of the truck traffic during the p.m. peak hour is traveling southbound. Throughout the day, southbound truck traffic along Brush College Road is consistently higher than the northbound truck traffic. The highest northbound hourly truck traffic occurs between 7:00 a.m. and 8:00 a.m., however the raw traffic data shows that that there are still more trucks traveling southbound during this period.

Monday through Friday are heavy truck days for ADM due to trucks delivering grain. Peak truck movement occurs during the harvest season. After that, there is more delivery by trains since the grain comes from locations that are farther away. All grain trucks bound for ADM go to a grain probe location on 27th Street before proceeding to the East Plant or the West Plant. From the grain probe site, trucks travel east on Hubbard Avenue and proceed south on Brush College Road. See Exhibit A-2.

Trucks enter the East Plant at Gate #6 (Mueller Ave) and travel through the plant to dump grain. They then exit onto Faries Parkway and proceed west to Brush College Road. ADM estimates that 600 grain trucks per day are processed through the East Plant. Trucks going to the West Plant travel south on Brush College Road and turn west onto Faries Parkway. They then enter the West Plant by turning south onto Samuels Street. (See Exhibit A-3) ADM estimates that 400 to 500 trucks a day are processed through the West Plant.

2.2.2 Public Transportation

The Decatur Public Transportation System (DPTS) operates 16 bus routes system wide. Two routes, Route 41 (E. Grand - Richland Community College) and Route 12 (Airport - Wal-Mart East), operate in the vicinity of, or along short segments of, the Brush College Road study corridor. Currently the DPTS service does not operate a continuous route along Brush College Road between William Street and Faries Parkway. According to the DPTS, the decision to not run buses along Brush College Road is not related to the narrow NS underpass. Instead, the decision is based on the fact that there is currently no demand for transit service along the entire study corridor.

Route 41 operates from the downtown transfer facility to Richland Community College (RCC). On outbound trips, Route 41 travels east along Faries Parkway to Brush College Road. At Brush College Road, buses turn left and travel north to RCC at which point the outbound trip ends. The inbound trip returns to the downtown transfer center following the same route. Inbound buses travel south along Brush College Road to Faries Parkway and then turn right to continue westbound along Faries Parkway.

Route 12 operates from the downtown transfer center to the airport. In relationship to Brush College Road, the majority of the time this route operates along William Street and does not use Brush College Road. However, Route 12 includes supplementary bus service which operates on a “will call” basis and does utilize a segment of Brush College Road.

Both Routes 12 and 41 operate supplementary service within, or near, the study corridor. The Route 12 supplementary service (Grand/James) is a loop service that uses a portion of Brush College Road between Grand Avenue and William Street. This is a “will call” only service meaning that the bus will not make this loop unless an individual calls DPTS and requests a stop. According to the DPTS, there currently is not enough ridership to warrant regular operation of the Route 12 supplementary service. In 2013, the DPTS indicated 565 trips were provided for the Route 12 supplementary service. This is an average of only 1.8 trips per day.

Route 41 operates supplementary service east along Faries Parkway near the study corridor. This supplementary service runs approximately one-mile east of Brush College Road with a turnaround at the ADM parking lot. According to the DPTS, in 2013 the Route 41 supplementary service had made approximately 1,335 trips to ADM. This supplementary service operates as a “will call” similar to Route 12 but since there are regular riders using the supplementary service the DPTS now operates this route on a regular basis two times in the morning and two times in the afternoon. During these times, individuals do not need to call the DPTS to request the supplementary service. The DPTS reports approximately four individuals ride to ADM in the morning but in some cases have only one person ride back in the afternoon.

In 2013 the DPTS provided 1,438,437 trips system wide. Of this total, 74,007 (5.1%) trips were made on Route 41 (E. Grand - Richland Community College) and 71,709 (5.0%) trips were made on Route 12 (Airport - Wal-Mart East).

2.2.3 Non-Motorized Traffic

The Brush College Road study corridor currently has a sidewalk, located on the east side of the road, which extends from William Street to a point midway between Logan Street and Faries Parkway. The sidewalk does not meet Americans with Disabilities Act (ADA) standards. Most of the sidewalk is very narrow, located directly next to traffic (no buffer or separation from traffic), in need of repair, and in some locations obstructed by utility poles. At the underpass at the NS rail yard, a portion of the east abutment footing was removed in order to increase the traffic lane width to 11 feet as part of the 1980s reconstruction project. At that time, a barrier was added and the resulting sidewalk width at the underpass is 2'-4". There is no sidewalk on either side of the road north of Faries Parkway.

On-road bicycling is also difficult through the corridor given the narrow NS underpass and the heavy truck traffic. The residential neighborhood, located south and east of the NS underpass, could generate some non-motorized traffic but generally speaking the industrial land uses on the north end of the corridor are not compatible with non-motorized travel. Overall, the corridor currently does not sufficiently accommodate non-motorized travel.

2.2.4 Level of Service at Intersections

Intersection level of service (LOS) was performed using Synchro at the signalized intersections of Faries Parkway[1] and William Street. Unsignalized (stop control) level of service was performed at the Brush College Road side streets located between Faries Parkway and William Street.

Level of service defines how well an intersection is operating and ranges from LOS A (best service; free flow traffic) to LOS F (lowest service; congested conditions). Generally speaking, intersections operating at, or above, LOS D are considered to be operating at an acceptable level. Intersections operating at LOS E or LOS F are generally considered to be operating at an unacceptable level and are often described as operating at-capacity or over-capacity. For this study, the a.m. and p.m. peak hours were analyzed. In addition to analyzing the overall intersection level of service, specific intersection approach and turning maneuvers were also assigned a level of service which was used to further evaluate the overall intersection operations.

[1] The intersection LOS for Faries Parkway does not take into account any rail related delays. The intersection LOS capacity analysis is not able to consider the impact of rail delays on traffic operations. A VISSIM model was used to analyze the rail delay impacts in more detail.

The following level of service analysis was conducted for the a.m. and p.m. peak hour conditions.[2] Table 2.2.4-1 displays the overall intersection LOS for the corridor. Table 2.2.4-2 and 2.2.4-3 display the approach LOS for the a.m. and p.m. peak hour conditions. The following summarizes the level of service analysis:

Signalized Intersections

- At an intersection level, the intersections at Faries Parkway and William Street are both currently performing at LOS C during the a.m. and p.m. peak hours.
- At an approach level, the westbound and southbound approaches at William Street are performing at LOS D. This is primarily due to a heavy westbound right turn movement which results in a long queue for this approach in the a.m. peak hour. For the southbound approach, the presence of a shared left-turn and through lane results in a lower level of service.

Stop Controlled Intersections

- At an intersection level, the eight un-signalized intersections along Brush College Road are operating between LOS A to LOS F for both a.m. and p.m. peak hours.
- The heavy eastbound left-turn volumes at Marietta Street (ADM Research Center) result in an approach LOS F during both a.m. and p.m. peak hours.
- Due to the heavy northbound traffic volumes on Brush College Road, the westbound approach at all the stop controlled intersections operate at LOS D or E during the a.m. peak hour.

Table 2.2.4-1 – Existing Intersection Level of Service – A.M. and P.M. Peak Hours

ID	Crossing Street	Control Type	AM / PM Level of Service	Note
1	E. Faries Parkway	Signal	C / C	
2	E. Logan St.	Stop	C* / A*	Heavy NB volume during a.m.
3	E. Olive St.	Stop	C* / A*	Heavy NB volume during a.m.
4	E. Hickory St.	Stop	C* / C*	
5	E. Grand Ave.	Stop	C* / **F***	Heavy SB left-turn during p.m.
6	E. Marietta St.	Stop	C* / C*	
7	E. Cerro Gordo St.	Stop	C* / **D***	Heavy SB left-turn during p.m.
8	Elementary School	Stop	**D*** / C*	Heavy NB volume during a.m.
9	Filling Station	Stop	C* / **E***	Heavy SB left-turn during p.m.
10	E. William St.	Signal	C / C	

SOURCE: URS. * Intersection Capacity Utilization LOS analyzes the amount of reserve capacity.

[2] Peak hour determined by the intersection turning movement data collected in November 2010.

Table 2.2.4-2 – Existing Intersection Approach Level of Service – A.M. Peak Hour

ID	Crossing Street	Control Type	Approach				Note
			NB	SB	EB	WB	
1	E. Faries Parkway	Signal	C	B	C	C	
2	E. Logan St.	Stop	A	B	-	**D**	
3	E. Olive St.	Stop	A	A	-	**D**	
4	E. Hickory St.	Stop	A	A	-	E	
5	E. Grand Ave.	Stop	A	A	-	**D**	
6	E. Marietta St.	Stop	A	B	**F**	**D**	Heavy EB left volume.
7	E. Cerro Gordo St.	Stop	A	A	-	**D**	
8	Elementary School	Stop	A	A	B	E	Heavy NB volume.
9	Filling Station	Stop	A	A	-	D	
10	E. William St.	Signal	C	**D**	B	**D**	Heavy WB right volume and shared SB thru and SB right.

Table 2.2.4-3 – Existing Intersection Approach Level of Service – P.M. Peak Hour

ID	Crossing Street	Control Type	Approach				Note
			NB	SB	EB	WB	
1	E. Faries Parkway	Signal	B	C	C	C	Heavy WB left volume.
2	E. Logan St.	Stop	A	A	-	C	
3	E. Olive St.	Stop	A	A	-	B	
4	E. Hickory St.	Stop	A	A	-	**D**	
5	E. Grand Ave.	Stop	A	A	-	C	
6	E. Marietta St.	Stop	B	A	**F**	**D**	Heavy EB left volume.
7	E. Cerro Gordo St.	Stop	A	A	-	**D**	
8	Elementary School	Stop	A	A	**D**	C	Heavy SB volume.
9	Filling Station	Stop	A	A	-	C	
10	E. William St.	Signal	B	**D**	B	C	Heavy SB right volume.

Traffic backups can be attributed to the operation of the intersection at William Street Road and Brush College Road. The number of turning movements at this intersection during peak morning and evening travel hours requires additional turn lanes.

2.2.5 Intersection at Brush College Road and Marietta Street/ADM JRRC Entrance

The intersection of Marietta/ADM James Randall Research Center (JRRC) is currently stop controlled on the east-west approaches. Traffic leaving the ADM Research Center in the late afternoon, and extending into the p.m. peak hour, often experience delays due to high southbound and northbound volumes on Brush College Road. Comments received from ADM

employees that work at the facility state that they sometimes use a back entrance, through a residential neighborhood, to avoid the congestion at Brush College Road. To a lesser degree, traffic on Marietta Street is also impacted by the heavy through movement on Brush College.

2.2.6 Norfolk Southern Crossing on North Leg of Faries Parkway Intersection

An east-west NS track that services ADM crosses the north leg of the Faries Parkway/Brush College Road intersection. This at-grade rail crossing is often a source of traffic congestion and delays for the traveling public, including the Decatur Public Transportation System (DPTS). Based on discussions with the DPTS, there is a perception among bus drivers and dispatch that rail crossing delays at this intersection have increased in number and duration over the years. The DPTS does not regularly collect train delay data but bus drivers will contact radio dispatch to inform them when a train delay is occurring.

To help better understand the impact of the train delays, the City of Decatur provided traffic signal timing data for the Faries Parkway intersection. The signal timings include a history of when the normal signal timing is preempted to accommodate at-grade train movements. In addition, as part of the Decatur Area Transportation Efficiency Study (DATES), relating to improving train and truck flow within the Decatur area, the DPTS collected train delay data in January and February 2011 to better understand the impact that delays have on DPTS operations. The DATES determined that this crossing is blocked 17.2 hours per week. This blockage time is more than that of any other crossing in Decatur.

From a DPTS perspective, the main concern regarding rail crossing delays is that they increase travel time and can result in passengers missing a transfer at the downtown transit center. If there is a rail delay on a Route 41 outbound trip, it is possible that some Richland Community College students could be late for class. In addition, any delay on the outbound trip will result in delays on the return, or inbound, trip.

2.2.7 Crash History

The Macon County Sheriff's Office provided crash data for the study corridor from 2009 to 2013. Table 2.2.7-1 summarizes the crash data from 2009 to 2013. In total, 95 crashes were reported along the Brush College Road study corridor. During the last five years, more than half of the crashes (48) have occurred at the Faries Parkway intersection. There are no 5% locations along the study section.

Table 2.2.7-1 – Total Number of Crashes (2009 – 2013)

Year	*At Faries Parkway*	*At William Street*	*At NS Underpass*	*At ADM Entrance/Marietta*	*Total*
2009	3	5	1	2	11
2010	12	9	0	1	22
2011	17	5	1	1	24
2012	10	7	1	1	19
2013	6	10	1	2	19
Total	**48**	**36**	**4**	**7**	**95**

Source: Macon County Sheriff's Office

Exhibit A-7 summarizes the details for crashes that occurred from 2009 to 2013. The crash data at the Faries Parkway intersection suggests that some crashes were related to the at-grade train crossings and others to improper lane usage. This data is consistent with public comments which indicated that it is difficult to merge where Brush College Road narrows to one-lane just south of Faries Parkway. 29% of the crashes were rear end crashes. At the William Street intersection, 44% of the crashes were rear end crashes.

2.2.8 System Linkage

Brush College Road has already been improved to four lanes north of Faries Parkway to IL Route 48. There are industrial-zoned parcels along Brush College Road with growth capacity. Improving Brush College Road between Faries Parkway and William Street Road will help provide needed north-south system linkage that will facilitate future industrial development along Brush College Road.

2.3 Alignment and Profile Deficiencies

Although Brush College Road is posted for 35 mph between William Street Road (IL 105) and Faries Parkway, some of the existing vertical curves do not meet the current design criteria for 35 mph. Refer to Table 2.3-1 and Table 2.3-2.

Table 2.3-2 – Allowable Speeds for Existing Vertical Curves

Existing Station	Curve Type	g1 %	g2 %	A	LVC (ft.)	K	Allowable Speed (mph)
20+85	Crest	4.325	-4.03	8.355	250	29.92	35
24+55	Sag	-4.03	4.44	8.47	350	41.32	30
28+35	Crest	4.44	0.94	3.50	200	57.14	>40
33+25	Crest	0.94	-1.21	2.15	200	93.02	>40
35+50	Sag	-1.21	0.60	1.81	150	82.87	>40
40+50	Crest	0.60	-5.60	6.20	250	40.32	35
42+97.64	Sag	-5.60	-0.08	5.52	200	36.23	25
45+75	Sag	-0.08	0.08	0.16	100	625.00	>40
48+27.36	Sag	0.08	5.84	5.76	350	60.76	35
51+90	Crest	5.84	0.22	5.62	200	35.59	35

2.4 Purpose and Need

The purpose of the Project is to provide adequate capacity to handle present and future traffic volumes in a safe and efficient manner for the Brush College Road corridor between William Street Road and Faries Parkway, and to increase safety and access for businesses and future industrial development along the Brush College Road corridor.

As discussed above, the Project need is based on:

- Increasing capacity
- Improving safety
- Correcting roadway deficiencies
- Providing system linkage

2.5 Corridor Studies

Brush College Road is the only north-south roadway between William Street and Faries Parkway from IL Route 121 (22nd Street) east to Lake Decatur. Refer to Exhibit A-2. North of Faries Parkway, Brush College Road has already been improved to a four-lane section, with a shared left turn lane. Possible north-south alternative routes that were considered, other than using the Brush College Road corridor, were screened out early in the process.

New alignments west of Brush College Road were not considered due to the presence of the ADM Research Center and the ADM West Plant. The number of tracks in the NS rail yard that would have to be crossed also increases west of Brush College Road. East of Brush College Road, consideration was given to alignments along James Street, Nickey Avenue, and Lake Shore Drive. (See Exhibit A-3) These alternates would have significant impacts on single-family residential neighborhoods and would result in a substantial increase in the volume of vehicular traffic and the number of multi-unit vehicles using these streets. The purpose and need of the project would not be met because these alternate corridors would not increase access for business and future industrial development along the Brush College Road corridor. For these reasons, alternatives were confined to the existing Brush College Road corridor between William Street and Faries Parkway.

3 Existing Conditions/Setting

3.1 Description of the Project Area

The project is located in Macon County, Illinois, with most of the project falling within the boundaries of the City of Decatur (2010 population 76,122) and the rest within unincorporated Macon County. (See Exhibit A-7) Within the project boundaries, the City of Decatur currently maintains Brush College Road south of Faries Parkway and Faries Parkway west of Brush College Road. Macon County maintains Brush College Road north of Faries Parkway where it is also known as County Highway 1 (CH 1). Macon County also maintains Faries Parkway east of Brush College Road on behalf of Decatur Township. William Street Road (IL 105) is a state route and is maintained by the State of Illinois.

3.2 Project Limits

The project limits for the Brush College Road study extend from William Street Road (IL 105) north to Faries Parkway, a total distance of 0.89 mile. See Exhibits A-9 through A-12.

3.3 Land Use

Existing land use in the project area includes commercial, residential, and industrial facilities. ADM's West Plant is located at the southwest corner of the Faries Parkway/Brush College Road intersection and the ADM James Randall Research Center (JRRC) is located just south of the existing NS rail yard underpass on the west side of Brush College Road. An Ameren substation is located north of the underpass on the northeast corner of Brush College Road and E. Olive Street. Brush College Elementary School is located on the west side of Brush College Road just north of the William Street intersection. The school closed last year and was recently acquired by Progress House/Orenda Foundation – Veterans Project and Transitional Living. Single family homes occupy the land along the east side of Brush College Road from the south side of the underpass to East Cerro Gordo Street. There are two churches with associated buildings and parking lots on the east side of Brush College Road north of Williams Street: Wesley United Methodist and Freedom Assembly of God. The East End Plaza, which includes a Subway, Brush College Animal Hospital, and Jan's East End Grill, is located along the east side of Brush College Road just south of East Cerro Gordo Street.

St. John's Lutheran Cemetery is located at the northeast corner of Brush College Road and Faries Parkway. No hospitals or libraries will be affected by the Project.

3.3.1 Existing Drainage

The Brush College Road corridor between IL Rt. 105 (William Street) and Mueller Avenue is situated in the Upper Sangamon River basin (Hydrologic Unit Code 7130006). Stormwater from this corridor drains into two local watersheds before emptying into Lake Decatur which is fed by the Sangamon River. One of the two watershed outlets is east of the corridor at the north end of North Lake Shore Drive and the other is south of the corridor near Ridge Drive. From these two watersheds approximately 484 acres drain through the project limits. Approximately 270 acres drain to the Ridge Drive outlet and approximately 214 acres drain to the North Lake Shore Drive outlet.

The existing underpass at the Norfolk Southern rail yard drains to a closed gravity sewer system located under the roadway. The total drainage area contributing to the system at this location is approximately 29 acres. This system continues south and outlets from a cross road culvert on the east side of Brush College Road just south of Cerro Gordo Street. From there the stormwater continues south through a culvert under William Street and then to the outlet into Lake Decatur near Ridge Drive.

None of the project limits or watershed areas is within a FEMA mapped floodplain. According to the National Wetlands Inventory mapping there are no wetlands within the project limits. There is, however, a Freshwater Emergent Wetland, approximately 5 acres in size, located in the far northwest watershed that drains to the project limits.

3.3.2 Existing Storm Sewer System

At the intersection of Brush College Road and Faries Parkway, stormwater is collected and flows to the south. The east leg of Faries Parkway drains to the east and the north leg of Brush College Road drains to the north. At the east leg of East Harrison Avenue, the stormwater along Brush College Road coming from the north side of Faries Parkway and points north of Harrison Avenue are collected by the storm sewer system and routed east along East Harrison Avenue and ultimately to the watershed outlet at the east end of Faries Parkway.

Stormwater is gravity flow from the Faries Parkway intersection to the outfall southeast of Cerro Gordo Street. Starting at Faries Parkway, there is a 15-inch storm sewer coming from the west on Faries Parkway and a 12-inch storm sewer at the intersection, both joining and running south on Brush College Road.

Near Station 55+50 between Olive Street and Logan Street, a 12-inch storm sewer comes from the east side of Brush College Road to join the 15-inch storm sewer. At this point the 15-inch storm sewer increases to 24-inch, and continues to run just beyond the west edge of pavement of Brush College Road.

Just north of Olive Street, a second trunk line begins and drains to the south. It starts as a 12-inch vitrified clay storm sewer encased in concrete and travels under the southbound lane. This was constructed in 1929. Near Station 47+80 the 24-inch storm sewer (off road) and the 12-inch storm sewer trunk line meet at a junction and continue as one 24-inch storm sewer under the southbound lane. This is at Station 2+90 in the 1929 plans. Picking up gutter flow along the way, the trunk line becomes a 36-inch storm sewer near Station 45+60 (0+070, 1929), continuing under the southbound lane. Near Station 43+00 the 36-inch storm sewer veers to the southbound curb line and continues south.

At Station 40+00 another trunk line, 24-inch storm sewer is started under the centerline of Brush College Road. Together the 24-inch storm sewer (1983) and 36-inch storm sewer (1929) flow south, under the centerline of road and the southbound curb, respectively. Near Station 37+60, the 24-inch storm sewer becomes a 30-inch storm sewer. At Station 31+89.30, the 30-inch storm sewer becomes a 36-inch storm sewer.

Near Station 27+25 the 36-inch storm sewer under the center of Brush College Road veers to the southeast quadrant of Cerro Gordo Street. The sewer increases to 42-inch at Station 25+76, 15 feet Right. The 36-inch trunk line under the southbound curb comes across Brush College Road near Station 25+35 and joins the 42-inch storm sewer at Station 25+15, 23.5 feet Right. A 48-inch pipe drains to the outfall. The outfall is at the outlet of a 4’x 4’ box culvert. There is also a 24-inch storm sewer on the south side of the box draining stormwater from an inlet at Station 22+30, 18.3 feet Left to an inlet at Station 24+46, 18 feet Left.

The 1929 plans show the storm sewer along the far west and off road of Brush College Road up to the junction about 52+90 (1983). Both the 1929 plans and the 1983 plans do not have the 24-inch storm sewer (and the 15-inch diameter up stream) to the west of Brush College Road. Some of the known information is from the plan views only in the 1929 plan set and does not include a profile sheet as we are accustom to today.

There is a crest near Station 21+00, and all remaining stormwater drains south, southeast of William Street.

3.3.3 Drainage at Illinois Central Railroad (ICRR) Track

The 1929 plans for the existing overpass show the drainage system at the ICRR track area. This track services Tate & Lyle (formerly Staley’s) and is known as the “Staley Lead”. A 12-inch

corrugated iron pipe was installed just under the east edge of the tracks. This corrugated pipe and the inlets in the track area are connected to the 24-/36-inch storm sewer running under the southbound lane of Brush College Road.

In 1964, a drainage chute was added to the area behind the west abutment of the overpass to relieve load on the abutment backwall. The drainage from this area is routed to the 12-inch corrugated metal pipe (CMP) and then to the 24-/36-inch storm sewer.

Over the years, there have been drainage issues at the ICRR track. Illinois Central RR was acquired by the Canadian National (CN) Railway and they refer to this area as the "Staley Hole." In late 2010, CN re-graded the track area, cleaned inlets and replaced the 12-inch CMP with a new 12-inch CMP. The 12-inch CMP was moved as far away from the edge of tie as possible to avoid railroad loading, as the previous pipe could not withstand the loading. According to CN, this pipe and the previous pipe did not have favorable slope and entered the city's system at/near the normal flow line. At this time it was also determined that the 36-inch storm sewer contained a significant amount of silt and rock. The City of Decatur cleaned the sewer.

3.3.4 Utilities

Ameren owns and maintains aerial power lines along the east side of Brush College Road between William Street and Faries Parkway. They also own and maintain gas lines in the area. Their substation, located at the corner of E. Olive Street and Brush College Road, will need to be relocated prior to construction of the project. Ameren power lines are also located along the south side of William Street.

ADM has steam lines and other utilities in the area of the project. An aerial power line owned by ADM runs across Brush College Road just north of the underpass at the NS rail yard. A 7' diameter tube also crosses over Brush College Road just north of the underpass at the NS rail yard. The tube carries steam feed to the ADM West Plant, condensation return to a cogeneration plant, four separate oil lines, a 125 psi hydrogen line, and an 8" waste water line. Shutting down the system would require a plant stoppage and startup which is a major event.

ADM also has a steam line and power line that runs from the east side of Brush College Road. The steam lines run across Brush College Road at the north face of the underpass and pass through the underpass in the bay occupied by the IC RR track. These lines feed the ADM JRRC.

In 2013, ADM constructed a conveyer over Faries Parkway just west of Brush College Road. The conveyer links operations from the West Plant to the ADM Intermodal area located on the north side of Faries Parkway across from the West Plant.

Norfolk Southern has aerial power and communications lines in the rail yard that run parallel to the tracks.

The intersection of Brush College Road and Faries Parkway, along with the existing underpass at the NS rail yard, drains to a closed gravity sewer system located under Brush College Road. The sewer flows to the south and outlets from a cross road culvert on the east side of Brush College Road just south of Cerro Gordo Street. From there the stormwater continues south through a culvert under William Street and then to the outlet into Lake Decatur near Ridge Drive. The ICRR track area west of Brush College Road also drains into the City's sewer system.

3.3.5 Roadway Lighting

Roadway lighting is generally located along the east side of Brush College Road between William Street and Faries Parkway with additional lighting at those intersections.

3.3.6 Structures

Structures 058-3013 and 058-3014 are located approximately 0.3 mile south of Faries Parkway (FAU 7369) in Decatur, Illinois, Macon County. The structures carry the Norfolk Southern Rail Yard over two lanes of Brush College Road (FAU 7448) and a single Illinois Central Railroad (ICRR) track. The IC track services Tate & Lyle (formerly Staley) and is referred to as the "Staley Lead" by the ICRR. The NS rail yard is one of the largest flat switching yards in North America.

The structures are owned and maintained by Norfolk Southern Corporation. A portion of the two-span underpass was originally constructed around 1929. It was extended around 1951. The structures are separated by a gap of approximately 55 feet. The northern structure (058-3013) carries three tracks and the southern structure (058-3014) carries five tracks. The structures are not historically significant. The total structure length is 47.0 feet. See Appendix H-1 for the Bridge Condition Report approval letter.

Structure 058-8665 is a 7' x 7' concrete box culvert located under William Street. The structure carries stormwater from the project area under William Street where the flow continues to the outfall to Lake Decatur near Ridge Drive.

A cast-in-place concrete retaining wall is located along the west side of Brush College Road at the location of the former Brush College Elementary School. The facility is now owned by Progress House / Orenda Foundation – Veteran's Project & Transitional Living. There is also a short cast-in-place concrete retaining wall along the east side of Brush College Road just north of Cerro Gordo Street. The wall is located along two residential properties adjacent to the sidewalk.

3.4 Emergency Services and School Bus Routes

3.4.1 Fire Department

Three firehouses could potentially provide service to the study area. They are:

1. Firehouse #2 – 2707 E. William Street
2. Firehouse #4 – 2760 N. 22nd Street
3. Firehouse #7 – 1250 Airport Road

In the event that a portion of Brush College Road is closed, the fire department would separate the response to "North" of the closure and "South" of the closure. Any closure along Brush College Road would add a couple of minutes to the response time for a single company. For a multiple company response, anywhere from 5 to 7 minutes could be added to the response time. A multiple company response would be required if more than one emergency call is received at the same time in a particular response area or if an emergency response requires more than one fire apparatus. A structure fire, for example, requires 6 pieces of equipment coming from multiple fire stations.

3.4.2 Police Department

According to the Decatur Police Department, the project area is one of the more isolated areas in Decatur for rerouting traffic, and any closure along Brush College Road will affect their response time. It is difficult for the Police Department to determine or estimate the added distance and added response times to take alternate routes to respond in emergency situations. Unlike the Fire Department, which is leaving a static location, the police officers are constantly patrolling their districts and may have to respond from a variety of locations.

3.4.3 School Buses

According to representatives from Decatur Public School District 61 (PSD 61), even with the closing of Brush College School 20 to 22 buses use the study section of Brush College Road twice a day to get students to and from school. There are also six pre-K buses using this section of Brush College Road. The District did have high school buses traveling to Richland Community College using the Brush College corridor, but have rerouted the drivers to Hubbard Avenue. According to the District, the route is longer but moves much better than the route along Brush College Road.

3.5 Environmental Resources

There are no perennial streams or other perennial water bodies within the Project boundaries. The main water body near the Project area is Lake Decatur, an approximately 3,000-acre water supply reservoir on the Sangamon River, located east and south of the Project. (See Exhibit A-2) The Project is approximately 0.1 mile from Lake Decatur at its nearest point, however, the Project is separated from the lake by other roadways and/or embankments at these locations. There are two intermittent streams that cross Project components.[3] One is in the northeast part of the Project area, and crosses Faries Parkway approximately 0.3 mile east of Brush College Road. It flows east-southeast and drains into Lake Decatur approximately 0.5 mile from the Project boundary. The other is a south-flowing intermittent stream at the south part of the Project. It originates on the JRRC property and passes beneath both Brush College Road and William Street before draining to an impoundment approximately 0.1 mile south of the south end of the Project. The impoundment is separated from Lake Decatur by an earthen dam.

Based on the 2012 *IEPA Integrated Water Quality Report and Section 303d List*, Lake Decatur is currently impaired for two designated uses: aquatic life (based on turbidity) and fish consumption (based on the presence of chlordane, mercury and polychlorinated biphenyls [PCBs]). Sources of impairment include dredging, shoreline modification, other recreational pollutant sources, runoff, unknown sources, and atmospheric deposition (mercury). The US EPA has approved (2007) Total Maximum Daily Loads (TMDLs) for Lake Decatur for the following parameters: dissolved oxygen, nitrogen (total), nitrogen – nitrate, phosphorus (total), sedimentation/siltation and total suspended solids.

There are no "Outstanding Resource Waters" designated in accordance with 35 Ill. Adm. Code 303.205 and listed in 35 Ill. Adm. Code 303.206 in the area (none have yet been designated in the state).

<u>Impacts</u>

The major potential construction impacts to surface water quality are sedimentation (total suspended solids) and increased turbidity resulting from soil erosion and transport. Typical operations associated with roadway construction involve clearing, grading, filling and excavation. These activities all increase the erosion potential of surface soil because of the reduction in vegetative cover.

Operation and maintenance impacts result from stormwater runoff from highway surfaces. The increase in impervious area will increase stormwater runoff volumes, which will be controlled by appropriate design.

[3] Based on the U.S. Geological Survey (USGS) 7.5-minute quadrangle topographic map for Decatur, IL (1998).

Proposed Mitigation

Of the current impairments to water quality in Lake Decatur, the only ones that could potentially be impacted by roadway construction, operation and maintenance are sedimentation/siltation and total suspended solids. Principles and standards from the 2010 IDOT *Bureau of Design and Environment Manual (BDE)*, Chapter 41, will be used to minimize the Project's potential water quality impacts. As described in BDE Chapter 41, a storm water permit and storm water pollution prevention plan (SWPPP) will be required for the project.

3.5.1 Groundwater Resources

Lake Decatur is the primary water source for the City of Decatur, with a backup well field in DeWitt County, north of Macon County. The Illinois State Geological Survey (ISGS) online database shows a few wells in the area, primarily in the vicinity of the Faries Parkway/Brush College Road intersection. Based on ISGS records, these wells appear to be primarily drawing from a sand and gravel formation approximately 100 feet deep. It is not known whether the wells in the ISGS database are still existing or in use. Except for a well ADM installed on its property in 2006, all wells in the area were installed between 1940 and 1990. A comparison of properties that do not receive water from the City of Decatur and the well locations from ISGS suggests that most of the properties that do not receive city water also do not have a well. A review of the properties that do not have a documentable water source shows that they appear to be either vacant lots, lots with only storage facilities, or salvage yards. There are a few businesses within the proposed footprint of the jug-handle interchange at the southeast corner of Faries Parkway and Brush College Road that may use wells as a water supply. These properties are not on city water, and the ISGS database shows three wells in this area. These businesses will be relocated to construct the interchange.

There are no Sole Source Aquifers, as designated under Section 1424(e) of the Safe Drinking Water Act, within the project area. The Project is not in an area of special resource groundwater as defined in 35 Ill. Adm. Code 620.230.

Impacts

This project will not create any new potential "routes" for groundwater pollution or any new potential "sources" of groundwater pollution as defined in the Illinois Environmental Protection Act (415 ILCS 5/3, et seq.). Accordingly, the project is not subject to compliance with the minimum setback requirements for community water supply wells or other potable water supply wells as set forth in 415 ILCS 5/14, et seq.

Proposed Mitigation

If the water wells within the proposed footprint of the Faries Parkway/Brush College Road interchange still exist, they will be abandoned in accordance with 77 Ill. Adm. Code 920.120.

3.5.2 Upland Plant Communities

Impacts

Removal of an estimated 95 individual trees along with an additional 2.15 acres of trees will be required, primarily within the existing ROW of William Street at the south end of the Project, with a few isolated trees on ADM property and elsewhere. Tree removal will be done in accordance with IDOT Departmental Policy D&E-18 (September 2002). The Project does not meet the threshold for recommended tree surveys [IDOT BDE 26-17.06(a)].

Proposed Mitigation

Tree replacement will be done in accordance with IDOT Departmental Policy D&E-18. Healthy trees located outside of applicable clear zones should be preserved unless they require removal for safety or drainage of roadside ditches. The goal is to provide at least as many replacement trees as the number removed. If bare root or balled and burlapped trees are used for replacement plantings, a minimum ratio of 1:1 shall be used for the number of trees planted to the number of trees intended to be established. If seedlings are used, a minimum ratio of 3:1 shall be used for the number planted to the number of trees intended to be established.

3.5.3 Wildlife Resources

Impacts

Wildlife habitat in the Project area consists of urban roadside grassy vegetation with a few trees. These areas likely provide some habitat for common urban wildlife such as mice, raccoons, robins, seagulls and doves. Some of this habitat is included in the approximately 43.1 acres that will be impacted by the Project.

On November 23, 2012, IDOT transmitted to the City of Decatur the biological and wetland clearance for the Project, indicating no further coordination is required regarding biological and wetland resources. As a result of small changes to the proposed design (Addendum A), an amended request for review of biological resources was submitted in 2012. The biological and wetland sign-offs for Addendum A both occurred on January 2, 2013, and IDOT transmitted the clearance to the City of Decatur on January 8, 2013. The original clearance and the additional clearance for Addendum A are included in Appendix D. Based on the clearance, no additional consultation regarding wildlife impacts is required.

Proposed Mitigation

No mitigation is needed and none is proposed.

3.5.4 Agricultural Resources

There is a property owned by ADM on the west side of Brush College Road between the James Randall Research Center (JRRC) and the IC RR track that is cultivated. 0.156 acres of right-of-way will be required from this parcel for the proposed improvements.

3.6 Sensitive Environmental Areas

3.6.1 Parks and Recreational Areas (Section 4(f) properties)

The project would require acquisition of approximately 5,218 square feet of ROW from a parking lot owned by the Decatur Park District, plus a construction easement of 2,978 square feet (See Exhibit A-13). The existing function of the impacted area is a parking lot which served the former Brush College Elementary School and provides access for recreational activities on Decatur Park District property. The resulting function of the impacted area will remain for parking, however the parking lot will have a net loss of 4 spaces. The impacted area is mostly asphalt parking and partially grass. On 1/23/13 the FHWA determined that the Brush College Road Project will result in the use of City of Decatur Park District Parking area, a Section 4(f) resource, but made a *de minimis* impact finding for this use stating that it will not adversely affect this resource's activities features and attributes. The *de minimis* impact finding is based upon the impact avoidance, minimization, and mitigation or enhancement measures detailed in the documentation submitted on December 11, 2012. This documentation and the concurrence letter from the Park District are included in Appendix E.

3.6.2 Special Waste Sites

Based primarily on the past and present industrial use of the Project area, two Preliminary Environmental Site Assessments (PESAs) were conducted in 2012. The first PESA included the area along William Street (IL 105) from N. Lake Shore Drive to Houseland Avenue. The second PESA included the area along Brush College Road and Faries Parkway.

The first PESA identified 15 recognized environmental concerns (RECs). These included commercial sites, vacant lots and a cemetery. RECs other than *de minimis* included underground storage tanks (USTs), possible USTs, chemical use, potential chemical use, drums, waste tires,

transformers, monitoring wells and spills. The second PESA resulted in a “Moderate Risk” finding, and 27 sites classified as RECs, environmental concerns (ECs), and/or historical recognized environmental concerns (HRECs).

The 27 sites include areas of railroads, salvage yards, an electrical substation, repair garages, former gas stations, vacant lots, a gravel pit, various facilities with existing or former USTs, and various manufacturing facilities.

4 Alternatives Considered

4.1 Proposed Highway Design Guidelines

4.1.1 Roadway Type

Build alternatives considered for the section of Brush College Road between William Street and Faries Parkway include providing a four-lane section. Roadway classifications are as follows:

Roadway	Classification
Brush College Road (north of William Street)	Minor Arterial (Urban)
Brush College Road (south of William Street)	Local Road (Urban)
William Street (IL 105)	Other Principal Arterial
Faries Parkway (west of Brush College Road)	Minor Arterial (Urban)
Faries Parkway (east of Brush College Road)	Collector (Urban)

4.1.2 Typical Sections

The typical section for improved Brush College Road would consist of two travel lanes in each direction with a 13’ wide bi-directional left turn lane. B-6.24 curb and gutter is proposed along the outside edges of pavement. The width back-to-back of curbs would be 66’-2”. An 8-foot wide shared-use path would be located on the east side of the roadway between Faries Parkway and Marietta Street and on the west side of the roadway south of Marietta Street. A sidewalk will be provided on the east side of the roadway between Marietta Street and William Street. See Exhibit A-14.

4.1.3 Proposed Roadway Design Guidelines

Design Speed

Brush College Road: 4-Lane Minor Arterial (Urban)	40 mph	BLR&S, Fig. 32-2D
Brush College Road: Local Road (Urban)	30 mph	BLR&S, Fig. 32-2H
William Street: 4-Lane Two-Way Arterial (Urban)	50 mph	BDE, Fig. 48-6.A
Faries Parkway: Minor Arterial (Urban)	40 mph	BLR&S, Fig. 32-2D
Faries Parkway: Collector (Urban)	40 mph	BLR&S, Fig. 32-2F

Horizontal Alignment

The proposed centerline of Brush College Road will be shifted 24.08'east of the existing baseline at the NS rail yard underpass. The alignment was shifted in order to allow traffic to be maintained on the existing roadway while the east portion of the overpass is constructed. At the entrance to the ADM James Randall Research Center, the alignment is shifted 31.84' west of the existing baseline. From this point south, the alignment was shifted to avoid impacts to residential properties, churches, and businesses on the east side of Brush College Road.

Vertical Alignment

The existing grade at the NS yard underpass is -5.60% at the south approach and +5.84% at the north approach. The introduction of an overpass at the NS yard would result in approach grades of 5%. The addition of an overpass at Faries Parkway will significantly alter the existing, relatively level profile by introducing a 3.0% grade at the south approach and a 5% grade at the north approach.

4.2 No-Build Alternative

The No-Build Alternative is defined as doing nothing to existing Brush College Road other than continued routine maintenance. The existing underpass at the NS rail yard would still carry only one lane of traffic in each direction even though existing traffic levels warrant four lanes. A grade separation structure would not be constructed at Faries Parkway and frequent train blockage at the intersection would continue to be an issue. Additional turn lanes would not be added to the intersection of William Street and Brush College Road and a traffic signal would not be added to the intersection of Brush College Road and Marietta Street/ADM JRRC entrance. Generally, there would be no need for additional right-of-way for the No-Build Alternative and there would be no displacements. Costs would still be incurred for continued maintenance of the roadway.

The No-Build Alternative would not meet the need for increased roadway capacity and improved safety, and would not correct the existing roadway deficiencies or provide system linkage. Table 4.2-1 and 4.2-2 compares the existing intersection Level of Service (LOS) to the 2035 No-Build LOS for AM and PM peak hours respectively.

Table 4.2-1 – Existing/Projected Intersection Level of Service – A.M. Peak Hour

ID	Crossing Street	Existing Year	2035 No-Build
1	E. Faries Parkway	C	**E**
2	E. Logan St.	C	**E**
3	E. Olive St.	C	**E**
4	E. Hickory St.	C	**E**
5	E. Grand Ave.	C	**E**
6	E. Marietta St.	C	**E**
7	E. Cerro Gordo St.	C	**E**
8	Elementary School	**D**	**F**
9	Filling Station	C	**E**
10	E. William St.	**D**	**F**

SOURCE: URS Corporation.

Table 4.2-2 – Existing/Projected Intersection Level of Service – P.M. Peak Hour

ID	Crossing Street	Existing Year	2035 No-Build
1	E. Faries Parkway	C	**E**
2	E. Logan St.	A	A
3	E. Olive St.	A	A
4	E. Hickory St.	C	**F**
5	E. Grand Ave.	**F**	**F**
6	E. Marietta St.	C	**E**
7	E. Cerro Gordo St.	**D**	**F**
8	Elementary School	C	**F**
9	Filling Station	**E**	**F**
10	E. William St.	**D**	**F**

SOURCE: URS Corporation.

4.3 Build Alternative – Grade Separation at NS Rail Yard

The NS rail yard in Decatur is the largest flat switching yard in North America. According to the NS Senior Trainmaster, there are multiple movements on yard tracks and it is virtually impossible to give an accurate train count. There are 36 trains per day on the Main track alone and every track on the structure is used once an hour.

Structure studies included evaluation of both an underpass and an overpass at the Norfolk Southern (NS) Rail yard. For both options, it was assumed that the tracks in the NS yard would be maintained at their existing elevation. The existing north underpass (058-3013) carries three tracks and the south underpass (058-3014) carries five tracks. NS requested that a vertical clearance of 23’-6” be provided over the tracks to allow for additional ballast that might be

placed prior to construction. Alignment and structure options considered assumed that the ICRR track servicing Tate & Lyle will remain at its existing location.

4.3.1 Build Alternative – Underpass at NS Rail Yard

A new underpass carrying Brush College Road under the Norfolk Southern rail yard was considered. The underpass would accommodate the existing ICRR track, four lanes of traffic on Brush College Road and the shared-use path.

Placing new substructure units at the location of the existing underpass substructure units, while the units are still carrying load, would require the existing superstructure to be shored and jump spans installed across the existing substructure units. This would allow the existing substructure units to be removed and new substructure units to be constructed. The presence of the ICRR track will not allow placement of a temporary jump span support at that location. Since this option involves replacing the substructure under active load, it would be difficult to construct without interrupting operations in the rail yard.

The depth of superstructure was determined for both a 2-span and a 3-span option. The minimum vertical clearance over the ICRR track is 17’-7¾”. In order to maintain that vertical clearance, it was determined that the track would need to be lowered 4.54 feet for the 2-span option and 2.93 feet for the 3-span option. For this reason, only the 3-span option was considered for further evaluation. The west span would carry the existing ICRR track under the NS rail yard. The center span would carry two southbound lanes of Brush College Road under the NS yard and the east span would carry two northbound lanes in addition to the shared-use path. The roadway profile would need to be lowered approximately 1.5 feet in order to provide a minimum vertical clearance of 14’-9” over Brush College Road. See Exhibit A-15.

Construction of an “advanced structure” just south of the existing underpass would allow a portion of the new structure to be constructed along a new track alignment where substructure units do not exist. Once the “advanced structure” is completed, existing tracks would then be shifted to the new structure. The next construction phase would involve the construction of another bridge section, located in the area previously occupied by the tracks that were relocated to the “advanced structure”. This construction sequence would continue until the five tracks on the existing south underpass are located on a new structure. In order for this option to be feasible, relocation of existing tracks would be required. This option would impact yard operations and require multiple construction seasons. Portions of the new structure would need to be constructed between active tracks. See Appendix C.

Representatives from Norfolk Southern have said that the heavier rail traffic is on the westbound (north) side of the yard. The Senior Trainmaster said that if planned modifications at the east end

of the yard are constructed, there is a possibility that the westbound yard tracks could be temporarily taken out of service for construction of a new underpass to replace the existing underpass to the north.

Considering that Brush College Road would need to be lowered for the underpass option, it would not be feasible to maintain traffic along Brush College Road during construction of an underpass. Preparing the sub-base for the new lower roadway would also expose the bottom of the east abutment footing. Lowering the roadway may also impact the existing 36" RCP storm sewer located under the roadway.

4.3.2 Build Alternative – Overpass at NS Rail Yard

A new overpass carrying Brush College Road over the Norfolk Southern rail yard was considered. The overpass would accommodate four lanes of traffic on Brush College Road and the shared-use path. The portion of the existing underpass carrying Brush College Road would be filled in but the portion carrying the ICRR track would remain open.

Construction of an overpass would allow traffic to be maintained along Brush College Road during most of the construction period. Building a portion of the overpass just east of the existing alignment along Brush College Road would allow continued use of the existing roadway and underpass. Upon completion of the east portion of the overpass, traffic would be shifted to the completed structure and the west portion of the overpass would be constructed along the location of the existing alignment.

Various span configurations were considered for the overpass. Initially, a 2-span configuration was considered with the face of the abutments placed 25' from the centerline of the outer tracks and a pier placed in the center of the rail yard. This option resulted in an overall structure length of 294 feet which would allow the use of integral abutments. Representatives from Norfolk Southern have stated that it would be acceptable to place a pier in the center of the yard. Fill with Mechanically Stabilized Earth (MSE) walls would be used at the approaches to the bridge.

Geotechnical analysis determined that the resulting height of the MSE walls for the 2-span option would be a concern. Bearing pressures from the walls would be high and soil strengths are not consistent. There is also concern about stage constructing such a tall embankment on a slope. The taller walls will require longer strap lengths behind the wall facing which would cross over the stage construction line. For this reason, a longer structure was considered so that the height of the MSE walls at the approaches is more reasonable.

The structure layout that was developed for the overpass option consists of a 6-span structure having end spans of 132 feet and four interior spans of 165 feet. Total length back-to-back of

abutments is 930'-7¼". The structure will also span the 7' diameter ADM utility tube that currently passes over Brush College Road north of the existing underpass. See Exhibit A-16.

4.3.3 Selection of Preferred Alternative – Overpass at NS Rail Yard

The overpass and underpass options at the NS rail yard were presented to the public at the February 17, 2011 meeting. Table 4.3.3-1 gives a comparison of the two options.

Table 4.3.3-1 – Comparison of Underpass vs. Overpass at NS Rail Yard

Item	Underpass	Overpass
Visual Impacts	Minimal, would be constructed slightly deeper than current underpass.	Maximum height would extend approximatley 30 feet above NS rail yard.
Right-of-Way/Property Impacts	Widening Brush College Road will impact properties on each side of the road.	Impact generally the same as the underpass option.
Construction Impacts	Several construction seasons; Brush College Road will be closed for an extended time; major impacts to railroad yard operations.	Shorter construction time; Brush College Road can generally remain open during construction; fewer impacts to railroad operations.
Access Impacts	Access to Grand, Hickory, Olive, and Logan Street closed; Marietta/ADM intersection improved, including traffic signal.	Impact generally the same as the underpass option.
Coordination with Other Improvements	Less desirable to coordinate with future improvements; major reconstruction required to add more traval lanes if required in the future.	Better coordination if overpass is constructed at Faries Parkway intersection; easier to add lanes if more capacity is required in the future.

Twenty responses were received with one favoring an underpass, sixteen favoring an overpass and three having no opinion. Based on public response and the anticipated impacts from each option, the overpass was selected as the preferred alternative.

4.4 Build Alternative – Grade Separation at Faries Parkway

As part of stakeholder engagement for the Brush College Road Study, surveys were developed for three stakeholder groups: Archer Daniels Midland Company (ADM), Richland Community College (RCC) and the community at large. The objectives of the surveys were to gain insights from corridor users in terms of travel behavior, operating conditions, and potential project priorities. 20.3% of respondents identified train blockage as a primary cause of traffic congestion. As noted earlier, the Decatur Area Transportation Efficiency Study (DATES), relating to improving train and truck flow within the Decatur area, determined that the NS crossing on the north leg of the Brush College Road/Faries Parkway intersection is blocked 17.2 hours per week. This blockage time is more than that of any other crossing in Decatur.

Even with a new overpass at the NS rail yard, motorists would still contend with the frequent train blockage at the Faries Parkway intersection. In light of this information, the limits of the study were extended to evaluate a grade separation at Faries Parkway in order to meet the study objectives. In addition to improving traffic flow, the grade-separated railroad crossing will improve the safety of the intersection.

Since an overpass had already been selected as the preferred alternative at the NS rail yard, Brush College Road will already be elevated. An overpass at Faries Parkway and the east-west NS track was identified as the best option. An underpass would be difficult to construct with both an east-west and a north-south track at the intersection. For these reasons, no further consideration was given to the underpass alternative.

With the proposed overpass at Faries Parkway and the NS track, a ramp must be provided from Brush College Road to Faries Parkway. Because of constraints at the intersection, to reduce impacts, a ramp located in single quadrant (called a “jug handle”) was identified; all other alternative intersection configurations were screened out based on impacts and/or engineering considerations. For the location of the jug handle, all quadrants except the southeast quadrant were screened out. The northeast quadrant is occupied by St. John’s Lutheran Cemetery and was not considered because of impacts. In the northwest quadrant, the east-west NS track and north-south Canadian National/Illinois Central track would interfere with ramp touchdown. Both southern quadrants are occupied by commercial/industrial facilities. Placing a ramp in the existing ADM West Plant would result in major disruption to the facility, over an area much larger than the ramp footprint. While there are existing businesses in the southeast quadrant, these businesses can be relocated, and the impacts would primarily be limited to the ramp footprint. For these reasons, the southwest quadrant was screened out and the southeast quadrant was identified as the preferred location for the ramp.

Two alternative configurations were considered for the jug-handle from Brush College Road to Faries Parkway. Alternate 1 includes traffic signals at the top and bottom of the ramp (Exhibit A-17). For Alternate 2, the traffic signals are replaced with multi-lane roundabouts (Exhibit A-18).

Methodology

VISSIM, a microscopic traffic simulation model, was used to evaluate the Brush College Road overpass and "jug handle" concept. The VISSIM model replicates a three-hour (3:30 p.m. to 6:30 p.m.) traffic simulation along Brush College Road (William Street to Faries Parkway) and provides network wide and individual vehicle measures of effectiveness. To better understand the traffic impacts at the Brush College/Faries intersection, the individual vehicle turning movements (i.e., eastbound left-turn, eastbound through, eastbound right-turn, and so on for the other intersection legs) were analyzed for the p.m. peak traffic conditions. The p.m. peak hour was selected as it represents the highest traffic volumes recorded during a typical weekday. To analyze the traffic impacts associated with a train blockage of Brush College Road, a 15-minute delay was coded in the VISSIM model. Synchro, a traffic level of service and optimization program, was used to identify the optimal traffic signal timings for the VISSIM model. RODEL, a roundabout level of service program, was used to identify and analyze the roundabout lane geometry.

Scenarios

Six future year (2035) traffic scenarios were modeled using VISSIM. The scenarios are described below:

- **No-Build** – Year 2035 traffic levels with no improvements made to the Brush College Road corridor. The roadway/intersections would remain the same as they currently are today.
- **No-Build (with Train)** – Same as the no-build scenario with a 15-minute train blockage included in the model run.
- **Brush College Improvements** - Year 2035 traffic levels with improvements that include the widening of Brush College Road, intersection capacity improvements at William Street, intersection capacity improvements at Marietta Street/ADM Research Center, and a new overpass at the NS rail yard (currently the two-lane underpass).
- **Brush College Improvements (with Train)** – Same as the Brush College Improvements scenario with a 15-minute train blockage included in the model run.
- **Brush College Overpass (Traffic Signals)** – Year 2035 traffic levels and includes all of the Brush College Improvements previously identified. This scenario also includes an overpass of the NS at-grade rail crossing and Faries Parkway (the overpass eliminates the need to model a separate train delay scenario as the NS at-grade rail crossing). Traffic control for this overpass scenario is modeled using traffic signals.
- **Brush College Overpass (Roundabouts)** – Year 2035 traffic levels and includes all of the Brush College Improvements previously identified. This scenario also includes an overpass of the NS at-grade rail crossing and Faries Parkway (the overpass eliminates the

need to model a separate train delay scenario as the NS at-grade rail crossing). Traffic control for this overpass scenario is modeled using modern roundabouts.

Findings

Figure 4.4-1 displays the network wide travel time statistics for the six scenarios. As shown, a no-build scenario results in high travel times and significant travel delays throughout the corridor. Simply stated, if no improvements are made to Brush College Road, and related intersections, there will eventually be complete gridlock. Further analysis shows that if the Brush College Road improvements are made, the travel time would drop from 206 hours (no-build condition) to 74 hours. However, even with the Brush College improvements, if a train blockage of the NS crossing occurs, the total travel time would more than double to 155 hours. The Brush College overpass scenarios would eliminate the at-grade NS crossing and improve overall traffic flow. The overpass scenario, with traffic signals, would result in approximately 71 hours of total travel time while the roundabout option would result in approximately 64 hours of total travel time.

Figure 4.4-1 - Brush College Road Corridor – Year 2035 Network Wide Total Travel Time (hours)

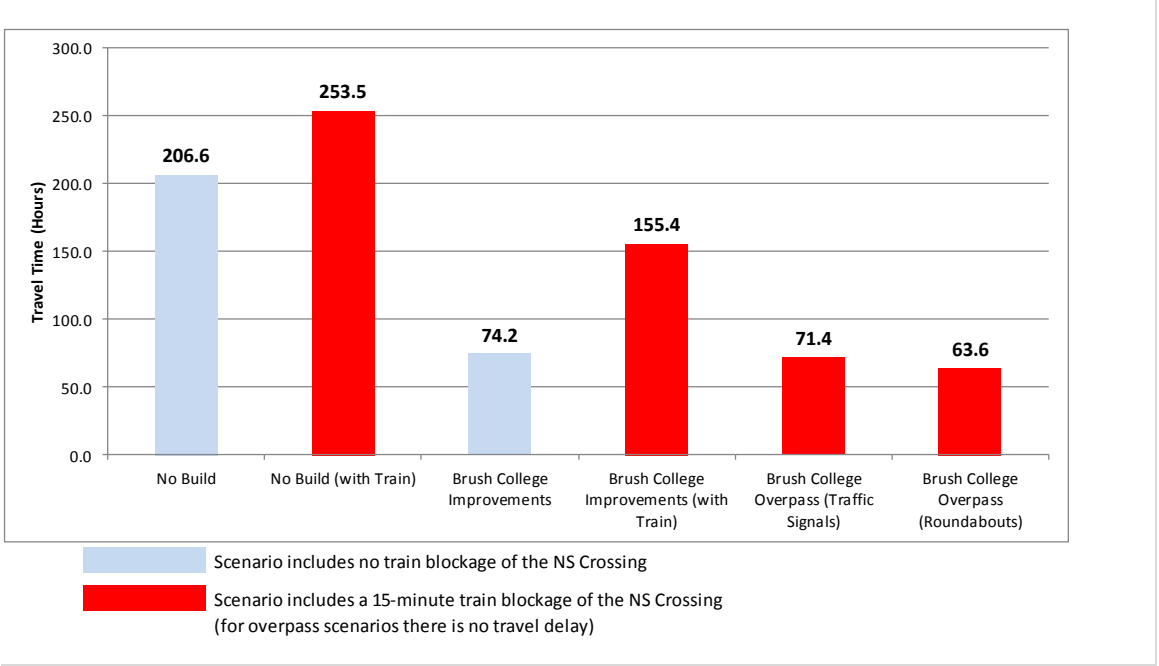
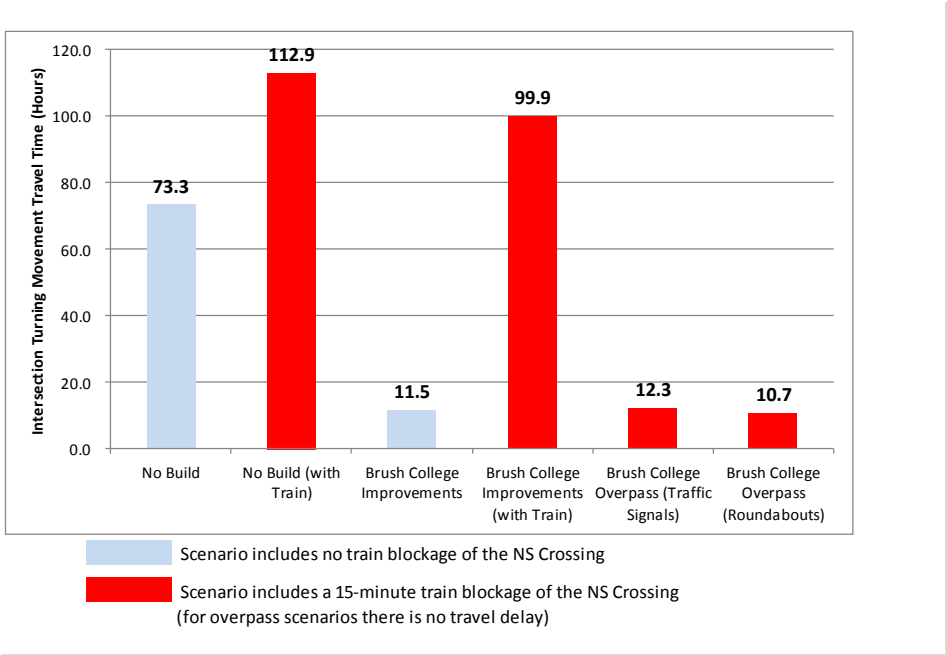


Figure 4.4-2 displays the total travel time for the Brush College Road and Faries Parkway intersection turning movements that are impacted by a NS train blockage (this represents the 15-minute time period between 5:15 p.m. and 5:30 p.m. when the train has passed and the traffic is free to move again). Table 4.4-1 summarizes the average travel time to complete each respective intersection turning movement. Cells highlighted in gray are those turning movements that are directly impacted by a NS train blockage.

Figure 4.4-2 - Brush College Road and Faries Parkway Intersection – Total Travel Time* (hours)



*Travel time for intersection turning movements impacted by a NS train blockage.

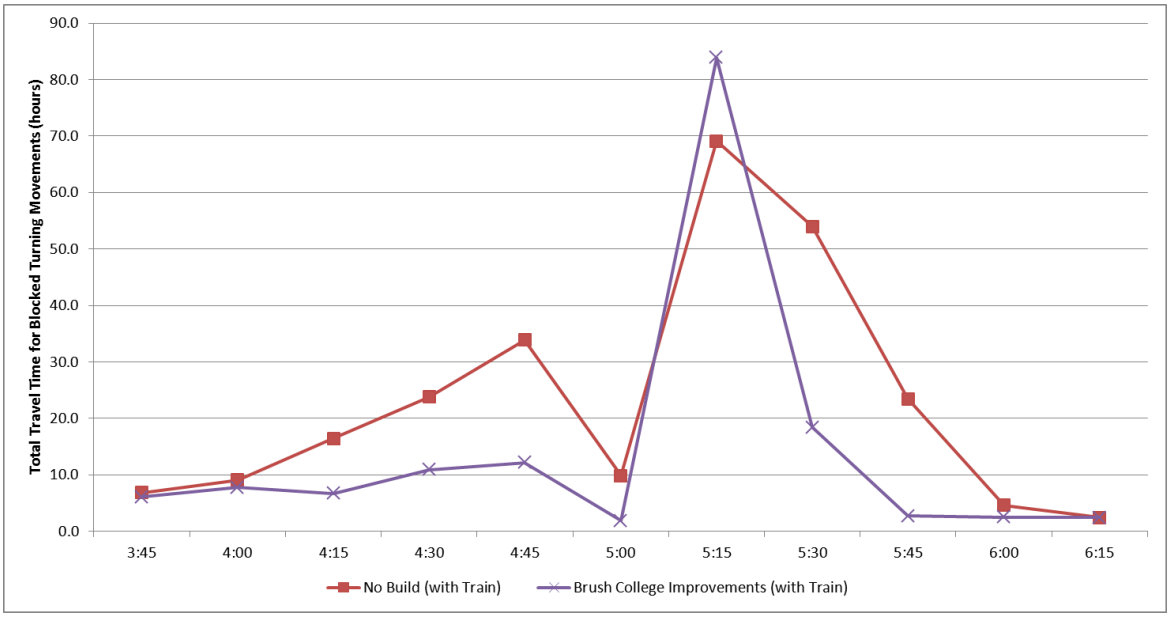
Table 4.4-1 - Brush College Road and Faries Parkway Intersection – Turning Movement Travel Time (minutes)

Average Travel Time (minutes) per Vehicle to Complete Respective Turning Movement													
		Eastbound (Faries)			Southbound (Brush College)			Westbound (Faries)			Northbound (Brush College)		
No.	Year 2035 Scenario	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
1	No Build	17.3	17.5	27.5	1.7	7.3	5.7	9.0	4.8	4.0	1.9	1.2	1.1
2	No Build (with Train)	23.2	11.1	14.5	20.7	26.2	25.7	5.0	4.7	10.3	18.4	14.5	8.4
3	Brush College Improvements	1.1	1.2	0.9	1.0	1.1	1.4	1.1	1.4	1.4	1.4	0.9	0.8
4	Brush College Improvements (with Train)	11.3	3.2	1.1	12.0	19.1	19.2	0.9	1.1	8.8	18.0	13.8	10.0
5	Brush College Overpass (Traffic Signals)	1.5	1.1	1.4	1.5	0.8	2.2	1.2	1.0	1.3	1.7	1.1	0.8
6	Brush College Overpass (Roundabouts)	1.5	1.0	1.2	1.1	0.7	2.0	0.9	1.0	1.2	1.6	1.0	1.0

Figures 4.4-3 and 4.4-4 provide further analysis of the NS train impacts on Brush College Road. Figure 4.4-3 compares the year 2035 no-build condition to the Brush College Road improvements. Both scenarios include a 15-minute train blockage that begins at 5:05 p.m. As the figure shows, the no-build travel times begin to build as early as 4:00 p.m. – indicating that traffic is beginning to be delayed and backups are starting. When the train blockage begins at 5:05 p.m., the travel time actually drops as the blockage prohibits many vehicles from making their desired turns and the model records a very low number of vehicles (this is when the total travel delay begins to significantly increase). After the train blockage clears, the total travel time is extremely high and the travel impacts extend out for the next 30 to 45 minutes as the high numbers of blocked vehicles are slowly processed.

By comparison, the Brush College Road improvements show the total travel time increasing slightly prior to the train blockage, but still much better compared to the no-build condition. Similar to the no-build condition, when the train blockage occurs, the travel time spikes between 5:15 p.m. and 5:30 p.m. as the blocked vehicles begin to move again and are recorded in the VISSIM model. Unlike the no-build condition, after the train blockage clears, the total travel times begin to improve much faster as the Brush College Road corridor improvements enable the traffic to be processed more effectively.

Figure 4.4-3 - Brush College Road and Faries Parkway Intersection Travel Time (hours) – Year 2035 No-Build vs. Brush College Improvements (with 15-minute train blockage)



NOTE: The train enters the network and starts to block traffic during interval 6 (5:00 p.m. to 5:15 p.m.). The blockage ends during interval 7 (5:15 p.m. to 5:30 p.m.). The travel times are the highest (indicating the most delay) during the interval 7 because vehicles blocked by the train will begin to discharge and will once again be processed/recorded in the model results.

Figure 4.4-4 displays the travel time impacts when comparing the Brush College Road improvements (with a 15-minute train blockage) to the Brush College Road overpass scenario (with either traffic signals or roundabouts). As the figure shows, the overpass option eliminates the at-grade rail crossing delay which results in the travel time remaining consistent during the three hour p.m. peak travel period. Both the traffic signal and roundabout options are consistent in being able to accommodate the future year traffic levels.

Figure 4.4-4 - Brush College Road and Faries Parkway Intersection Travel Time (hours) – Brush College Improvements (with 15-minute train blockage) vs. Overpass Concept

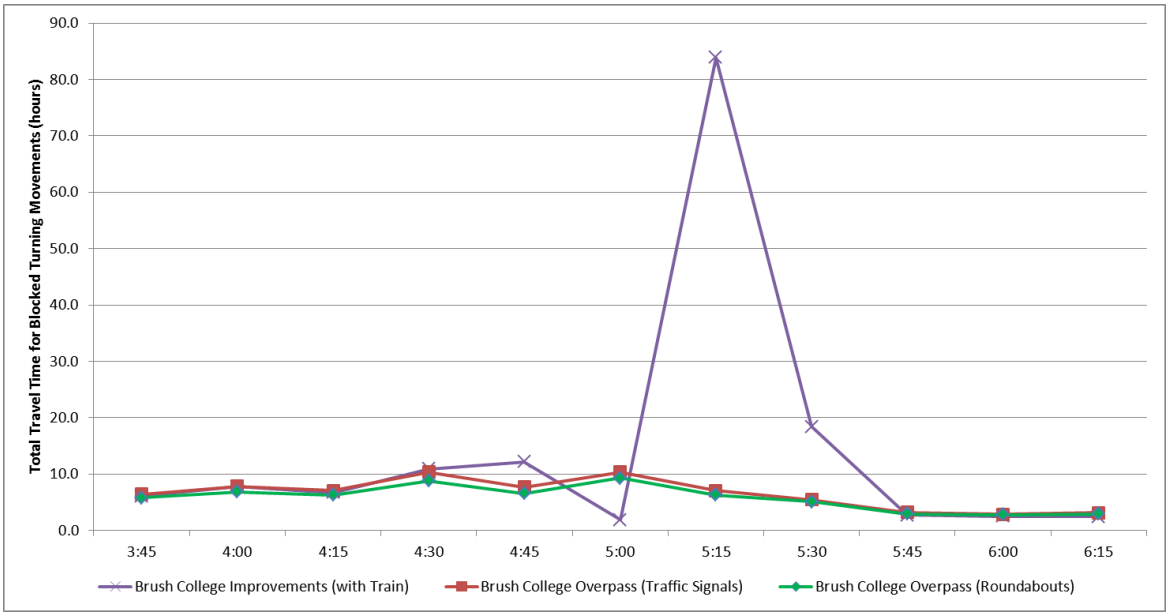


Table 4.4-2 summarizes Brush College network level performance. The percentage difference is the ratio of the difference between the Brush College Overpass condition and Brush College Improvements over Brush College Improvements with Train.

Table 4.4-2 - Brush College Road Network Performance

Parameter	Vehicle Type	Brush College Improvements	Brush College Improvements (with Train)	Brush College Overpass (Traffic Signals)	% Diff	Brush College Overpass (Roundabout)	% Diff
Average delay time per vehicle [s]	Car	48.1	112.7	34.4	-69%	25	-78%
	Truck	39.5	78.8	32.0	-59%	20	-74%
	Total	87.6	191.5	66.4	-65%	45.1	-76%
Total delay time [h]	Car	107.8	246.4	77.0	-69%	55.8	-77%
	Truck	4.3	8.4	3.4	-60%	2.1	-75%
	Total	112.0	254.8	80.4	-68%	57.9	-77%
Average number of stops per vehicles	Car	1.18	1.4	1.1	-24%	0.7	-54%
	Truck	0.95	1.1	0.9	-14%	0.5	-58%
	Total	2.1	2.5	2.0	-20%	1.1	-56%
Average stopped delay per vehicle [s]	Car	25.8	83.2	16.6	-80%	10.3	-88%
	Truck	20.8	55.4	13.2	-76%	6.4	-88%
	Total	46.5	138.6	29.8	-79%	16.8	-88%
Number of Stops	Car	9,534	11,185	8,726	-22%	5,259	-53%
	Truck	368	417	355	-15%	174	-58%
	Total	9,902	11,602	9,081	-22%	5,433	-53%
Total travel time [h]	Car	358	490	338	-31%	323	-34%
	Truck	17	21	17	-18%	16	-22%
	Total	374	510	354	-31%	339	-34%
Average speed [mph]	Car	23	17	26	55%	27	64%
	Truck	25	20	26	34%	28	45%

Generally speaking, the Brush College Road improvements (including the widening of Brush College Road, intersection improvements at William Street, intersection improvements at Marietta Street/ADM Research Center, and a new overpass at the NS rail yard) would be sufficient to accommodate the year 2035 traffic levels. However, the analysis shows that when Brush College Road is blocked due to a NS train there will be significant travel delays – more than a doubling in travel time.

4.4.1 Build Alternative – Overpass at Faries Parkway with Ramp Connector using Signalized Intersections

This alternative consists of a ramp from Brush College Road to Faries Parkway located in the southeast quadrant of the Brush College Road and Faries Parkway intersection. A free-flow right turn lane would be provided at the top and the bottom of the ramp. Other movements at the top and bottom of the ramp would be controlled by traffic signals.

Lane configurations at the top of the connector ramp would be as follows:

- One free-flow right turn lane - northbound Brush College Road to ramp
- Two lanes - southbound traffic on Brush College Road to ramp
- Two lanes – ramp to southbound Brush College Road
- One free-flow right turn lane – ramp to northbound Brush College Road

Lane configurations at the bottom of the connector ramp would be as follows:

- One free-flow right turn lane – ramp to eastbound Faries Parkway
- Two lanes – ramp to westbound Faries Parkway
- Two lanes – westbound Faries Parkway to ramp
- One free-flow right turn lane – eastbound Faries Parkway to ramp

4.4.2 Build Alternative – Overpass at Faries Parkway with Ramp Connector using Roundabouts

This alternative consists of a ramp from Brush College Road to Faries Parkway located in the southeast quadrant of the Brush College Road and Faries Parkway intersection. A multi-lane roundabout would be provided at the top and the bottom of the ramp.

4.4.3 Selection of Preferred Alternative – Overpass at Faries Parkway with Ramp Connector using Signalized Intersections

Traffic models indicate that both options operate well and are similar when considering time of travel through the intersection. However, comments received after the second public meeting, held on July 24, 2012, favor the alternate with traffic signals. Seventeen responses were received with twelve favoring the ramp with traffic signals and five favoring the ramp with roundabouts.

The City of Decatur also expressed safety concerns about constructing Decatur's first roundabouts in a location with a large amount of truck traffic. For these reasons, the alternate using a ramp with traffic signals was identified as the preferred alternate. See Exhibit A-19.

4.5 Build Alternative – Improve Brush College Road and Marietta Street/JRRC Entrance Intersection

The entrance to the ADM James Randall Research Center (JRRC) is located across from the Brush College Road / Marietta Street intersection. Turning on to Brush College Road can be difficult during evening peak travel hours for motorists exiting the JRRC.

Traffic studies at the Brush College Road / Marietta Street intersection show that a traffic signal is warranted at this location. The nine warrants, from the 2009 edition of the MUTCD, were reviewed to determine if a traffic signal is warranted at this location. One of the nine warrants – Warrant 1, Eight-Hour Vehicular Volume – was satisfied. The warrant analysis assumed the following:

1. Brush College Road (major street) has one lane for moving traffic (existing conditions and year 2035 no-build). NOTE: It was also determined that the warrant would also be met using two lanes for the major street following the proposed widening of Brush College Road.
    a. Based on the 30th maximum hour volume, there would be 1,404 vehicles on major street during p.m. peak hour – Existing Conditions
    b. Based on the 30th maximum hour volume, there would be 1,908 vehicles on major street during p.m. peak hour – 2035 No-build Scenario

2. ADM Research Facility (minor street) has one lane for moving traffic
    a. Right-turn traffic was not included in the minor-street volume as it assumed the movement can enter the major street with minimal conflict.

3. The 85th percentile speed will exceed 40 mph on the major street.
    a. Posted speed limit is currently 35 mph and the future year design speed is 40 mph.
    b. Using the 70% Column on Table 4C-1, Condition B – Interruption of Continuous Traffic (MUTCD), the warrant for traffic signals is met for both the existing year and design year conditions.

In addition to the traffic signals, proposed improvements at this intersection include turn lanes and a crossing for the shared-use path. No other alternates were considered at this intersection. Refer to Exhibit A-20.

4.6 Build Alternative – Add Lanes to William Street & Brush College Road Intersection

The intersection at William Street and Brush College Road was also identified as contributing to traffic congestion on Brush College Road. Traffic studies show that additional turn lanes are warranted at the intersection to accommodate the large number of turning movements that occur during peak travel hours. When dual turn lanes are provided, IDOT policy requires that raised medians be placed adjacent to the dual turn lanes. Refer to Exhibit A-21.

Additional analysis was also given to the eastbound left-turn movement from William Street to northbound Brush College Road. This was evaluated to determine if a single eastbound left-turn lane could be maintained or extended as opposed to constructing dual left-turn lanes with a raised median. Based on design year (2035) traffic projections, the eastbound left-turn movement (from William Street to Brush College Road) is projected to be 455 vph during the a.m. peak hour. This left-turn movement exceeds the 300 vph threshold triggering the need to consider dual left-turn lanes. Further analysis showed that if a single left-turn lane is maintained, the approach level of service for the left-turn movement would operate below acceptable operating standards (LOS D and a queue length in the a.m. peak hour would be 400 feet). This would result in long delays and significant backups as motorists waiting to make this turn would likely wait for more than one traffic signal cycle before they could proceed. A single left-turn lane would also negatively impact the overall operation of the entire intersection causing it to operate at LOS E. Under this scenario, the northbound approach would drop to LOS F, the southbound approach would drop to LOS E, and the westbound approach would drop to LOS E. Based on these results, the decision was made to provide eastbound dual left-turn lanes on William Street to accommodate year 2035 traffic projections.

A roundabout was considered at the William Street intersection. Refer to Exhibit A-22. The roundabout was shifted to the south to avoid Spangler Cemetery and the Mobil/Super Pantry located on the north side of William Street Road (IL 105). It was also shifted south to minimize the roundabout diameter and to limit the speed through the roundabout. The grading of the roundabout option would most likely require cutting off the south leg of Brush College Road due to the steep profile grade of the south leg. Pushing the roundabout into the southeast quadrant would require retaining walls. There is a creek flowing through the wooded area in the southeast quadrant, so additional culverts would be needed. The terrain also drops quickly as it approaches the SE corner of the intersection. The roundabout did not have off-setting advantages. Therefore it was eliminated from further consideration.

5 Detailed Description and Analysis of the Build Alternative

5.1 Attainment of Purpose and Need

The build alternative selected would fulfill the project "Purpose and Need" by providing adequate capacity to handle present and future traffic volumes in a safe and efficient manner and will also increase safety and access for businesses and future industrial development along the Brush College Road corridor.

The preferred alternative does not adversely impact the natural and human environment. The additional lanes, new overpass at the NS rail yard, and improvements to the William Street/Brush College Road and Marietta Street/Brush College Road intersections will accommodate present and future traffic. The proposed overpass at Faries Parkway will address concerns with train blockage at Faries Parkway. The proposed shared-use path will accommodate non-motorized traffic.

5.2 Description of Build Alternative

As described in Sections 4.1 through 4.6, the Build Alternative for this project would include the construction of a four-lane section with a bi-directional left turn lane between William Street and Faries Parkway. An overpass would be constructed at the NS rail yard and a second overpass would be constructed at Faries Parkway. The overpass at Faries Parkway will include a single ramp in the southeast quadrant of the intersection with traffic signals at the top and bottom of the ramp. Traffic signals and turn lanes would be added at the entrance to the ADM JRRC at the intersection of Marietta Street and Brush College Road. Turn lanes would also be added at the intersection of William Street and Brush College Road. An 8' wide shared-use path would be provided along the length of the improvement. Reference Appendix I for the Design Study plan and profile sheets.

5.3 Overpass at NS Rail Yard

The overpass at the NS rail yard would consist of a 6-span plate girder bridge with an 8" cast-in-place concrete deck. The length of the end spans would be 132'-0" and the length of the interior spans would be 165'-0" resulting in a back-to-back of abutment distance of 930'-7¼". The bridge will carry two 12'-lanes in each direction separated by a 4' wide median. A 2' shoulder will be provided on each side giving a width of 56'-0" face-to-face of barriers. The structure will

also carry the shared-use path along the east side for a total out-to-out of deck distance of 71’-8”. A sidewalk-mounted bridge fence railing is proposed along the outside edge of the shared-use path and a parapet-mounted bridge fence railing is proposed along the west side of the structure in accordance with Norfolk Southern guidelines. See Exhibit A-23.

Mechanically Stabilized Earth (MSE) retaining walls are proposed at the north and south approaches to the overpass structure in order to minimize impacts to adjacent properties and to maintain the area required for the ICRR track along the west side of Brush College Road. A bicycle railing is proposed along the outside edge of the shared-use path along the approaches to the bridge.

The centerline of the proposed Brush College Road will be shifted 23’-1” east of the existing centerline at the underpass. This will allow the east portion of the proposed overpass to be constructed while maintaining traffic on the existing roadway. Traffic will then be shifted to the completed portion of the overpass and the existing underpass will be filled in and the west portion of the overpass will be completed.

Norfolk Southern required a line of sight study for the overpass option to make sure that the eastbound train engineer can see the cantilever signal that would be on the east side of the overpass. The engineer’s line of sight is typically 14’-6” above the rail. The study was performed using Microstation 3D modeling with the proposed overpass structure superimposed into existing topographic files. All signal lights become fully visible at a distance of 1150'. This sight distance was acceptable to Norfolk Southern. See Appendix C.

See Appendix H-2 for the approved Type, Size, and Location Drawings.

5.4 Overpass at Faries Parkway

The overpass at Faries Parkway would consist of a 4-span plate girder bridge with an 8” cast-in-place concrete deck. The length of the end spans would be 107’-0” and the length of the interior spans would be 134’-0” resulting in a back-to-back of abutment distance of 458’-7”. At the north end, the bridge will carry two 12’-lanes in each direction separated by a 4’ wide median. A 2’ shoulder will be provided on each side giving a width of 56’-0” face-to-face of barriers. The structure will also carry the shared-use path along the east side for a total out-to-out of deck distance of 69’-8”. The bike path portion of the bridge is only 10’-6” at this location in order to avoid encroaching on St. John’s Cemetery. The bridge will flare to an out-to-out deck width of 94’-7” at the south end to accommodate lanes from the ramp to Faries Parkway. A sidewalk-mounted bridge fence railing is proposed along the outside edge of the shared-use path and a parapet-mounted bridge fence railing is proposed along the west side of the structure in accordance with Norfolk Southern guidelines. See Exhibit A-24.

Mechanically Stabilized Earth (MSE) retaining walls are proposed at the north and south approaches to the overpass structure in order to minimize impacts to adjacent properties and to maintain the area required for the ICRR track along the west side of Brush College Road. A bicycle railing is proposed along the outside edge of the shared-use path along the approaches to the bridge.

There are currently no crossing gates at the existing at-grade crossing for the ICRR track and Faries Parkway. The Illinois Commerce Commission (ICC) will require the installation of flashing light signals and gates at the crossing. The gates will be located on the west side of the proposed overpass.

See Appendix H-2 for the approved Type, Size, and Location Drawings.

5.5 Improvements to the Marietta Street/Brush College Road Intersection

As noted in Section 2.2.5, traffic leaving the ADM Research Center in the late afternoon and peak p.m. travel hours often experience delays due to the high southbound and northbound traffic volumes on Brush College Road.

Redesign of the Marietta/ADM intersection (Exhibit A-19) includes the following:

- Installation of traffic signal based on warrant analysis.
- Left-turn lane and a shared through-right lane for eastbound and westbound approaches.
- Intersection redesign would include realignment of the ADM Research Center driveway which would eliminate the curved driveway to form a 90 degree angle. Discussions with ADM indicate they would support this improvement.

There will also be a crossing for the shared-use path at this intersection. North of this intersection, the shared-use path will be located on the east side of Brush College Road. From this point south, the path will be located on the west side of Brush College Road.

See Appendix G-2 for the approved IDS for the Marietta Street/Brush College Road intersection.

5.6 Improvements to the William Street/Brush College Road Intersection

Section 4.6 described the traffic analysis that was performed for this intersection. Table 5.6-1 shows the existing and proposed lane configurations for the intersection.

Table 5.6-1 – Existing and Proposed Lane Configurations at William Street and Brush College Road Intersection

Leg	Existing	Proposed
Northbound	Shared left, thru, right turn lane	Dedicated left turn lane Dedicated thru lane Thru/right turn lane
Westbound	Dedicated left turn lane Dual thru lanes Dedicated right turn lane	Dedicated left turn lane Blank (striped) lane Dual thru lanes Dual dedicated right turn lanes
Southbound	Shared left thru lane Dedicated right turn lane	Dual dedicated left turn lanes Thru lane Dedicated right turn lane
Eastbound	Dedicated left turn lane Dedicated thru lane Shared thru right turn lane	Dual dedicated left turn lanes Thru lane Shared thru right turn lane

With the addition of the dual turn lanes, raised medians will be required along the westbound, southbound, and eastbound approaches.

As part of the Complete Streets program, a 10’ wide shared-use path will be provided along the south side of William Street within the limits of the improvement.

See Appendix G-1 for the approved IDS for the William Street/Brush College Road intersection.

5.7 Maintenance of Traffic

At this time it is not known if the project will be constructed in phases, therefore maintenance of traffic plans will be developed as part of the final design phase.

5.7.1 Maintenance of Traffic - Overpass at NS Rail Yard

Section 5.3 described how the proposed overpass at the NS rail yard would be constructed in stages that would allow traffic to be maintained on Brush College Road. There may be periods when the roadway will need to be closed due to construction operations. Construction equipment cannot occupy the ICRR track on the west side of Brush College Road. In order to set girders on the west portion of the overpass (Stage 2 Construction), the girders may need to be lifted over the completed eastern portion of the overpass. In that case, the roadway would need to be closed to traffic. See Exhibit A-25 for a detour sketch if a section of Brush College Road is closed south of Faries Parkway.

5.7.2 Maintenance of Traffic - Overpass at Faries Parkway

Just north of Faries Parkway, the ICRR track is located along the west edge of Brush College Road and St. John's Lutheran Cemetery is located along the east edge. There is not sufficient width to construct the overpass and maintain traffic; therefore a portion of Brush College Road north of Faries Parkway will need to be closed for construction of the overpass. Although a pier will need to be constructed in the center of Faries Parkway, Faries Parkway will need to remain open during construction.

The only other means of access for businesses on the east leg of Faries Parkway is from a township road between Faries Parkway and Reas Bridge Road. The road runs along the west side of Lake Decatur and through the former Faries Park area. The Decatur Park District has maintenance responsibilities in the area of Faries Park and the portion between Faries Park and ADM is a township road. The road is not in good condition for use as a detour route.

See Exhibit A-26 for a detour sketch if a section of Brush College Road is closed north of Faries Parkway.

5.7.3 Maintenance of Traffic - William Street Intersection Improvements

There is no viable detour that would allow closure of William Street. Therefore, William Street will need to remain open during reconstruction of the intersection.

5.8 Bicycle/Pedestrian Facility Provisions

There are currently no provisions for bicyclists along the Brush College Road Corridor, including William Street and Faries Parkway. The Decatur Bicycle Club conveyed that the study

segment is currently a “hostile” environment for bicyclists. Although there is a sidewalk along the east side of Brush College Road, it is very narrow at some locations and ends in the block between E. Logan Street and Faries Parkway.

At the existing underpass, in the 1980s the traffic lanes were widened by one foot and a concrete parapet was added between the roadway and sidewalk that reduced the sidewalk width to 2’-4”. The sidewalk at the underpass is typically covered with mud.

The proposed improvements include an 8’ wide shared-use path along Brush College Road and a 10’ wide shared-use path along the south side of William Street. The paths will not connect to any existing paths adjacent to the improvements. Along Brush College Road, the shared-use path will be located on the east side of the road north of Marietta Street and on the west side of the road south of Marietta Street. The presence of the commercial buildings on the east side of Brush College Road between William Street and Cerro Gordo Street would not allow room for the shared-use path, however a sidewalk will be provided on the east side of the road between William Street and Marietta Street.

See Appendix L for the Bicycle Facilities Assessment.

5.9 Retaining Walls

In addition to the retaining walls at the approaches to the proposed overpass structures, other retaining walls will be required at various locations.

The addition of lanes and the shared-use path will require the removal and reconstruction of the retaining wall located along the west side of Brush College Road in front of the former Brush College Elementary School. The facility was recently acquired by Progress House / Orenda Foundation – Veteran’s Project and Transitional Living. A TS&L was not developed for this wall since input will need to be obtained from the new owner prior to finalizing the layout of the retaining wall.

A retaining wall will be required along the west edge of the shared-use path adjacent to Brush College Road from Station 16+00 ± to Station 17+30 ±. A retaining wall will also be required along the south edge of the shared-use path adjacent to William Street from Station 121+00 ± to Station 127+00 ±. The maximum exposed height of this wall will be 12 feet.

5.10 Drainage

At this time it is not known if the project will be constructed in phases, therefore drainage design will be completed as part of the final design phase.

The existing system, although not modelled, may be undersized by todays design standards.

All of the outlets are considered non-sensitive, so it is assumed that although there will be an increase in the amount of impervious area by the project, no detention storage will be required.

The proposed outfalls will be the same as the existing. The drainage area in the southeast quadrant of Brush College Road and East Faries Parkway will drain to the east. The drainage area to the north of East Faries Parkway will drain to the north. Everything to the south of Faries Parkway, down to near Sta. 21+00, will drain to the outfall near Cerro Gordo at Sta. 24+40 right. The remainder of the proposed roadway to the south will continue to drain towards the south. The main remaining outfall will be at the creek near the 7'x7' box culvert under William Street (IL Route 105) near Sta. 120+23. Minor modification to the stream will be required at the upstream and downstream end of the culvert. There will also be another outfall into the existing 36-inch culvert under William Street near Sta. 112+00 and the short segment of Brush College Road south of William Street will drain further to the south at Lake Shore Drive. Table 5.10-1 shows the culverts that will need to be extended as a result of the proposed roadway improvements.

Table 5.10-1 – Culvert Extensions

Roadway	Approx. Station	Description
William Street	120+23	7' x 7' Box Culvert Extend both ends SN 058-8655
Brush College Road	24+72	4' x 4' Box Culvert Extend on north side of roadway
Faries Parkway	226+41	6' Dia. RCP Extend on south side of roadway

A new proposed sewer will replace the existing sewer from Faries Parkway running south all the way to the creek just south of Cerro Gordo. From Faries Parkway to Grand Avenue the new sewer will be on the east side of the elevated Brush College Road. From Grand Avenue to the south the sewer can be under the new roadway.

A retaining wall is proposed along the west side of the ICRR track to retain the fill that will be placed in the existing underpass. Since the closed sewer system under Brush College Road will be relocated to the east side of the overpass, the drainage pipes from the area of the ICRR track can no longer be connected to the City storm sewer at the current location. Provisions will need to be made in the final design phase to drain the ICRR track area.

5.11 Utility Impacts

See Section 3.1.1 for a discussion of the various utilities within the project limits. Major cost and lead time will be required for Ameren to relocate their substation and the 138kv power lines

supported on timber poles located along the east side of Brush College Road and at the Faries Parkway intersection. The substation and power lines cannot be avoided with the addition of lanes and the shared-use path. The alignment cannot be shifted to the west because the ICRR track cannot be relocated and must remain at its existing location.

The project will also require the relocation of power poles south of the proposed overpass and the proposed shared-use path along the south side of William Street will require the relocation of power poles.

Ameren gas lines along portions of Brush College Road will need to be relocated where the depressed roadway will be filled in. The gas line near the area of the proposed connector ramp can be removed since there will no longer be businesses to service in that area. Other portions of the gas line will need to be relocated.

A utility corridor is proposed along the east side of the overpass at the NS rail yard. The following utilities will be jacked and bored under the NS rail yard:

- 24” Water Main
- Telephone fiber optic cable
- Storm Sewer – Size to be determined during final design

There is an existing 16” sanitary sewer force main in the area, but it has been abandoned.

The majority of the ADM steam lines located on the east side of Brush College Road and on the north side of the NS rail yard will not be impacted by the proposed overpass. The overpass will span the existing 7’ diameter tube carrying ADM utilities across Brush College Road. The ADM steam lines and power line located in the portion of the underpass carrying the ICRR track will remain, but the steam lines will be re-routed at the north end of the underpass so that they come from the west side of the ICRR track instead of the east side of Brush College Road. The power line already comes from the west side of the ICC RR track. After the steam lines are rerouted, the existing section of pipe between the north end of the underpass and the steam line along the east side of Brush College Road can be removed. This will allow access to construct Piers 4 and 5 of the proposed overpass.

ADM also has an aerial power line that crosses over Brush College Road just north of the existing underpass. This power line will most likely need to be raised to provide the necessary vertical clearance over the proposed roadway. This work will need to be coordinated to Ameren since the existing power line is supported by an Ameren power pole on the east side of Brush College Road.

Norfolk Southern has buried utilities in the rail yard which should not be impacted by the overpass unless located near the area of Pier 3. There are aerial power lines and communications lines that run parallel to the tracks and will need to be relocated for the overpass.

5.12 Airport Impacts

The Decatur Airport is located approximately 1.9 miles southeast of the proposed overpass at the NS Rail Yard. The overpass is approximately 9,091 feet from the nearest point of the nearest runway. The proposed overpass at Faries Parkway is approximately 10,455 feet from the nearest point of the nearest runway. Federal Aviation Administration (FAA) 14 CFR Part 77 establishes rules for Safe, Efficient Use and Preservation of the Navigable Airspace. Section 77.9 states that notice must be filed with the FAA if any construction or alteration will exceed an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway for an airport with the longest runway more than 3,200 feet in actual length. The proposed overpass height, even with light poles, will not exceed this imaginary surface, therefore notice does not need to be filed with the FAA. This check was submitted to the Director of the Decatur Airport and the consulting engineer for the airport, Hanson Professional Services, Inc.

When crane heights and placement are determined during construction, the contractor may need to file notice with the FAA through the portal https://oeaaa.faa.gov/oeaaa/external/portal.jsp. This requirement can be included in the contract documents.

It should be noted that the ADM grain elevators and the Norfolk Southern communication tower located just west of the proposed overpass will be higher than the overpass.

5.13 Roadway Lighting

Roadway lighting will be provided along the length of the improvement.

5.14 Social, Economic and Environmental Effects

Social, Economic and Environmental effects are discussed fully in the *Environmental Assessment* prepared for this project (URS, 2013). The evaluation of potential impacts is summarized below.

5.14.1 Community Cohesion

Community cohesion will be minimally affected. There are only four residential relocations and the business relocations will not affect major centers of employment. Five roads that currently connect to Brush College Road will no longer have direct access, but alternate access points will be available. There will be no segmentation, separation or isolation of areas from the existing community due to physical barriers or access change. The new overpass with pedestrian and bike facilities will improve community cohesion by allowing movement over the NS rail yard.

5.14.2 Environmental Justice

The project will not result in disproportionately high and adverse impacts to minority or low-income populations.

5.14.3 Public Facilities and Services

Brush College Elementary School was closed in 2013 and the property was recently acquired by Progress House/Orenda Foundation – Veterans Project and Transitional Living. The parking lot for the former school is owned by the Decatur Park District and Progress House/Orenda Foundation is working with the Park District to purchase the parking lot. Impacts to the parking lot are described in Section 3.6.1.

There are two churches with associated buildings and parking lots on the east side of Brush College Road north of Williams Street: Wesley United Methodist and Freedom Assembly of God. At the locations of the churches the widening of Brush College Road will be on the west side, resulting in negligible impact to the church facilities on the east. Access to the church facilities will be at the same locations as existing access.

No hospitals or libraries will be affected by the project.

Other than the access changes described in Section 5.13.4, below, fire, police and ambulance service will not be impacted, except that response times may improve as a result of the increased capacity the project will provide.

5.14.4 Changes in Travel Pattern and Access

With the construction of an overpass at the NS rail yard and at Faries Parkway, the following side streets will no longer have a direct connection to Brush College Road:

- E. Grand Avenue
- Hickory Street
- E. Olive Street
- E. Logan Street
- West leg of E. Harrison Ave.

A connector road is proposed between Hickory Street and E. Grand Avenue just east of Brush College Road. Those that have homes or businesses in the area south of the NS rail yard and east of Brush College Road will need to take James Street to Marietta Street in order to access Brush College Road. “No Trespassing” and “No Thru Traffic” signs are posted on the south side of the NS rail yard at James Street, so vehicular traffic from the residential area cannot access Faries Parkway by crossing the tracks. The south end of James Street outlets to William Street. There are currently no traffic signals at that intersection.

The construction of the overpass and ramp at the Faries Parkway intersection will eliminate access to Brush College Road from E. Olive Street and E. Logan Street. The proposed improvement includes extending James Street from E. Logan Street to Faries Parkway. The proposed ramp between Brush College Road and Faries Parkway will include a connector to E. Logan Street; however the raised median along the ramp will not allow traffic from E. Logan Street to turn left onto the ramp. Businesses in the area can be accessed from the ramp connecting Brush College Road to Faries Parkway or from the James Street extension at Faries Parkway. Egress from the area will be via the James Street extension to Faries Parkway.

East of the proposed Brush College Road / Faries Parkway intersection, Walston Auto Wrecking will lose access at Faries Parkway but will have access at E. Logan Street.

The construction of the overpass at Faries Parkway will eliminate access to Brush College Road from the West leg of E. Harrison Avenue. Although there are some residences that will be impacted, most of the area is being developed by ADM as part of their intermodal yard. A new access road to this area is proposed. The road would connect to Brush College Road just north of the ADM Bio-Products building and then run in a north-south direction just west of the facility. A new at-grade crossing at the ICRR track would be created but the existing at-grade crossings at E. Harrison Avenue and the parking lot to the Bio-Products building would be eliminated. Although there are currently no crossing gates at the existing at-grade crossings, the ICC recommends the installation of flashing light signals and gates at all new public grade crossings.

The ICRR tracks will be shifted to the west at the new crossing location and signals and gates will be installed. The Canadian National Railroad has stated that they have no objections to shifting the tracks. Due to the length of a single gate, a median island may be required for a second gate.

Two roads are currently used for entrance/egress from St. John's Lutheran Cemetery at Brush College Road. The construction of an overpass at Faries Parkway will eliminate this access. A new entrance to the cemetery is proposed. The entrance road would be constructed between the east leg of E. Harrison Avenue and the cemetery on land currently owned by Pepsi Refreshment Services, Inc. Representatives from Pepsi Refreshment Services, Inc. have stated that they do not have a problem providing the land for the access road to the cemetery.

In order to provide a loop road within the cemetery, the existing roadways will be extended under the proposed overpass at Faries Parkway and be connected.

The raised medians at the William Street Intersection will restrict access to some businesses and residences along William Street. The existing roadway system consisting of North Lake Shore Drive, East Lake Shore Drive, Brush College Road, East Park Lane, and Houseland Avenue can be used to approach the business/residence from the proper direction where the raised median will not allow a left turn into the business/residence.

The proposed raised median at the north leg of the William Street/Brush College Road intersection will restrict movements into the commercial building on the east side of Brush College Road to right-in/right-out only. The building houses a Subway, the Brush College Animal Hospital, and the East End Grill. The northern-most entrance to the businesses will be relocated further to the north so that it will not be restricted to right-in/right-out. This will result in more traffic flow within the parking lot. Another "right-in/right-out" entrance was proposed between the south and north entrance but was subsequently removed at the business owner's request.

Portions of Brush College Road may be closed during construction of the overpass at the NS rail yard and the overpass at Faries Parkway. See Section 5.7.1 and Section 5.7.2.

5.14.5 Cultural Resources

The Cultural Resources Clearance was issued on August 2, 2012. Addendum Cultural Resources Clearances were issued on March 13, 2013. It was indicated that the propose action will have no effect on cultural resources.

See Appendix D for all records related to environmental coordination.

5.14.6 Air Quality

CO Microscale Analysis

A Pre-Screen carbon monoxide analysis was completed for the proposed project. The results from this proposed roadway improvement indicate that a COSIM air quality analysis is not required, as the results for the worst-case receptor are below the 8-hour average National Ambient Air Quality Standard for CO of 9.0 ppm which is necessary to protect the public health and welfare. See Appendix K.

Air Quality Conformity

The project is outside of Nonattainment or Maintenance Area. No portion of this project is within a designated nonattainment or maintenance area for any of the air pollutants for which the USEPA has established standards. Accordingly, a conformity determination under 40 CFR Part 93 ("Determining Conformity of Federal Actions to State or Federal Implementation Plans") is not required.

PM2.5 and PM10.0 Nonattainment and Maintenance Areas

No portion of this project is within a designated nonattainment or maintenance area for any of the air pollutants for which the USEPA has established standards. Accordingly, a conformity determination under 40 CFR Part 93 ("Determining Conformity of Federal Actions to State or Federal Implementation Plans") is not required.

Construction Related Particulate-Matter

Demolition and construction activities can result in short-term increases in fugitive dust and equipment-related particulate emissions in and around the project area. (Equipment-related particulate emissions are usually insignificant when equipment is well maintained.) The potential air quality impacts will be short-term, occurring only when demolition and construction work is in progress and local conditions are appropriate.

The potential for fugitive dust emissions typically is associated with building demolition, ground clearing, site preparation, grading, stockpiling of materials, on-site movement of equipment, and transportation of materials. The potential is greatest during dry periods, periods of intense construction activity, and during high wind conditions.

IDOT's *Standard Specifications for Road and Bridge Construction* include provisions on dust control. Under these provisions, dust and airborne dirt generated by construction activities will be controlled through dust control procedures or a specific dust control plan, when warranted.

The contractor and the Department will meet to review the nature and extent of dust-generating activities and will cooperatively develop specific types of control techniques appropriate to the specific situation. Techniques that may warrant consideration include measures such as minimizing track-out of soil onto nearby publicly-traveled roads, reducing speed on unpaved roads, covering haul vehicles, and applying chemical dust suppressants or water to exposed surfaces, particularly those on which construction vehicles travel. With the application of appropriate measures to limit dust emissions during construction, this project will not cause any significant, short-term particulate matter air quality impacts.

Mobile Source Air Toxics (MSAT)

For the Build Alternative carried forward in this EA, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables (e.g., fleet mix) are the same for each alternative. The VMT estimated for the Build Alternative is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to USEPA's MOBILE6.2 model, emissions of all of the priority MSAT except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emission decreases will offset VMT-related emission increases cannot be reliably projected due to the inherent deficiencies of technical models.

Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year (2035) as a result of USEPA's national control programs that are projected to reduce annual MSAT emissions by 72 percent between 1999 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great, even after accounting for VMT growth, that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under the Build Alternative there may be localized areas where ambient concentrations of MSAT could be higher than under the No Build Alternative. However, the magnitude and the duration of these potential increases compared to the No Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts.

In summary, where a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion, which are associated with lower MSAT

emissions. Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

5.14.7 Noise

Based on the traffic noise analysis and noise abatement evaluation conducted, highway traffic noise abatement measures are unlikely to be implemented based on preliminary design. The noise analysis summary is included as Appendix J. The summary identifies the general criteria that must be met before a noise barrier is recommended for implementation. The noise abatement option must also be cost-reasonable, which is defined as a noise barrier that does not cost more than $24,000 per benefited receptor. The summary includes a noise barrier assessment. Noise barriers were not recommended because the cost was not reasonable or the location of driveways will not allow the noise walls to be constructed in a continuous manner to provide the required noise reduction.

Trucks and machinery used for construction produce noise that may affect some land uses and activities during the construction period. Residents along the alignment will, at some time, experience perceptible construction noise from implementation of the project. To minimize or eliminate the effect of construction noise on these receptors, mitigation measures have been incorporated into the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction as Article 107.35. These will be implemented on the Project.

5.14.8 Water Quality/Resources

<u>Surface Water Resources/Quality</u>

Temporary measures in accordance with applicable Department standards will be used to control erosion and sedimentation while the project is under construction, prior to establishment of permanent measures. Permanent measures as necessary will be part of the completed project and will be used to prevent erosion and sedimentation after completion of the construction project. The designer shall include appropriate pay items and details in the plans and specifications to implement the selected erosion and sediment control measures.

<u>Permits</u>

The project will result in the disturbance of one or more acres of total land area. As a result, it is subject to the requirement for a National Pollutant Discharge Elimination

System (NPDES) permit for stormwater discharges from the construction site. Permit coverage for the project will be obtained either under the IEPA General Permit for Stormwater Discharges from Construction Site Activities (NPDES Permit No. ILR10) or under individual NPDES

permit. Requirements applicable to such a permit will be followed, including the preparation of Stormwater Pollution Prevention Plan. Such a plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges from the construction site. It shall also ensure the implementation of practices that will be used to reduce pollutants in discharges associated with construction site activity and to assure compliance with the terms of the permit.

5.14.9 Special Waste

As summarized in Section 3.5.5, a Preliminary Environmental Site Assessment (PESA) was conducted by the Illinois State Geological Survey (ISGS) along William Street (IL 105) and by URS along Brush College Road and Faries Parkway.

Since the Proposed Action will involve new right of way and easements from sites containing RECs (as well as linear excavation and subsurface utility relocation on existing right of way adjacent to REC sites), a PSI will be required for the project during the Phase II process to provide more detailed information regarding site contamination.

5.14.10 Permits Required

The following permits will be required:

- Construction storm water permit under Section 402 of the Clean Water Act; obtained from the Illinois EPA.

- Nationwide permit under Section 404 of the Clean Water Act for intermittent stream crossings; corresponding blanket 401 permit from the Illinois Department of Natural Resources.

- Notification of demolition and renovation permit from the Illinois EPA.

- If the Project requires the removal of underground storage tanks (USTs), a removal permit must be obtained from the State Office of the Fire Marshall.

5.14.11 Indirect and Cumulative Impacts

Indirect impacts are those anticipated to accompany or occur after the completion of a proposed highway project and are assumed to be induced by the project. Cumulative impacts are the total impacts on various environmental resources anticipated to result from the project and other non-highway development in the project area.

The assessment of indirect and cumulative impacts focuses on the following resources and issues:

- Land Use and Economics
- Local/Regional Transportation
- Visual Environment
- Social/Community

Based on the Environmental Assessment completed for this project and the public hearing held on April 22, 2014, and Finding of No Significant Impact (FONSI) was approved by IDOT/FHWA on October 2, 2014.

As traffic volumes and the number of daily train crossings continue to increase with time, congestion along the corridor will only worsen. The proposed grade separation of Brush College Road and the NS track at the Faries Parkway intersection will improve local and regional mobility by eliminating any delays and queuing associated with the existing at-grade crossing. The addition of lanes to the William Street intersection will also improve mobility and eliminate delays.

Some roads that currently have direct access to Brush College Road will no longer have access and therefore travel patterns will need to be altered. Travel patterns will also need to be altered along William Street where raised medians will allow only right-in/right-out movements at some businesses and homes.

The existing Ameren substation and overhead power lines will need to be relocated prior to construction of the project. It is not know at this time where the new substation will be located or where easements will be required for relocation of the power lines.

Lastly, the introduction of two highway overpasses and MSE retaining walls will result in a significant change to the existing visual environment.

5.15 Possible Mitigation Measures

Measures to compensate for acknowledged impacts of the proposed improvement include the following:

- Contractors will be required to implement sedimentation and erosion control measures to minimize loss of topsoil into streams. They would also maintain proper drainage during construction.
- Contractors will be required to adhere to guidelines for screening stationary equipment, exhaust noise, noise from loose equipment parts, and excessive tailgate banging. Motorized equipment will not be operated between 10 p.m. and 6 a.m. without approval.
- Measures will be taken to control dust during construction.

- A traffic management plan will be developed and implemented during the construction phase of the project to provide reliable access to residences, businesses, community facilities, and local roads.
- Owners of residential and business properties affected by the proposed project will receive just compensation for property acquisition and relocation assistance.
- All waste and demolition material from the project will be disposed of in accordance with applicable regulations.

5.16 Estimate of Cost

The estimated cost of the build alternative is based on 2013 unit costs. The cost estimate includes construction, right-of-way, relocation compensation, preliminary site investigations and environmental mitigation, utility conflicts, engineering and contingencies.

The cost estimate was broken down by segments with each segment defined as follows:

- Segment 1 – South of Station 27+00; Estimated Cost $9,932,000
- Segment 2 – From Station 27+00 to Station 52+00; Estimated Cost $37,557,000
- Segment 3 – North of Station 52+00; Estimated Cost $38,891,000

Total estimated cost for the proposed build alternative is $86,380,000. See Exhibit A-27 for a detailed cost estimate.

6 Coordination Activities

6.1 Local Governments/Metropolitan Planning Organizations

During the Phase I engineering studies, coordination was performed with various local agencies. Table 6.1-1 shows a summary of meetings with the various local agencies.

Table 6.1-1 – Meetings with Local Agencies

Agency Name	Responsibilities	Meeting Date
City of Decatur	Owner	Various meetings throughout the study
Macon County Highway Department	Jurisdiction of Brush College Road north of Faries Parkway	August 27, 2012
Decatur Township	Jurisdiction of Faries Parkway east of Brush College Road	August 24, 2012
Macon County Regional Planning Commission	Reviewing Agency	December 18, 2012 (Presentation)

Additional correspondence with these agencies occurred via telephone, email and letters. See Appendix B for a summary of contacts and meeting minutes.

6.2 State and Federal Agencies

Table 6.2-1 shows a summary of meetings with state and federal agencies.

Table 6.2-1 – Meetings with State and Federal Agencies

Agency Name	Meeting Date	Primary Topics Discussed
Illinois Department of Transportation/Federal Highway Administration	December 20, 2010	Initial coordination meeting.
	May 18, 2011	Meeting to discuss extension of study limits to address frequent train blockage at Faries Parkway
	July 15, 2012	Coordination Meeting
IDOT – Local Bridge Unit	October 8, 2013	Site visit and meeting to discuss Type, Size & Location drawings for proposed overpass structures.
Illinois Commerce Commission	July 25, 2012	Initial meeting to present project and impacts.

Additional correspondence with these agencies occurred via telephone, email and letters. See Appendix B for a summary of contacts and meeting minutes.

6.3 Property Owner Considerations

Property owners with potential right-of-way acquisition were notified by letter that their property may be impacted by the proposed improvements. The letters were sent out by the City of Decatur on August 1, 2012 and included an aerial showing the required right-of-way or property acquisition shaded in red. A questionnaire was included with the letter giving the owner the following options:

1) I have no comments at this time
2) I have noted my comments on the back of this page
3) I would like to discuss this further in a telephone conversation
4) I will call you
5) Please call me
6) I would like to have a personal meeting to discuss this project. Please call to arrange a date, time and location.

A similar questionnaire was also distributed to affected property owners that attended the second public meeting.

Two properties were identified where delays in acquisition may lead to hardships for the property owners.

S.J. Smith Company

S. J. Smith Company, located at 1908 N. Brush College Road, is a producer and supplier of industrial and specialty gases, providing these products to 13 locations in 4 states. The business is located in the southeast quadrant of the Faries Parkway / Brush College Road intersection and total acquisition of the property would be required for the proposed overpass and ramp at the intersection.

Representatives of the company met with the consultant and the City of Decatur on August 13, 2012. Ground breaking for a $1.4 M addition was planned for the following week. The company indicated that they were open to property acquisition/relocation at that time instead of moving forward with the planned project and increasing the cost of future acquisition. In February of 2013, the City informed the S.J. Smith Company that funds are not available to proceed with the early acquisition and relocation. The Company informed the City that they could not wait until full funding is obtained and that they planned to proceed with construction of the new facility at the existing site.

Ronnie Utterback Property

Total acquisition of property owned by Ronnie Utterback at 3790 E. William Street Road would be required for the proposed improvements at the William Street / Brush College Road intersection. The owner has stated that he currently has a contract to sell the property after some underground storage tanks are removed. The owner has requested that the property be purchased by the City of Decatur.

The City of Decatur will not use advance acquisition for any of the properties until the Phase I work is completed and approved and funds are available for the acquisitions and relocations.

7 Public Involvement Activities

Public involvement for the study included the distribution of a questionnaire, various stakeholder meetings, and public meetings.

7.1 Coordination with Railroads

Two railroads are impacted by the proposed project. Norfolk Southern Corporation owns the existing underpass structures and the rail yard. They also own the east-west track located on the north leg of the Faries Parkway intersection. Canadian National Railway and Illinois Central Railway own the north-south track running along the west side of Brush College Road. This track services Tate & Lyle.

Table 7.1-1 shows the meetings held with representatives from these railroads.

Table 7.1-1 – Meetings with Railroads

Stakeholder	Date	Primary Topics Discussed
Norfolk Southern	November 4, 2010	Initial Stakeholder Meeting*
Canadian National Railway	May 23, 2012	Meeting to discuss project and potential impacts to IC Staley Lead track

***** A representative of Norfolk Southern was also involved in the consultant selection for Phase I

Additional correspondence with these railroads occurred via telephone, email and letters. See Appendix C for a summary of contacts and meeting minutes with Norfolk Southern Corporation.

7.2 Public Meetings

Public meetings were held to present options for improvements along Brush College Road and to obtain feedback from the public. The first public meeting was held on February 17, 2011 at the Shilling Center on the campus of Richland Community College (RCC) in Decatur. At that meeting, a 4-lane cross section was presented to the public along with renderings of an underpass and an overpass at the Norfolk Southern rail yard.

Table 7.2-1 – Summary of Comments from Public Meeting #1 (2/17/11)

Meeting Comment	No. of Responses
Prefer Underpass at NS Yard	1
Prefer Overpass at NS Yard	16
No Opinion regarding underpass or overpass	3
Prefer Raised Median	4
Prefer Flush Median	16
Prefer Shared-Use Path on East Side	5
Prefer Shared-Use Path on West Side	9
Prefer Alternate Alignment for Shared-Use Path	1
No Opinion regarding Shared-Use Path	2
Believe Path Not Required/Question need for Path	3

After the first public meeting, the decision was made to expand the study to address the William Street intersection and the frequent train blockage at Faries Parkway. A second public meeting was held on July 24, 2012 at the Shilling Center on the RCC campus to present the proposed intersection at William Street / Brush College Road and to present two options for the intersection at Faries Parkway / Brush College Road.

Table 7.2-2 – Summary of Comments from Public Meeting #2 (7/24/12)

Meeting Comment	No. of Responses
Prefer Ramp with Traffic Signals at Faries Parkway	12
Prefer Ramp with Roundabouts at Faries Parkway	5
Keep Brush College Road Open during Construction	8
Close Brush College Road	6
Close Brush College Rd. North of Faries Parkway/ Keep Open South of Faries Parkway	5

7.3 Public Hearing (Open House Meeting)

A Public Hearing for the project was held on April 22, 2014 at the National Sequestration Education Center (NSEC) and the campus of Richland Community College. The hearing was held to present the selected alternative, make the approved Environmental Assessment available for review, and summarize the project work and findings.

The hearing was held in an open house format with a PowerPoint presentation running in a continuous loop. The length of the presentation was approximately 9 minutes. A 50-scale aerial of the project was on display in addition to exhibit boards. Representatives were available to answer questions about right-of-way and property acquisition and relocation. A court reporter was available to take verbal statements. A four-page brochure was given to attendees. The brochure included a comment form which could be completed and left at the meeting or mailed after the meeting. Comments could also be emailed to the project web address, brushcollegestudy@decaturil.gov.

One hundred seventeen people attended the meeting. Attendees included representatives of agencies and organizations, area residents, and members of the business community. Representatives from the local media included reporters from the Decatur Herald & Review, WSOY radio and WAND TV. Topics presented at the hearing included:

- Purpose and need of the project
- A 4-lane roadway section with shared-use path.
- An overpass at the NS rail yard to replace the existing underpass.
- An overpass at Faries Parkway with a single ramp from Brush College Road to Faries Parkway with traffic signals at the top and bottom.
- Intersection improvements at Brush College Road and Marietta Street/ADM JRRC, including the addition of traffic signals.
- Intersection improvements at Brush College Road and William Street.
- 4(f) De Minimis impacts to Decatur Park District Resources
- Environmental Assessment document

Comments from twelve individuals were submitted prior to the end of the public hearing comment period on May 8, 2014. All comments were reviewed and a response letter was sent to each person that submitted a comment. Several of the comments related to semi-truck access to businesses along E. Logan Street, E. Olive Street, and to a garage on E. Hickory Street. Comments were also received from Tri Star Marketing, owner of the Mobil Super Pantry on the corner of Brush College Road and William Street, stating that they were “vehemently opposed” to the options chosen for the proposed improvements.

7.4 Commitments

Meetings were held with representatives from St. John's Lutheran Cemetery. Since cemetery access to Brush College Road will be eliminated, a new access road has been proposed from the east leg of E. Harrison Avenue. (See Appendix I) Right of way will be required from Pepsi Refreshment Services in order to construct the new access road. The subject was discussed with representatives from Pepsi Refreshment Services and they did not have any objections to the plan.

Since the roadway within the cemetery is only wide enough for a single vehicle, a "loop" road must be maintained for funeral traffic. The loop road will be provided by connecting the two internal roads with a road that will pass under the proposed overpass on the west side of the cemetery.

ADM is developing the northwest quadrant of the Faries Parkway/Brush College Road intersection as part of a new rail yard and a conveyor system. Since the west leg of E. Harrison Avenue will no longer connect to Brush College Road, a new access road is proposed. The access road will run parallel to Brush College Road and then turn east and connect to Brush College Road just north of the ADM EMG building. (See Appendix I) In order to eliminate a second at-grade rail crossing, the parking lot for the ADM Bio-Products building will also be accessed from the new road.

Walston Auto Wrecking will lose entrance access from Faries Parkway to one of their facilities since the entrance is within the taper of the proposed free-flow right turn lane from Brush College Road to Faries Parkway. Access to the facility can be made via E. Logan Street. There will be access to E. Logan Street from the connector ramp between Brush College Road and Faries Parkway or from the proposed extension of James Street to Faries Parkway. The owner has expressed concerns relating to the loss of property, buildings and direct access to Faries Parkway. He also expressed concerns about the safety of access to his property on the north side of Faries Parkway. It has been determined that a left turn lane can be included in the design for access to the property on the north side of Faries Parkway. Entrance locations and widths to accommodate semi-trucks will be finalized during right-of-way negotiations and any necessary improvements to the intersection of James and Olive Street to accommodate semi-trucks will be reviewed during the final design phase. The owner is also the landlord of cell tower sites on E. Logan Street and on E. Olive Street. According to the owner, access must be maintained to those properties at all times.

A preliminary site investigation (PSI) is required if any of the 42 REC, EC or HREC sites identified in the PESAs involve new ROW or easement, railroad ROW, or building demolition/modification. A PSI is also required on any of the sites that involve excavation or

subsurface utility relocation or on existing ROW adjoining one of the sites. The PSIs will be conducted during the design phase.

8 Conclusions/Recommendations

8.1 Recommended Design Alternative

The recommended design alternative includes an overpass at the Norfolk Southern rail yard to replace the existing underpass and an overpass at Faries Parkway with a ramp from Brush College Road to Faries Parkway in the southeast quadrant of the intersection with traffic signals at the top and bottom of the ramp. Improvements to the intersection at Brush College Road and Marietta Street will include the addition of traffic signals and turn lanes and the re-alignment of the entrance to the ADM James Randall Research Center. Improvements to the intersection of Brush College Road and William Street will include the addition of turn lanes and a raised median. A shared-use path along Brush College Road and William Street are also included in the proposed improvement. See Appendix I for Design Study Plans.

8.2 Discussion of Design Exceptions

Improvements to Brush College Road were developed in compliance with design and geometric criteria described in Section 4.1 of this report. Design exceptions were considered in locations where accommodating the design criteria would result in impacts to adjacent areas or because of other restraints. See Appendix F for variance approvals.

Design exceptions are summarized in Table 8.2-1.

Table 8.2-1 – Design Exceptions

Location	Design Feature	Justification
Station 11+40.37 Brush College Rd.	Proposed sag vertical curve with K-value of 27.8 does not meet IDOT policy of K=37 for a 30 mph design speed. Sight distance of 165.6' does not meet IDOT policy of 200' for 30 mph design speed.	The proposed curve geometry is needed due to existing steep grades and to avoid impacts to adjacent property. Curve is approaching traffic signal at intersection.

Table 8.2-1 – Design Exceptions (Continued)

Location	Design Feature	Justification
Station 13+31.65 Brush College Rd.	Proposed sag vertical curve length of 64 ft. does not meet IDOT policy of minimum curve length of 90 ft. for a 30 mph design speed.	Needed to avoid excessive cut and impact to adjacent property and to avoid vertical curve extending into crosswalk area of the intersection.
Brush College Rd. NB Approach at William Street	Left turn bay taper length of 120 ft. does not meet IDOT policy of 135 ft.	Shorter length required due to physical constraints. Design speed cannot be reached since approaching traffic is from a stopped condition.
Station 16+00.49 Brush College Rd.	Proposed sag vertical curve with K-value of 37.2 does not meet IDOT policy of K=64 for a 40 mph design speed. Sight distance of 202.6' does not meet IDOT policy of 305' for 40 mph design speed.	Proposed curve geometry needed due to existing steep grades and to avoid impacts to adjacent property. Curve is approaching traffic signal at intersection.
Brush College Rd. SB left turn lane length at Sta. 23+59	Taper length of 75 ft. plus storage length of 100 ft. does not meet IDOT BDE criteria of 175 ft. taper length plus 145 ft. storage length.	175 ft. length required due to physical constraints. Limited space between proposed intersection and Cerro Gordo Street.
Station 508+70.00 Marietta Street	Proposed sag vertical curve with K-value of 17.46 does not meet IDOT policy of K=37 for a 30 mph design speed. Sight distance of 117.4' does not meet IDOT policy of 200' for 30 mph design speed.	Proposed curve geometry needed to avoid excessive cut and impact to adjacent property. Curve is adjacent to stop condition at intersection where signals are now proposed.
Faries Parkway Overpass Station 64+65 +/-	Vertical clearance provided over north cemetery loop road is 13'-11" and does not meet IDOT policy of 14'-9" for Local Road per BLR&S Fig.36-4I.	Cannot raise profile or touchdown point will be beyond E. Harrison Ave. Loop roadway will typically carry passenger cars and not high-profile vehicles.

8.3 Americans with Disabilities Act (ADA) Compliance

Grades along the shared-use path and the sidewalk cannot exceed 5.0% and the cross-slope cannot exceed 2.0% in order to meet ADA requirements. Although several profiles are shown at 5.0%, the designer may want to flatten those grades slightly to avoid exceeding those values due to construction variations in the field. Reference Appendix J.

Between Station 16+00.49 and 20+30.00 on Brush College Road, the proposed profile is 5.6%. Based on the survey data, this profile appears to match the existing profile. In the final design of the shared-use path and sidewalk in this area, efforts will need to be made to set the shared-use path and sidewalk profiles on grades that differ from the roadway so that 5.0% is not exceeded in order to meet ADA requirements. If that cannot be accomplished, hand rail may need to be added.

8.4 Identification of Criteria for Implementing Next Step

The City of Decatur is working to obtain funding for the design phase and for the construction of the project. Potential sources of funding include:

- City Bonds
- Funding from the Illinois Department of Transportation
- Illinois Commerce Commission
- Private Contributions
- Transportation Investments Generating Economic Recovery (TIGER) grants from US DOT
- Other federal funds
- Other state funds

Prior to construction all right-of-way must be acquired. Ameren must also acquire property and easements to relocate their substation and power lines. Ameren has estimated that it will take one year to purchase land for the substation, eighteen months to construct the new substation, and three months to retire the existing substation.

It is anticipated that the project may be separated into the following three sections for construction:

1) Brush College Road / William Street Intersection (South of Station 27+00)
2) Overpass at Norfolk Southern Rail Yard (Station 27+00 to Station 52+00)
3) Overpass and Intersection at Faries Parkway (North of Station 52+00)