

Access Justification Report

Illiana Corridor at Federal Aid Interstate 57 (I-57) Interchange

Will County, Illinois

Illiana Corridor



Prepared for:

Illinois Department of Transportation and
Indiana Department of Transportation

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I. PROJECT INTRODUCTION

The Illinois Department of Transportation (IDOT) requests a new access along Interstate 57 (I-57) in Will County, Illinois, to facilitate the access of a new access-controlled facility, referred to as the Illiana Corridor (in accordance with Federal Highway Administration (FHWA) policies regarding interstate access approvals). The Illiana Corridor is planned to be constructed and maintained under a Public Private Partnership (P3) between IDOT and a private concessionaire.

The new access is associated with the addition of a full-access grade separated system interchange at the Illiana Corridor (Illiana) and I-57. In accordance with Federal Highway Administration (FHWA) policies regarding interstate access approvals, the request is made by IDOT.

The proposed new access point is located approximately 40 miles south of downtown Chicago and 17 miles south of Interstate 80 (I-80), as shown in **Figure 1**. The proposed access point on I-57 would be at the new Illiana Corridor interchange, south of the existing I-57 interchange at Wilmington-Peotone Rd. This new access would introduce a system-level interchange, featuring directional, semi-directional and loop ramps, connecting the two facilities. Due to the close proximity between the location of the proposed Illiana Corridor and the existing interchange at Wilmington-Peotone Rd, the addition of auxiliary lanes along I-57 are proposed as part of this Access Justification Report (AJR). This AJR will look at the impacts the new access may have on the existing facility at Wilmington-Peotone Rd and how the proposed geometric improvements will enhance operations within the interchange facilities.

The Illiana Corridor is needed to improve regional mobility, alleviate local system congestion and improve local system mobility, and provide for efficient movement of freight

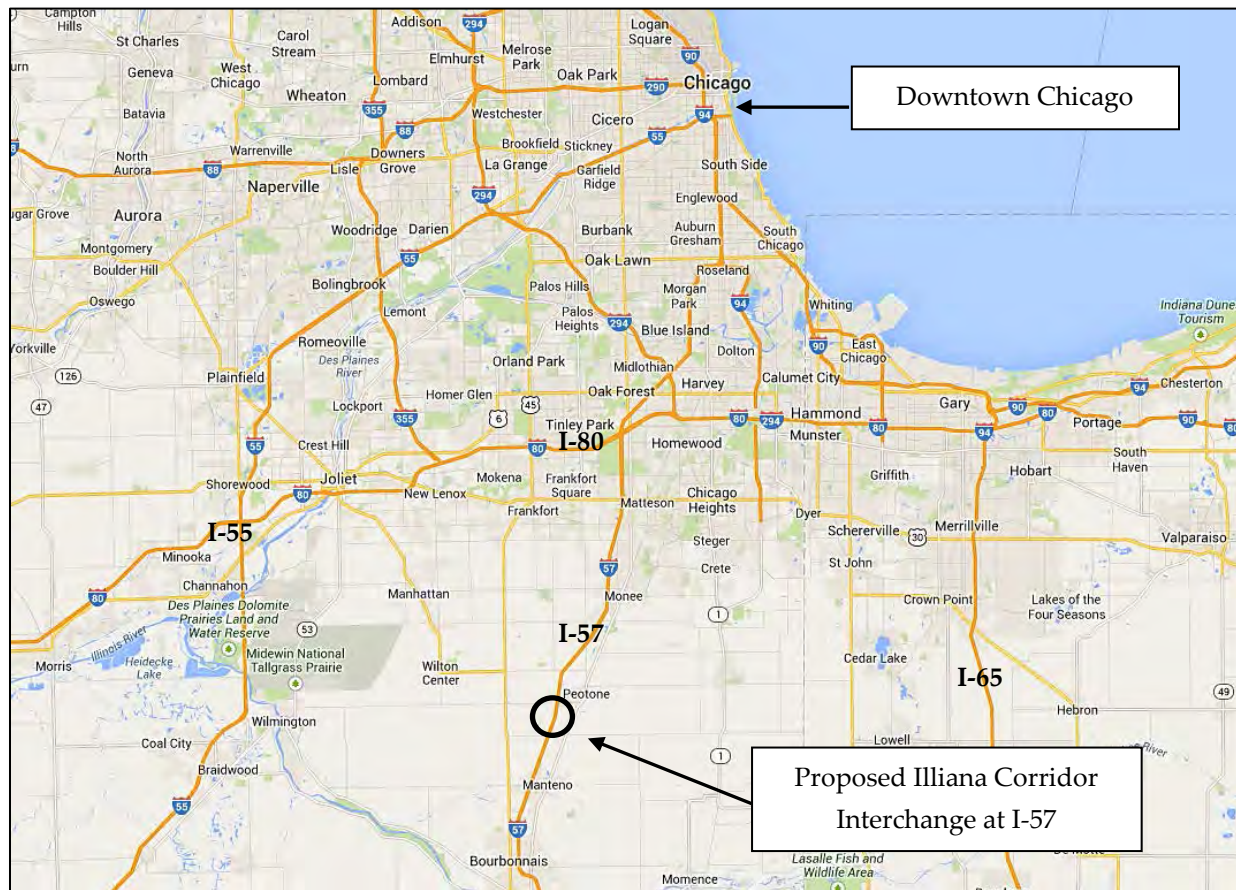
A. History

The Illiana Corridor was first envisioned as a vital link of an outer encircling highway in the Chicago region in the early 1900s, and has since been studied in a number of forms over the last 40 years. Previous studies, described in the following paragraph, have indicated possible benefits from the development of an east-west transportation corridor extending from I-55 in Illinois to I-65 in Indiana. These benefits include:

- providing an alternate route for motorists travelling the Interstate 90/94 (I-90/94) corridor;
- relieving traffic on the I-80 Borman/Kingery Expressway and US 30;
- serving as a bypass for trucks around the congested metropolitan area highways;
- improving access to one of the largest intermodal freight areas in the US;
- improving access to the proposed South Suburban Airport (SSA);
- supporting area economic development; and
- increasing the potential for substantial job creation.

As traffic volumes on other highways in the region have increased, the associated congestion has resulted in travel delays with substantial economic impacts to industries that depend on the ability to efficiently move freight within and through the region.

Figure 1: Proposed Illiana Corridor Interchange Location



In late 2006, the states of Indiana and Illinois, through their respective Departments of Transportation, entered into a bi-state agreement that provided a framework for further development of the Illiana Corridor. The Indiana Department of Transportation (INDOT), in cooperation with the IDOT conducted the *Illiana Expressway Feasibility Study*¹ (Cambridge Systematics, 2009). IDOT initiated two additional studies, the *Strategic Role of the Illiana Expressway*² (DiJohn, 2010) and the *Illiana Expressway Economic Opportunities Analysis*³ (Cambridge Systematics, 2010). Both studies investigated the economic and social benefits that could result from the proposed expressway in the south and southwestern portions of the Chicago region.

The Illiana Expressway Feasibility Study reached several conclusions that predicted positive impacts of a new transportation facility between Interstate 57 (I-57) in Illinois and I-65 in Indiana on congestion relief on I-80 and US 30. Key benefits included improving traffic operations, providing regional economic benefits (including logistics and supply chain effects), improving freight mobility, improving transit linkages, and improving safety. The *Illiana Expressway Economic Opportunities Analysis* concluded that a new transportation

¹ http://www.in.gov/indot/files/FR_INDOT_IllianaExpresswy_07-31-2009.pdf

² <http://www.dot.state.il.us/Illiana/strategicrole.pdf>

³ <http://www.dot.state.il.us/Illiana/finalreport.pdf>

facility between I-55 in Illinois and I-65 in Indiana could provide a new east-west connection as an alternative to the congested I-80 and produce substantial northeast Illinois and northwest Indiana regional economic benefits over a 30-year period. These studies were useful in providing the basis for advancing the detailed environmental and engineering studies.

In addition, both states have passed legislation enabling public-private partnerships (P3s) for the Illiana Corridor. The Public Private Agreements for the Illiana Expressway Act (Illinois Public Act 096-0913) and the Indiana Senate Enrolled Act No. 382 allow a collaborative planning effort for a “new fully access controlled interstate highway connecting Interstate Highway 55 in northeastern Illinois to Interstate Highway 65 in northwestern Indiana, which may be operated as a toll or non-toll facility.”⁴ The legislation allows the States to enter into P3s with one or more private entities to develop, finance, construct, manage, and/or operate a roadway connecting I-55 and I-65.

On June 9, 2010, Governors Pat Quinn of Illinois and Mitch Daniels of Indiana signed a Memorandum of Agreement (MOA) for a mutual commitment to the project by both states.

In April, 2011, IDOT and INDOT initiated the Illiana Corridor Study as a tiered environmental impact statement (EIS). On January 17, 2013, a Tier One Single Document (a combined Final EIS and Record of Decision)) was issued identifying the current corridor, Corridor B3, as the selected corridor for Tier One.

The Illiana Corridor Tier Two EIS is currently underway and expands on Tier One EIS with detailed engineering and environmental analysis that refine the project features, impacts, and right-of-way footprint within Corridor B3.

Alternatives for adding an access point to I-57 within the study area are under development and evaluation as part of this Tier Two Draft Environmental Impact Statement (Tier Two DEIS). At present, the current Build Alternative discussed in this AJR is moving forward as the Preferred Alternative in the Tier Two Process as shown in **Figure 2**. It is understood that the AJR will not receive final approval until the Tier Two Record of Decision (ROD) is approved and a Final AJR is resubmitted to IDOT and FHWA for final approval.

⁴ Illinois Public Act 096-913, Public Private Agreements for the Illiana Expressway Act.

Figure 2: Illiana Corridor Study Area and Preferred Alignment Alternative



B. Project Location

This Access Justification Report analyzes the potential impacts of adding a new full-access grade separated system interchange on I-57 at Illiana (approximate mile marker 326) and revising the existing I-57 access at Wilmington-Peotone Road (approximate mile marker 327). The proposed system interchange is located in the southeast portion of unincorporated Will County, Illinois as shown in the more detailed project location in **Figure 3**. Per the Federal Highway Administration guidelines, the northern study limits begin on the south end of the interchange at I-57 and Manhattan-Monee Road in the Village of Monee, Illinois (approximate mile marker 335) and continue south to the northern ramps of the I-57 and County Highway 9 Interchange in the Village of Manteno, Illinois (approximate mile marker 322). The primary focus of the study is the I-57 and Illiana interchange and the I-57 and Wilmington-Peotone interchange. There are no potential revisions to the Manhattan-Monee Road interchange or the County Highway 9 interchange and are therefore not included in this study.

C. Description of Project Area

I-57 is a fully access controlled north-south facility that serves local, regional and interstate traffic, as shown in **Figure 1**, and is a vital link in the transportation network for the Chicago Metropolitan Area and Will County. I-57 is part of the Strategic Highway Network (STRAHNET) and the National Highway System (NHS). These designations provide a network of roadways that can be used to facilitate vehicular movement in times of national crisis or need. I-57 is one of only two Interstate Facilities (the other being Interstate 55 (I-55)) serving the Chicagoland area to and from downstate Illinois. I-55 is approximately 23 miles west of I-57 at this location.

Kennedy Road, which is an east-west collector roadway, falls within the limits of the proposed interchange. Currently, Kennedy Road does not extend across I-57. West of I-57, Kennedy Road turns 90 degrees to the north and connects with 88th Avenue. Kennedy Road dead-ends just east of I-57 and continues east to State Line Road. Both Kennedy Road and 88th Avenue are under the jurisdiction of Peotone Township.

The location of the proposed interchange is approximately a half (0.5) mile south of the existing I-57 interchange at Wilmington-Peotone Road on the western edge of the Village of Peotone in southern Will County, Illinois as seen in **Figure 3**. Wilmington-Peotone Road, which runs east-west, has a functional classification of Other Principle Arterial. It is under the jurisdiction of the City of Wilmington; east of the Illinois Route 53 (IL-53) it is maintained by the Will County Highway Department and is designated as County Highway 25. Wilmington-Peotone Road terminates at Drecksler Road, County Highway 70.

Figure 3: Proposed Location for Illiana Corridor and I-57 Interchange

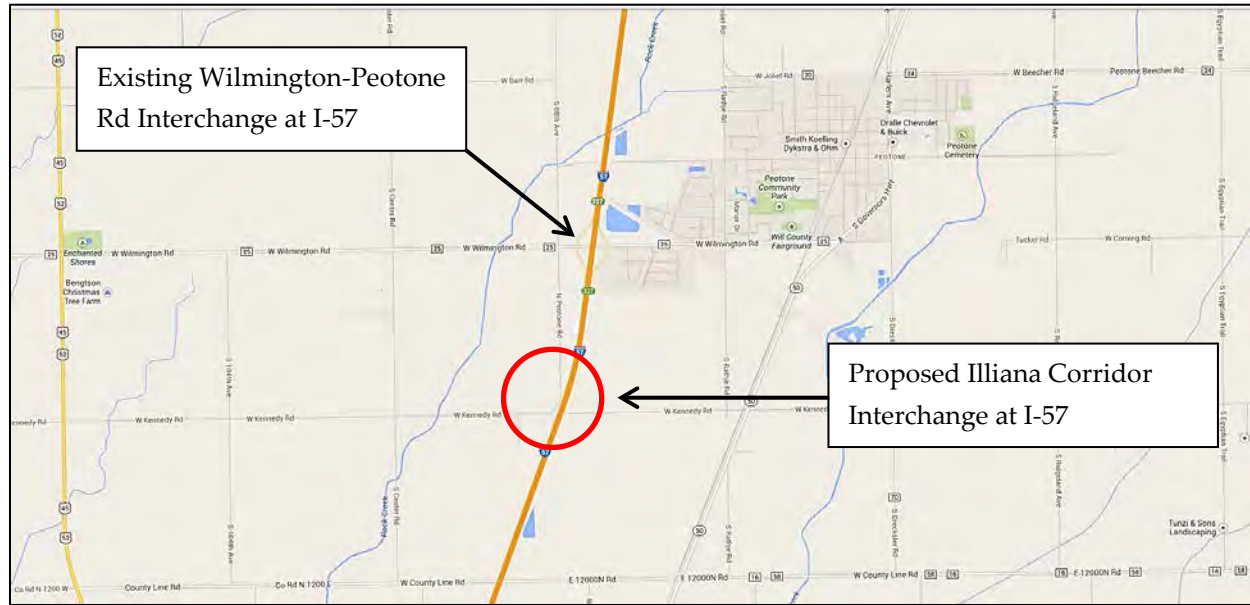
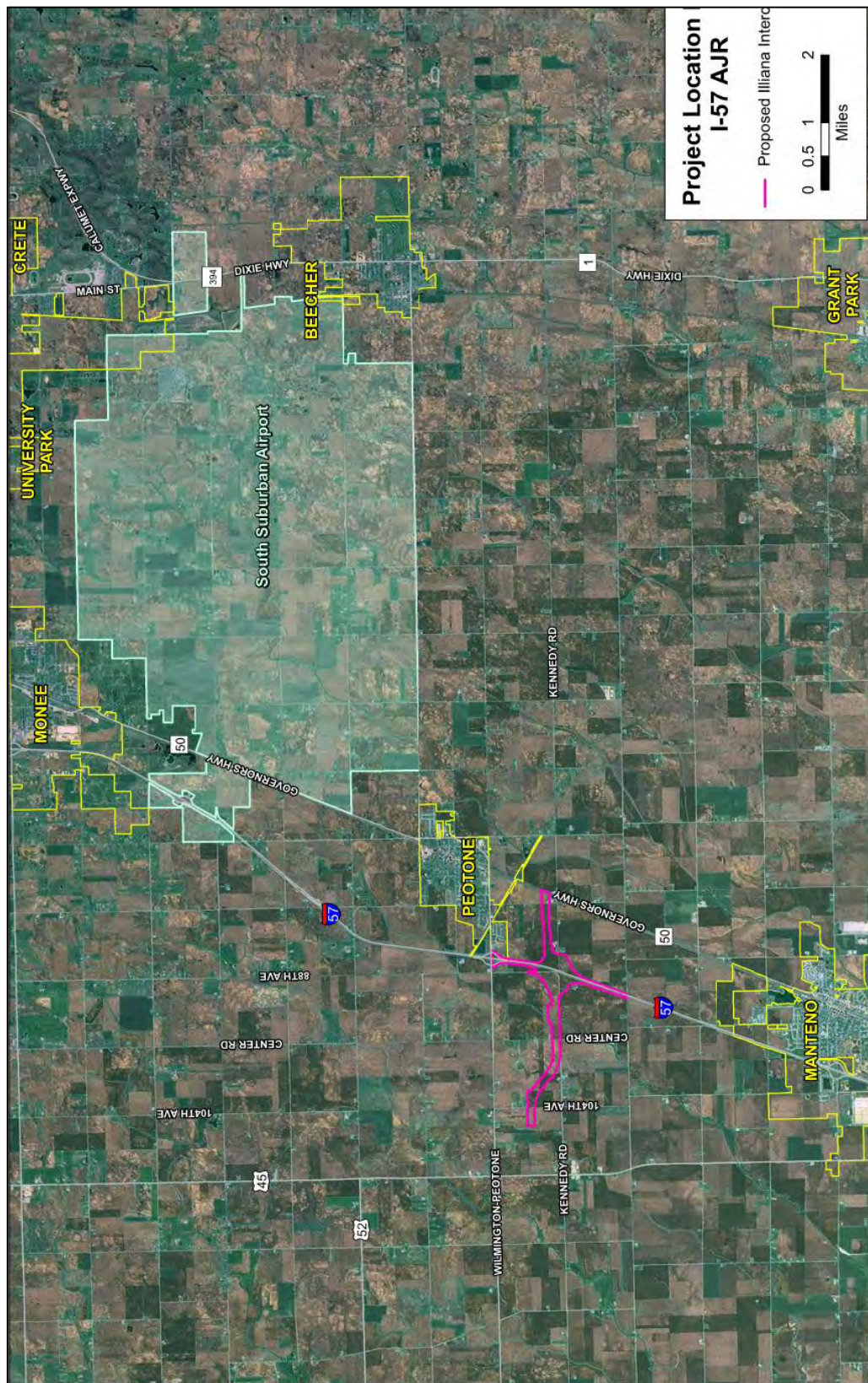


Figure 4 shows the current land uses surrounding the proposed interchange which is entirely agricultural. East of the existing I-57 interchange at Wilmington-Peotone Road is the Village of Peotone.

Figure 4: Project Location Map



D. General Scope of the Project

The general scope of the project is the construction of a new system-level interchange on I-57 at Illiana (Refer to **Appendix B**). This includes improving the southern ramps of the existing interchange on I-57 and Wilmington-Peotone Road to accommodate the addition of auxiliary lanes along northbound and southbound I-57 between the northern ramps of the proposed Illiana interchange and the southern ramps of the Wilmington-Peotone Road interchange. The I-57 and Illiana interchange combined with the improved I-57 and Wilmington-Peotone interchange provides access to all movements to and from I-57 and Wilmington-Peotone Road to Illiana.

Both interchange locations will address capacity, operational, and safety deficiencies along the study area and improve access to new development and controlled-access facilities along the I-57 corridor.

This report documents technical analyses associated with the new system-level interchange on I-57 at Illiana along with the existing interchange on I-57 at Wilmington-Peotone Road.

E. Purpose and Need of Improvement

The purpose of the proposed transportation system improvements is needed in the Study Area to address the following needs:

1. Improve regional mobility
2. Alleviate local system congestion and improve local system mobility
3. Provide for efficient movement of freight

These three principal needs were identified based on the analysis performed for the development of the *Illiana Corridor Transportation System Performance Report* (TSPR)⁵ and public and stakeholder input. A detailed discussion of the Purpose and Need of the project is included in Section 2 – Purpose of this report.

⁵ http://www.illianacorridor.org/pdfs/draft_illiana_tsp_120111.pdf

II. REQUIREMENTS OF REVISED ACCESS POINTS TO THE INTERSTATE SYSTEM

The FHWA's policy on Additional Interchanges to the Interstate System contains eight policy requirements for access justification reports. IDOT's Bureau of Design and Environment Manual (BDE) Chapter 37-1.03(e) contains a list of information that is required to be included in an AJR including the FHWA's eight policy requirements. This section is organized to correlate with the BDE/FHWA requirements and ensure that necessary information is provided. To facilitate the review, the full text of each respective requirement is included at the beginning of each applicable section

1. Description

Provide a clear description of the proposed new or revised access.

This Access Justification Report analyzes the potential impacts of adding a new full-access grade separated system interchange on I-57 at Illiana in the southeast portion of unincorporated Will County, Illinois (Refer to **Appendix A**). The study limits are from the interchange of I-57 and Manhattan-Monee Road to the interchange I-57 and County Highway 9. The primary focus of the study is the I-57 and Illiana interchange and the I-57 and Wilmington-Peotone interchange.

I-57 and Illiana

A new full-access grade separated system interchange is proposed on I-57 at Illiana (approximate mile marker 326). The proposed interchange type is a Semi-Directional interchange as shown in **Figure 5**. This interchange is planned to be approximately 5.0 miles north of the existing I-57 and County Highway 9 interchange in the Village of Manteno, Illinois and 8.5 miles south of the existing I-57 and Manhattan-Monee Road interchange in the Village of Monee, Illinois. This interchange is anticipated to be located approximately 0.5 miles south of the existing I-57 and Wilmington-Peotone Road interchange, which is located in the Village of Peotone.

The I-57 and Illiana interchange traverses approximately 2.0 miles along I-57 and consists of four (4) diagonal ramps, two (2) inner loop ramps (southwest and southeast quadrants) and directional flyover ramps carrying the northbound to westbound movement and the westbound to southbound movement. A continuous collector-distributor (C-D) road is provided along eastbound Illiana through the I-57 ramps.

Figure 5: Proposed Access at I-57 and Illiana Corridor



Wilmington-Peotone Road Interchange

The improvement proposed at the Wilmington-Peotone Road interchange includes re-aligning the southern ramps to accommodate the addition of auxiliary lanes along northbound and southbound I-57 between the northern ramps of the Illiana interchange and the southern ramps of the Wilmington-Peotone Road interchange. There are no changes to the existing ramp intersections along Wilmington-Peotone Road. See **Figure 6** for details.

[illegible]

Describe the purpose and need for the new or revised access point.

2040 traffic projections are incorporated into this study. Design year 2040 capacity, operational and safety deficiencies are greatly affected by the development's 2040 traffic projection, making the SSA a major contributor to the need for proposed infrastructure improvements within the study area. Will County anticipated growth is also included in the 2040 traffic projections.

No access to or from Wilmington-Peotone Road will be eliminated as part of this project.

The purpose of the I-57 access point is to provide direct access to and from I-57 to the proposed Illiana Corridor and to accommodate future regional traffic demand associated with the proposed SSA. Illiana provides a sustainable transportation solution that would improve east-west connectivity in the general vicinity of I-57 and that may be adapted to sustainable future regional and local transportation and economic development goals.

Access to the Illiana Corridor will improve regional mobility, travel times, and access to jobs by addressing growth in the project area⁶. Other needs met by Illiana include:

- Alleviate local system congestion and improve local system mobility
- Address lack of connectivity for Will, Kankakee, and Lake Counties to meet and support projected traffic growth from increased population, employment, transportation, and economic development including the lack of continuous, higher functional classification east-west travel routes in the Study Area to improving travel times
- Accommodate market demands for the increasing freight logistic transportation sector in the project area and provide more efficient freight movement including better accommodation of regional and national truck trips

3. Cost Estimate

Include the estimated total cost of the project.

The proposed estimated probable cost for the proposed I-57 and Illiana interchange (including the Illiana mainline between the interchange ramp limits) is estimated to be \$142.1 million and is broken out as follows:

- Construction including utilities - \$120.0M
- Land Acquisition - \$7.1M
- Engineering Services - \$15M

The Illiana Corridor improvements, including the Wilmington-Peotone Road Interchange improvements, will be implemented through a P3 procurement. The overall estimated probable cost of the Illiana improvements will be determined using a finalized design by the P3 procurement process and submitted as part of the P3 bid.

4. Background Information

Provide any additional background support information that might help explain and/or support the proposal (e.g., developer driven, known public opposition, status of the NEPA process including the summary of any input received from public meetings, source of project funding, implementation schedule).

A summary listing of the history of the Illiana Corridor Project is described in Section I A of this report.

Alternatives for adding access points to I-57 within the study area are under development and evaluation as part of the Illiana Corridor Tier Two Draft Environmental Impact Statement (Tier Two DEIS). At present, the current Build Alternative discussed in this AJR is moving forward as the Preferred Alternative in the Tier Two Process. It is understood that the AJR will not receive final approval until the Tier Two ROD is approved and a Final AJR is resubmitted to IDOT and FHWA for final approval.

⁶ <http://www.illianacorridor.org> – Tier Two Draft Purpose and Need Statement

5. Concerns

List any known areas of concern (e.g., environmental, safety). Always include a crash analysis summary for all new or revised access requests. Identify all presently known “Five Percent Report Locations” within or adjacent to the project limits, and proposed mitigation measures to improve safety in the future. FHWA must be assured that there will be steps taken so that either no impact or only minimal adverse impact on safety and operation of the Interstate facility itself will occur.

Crash analysis was conducted along I-57 within the project limits to evaluate existing conditions. The analysis study area extended from Mile Post 325 to Mile Post 327. The existing safety analysis was performed using crash data within the project limits from the time periods 2007 to 2011 (most recent years available at the time this AJR started). The analysis of the existing conditions helped identify highway location exhibiting safety concerns or geometric/operational deficiencies. Locations identified are addressed as part of Part II Section 18: Operation Analysis (FHWA Policy Point 3).

The federal transportation act, SAFETEA-LU, created the Highway Safety Improvement Program (HSIP) per the requirements of 23 U.S.C. 148(g) as a new core federal aid funding source with the purpose of reducing traffic fatalities and serious injuries. All states are required to submit an annual report describing not less than five percent of their highway locations exhibiting the most severe safety needs. The intent of this provision to increase public awareness of the highway safety needs and challenges around the country. Based on the review of the 2010-2012 Illinois Five Percent Locations, none of these locations fall within our study area. Refer to **Appendix D3**.

I-57 Crash History - Existing

Crashes in the analysis were those designated by the DOT in the following categories:

- “K” Fatal – Involving one or more fatalities
- “A” Injury (incapacitating injury) – Any injury, other than a fatal injury, that prevents the injured person from walking, driving, or normally continuing the activities he/she was capable of performing before the crash and injury occurred. Includes severe lacerations, broken limbs, skull or chest injuries, and abdominal injuries.
- “B” Injury (non-incapacitating injury) – Any injury, other than a fatal or incapacitating injury, that is evident to observers at the scene of the crash. Includes lump on head, abrasions, bruises, and minor lacerations.
- “C” Injury (Reported, injury not evident) – Any injury reported or claimed that is not listed above. Inclusions: momentary unconsciousness, claims of injuries not evident, limping, complaints of pain, nausea.
- PDO (Property Damage Only) – No injuries or fatalities, but damage is caused to either vehicle. In 2009, along with some other minor revisions to the rules, the minimum property damage amount for reporting most crashes was raised from \$500 to \$1,500.

A review of the crash data within the project limits, mile post 325 to mile post 327, from the time period 2007 to 2011 identified 95 total crashes over a five year period for mainline I-57. **Table 1** presents a summary of the crashes along the corridor by type of crash. Overall, the most common type of crashes along the corridor was crashes with fixed objects occurring

36.8% of the time. The second most common type of crashes was rear-ending crashes with 22.1%. Due to the addition of guardrail and auxiliary lanes, future crashes involving fixed objects and rear-ending crashes at this location will likely decrease.

Table 1: Crash Data Summary by Type (2007 to 2011)

Crash Type	No.	Percent Total (%)
Vehicle Overturn	7	7.4
Animal	10	10.5
Fixed Object	35	36.8
Other Object	3	3.1
Parked Motor Vehicle	1	1.1
Rear End	21	22.1
Sideswipe – Same Direction	12	12.6
Sideswipe – Opposite Direction	1	1.1
Angle	1	1.1
Other – Non Collision	4	4.2
Total Crashes	95	

From the total number of crashes, 22 crashes or 23% resulted in injury. Of the total 22 reported injuries, 8 were classified by the Illinois Strategic Highway Safety Plan (ISHSP) as a “life-altering injury” (Type A), which refers to an injury that results in physical or mental diminishment and 14 were classified as a Type B injury. There was 1 fatality reported. **Table 2** provides a summary of the crash data by severity. **Appendix D** presents a summary of the crash data analysis.

Table 2: Crash Data by Severity (2007 to 2011)

Crash Type	No.	Percent Total (%)
Property Damage Only (PDO)	72	75.9
“A” Injury	8	8.4
“B” Injury	14	14.7
“K” Fatal	1	1.0
Total Crashes	95	

Clusters of crashes were identified at the following three sites:

- Mile Post 325.00 to Mile Post 325.07
- Mile Post 326.04 to Mile Post 326.08
- Mile Post 326.82 to Mile Post 327.14

The highest percentages of reported injuries (35% or 8) were found between mile post 325.00 and mile post 325.07. More than half of these injuries were attributed to rear end crashes. No specific roadway safety deficiency could be identified as a contributing factor to the cause for the crashes along this section. In addition, it was observed that for 69% of the crashes in this section, snow or icy conditions were present.

The predominant crash type between mile post 326.04 and mile post 326.08 was rear end (6) crashes followed by fixed object (5) that came in close second, two sideswipes crashes, one overturned vehicle, one involved animal, and one involved other object. Traffic congestion and density of signs and light poles in this area may account for the rear end and fixed object crashes observed in this location.

The highest concentration of crashes (33%) within the study area occurred near the southern entrance and exit terminals at the south end of the Wilmington-Peotone Interchange between mile post 326.82 and mile post 327.14. Nearly half of these crashes may be attributed to the traffic merges/diverges between the ramps and I-57. The addition of the auxiliary lane between the Wilmington-Peotone Interchange and the proposed Illiana Interchange will improve the operational issues that occur with the current interchange configuration.

It should be noted that overall, 40% of the crashes within the study area occurred during the night hours. Deficiencies with lighting near the existing interchange, pavement markings and signage could be potential factors contributing to these crashes. Countermeasures to reduce the number of accidents in this location include proposed roadway lighting, improving the pavement markings and illuminated signage.

Also, the crash data shows that pavement with snow or icy conditions were a contributing factor on 25% of the crashes within this section of I-57. A summary of the crash data by pavement conditions is presented in **Table 3**.

Table 3: Crash Data Summary by Pavement Condition (2007 to 2011)

Crash Type	No.	Percent Total (%)
Wet	8	8.4
Dry	60	63.2
Snow or Ice	24	25.0
Other Condition	3	3.4
Total Crashes	95	

More than half of the animal crashes within the study area occurred between mile post 326.82 and mile post 327.14. The amount of vegetation and wetlands in this area likely attracts wildlife thus increasing the incidence of animal related crashes. Countermeasures to reduce the number of animal crashes in this location include roadway lighting, installation or improvement to right of way fence and clearing of existing vegetation within the right of way.

6. Communities

Note the distances to and size of communities or facilities directly served.

The municipalities of Village of Peotone, Village of Monee, and Village of University Park are north of the study area and Village of Manteno is south of the study area. The locations of the proposed improvements are in the southwest portion of unincorporated Will County.

Village of Peotone

The Village of Peotone is a rural community located northeast of the I-57 and Illiana interchange. It is predominantly a single-family residential community of owner-occupied homes. According to the 2010 U.S. Census Bureau, Peotone's population was 4,142, a 22 percent increase from 2000. Commercial uses are primarily located along Illinois Route 50 in the central business district, and more recently, near the I-57 interchange. Industrial uses are limited to an area east of Illinois Route 50 and a few parcels along the Illinois Central Railroad.

Village of Monee

The Village of Monee is located northeast of the I-57 and Illiana interchange and southwest of University Park. In 2010, the U.S. Census Bureau recorded a population of 5,148, a 76

percent increase since 2000. Monee is a rural community dating back to the middle of the 19th century. The Village was planned along the Illinois Central Railroad and flourished as a major town in Will County. The predominant land use in the Village of Monee is residential with single-family homes. Commercial activities are generally distributed throughout the Village, with some concentration along Illinois Route 50, which also bisects this community. The housing stock is largely single-family, owner-occupied. Multi-family units are limited and about 20 percent of the existing single-family homes are offered as one- or two-family rental units. A number of single-family housing units have been constructed in recent years on former farmland. Development in the Village generally occurred on large lots of one to five acres due to the predominance of septic systems; however, newer development tends to be on smaller (0.25 – 0.50 acre) lots as more areas are connected to sewers. Zoning codes in the Village of Monee are being revised to include smart growth principles. Major recreational facilities near Monee are Raccoon Grove Nature Preserve and Monee Reservoir owned and operated by the Forest Preserve District of Will County.

Village of University Park

The Village of University Park, incorporated in 1967, is a planned suburban community located northeast of the I-57 and Illiana interchange. The Village grew from the former community of Park Forest South. The 2010 U.S. Census Bureau recorded a population for University Park of 7,129, a 7 percent increase from 2000. University Park contains a mixture of single-family homes and a large number of multi-family structures. Commercial uses are concentrated along University Parkway and Monee-Manhattan Road. Gateway Industrial Park is located in the western part of the Village between I-57 and Governors Highway. Governors State University is located in central University Park. Recreational and open space areas comprise a significant portion of the Village, and include the Deer Creek Golf Course, Thorn Creek Woods Forest Preserve, which is owned and operated by the Forest Preserve District of Will County, the Illinois Department of Natural Resources and the Villages of Park Forest and University Park.

Village of Manteno

The Village of Manteno, incorporated in 1869, is a planned suburban community located southwest of the I-57 and Illiana interchange. The 2010 U.S. Census Bureau recorded a population of 9,204, a 44 percent increase from 2000.

The study area is comprised of mainly agricultural land. Some residential areas are concentrated along Wilmington-Peotone Road, Manhattan-Monee Road, and County Highway 9.

7. Connections

Describe the relationship and distance of the interchange to adjacent interchanges, adequacy of acceleration, deceleration and weaving lengths, and the ability to provide adequate signing.

There are three existing interchanges adjacent to the proposed I-57 and Illiana system interchange along I-57. North of the project limits is the Wilmington-Peotone Road interchange and the Manhattan-Monee Road interchange. South of the project limits is the

County Highway 9 interchange. There is a future full access interchange being planned at the future South Suburban Airport Access Road between the existing interchanges at Wilmington-Peotone Road and Manhattan-Monee Road. A description of each interchange is as follows:

Wilmington-Peotone Road Interchange

Located approximately 0.5 miles north of the proposed I-57 and Illiana system interchange access point, the interchange at Wilmington-Peotone Road is a grade separated diamond (two-way stop controlled) with no auxiliary turn lanes on either the crossroad or the ramps. Wilmington- Peotone Road within the study area is a Strategic Regional Arterial (SRA).

Manhattan-Monee Interchange

Located approximately 8.4 miles north of the proposed I-57 and Illiana system interchange access point, the interchange at Manhattan-Monee Road is a grade separated diamond (signalized) with auxiliary turn lanes on both the crossroad and the ramps. Manhattan-Monee Road has a functional classification of Other Principal Arterial.

County Highway 9 Interchange

Located approximately 3.1 miles south of the proposed I-57 and Illiana system interchange access point, the interchange at County Highway 9 is a grade separated diamond (two-way stop controlled) with no auxiliary turn lanes on either the crossroad or the ramps. County Highway 9 has a functional classification of Urban Minor Arterial.

South Suburban Airport Interchange

Located approximately 5.0 miles north of the proposed I-57 and Illiana system interchange access point, the proposed new interchange at future South Suburban Airport Access Road will be a grade separated Parclo-Four Quadrant Type B (signalized) with an auxiliary left turn lane on the crossroads and no auxiliary turn lanes on the ramps. Construction timeframe of the South Suburban Airport interchange is unknown at this time.

8. Design Exceptions

Clearly identify any necessary design exceptions from currently adopted BDE design criteria; see Section 31-8.

No design exceptions are necessary.

9. Traffic Signals/Signing

For each request, include a conceptual plan of the type and location of the signs proposed to support each design alternative. Identify any additional proposed traffic signalization, if applicable.

No traffic signalization is being proposed as part of this project.

Proposed Signs:

Refer to **Appendix E** – Conceptual Signing Layout for concept plan of type and location of signs for the project area.

10. Lane Balance

Describe how the interchange will provide lane balance and the basic number of lanes.

I-57 is two lanes in each direction within the study area and it is anticipated that I-57 will remain two lanes in each direction. An auxiliary lane will be necessary in both directions between the Illiana interchange and the Wilmington-Peotone Road interchange to accommodate traffic entering and exiting the mainline at these locations. To address providing improved lane balance in the future, the alternative has been developed to allow future widening to a third lane on I-57 throughout the project area.

Coordination of lane balance and basic number of lanes are accomplished for the project in accordance with AASHTO guidelines. Three (3) basic principles are maintained.

- a) At entrances, the number of lanes beyond the merging of two traffic streams should not be less than the number of all traffic lanes on the merging roadways minus one.
- b) At exits, the number of approach lanes on the highway must be equal to the number of lanes on the highway beyond the exit plus the number of lane on the exit, less one.
- c) On the freeway, only one travel lane should be reduced at a time.

All of the proposed I-57 and Illiana system interchange points of access maintain the lane balance principles.

11. Existing Facilities (FHWA Policy Point 1)

FHWA Policy states “The need being address by the request cannot be adequately satisfied by existing interchanges to the Interstate, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands (23 CFR 625.2(a)).”

As discussed in the *Illiana Corridor Tier Two EIS Purpose and Need Statement*, The 2010 to 2040 change in Average Daily Traffic (ADT) by functional classification for roadways in the Study Area shows increased ADT consistent with the growth in projected daily Study Area vehicle trips. Minor arterials and other principal arterials are expected to double their ADT and will be congested. As a result, longer distance trips are being diverted to collector and local roads. Although these collector and local roads are adequate for local travel needs, they are not designed to carry longer distance external trips, as they are designed to carry slower speed traffic to provide local access.

Forecasted traffic congestion in the Study Area was determined by calculating the volume to capacity (V/C) for the proposed project. Some of the current and projected congestion on north-south routes such as I-55 and I-57 in the Study Area can be attributed to longer

distance regional traffic accessing I-80 in an out-of-direction pattern due to a lack of other available higher-classification east-west routes. This condition adds travel and congestion onto the north-south access routes as travelers seek east-west alternatives to the lower functional classification routes in the Study Area.

V/C is a transportation congestion measure that represents the traffic volumes present to a roadway's ideal carrying capacity. V/C equal to one indicates a roadway is at its limit of carrying capacity. V/C is considered to be uncongested when it is 0.50 or less, approaching congestion when it is between 0.51 and 0.85, and congested when it is 0.86 or more.

With a few exceptions, the immediate Study Area is operating at V/C of 0.50 or less in its existing roadway network configuration and with 2010 volumes. However, the two main east-west roadways directly north of the Study Area, I-80/94 and US 30, both experience high levels of congestion currently. With these main east-west routes congested, and Manhattan-Monee Road and Wilmington-Peotone Road, which are the main east-west arterials in the Study Area, becoming congested in 2040, some longer distance, external traffic will be using lower functional classification roads to avoid congestion.

With the projected increases in traffic between 2010 and 2040, VMT, VHT, and vehicle hours of delay within the Study Area are all projected to increase substantially. VHT is the total time spent traveling by all vehicles on the roadway network. Vehicle hours of delay are the increased time spent traveling over what would be expected during free flow conditions. VMT increases by 72 percent from 2010-2040, VHT increases by 84 percent, and vehicle hours of delay increases by over 200 percent of the current condition. This substantial increase in travel time would lead to economic loss with 15,000 hours of daily delay in 2040, which is equivalent to \$113 million annually, assuming an average vehicle value of time of \$20.61/hour⁷.

12. Transportation System Management (FHWA Policy Point 2)

FHWA policy states: "The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management type improvements (such as ramp metering, mass transit, and HOV facilities), geometric design and alternative improvements to the Interstate without the proposed change(s) in access (23 CFR 625.2(a))."

The purpose of Policy Point 2 is to address FHWA concerns that any lower-cost and less-impacting transportation management options (such as bus transit, mass transit, High Occupancy Vehicle facilities, transportation systems management (TSM), intelligent transportation system (ITS) elements, etc) could address the purpose and need.

Transit

A comprehensive evaluation of transportation conditions and transit options in the overall project study area and future needs was performed in the Illiana Corridor Transportation System Performance Report (TSPR). It was shown through the analysis that rail freight, passenger rail, commuter rail, intercity bus, and commuter bus do not have the ability to

⁷ <http://www.illianacorridor.org> – Tier Two Draft Purpose and Need Statement

meet the project Purpose and Need as stand-alone modal alternatives, nor are any of these options feasible. Bus transit is not precluded from using the Illiana Corridor; however it is not the main focus as it is not determined to properly address the purpose and need.

Non-Motorized Facilities

The use of non-motorized transportation (i.e.; pedestrian and bicycle) can be categorized as recreational, local errands/short trips and work trips, and would also not have the ability to meet the project Purpose and Need as a stand-alone modal alternative.

TSM and ITS Strategies

Individual congestion management strategies, along with other lower cost TSM, travel demand management, and ITS strategies will be considered in Tier Two NEPA studies as location specific complementary components of the preferred corridor where practical and feasible to sustain its functional integrity.

13. Access Connections and Design (FHWA Policy Point 4)

FHWA Policy states: “The proposed access connects to a public road only and will provide for all traffic movements. Less than “full interchange” may be considered on a case-by-case basis for applications requiring special access or managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)).”

Only full interchanges connecting to public roads were considered as part of this project. Full-movement interchanges are proposed at the Illiana access.

14. Transportation Land Use Plans (FHWA Policy Point 5)

FHWA policy states: “The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Plan (STIP or TIP) and the Congestion Management Process within transportation management areas, as appropriate, and as specified in 23 CFR part 450, and transportation conformity requirements of 40 CFR parts 51 and 93.”

The area around the proposed I-57 and Illiana interchange is comprised of the incorporated population centers as described above in Section II.6 of Will County and northern Kankakee County. Land uses and zoning in these unincorporated areas are generally agricultural with a scattering of small residential subdivisions. The northern part of the area was former agricultural land, but is rapidly transforming to a suburban residential character. Residential development is also occurring in the unincorporated areas around Peotone, with most new homes on lots equal to or greater than one acre. These areas are zoned for residential development by the County.

Current development trends to the north of the proposed interchange include intense residential and retail-commercial development along U.S. Route 30 from Joliet, Illinois, to Valparaiso, Indiana. The communities of New Lenox, Frankfort, Mokena, Matteson, Lynwood, Dyer, Schererville and Griffith, located along this corridor, are experiencing substantial growth.

Land use in the area immediately in the vicinity of the proposed interchange is generally agricultural and rural residential. Land use plans for this area indicate similar future uses. The exception to this land use pattern is the new development occurring farther south along I-57 between Manteno and the City of Kankakee.

Zoning designations for portions of the proposed interchange are agricultural, low density residential (minimum of 2.5-acre lot), and residential.

The Illiana Corridor is identified in the 2040 long-range transportation plans for the Study Area metropolitan planning organizations (Chicago Metropolitan Agency for Planning (CMAP), the Northwestern Indiana Regional Planning Commission (NIRPC), and Kankakee Area Transportation Study (KATS)), although Corridor B3 is north of the KATS urbanized area boundary.

The MPO Policy Committee for CMAP considered and approved amending CMAP's fiscally constrained long range transportation plan, as well as the associated conformity determination and Transportation Improvement Program (TIP) amendment at their October 17, 2013 meeting to include the Illiana Corridor. The FHWA approved the CMAP TIP and Statewide Transportation Improvement Program (STIP) amendments on October 24, 2013. The NIRPC Full Commission considered and approved amending NIRPC's fiscally constrained long range transportation plan, as well as the associated conformity determination and Transportation Improvement Program (TIP) amendment at their December 12, 2013 meeting to include the Illiana Corridor. As part of its plan amendment process, NIRPC has completed its Congestion Management Process Results and Analysis for the Illiana and I-65 Added Travel Lanes Projects (November 2013) that was approved by the NIRPC Transportation Policy Committee at its November 19, 2013 meeting, and its Environmental Justice Benefits and Burdens Analysis for the Illiana Project (November 2013), which was also presented at that same meeting.

15. Comprehensive Interstate Network Study (FHWA Policy Point 6)

FHWA policy states: "In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all of the proposed and desired access changes within the context of a longer-range system or network plan (23 U.S.C. 109(d), 23 CFR 625.2(a), 655.603(d), and 771.111)."

In 1984 FAA issued a Record of Decision (ROD) for an Environmental Impact Statement for Chicago O'Hare International Airport. A mitigation item within that ROD required the initiation of a study to determine additional air passenger capacity in the Chicago region by the Illinois Department of Transportation-Division of Aeronautics (IDOT). Numerous studies were conducted and a site was selected in Will County, Illinois. A timeline of significant milestones on the selection and development of this site can be found in the South Suburban Airport Existing Conditions Report dated December 14, 2011 which is available on the SSA project website at www.southsuburbanairport.com.

In July 2013, an Access Justification Report was prepared to request a new addition of a full-access grade separated service interchange at the proposed South Suburban Airport Access Road and I-57. The proposed interchange would accommodate future regional traffic demand associated with the SSA. Projected traffic volumes in the study area are based upon regional traffic volumes approved by the Chicago Metropolitan Agency for Planning (CMAP) for the design year 2040.

The proposed I-57 and SSA interchange AJR which is currently being revised and pending approval is a Parclo-Four Quadrant-Type B interchange located at approximate mile marker 332 near Offner Road in Will County, Illinois. The construction of the proposed interchange will require the closure of Offner Road from west of Ridgeland Avenue to Harlem Avenue as this section of Offner Road is within the footprint of the proposed interchange. The Prairie View rest area located at mile marker 333 along I-57 is in the influence of the proposed interchange and will be required to be closed or relocated to maintain the required one mile separation between adjacent interchange ramps and access points. Additionally, private land development activity is anticipated to occur in association with the construction of the SSA reducing the future need for a rest area facility in the area. The rest area currently lies approximately 12 miles south of the I-57 interchange with I-80, the growth of the Chicago metro area further reduces the need for a rest area at this location. As a comparison, the nearest rest area closest to Chicago on the parallel interstate of I-55 is just south of Pontiac.

Beyond the SSA Project and the Illiana, neither of the two (2) coordinating agencies (IDOT and Will County Department of Highways) for the project is proposing future interchanges within the project area. The closest interchanges to the projects limits are the Manhattan-Monee Road interchange which is approximately 8.4 miles to the north and the County Highway 9 interchange, which is approximately 3.1 miles to the south.

16. Coordination with Transportation System Improvements (FHWA Policy Point 7)

FHWA policy states: "When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements (23 CFR 625.2(a) and 655.603(d)). The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and Interstate access point (23 CFR 625.2(a) and 655.603(d))."

The purpose of Policy Point 7 is to document coordination between proposed future developments and access improvements warranted for those developments. The request must describe the commitments agreed upon to assure adequate collection and dispersion of the development's traffic. The Illiana Corridor is a regional improvement, not associated with any specific proposed development. Traffic forecasts and operations and safety analyses considered programmed projects, but were not leading the purpose and need for the Illiana Corridor.

For the Illiana Corridor, only committed highway improvement projects in the study area were assumed in the future 2040 highway network.⁸ Committed projects include those

⁸ http://www.illianacorridor.org/pdfs/draft_illiana_tsp_120111.pdf

programmed projects that are included in the 2040 “constrained” networks of regional planning agencies, those included in the current 5-year Transportation Improvement Program of the various agencies, and other projects with a very high probability of implementation by 2040 identified by IDOT/INDOT and the various counties based on discussions with local officials.

17. Status of Planning and NEPA (FHWA Policy Point 8)

FHWA policy states: “The request for new or revised access contains information relative to the planning requirements and the status of the environmental processing of the proposal.”

In April, 2011, IDOT and INDOT initiated the Illiana Corridor Study as a tiered EIS. The Tier One study Combined FEIS/ROD included an examination of transportation problems and potential solutions within a 950 square mile study area as shown in Tier One of the Illiana FEIS/ROD. A comparative analysis of multiple corridors was made with respect to transportation performance and socioeconomic and environmental impacts. The comparative analysis also included extensive stakeholder and resource agency coordination. Each Tier One corridor was approximately 2,000 foot wide and was developed to minimize impacts to the extent practical and feasible. The assessment of impacts for each Tier One corridor was based on a 400 foot wide working alignment located generally within the center of the corridor, and based on generalized interchange locations. On January 17, 2013, a Tier One combined Final EIS and Record of Decision (i.e.; Combined FEIS/ROD) was issued identifying Corridor B3 as the selected corridor, and the mode as a limited access highway. Corridor B3 as shown in **Figures 1 and 2** was selected for further analysis as part of the Tier Two EIS, along with the No-Action Alternative.

The Tier Two EIS is underway. Based on the more detailed Tier Two analysis of Corridor B3 with respect to roadway alignment, interchange locations and types, grade separations, road closures, and preliminary facility design including Context Sensitive Solutions (CSS) and sustainability features, build alternatives were developed and evaluated. The Tier Two analysis builds on the Tier One Combined FEIS/ROD, which selected Corridor B3 as a limited access highway to be advanced into Tier Two for more detailed analysis.

The Tier Two build alternatives were further developed through technical performance analysis, extensive stakeholder involvement, and localized comparative analysis of environmental impacts.

The range of Tier Two build alternatives includes both mainline alternatives, and alternatives based on interchange locations and types considered. A range of alternatives recommended to be carried forward in the Illiana Corridor Tier Two Draft EIS was concurred with by resource agencies in a NEPA/404 Merger Team meeting on October 23, 2013. The Draft EIS document is proposed to be released in the first quarter of 2014. The Tier 2 Final EIS and the ROD are expected in the second quarter of 2014.

It is understood that that final approval of the access modification depends on the completion of the NEPA process.

18. Operational Analysis (FHWA Policy Point 3)

FHWA Policy states “An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which included mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in the urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 CFR 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operation impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Request for the proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request must also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).”

18.1 Traffic Operations

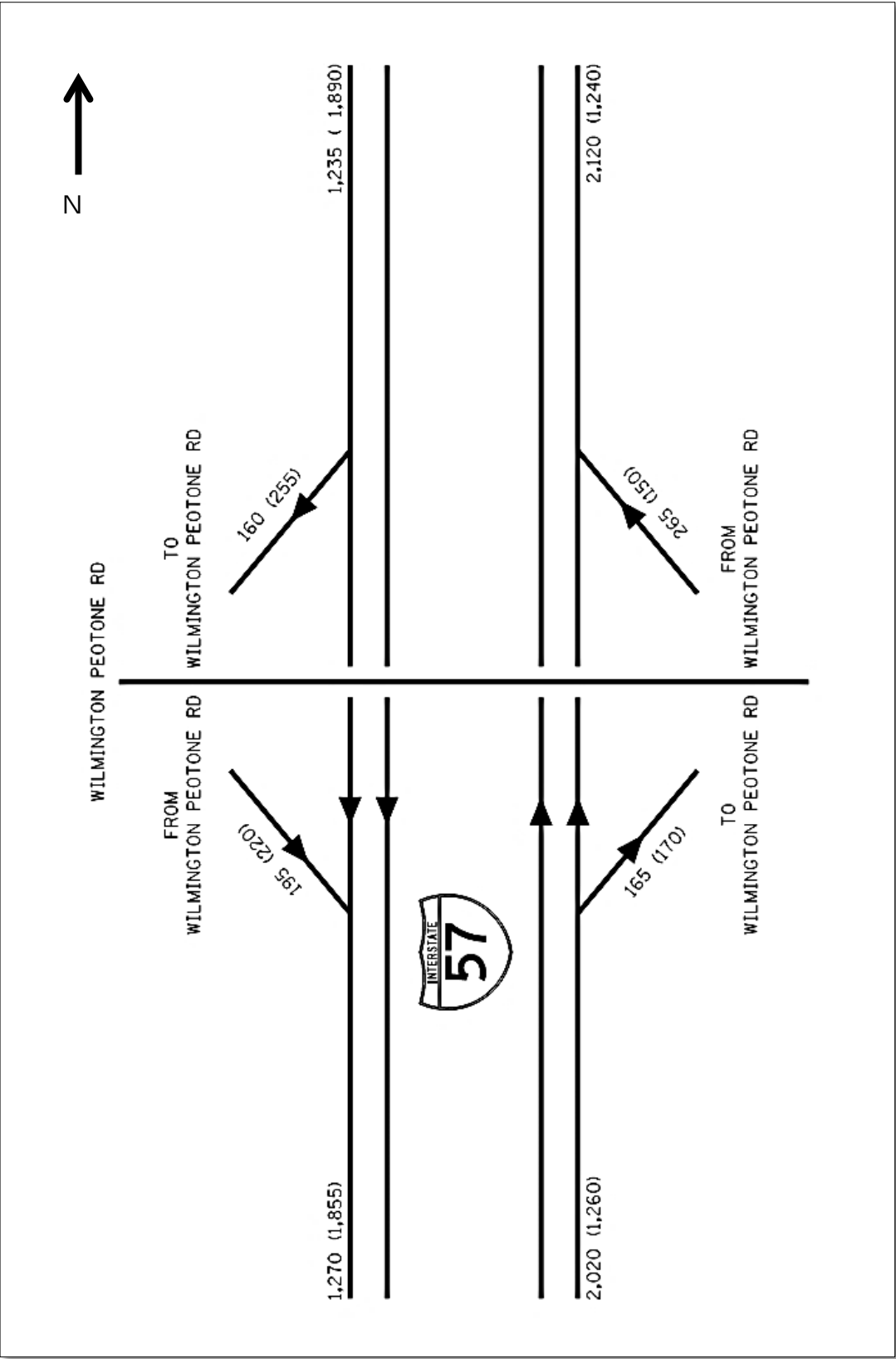
Traffic Growth Forecasts

Existing 2010 traffic volumes were developed from the regional travel demand model for the morning and afternoon peak hours. The modeled volumes were verified by comparing volumes from IDOT’S count website <http://www.gettingaroundillinois.com/gai.htm?mt=aadt>. The existing traffic volumes are shown in **Figures 7 and 8**.

The CMAP regional travel demand model for passenger cars, along with regional and national truck models and long-distance passenger car models developed by the project team were used as the basis for the travel model used in the Tier Two EIS. Additional local truck data and more detailed projections for employment and population data were included in the travel model to project overall future traffic, which was used to develop the 2040 design year traffic projections. The Tier Two EIS used market-based forecasts that projected population in Will County to grow from approximately 678,000 in 2010 to approximately 1,381,000 in 2040 and employment growth from approximately 252,000 to approximately 682,000 in 2040.

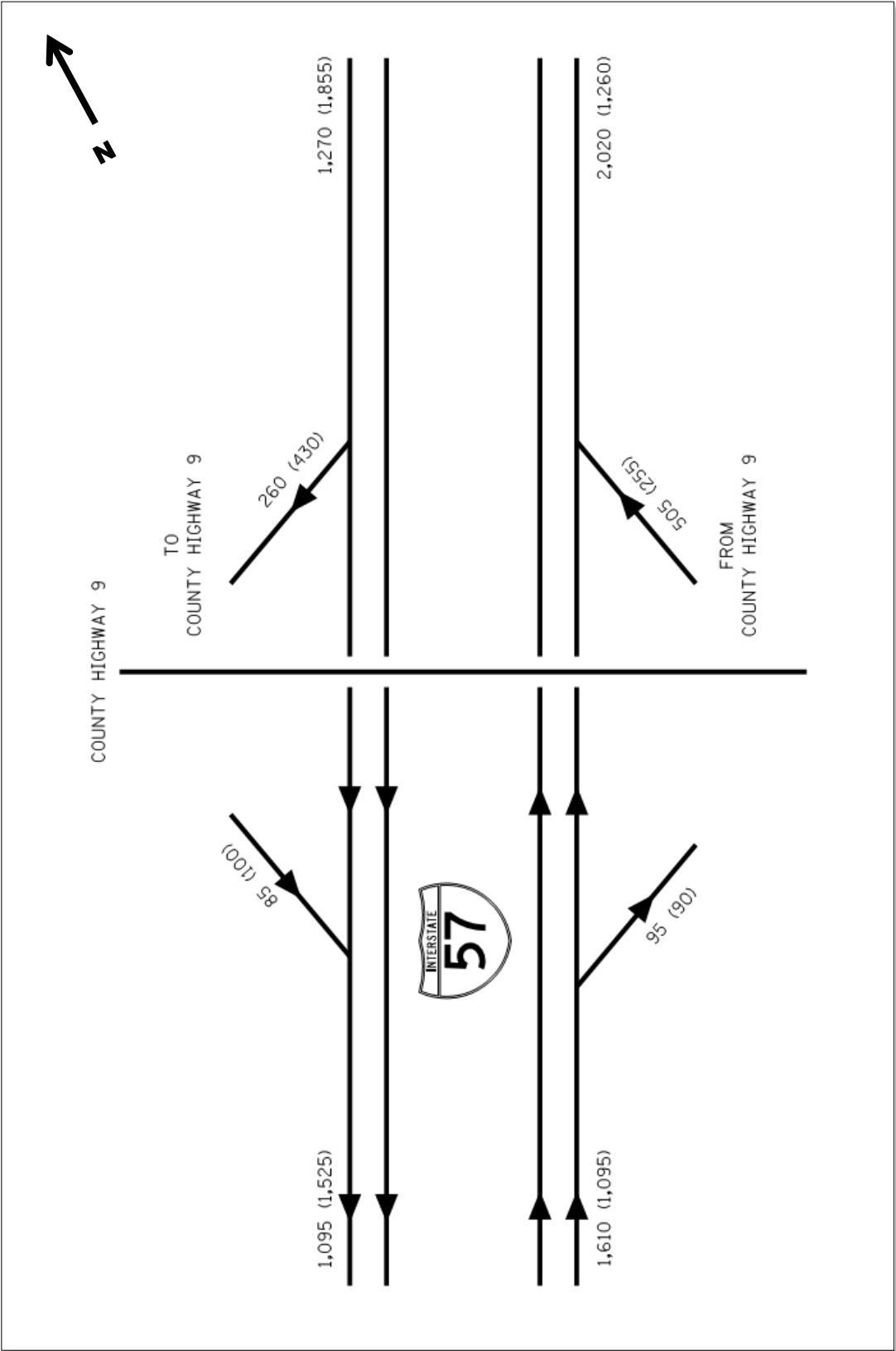
Figures 9 and 10 present the forecasted volumes for the 2040 No Build scenario while **Figures 11 and 12** present the forecasted volumes for the 2040 Build scenario used for the operations analysis. All figures are also included in **Appendix F1**. It should be noted that **Figure 11** includes the interchange of I-57 at Wilmington-Peotone Rd and the proposed interchange at the Illiana Corridor to illustrate the interaction of vehicles along this section which includes three weaving sections. The traffic volumes at the weaving sections are shown on separate diagrams at the bottom of **Figure 11**. Truck percentages used for the analysis can be found on **Appendix F2, F3, and F4** which includes the analysis output files for each scenario.

Figure 7: Existing 2010 Traffic Volumes – I-57 at Wilmington-Peotone Rd Interchange



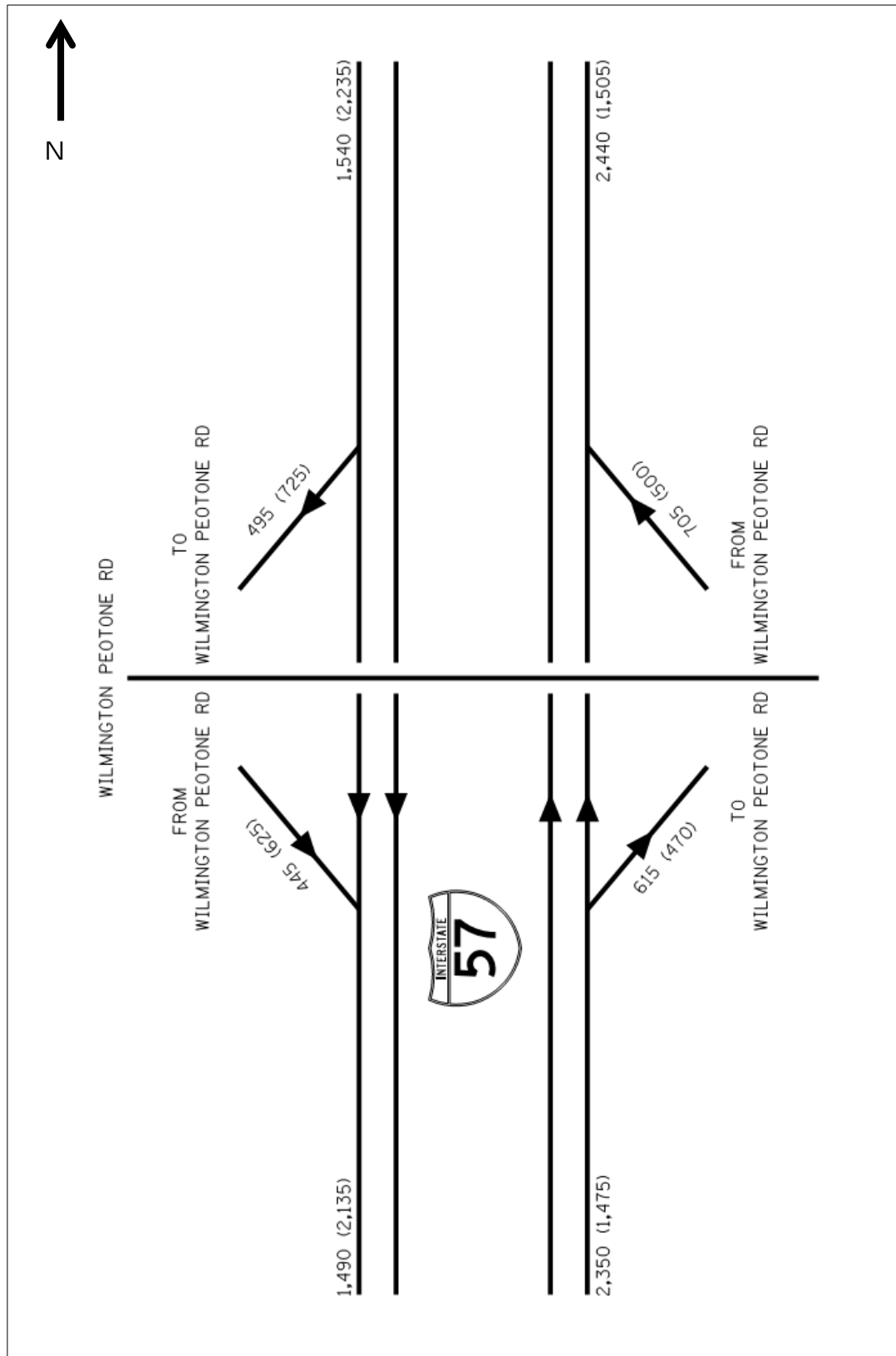
AM (PM) Peak Hour Traffic

Figure 8: Existing 2010 Traffic Volumes – I-57 at County Highway 9 Interchange



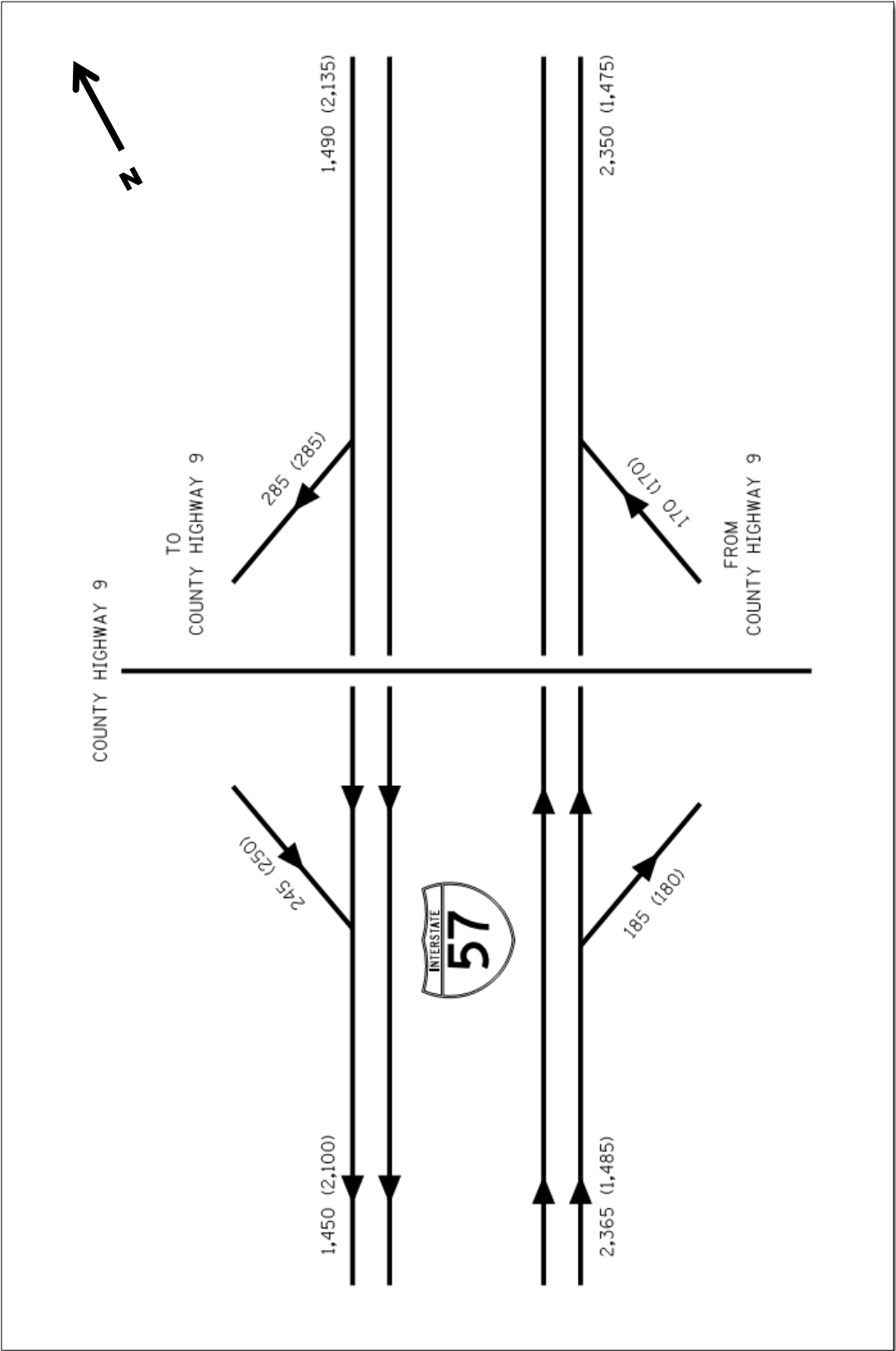
AM (PM) Peak Hour Traffic

Figure 9: No Build 2040 Traffic Volumes – I-57 at Wilmington-Peotone Rd Interchange



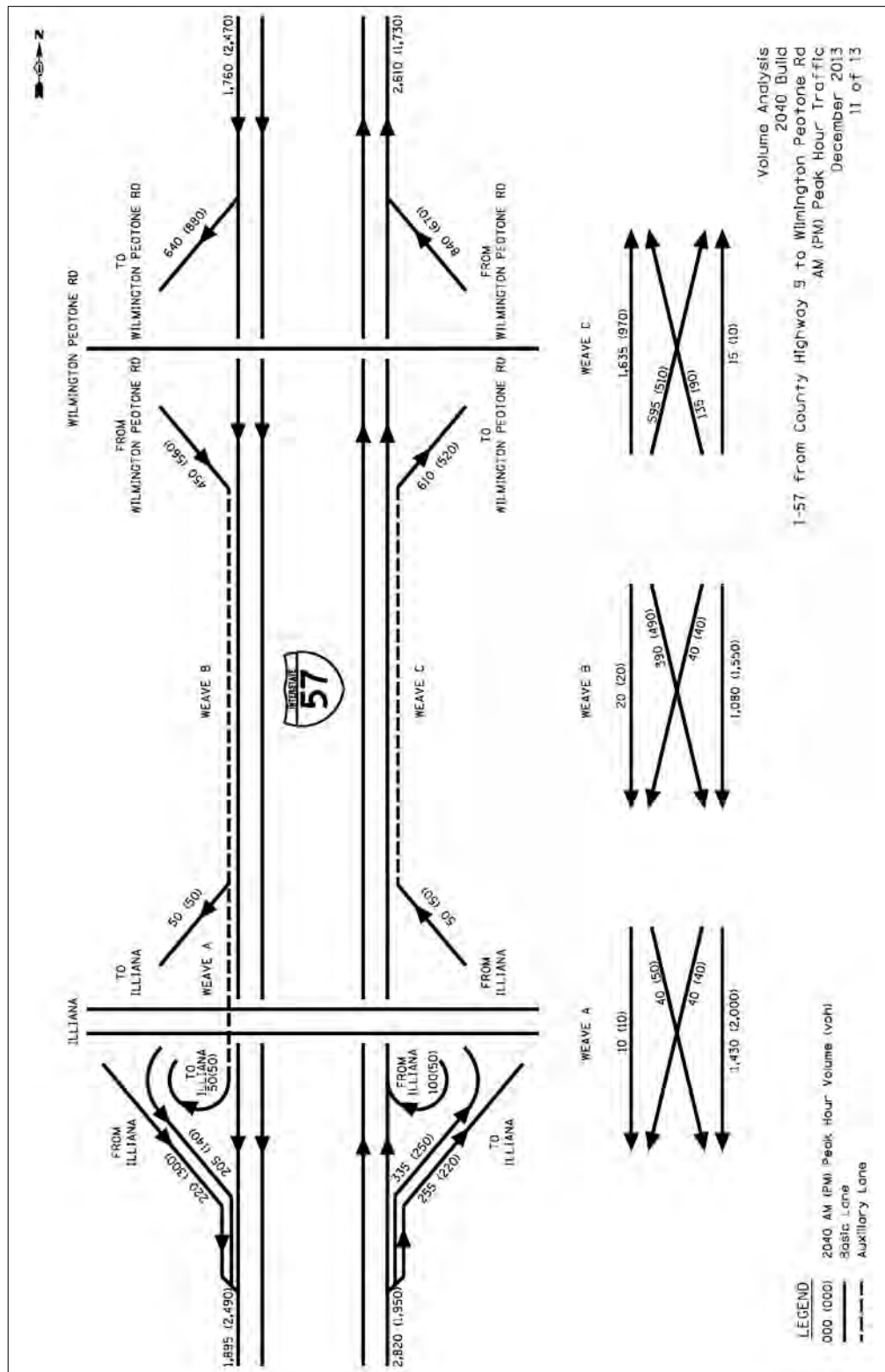
AM (PM) Peak Hour Traffic

Figure 10: No Build 2040 Traffic Volumes – I-57 at County Highway 9 Interchange



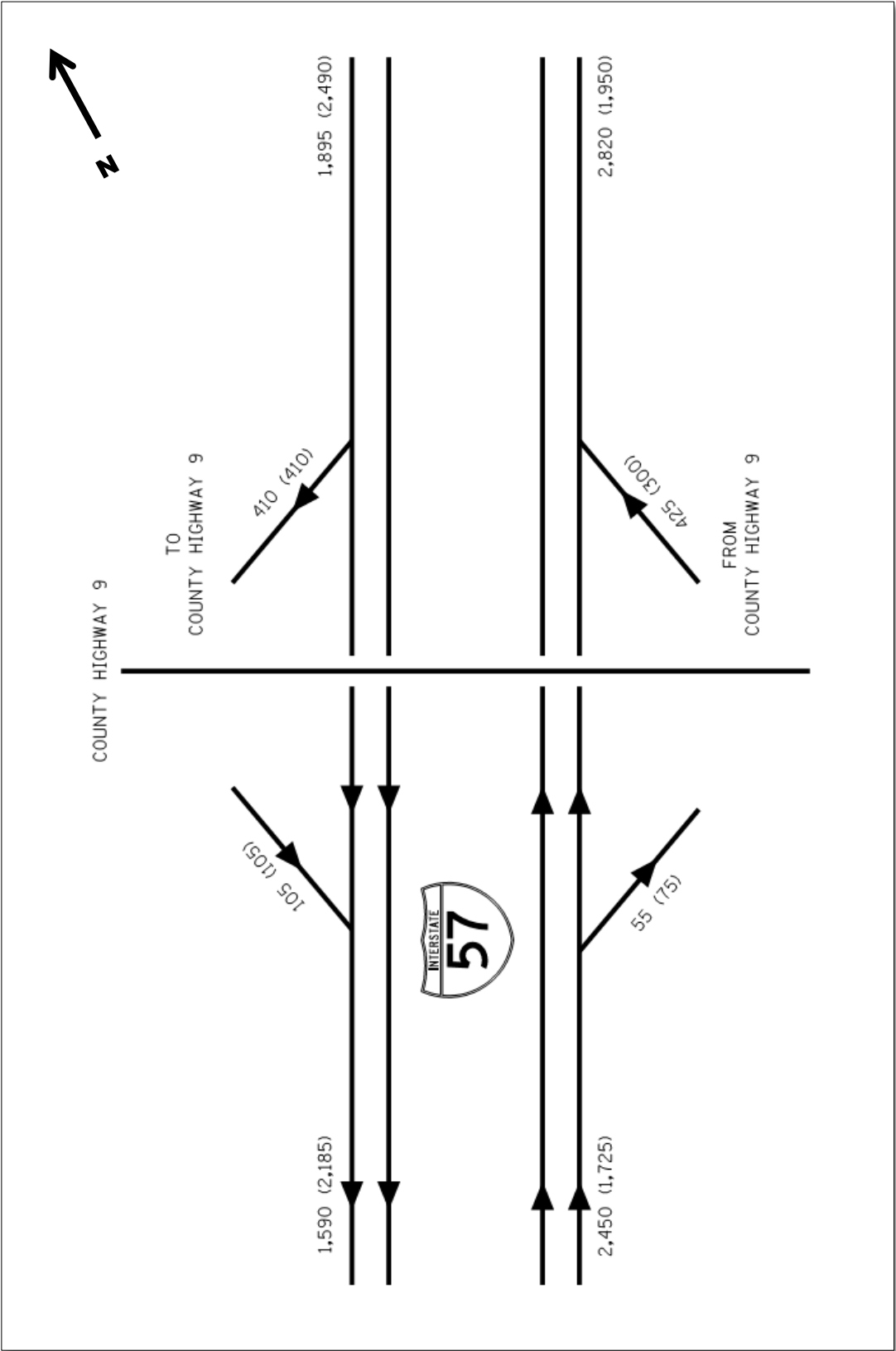
AM (PM) Peak Hour Traffic

Figure 11: Build 2040 Traffic Volumes – I-57 at Illiana Corridor Interchange and I-57 at Wilmington-Peotone Rd Interchange.



Direction of Travel

Figure 12: Build 2040 Traffic Volumes – I-57 at County Highway 9 Interchange



AM (PM) Peak Hour Traffic

Methodology

Existing and forecasted traffic operations were evaluated by conducting capacity analysis of the roadways and intersections in the study area. These analyses are based on many characteristics, including existing or forecasted traffic volumes, roadway and intersection geometry, and traffic signal patterns (or unsignalized sign control). The Highway Capacity Software 2010 was utilized in the traffic operations analysis along the corridor.

The Highway Capacity Software (HCS 2010) is a software implementation of analysis methodologies outlined in the 2010 Highway Capacity Manual (HCM 2010), compiled by the Transportation Research Board (TRB). This study used HCS 2010 to evaluate freeway operations.

Several Measures of Effectiveness (MOE) were used in this evaluation including LOS, density, delay, and travel speed. Operating conditions were graded in accordance with six levels of traffic service (Level A "Free Flow" to Level F "Fully Saturated") established by the HCM 2010. Levels of service (LOS) are measures of traffic operations which consider speed, delay, traffic interruptions, safety, driver comfort, and convenience. LOS C, which is normally used for design, represents a roadway with volumes ranging from 70% to 80% of its capacity. LOS D is generally considered acceptable for peak periods in urban and suburban areas. It is the policy of IDOT that LOS "B" is acceptable for newly constructed improvements, LOS "D" is the minimum acceptable for existing roadways, and LOS "E" represents full capacity. Since I-57 is an existing facility, LOS C was considered to be adequate operations for most roadway elements.

The HCS 2010 analysis of freeway facilities assigns LOS along a freeway segment based on density. Although speed is a major indicator of service quality to drivers, freedom to maneuver within the traffic stream and proximity to other vehicles, as measured by the density of the traffic stream, are equally noticeable concerns. Density increases as flow increases up to capacity, resulting in an MOE that is sensitive to a broad range of flows. For these reasons, density is the parameter used to define LOS for freeway, weaving, and ramp sections, as described in **Table 4**.

Table 4: Freeway Level of Service Thresholds

Level of Service (LOS)	Segment Density (pc/mi/ln)		
	Merging and Diverging Segment	Freeway Weaving Segment	Basic Freeway Segment
A	0 – 10	0 – 10	0 – 11
B	> 10 – 20	> 10 – 20	> 11 – 18
C	> 20 – 28	> 20 – 28	> 18 – 26
D	> 28 – 35	> 28 – 35	> 26 – 35
E	> 35	> 35	> 35 – 45
F	Demand exceeds capacity	Demand exceeds capacity	> 45

* pc/mi/ln = passenger car/mile/lane

No intersection operations analysis was performed since the proposed access at I-57 and the Illiana Corridor would be a system-level interchange with free-flow movements in all directions. The following section describes the capacity analysis performed for all roadway elements within the study area. **Table 5** presents the level-of-service results for each roadway element under each scenario. The HCS input data and output results can be found on **Appendix F2, F3, and F4** for the Existing Conditions, 2040 No Build and 2040 Build scenarios respectively.

Existing Conditions

The traffic operations analysis for the existing conditions looks at the current roadway system under year 2010 traffic load. This is done to get a baseline of how the system works today. North of the proposed new access location is the interchange of Wilmington-Peotone Rd with I-57. South of the proposed location is the County Highway 9 interchange with I-57. Basic freeway segment analysis was conducted north of the Wilmington-Peotone Rd interchange, between the two existing interchanges, and north of the County Highway 9 interchange. Ramp junction analysis was conducted at all entrance and exit ramps at the Wilmington-Peotone interchange and at the north ramps at the County Highway 9 interchange. I-57 is currently two lanes in each direction with single lane exit and entrance ramps at the existing interchanges.

Analysis results presented on **Table 5** show that most elements along this section of I-57 would operate at LOS A and B. The southbound entrance ramp merge at the Wilmington-Peotone Rd interchange would operate at LOS C during the PM peak period. The northbound entrance ramp merge at both the County Highway 9 and Wilmington-Peotone Rd interchanges would also operate at LOS C during the AM peak period.

Currently, there are no concerns that can relate to traffic operation deficiencies within the study area under the existing conditions. The results presented in **Table 5** indicate that the existing facility operates within acceptable levels of service. **Figure 13** and **Figure 14** present the LOS results for the 2010 Existing Conditions.

Figure 13: Level of Service Analysis – 2010 Existing Conditions - I-57 at Illiana Corridor and Wilmington-Peotone Rd

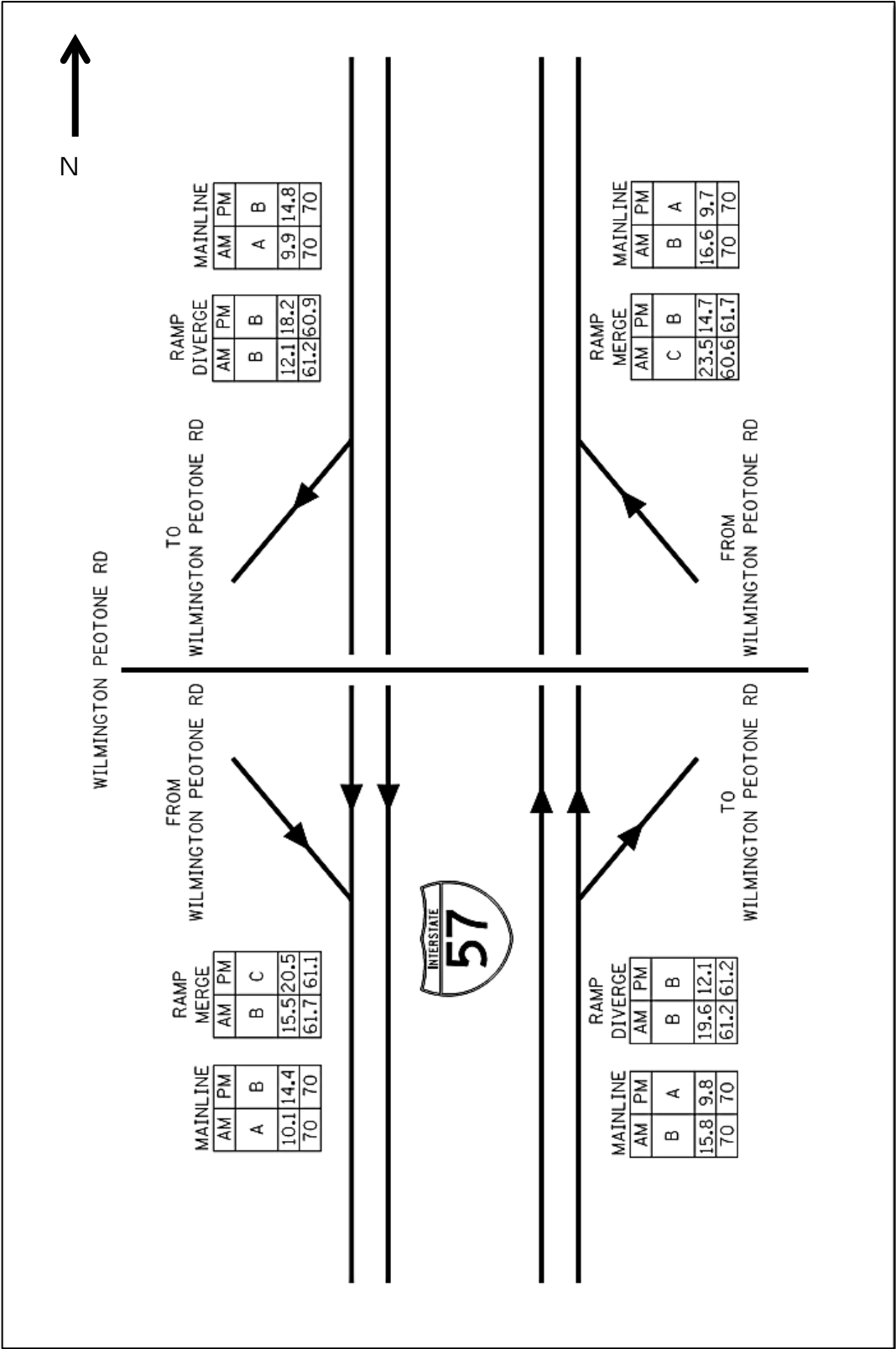
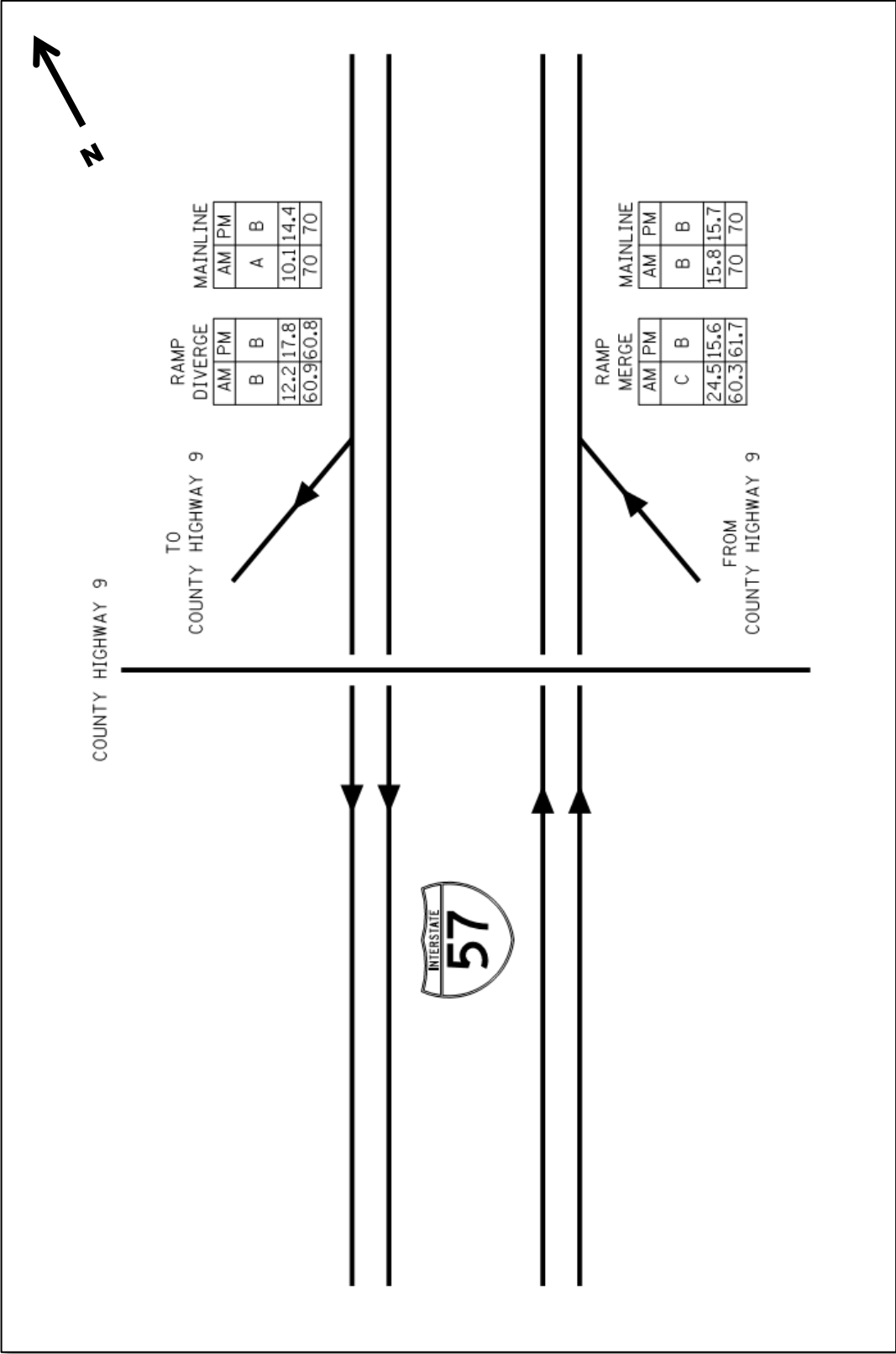


Figure 14: Level of Service Analysis – 2010 Existing Conditions - I-57 at County Highway 9



2040 No-Build

The 2040 No Build scenario analyzed the current roadway system under design year 2040 traffic. The traffic volumes generated for the 2040 No Build network is based on local and regional growth trends and development patterns. This scenario would also assumed, not only that the Illiana Corridor would not be implemented but also that the system capacity would be the same as for the year 2010. The I-57 mainline, within the study area, would maintain two lanes in each direction while the interchanges at County Highway 9 and at Wilmington-Peotone Rd would maintain single lane ramps. The HCS analysis performed for this scenario included basic freeway analysis and ramp junction analysis.

The HCS analysis for the freeway section north and south of the Wilmington-Peotone Rd indicates that the facility would operate at LOS B and C during the AM and PM peak periods. The ramp junction analysis at the same interchange indicates that most ramps would operate at either LOS B or C. The NB entrance ramp to NB I-57 (merge) would operate at LOS D during the AM peak period. This is consistent with the high concentration of new development expected north of the study area as discussed earlier.

The freeway segment analysis at the County Highway 9 interchange indicates that the freeway section and ramp junctions north of the interchange would operate at either LOS B or C for this scenario.

As can be seen in **Table 5**, all facilities are operating at levels of service “C” and above except for the Wilmington-Peotone Road entrance ramp which is projected to operate a level-of-service “D”. Therefore, all facilities are operating at acceptable levels of service for existing roadways. **Figure 15** and **Figure 16** present the LOS results for the 2040 No Build Scenario.

Figure 15: Level of Service Analysis – 2040 No Build Scenario - I-57 at Illiana Corridor and Wilmington-Peotone Rd

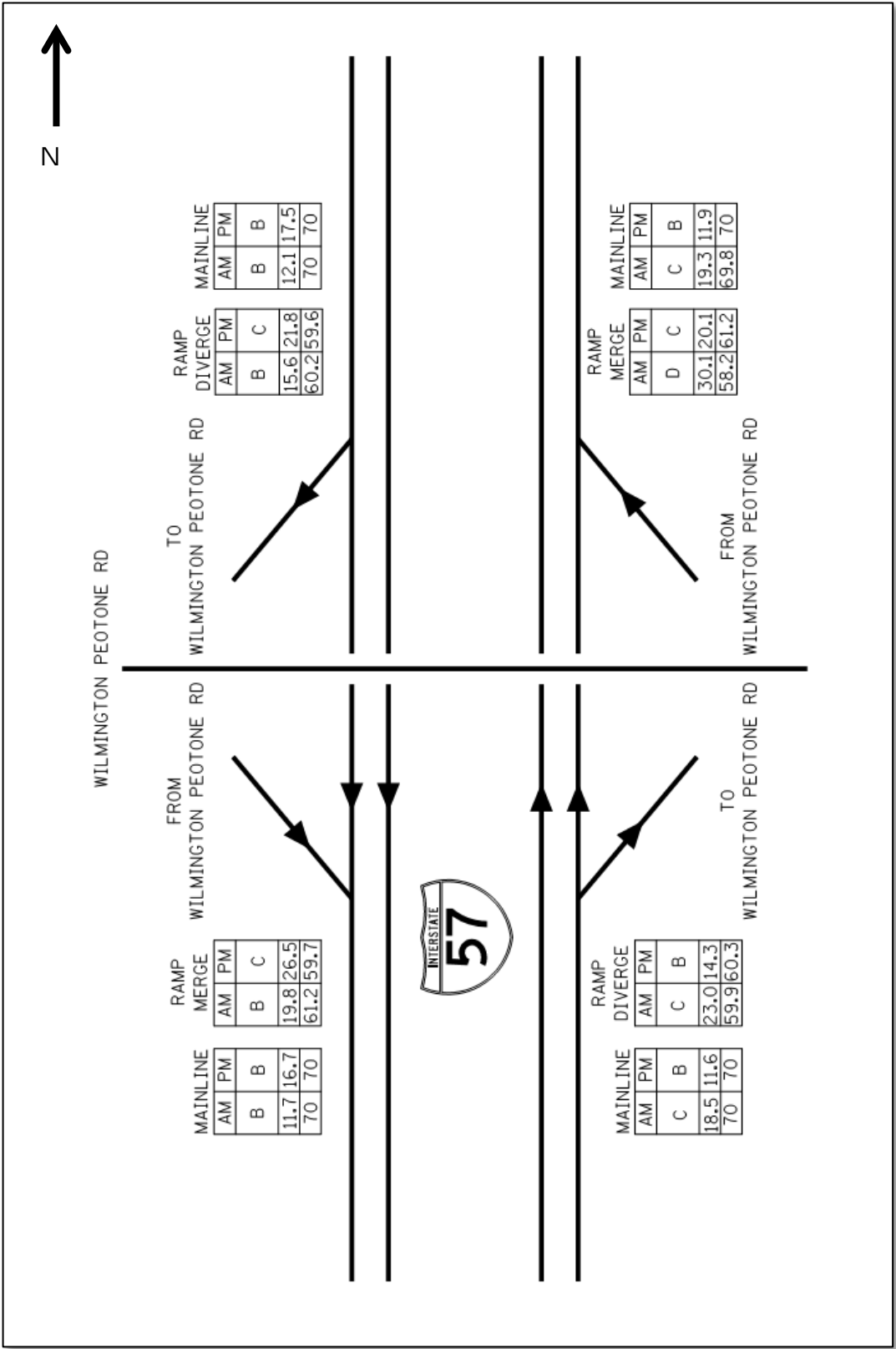
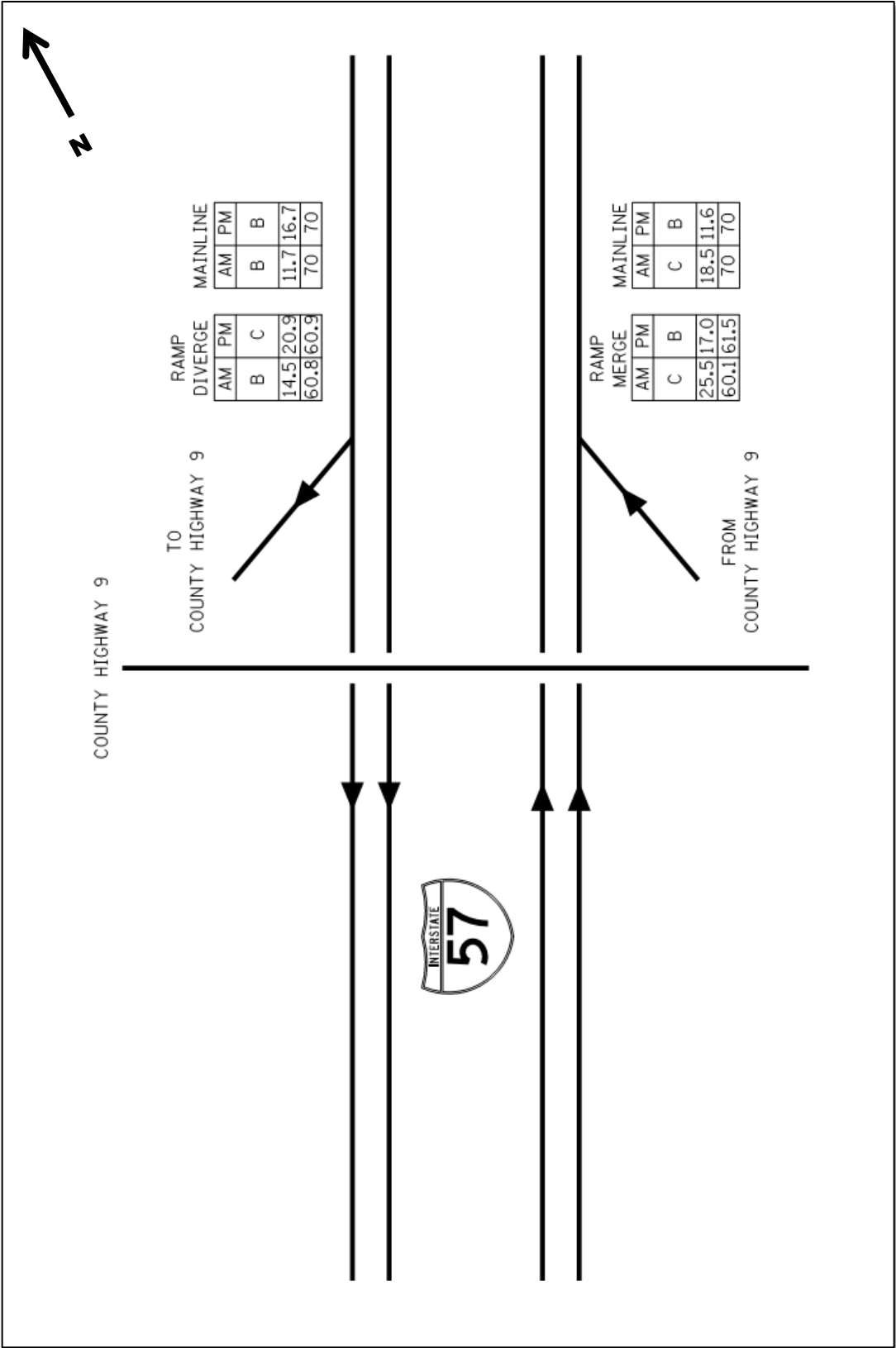


Figure 16: Level of Service Analysis – 2040 No Build Scenario - I-57 County Highway 9



2040 Build – Tier Two Preferred Alternative

The 2040 Build scenario analyzed the design year of 2040 with the proposed I-57 and Illiana interchange. The existing lane configuration along I-57 facility and adjacent interchanges would be maintained. The mainline along I-57 would maintain two travel lanes in each direction while the exit and entrance ramps at the Wilmington-Peotone Rd interchange and at the County Highway 9 interchange would be maintained as single lane ramps. The proposed interchange between I-57 and the Illiana Corridor would be a system interchange with a combination of directional, semi-directional, and loop ramps that would provide full access between the facilities. The Illiana WB and EB ramps to SB I-57 would merge prior to them merging with the SB I-57 mainline lanes. Likewise, the I-57 NB and SB ramps to WB Illiana would merge prior to them merging with the Illiana mainline. The proposed configuration would also provide two loop ramps, one for the I-57 SB to Illiana EB movement and one for the Illiana EB to I-57 NB movement.

The I-57 mainline would provide an auxiliary lane in the NB and SB directions between the Illiana Corridor and Wilmington-Peotone Rd for a total of three lanes per direction along this section. The auxiliary lane in the NB direction would extend from the Illiana WB to I-57 NB entrance ramp to the Wilmington-Peotone Rd NB exit ramp. The auxiliary lane in the southbound direction would extend from the Wilmington-Peotone Rd SB entrance ramp to the I-57 SB to Illiana EB exit ramp. The section of I-57 with auxiliary lanes between entering and exiting ramps was analyzed as a weaving section in the NB and SB directions.

Based on the HCS merge and diverge analyses results, the existing entrance and exit ramps at the Wilmington-Peotone interchange would operate at LOS B and C during the AM and PM peak periods. The exception is the northbound I-57 entrance ramp from Wilmington-Peotone Rd would operate at LOS D during the AM peak period. This is consistent with the No Build results for this location during the same time period. The freeway section north of this interchange would operate at LOS B and C during the same time periods. The freeway sections north of the interchange would operate at LOS B and C.

The merge and diverge analyses at the County Highway 9 interchange indicate that the ramps would also operate at LOS B and C. It was noted that the northbound entrance ramp, at this location, would operate at LOS D during the AM peak period. The analysis of the freeway section between the Illiana Corridor and I-57 interchange and the interchange at County Highway 9 and I-57, indicate that it would operate at LOS B and LOS C.

The weaving analysis was conducted at three different locations. The weaving section designated as “Weave A” was defined as the section of I-57 in the southbound direction between the Wilmington-Peotone Rd SB entrance ramp and the exit to EB Illiana (Ramp G). This section would be approximately 4,125-ft long. The section designated as “Weave B” was defined as the section of I-57 in the southbound direction between the Wilmington-Peotone Rd SB entrance ramp and the exit ramp to WB Illiana (Ramp D). This weaving section would be approximately 1,155-ft long. Likewise, “Weave C” was defined as the section of I-57 between the Illiana EB entrance ramp (Ramp A) and the I-57 NB exit ramp to Wilmington-Peotone Rd. This weaving section would be approximately 1,350-ft long. The HCS results indicate that Weave A and Weave B would operate at LOS B during both the AM and PM peak periods. Weave C would operate at LOS B and LOS A during the AM and PM peak periods respectively.

As can be seen **Table 5**, the existing facility operates at acceptable levels of service with the proposed I-57 and Illiana interchange with no changes to the existing roadway configuration to the adjacent ramps or along I-57. All the ramps associated with the new interchange operate at levels of service “A” and “B”, above acceptable levels of service. It was determined that no significant impact on traffic operations to the existing facility can be attributed to the proposed new access. **Figure 17** and **Figure 18** present the LOS results for the 2040 Build Scenario.

Figure 17: Level of Service Analysis – 2040 Build Scenario - I-57 at Illiana Corridor and Wilmington-Peotone Rd

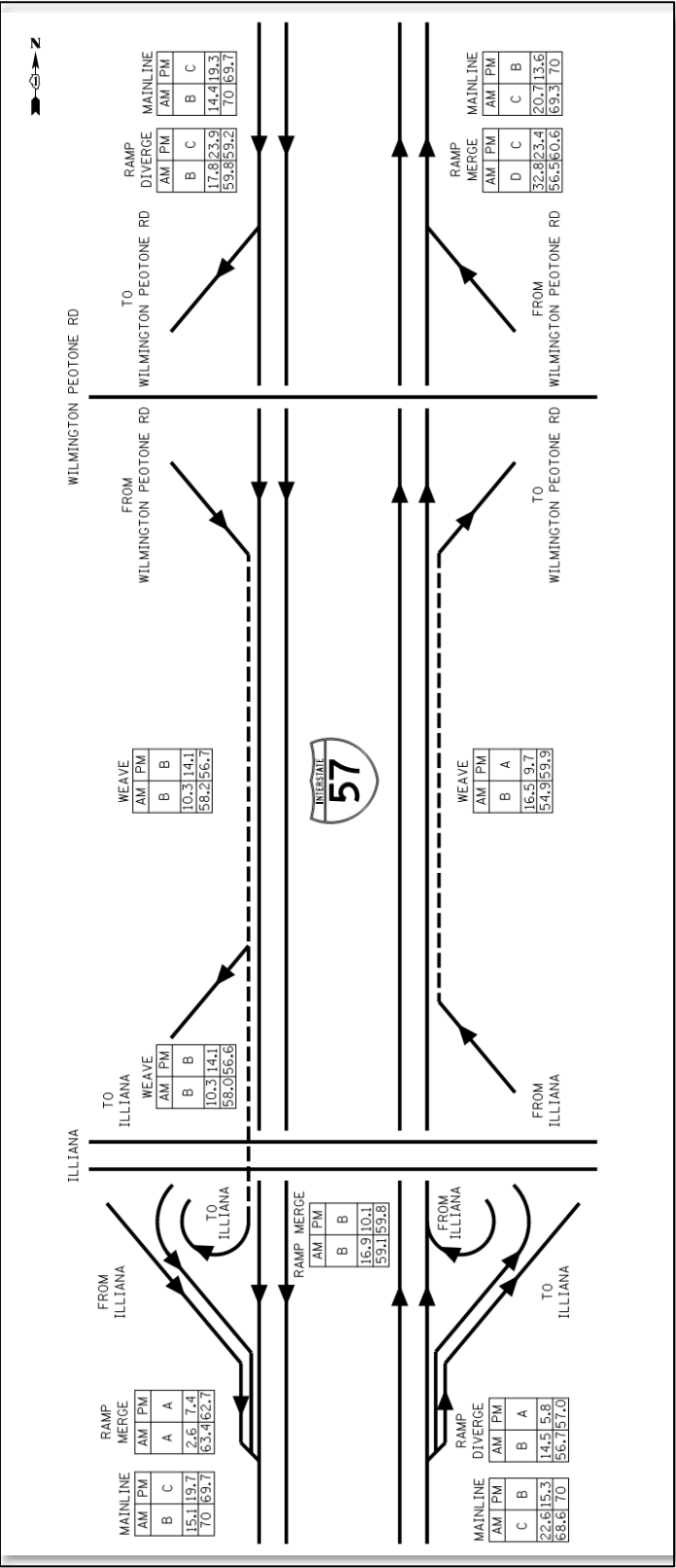


Figure 18: Level of Service Analysis – 2040 Build Scenario - I-57 at County Highway 9

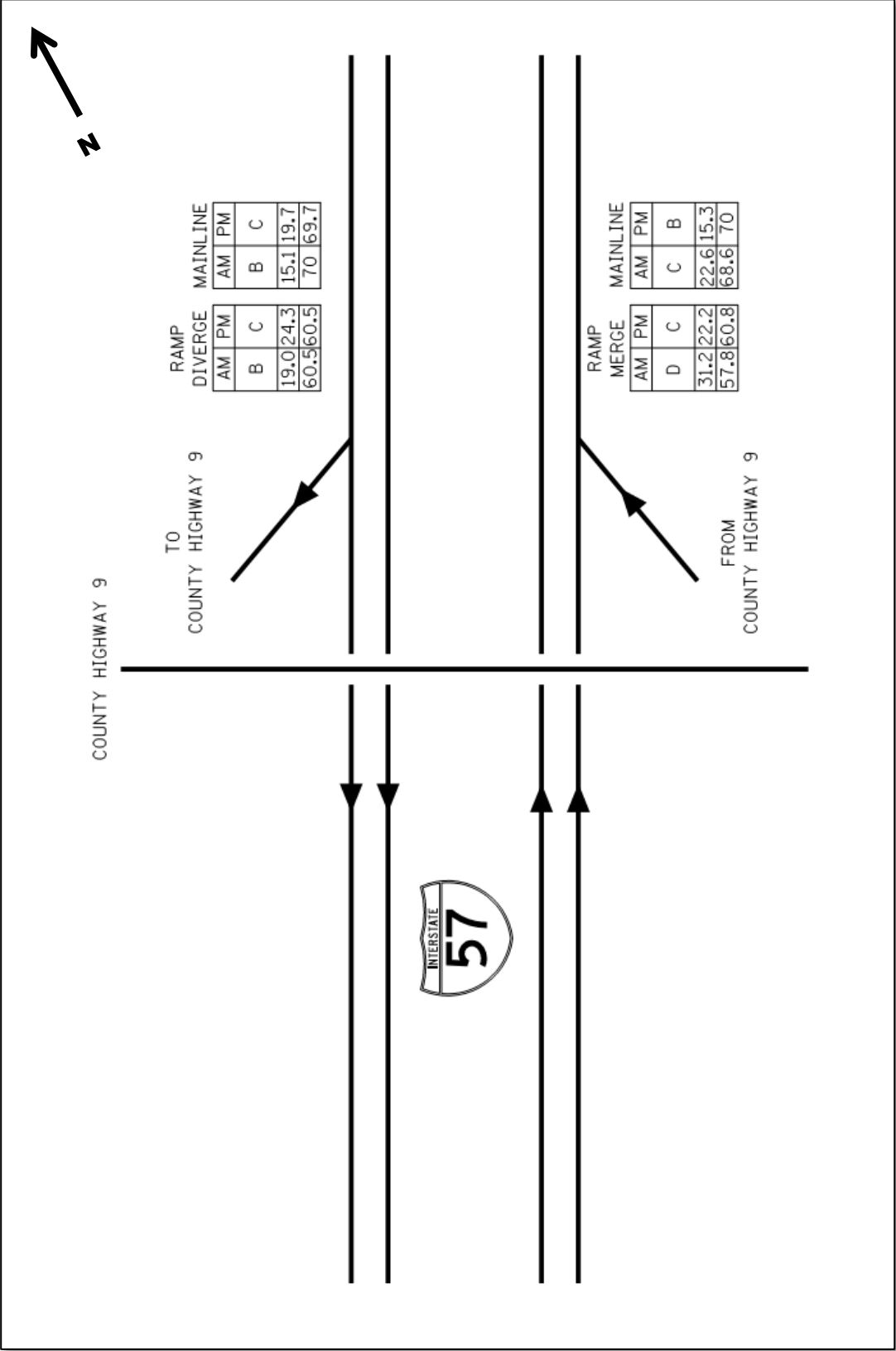


Table 5: Operations Analysis Sections

Location		Type	2010 Existing		2040 No Build		2040 Build	
			AM	PM	AM	PM	AM	PM
Southbound I-57	North of Wilmington-Peotone Rd	Mainline	A	B	B	B	B	C
	Wilmington-Peotone Rd Exit	Ramp Diverge	B	B	B	C	B	C
	Wilmington-Peotone Entrance	Ramp Merge	B	C	B	C	*	*
	Between Wilmington-Peotone Rd and County Highway 9 interchange	Mainline	A	B	B	B	-	-
	Between Wilmington-Peotone Rd Entrance and Illiana Exit Ramp (to WB Illiana)	Weave	-	-	-	-	B	B
	Between Wilmington-Peotone Rd Entrance and Illiana Exit Ramp (to EB Illiana)	Weave	-	-	-	-	B	B
	Illiana Entrance	Ramp Merge	-	-	-	-	A	A
	Between Illiana and County Highway 9	Mainline	-	-	-	-	B	C
	County Highway 9 Exit	Ramp Diverge	B	B	B	C	B	C
Northbound I-57	County Highway 9 Entrance	Ramp Merge	C	B	C	B	D	C
	Between Illiana and County Highway 9	Mainline	-	-	-	-	C	B
	Illiana Exit	Ramp Diverge	-	-	-	-	B	A
	Illiana Entrance (from EB Illiana)	Ramp Merge	-	-	-	-	B	B
	Between Illiana Entrance Ramp and Wilmington-Peotone Rd Exit	Weave	-	-	-	-	B	A
	Between Wilmington-Peotone Rd and County Highway 9 interchange	Mainline	B	A	C	B	-	-
	Wilmington-Peotone Rd Exit	Ramp Diverge	B	B	C	B	*	*
	Wilmington-Peotone Rd Entrance	Ramp Merge	C	B	D	C	D	C
	North of Wilmington-Peotone Rd	Mainline	B	A	C	B	C	B

*Not analyzed as merge/diverge due to presence of auxiliary lane.

18.2 Traffic Safety Analysis

The Highway Safety Manual (HSM) provides information and tools to consider safety when making decisions related to design and operation of roadways. The HSM assists in selecting countermeasures, prioritizing projects, and comparing design alternatives. It also provides designers the metrics to quantify and predict the safety performance of roadway elements considered in planning, design, construction, maintenance, and operation. The safety analysis for future traffic conditions for the 2040 No Build network and the 2040 Tier Two Preferred Alternative network was performed using a state-of-the-practice predictive method to assess the number and severity of crashes to occur within the interchange area under consideration.

The Enhanced Interchange Safety Analysis Tool (ISATe) is a tool used to evaluate freeway and interchange safety. The algorithms and equations are implemented in a Microsoft Excel workbook. ISATe provides information about the relationship between roadway geometric design features and safety, and is intended to be used to evaluate the safety of freeway facilities, including freeway main lines and interchanges, but excludes crossroads. It is based on research that quantified the relationship between various design elements or design components an expected average crash frequency. The ISATe was developed for inclusion as a Part C predictive method for the HSM. In this regard, the freeway facility is broken into one or more freeway sections and interchanges. The interchange is broken down further into one or more ramps, C-D roads, and crossroad ramp terminals. Each component is further broken into sets of individual sites and safety performance measures are then calculated for each site. The measures are then combined as needed to describe the performance of the freeway section, interchange, or facility as a whole. The future 2040 conditions were analyzed using HSM predictive methods coded in the ISATe tool, to predict the number and severity of crashes expected to occur within the interchange area. The future 2040 conditions do not predict any safety conditions for the crossroads because the ISATe and HSM algorithms and equations do not include crossroads.

The Enhanced Interchange Safety Analysis Tool (ISATe) is a tool used to evaluate freeway and interchange safety. The tool uses algorithms and equations to predict the number and severity of crashes based on a variety of geometric design features. ISATe provides information about the relationship between roadway geometric design features and safety. In addition to geometric features, ISATe also accounts for annual average daily traffic (AADT) volumes through user inputs. The tool is intended to be used to evaluate the safety of freeway facilities, including freeway main lines and interchanges, but excludes crossroads. Each freeway facility is broken down into one or more freeway sections and interchanges. The interchange is broken down further into one or more ramps, C-D roads, and crossroad ramp terminals. Each component is further broken into sets of individual sites and safety performance measures are then calculated for each site. The measures are then combined as needed to describe the performance of the freeway section, interchange, or facility as a whole.

ISATe results are expressed as a crash frequency. This is defined as the number of crashes segregated by severity type in a given time period, usually one year. The observed crash frequency is based on actual historical crash data, the predicted crash frequency uses results from a statistical model which can be for any time period past, present or future, and the expected average crash frequency combines the observed and predicted

frequencies and is the most reliable for predicting the number of crashes at a specific site. For the purposes of this analysis, the predicted crash frequency has been recorded because no site specific crash data was entered as part of the analysis.

The future 2040 conditions were analyzed using the ISATe tool to predict the number and severity of crashes expected to occur within the interchange area. The analysis maintained the same study area limits for both the No-Build and Preferred Alternative scenarios but varied the traffic volumes and geometric features based on the current design. The predicted crash number results are representative of the freeway and ramp segments within the study area but does not predict any safety conditions for the crossroads because the ISATe algorithms and equations do not include crossroads.

Future 2040 Conditions

A comprehensive crash analysis was conducted for the I-57/Illiana system interchange area for the 2040 No-Build, and 2040 Tier Two Preferred Alternative network conditions. The analysis area included the I-57/Illiana interchange and the I-57/Wilmington-Peotone interchange.

Table 6 shows the predicted annual crashes for the forecast year 2040 No-Build condition while **Table 7** shows the predicted annual crashes for the forecast year 2040 Tier Two Preferred network conditions. **Appendix C1, Final Interchange Type Study**, provides the crash rates for the other alternatives.

**Table 6: Year 2040 No-Build Condition
ISATe Evaluation**

Location	Crash Type / Severity Type					Total
	K	A	B	C	PDO	
I-57 Interchange at Wilmington-Peotone Road	0.1	0.2	1.2	1.7	6.1	9.3
I-57 Interchange at Illiana						NA

**Table 7: Year 2040 Tier Two Preferred Alternative Network Condition
ISATe Evaluation**

Location	Crash Type / Severity Type					Total
	K	A	B	C	PDO	
I-57 Interchange at Wilmington-Peotone Road	0.1	0.2	1.1	1.5	5.1	7.9
I-57 Interchange at Illiana	0.2	0.6	3.4	4.8	18.3	27.4

With the addition of the I-57/Illiana interchange, auxiliary lanes will be provided between the Illiana and Wilmington-Peotone interchanges therefor improving the ramp merge/diverge areas. These proposed improvements will address crashes along the I-57/Wilmington-Peotone Road interchange ramp merge/diverge areas and a reduction in rear end crashes should occur. The total number of crashes expected to occur at the I-57/Wilmington-Peotone Road interchange would be approximately 15 percent lower for the Tier Two Preferred Alternative with the addition of auxiliary lanes as compared to the 2040 No-Build condition.

Although the addition of the I-57/Illiana interchange has the potential to increase crash frequency in the area, design measures are in the plan to add safety measures (i.e. guardrail, ROW fence, acceleration and deceleration lanes, auxiliary lanes, lighting, and signing).

Illiana will be built to current design standards. This means that merges and diverges will have appropriate acceleration and deceleration lanes and sight distance will be substantial. In addition, the auxiliary lanes planned between Illiana and Wilmington-Peotone Road will offer vehicles a lengthy distance to make the lane change maneuvers and minimize mainstream disruption.

19. Interchange Location Map

Include a dimensioned, detailed drawing of the design elements of the existing and proposed change conditions, including, as applicable:

- Project limits – **Appendix A**
- Adjacent interchange(s) – **Appendix A**
- Ramp to be added – **Appendix C**
- Ramp to be removed – **Appendix C**
- Relocation of ramp gore – **Appendix C**
- Configuration – **Appendix C**
- Travel lanes and shoulder widths – **Appendix C**
- Ramp radii – **Appendix C**
- Ramp grades – **Appendix C**
- Acceleration lane lengths – **Appendix C**
- Deceleration lane lengths – **Appendix C**
- Taper lengths – **Appendix C**
- Auxiliary lane lengths – **Appendix C**
- Taper or parallel type exit ramps – **Appendix C**
- Truck climbing lane(s) – **Not applicable**
- Auxiliary/operational lane(s) – **Appendix C**
- Collector/distributor road(s) – **Appendix C**

20. Highway Capacity Analysis

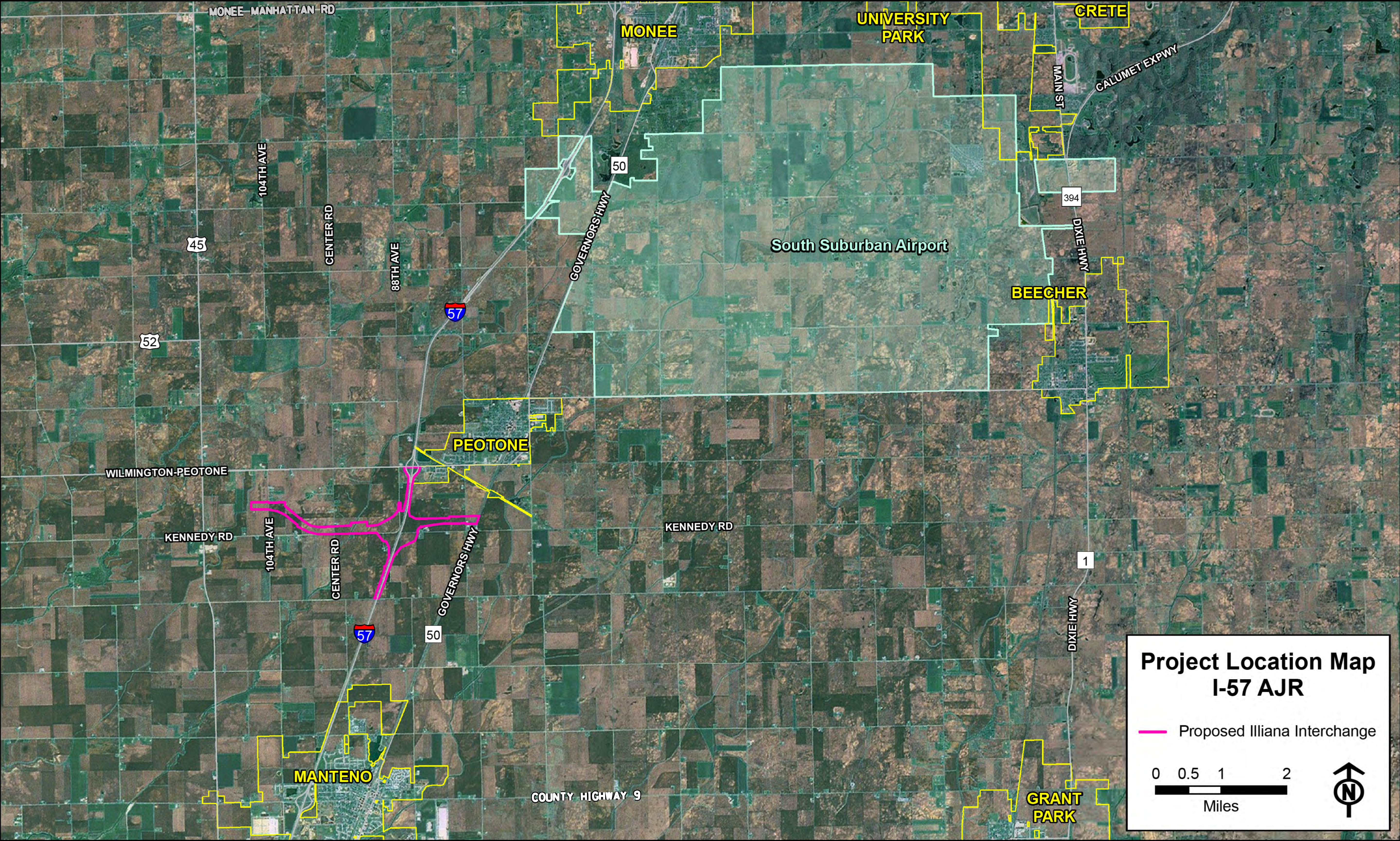
Use the current Highway Capacity Manual (HCM), or current version of the Highway Capacity Software (HCS), for the needed engineering analyses. An acceptable engineering analysis for determining engineering acceptability and feasibility will need to be determined jointly by FHWA and IDOT. Include all the following engineering analysis, unless otherwise agreed to by BDE and FHWA:

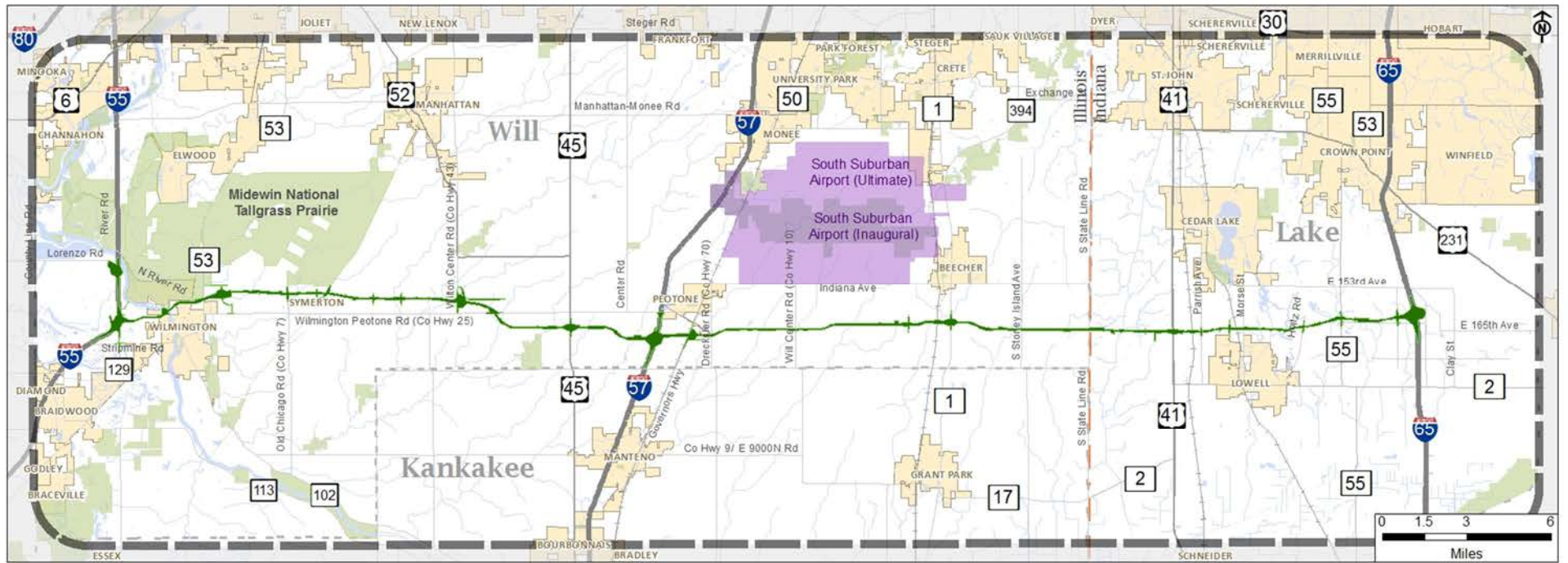
Refer to **Part 2, Section 18 – Operational Analysis (FHWA Policy Point 3)** for a detailed explanation and **Appendix F** for detailed traffic analysis output files.

APPENDICES

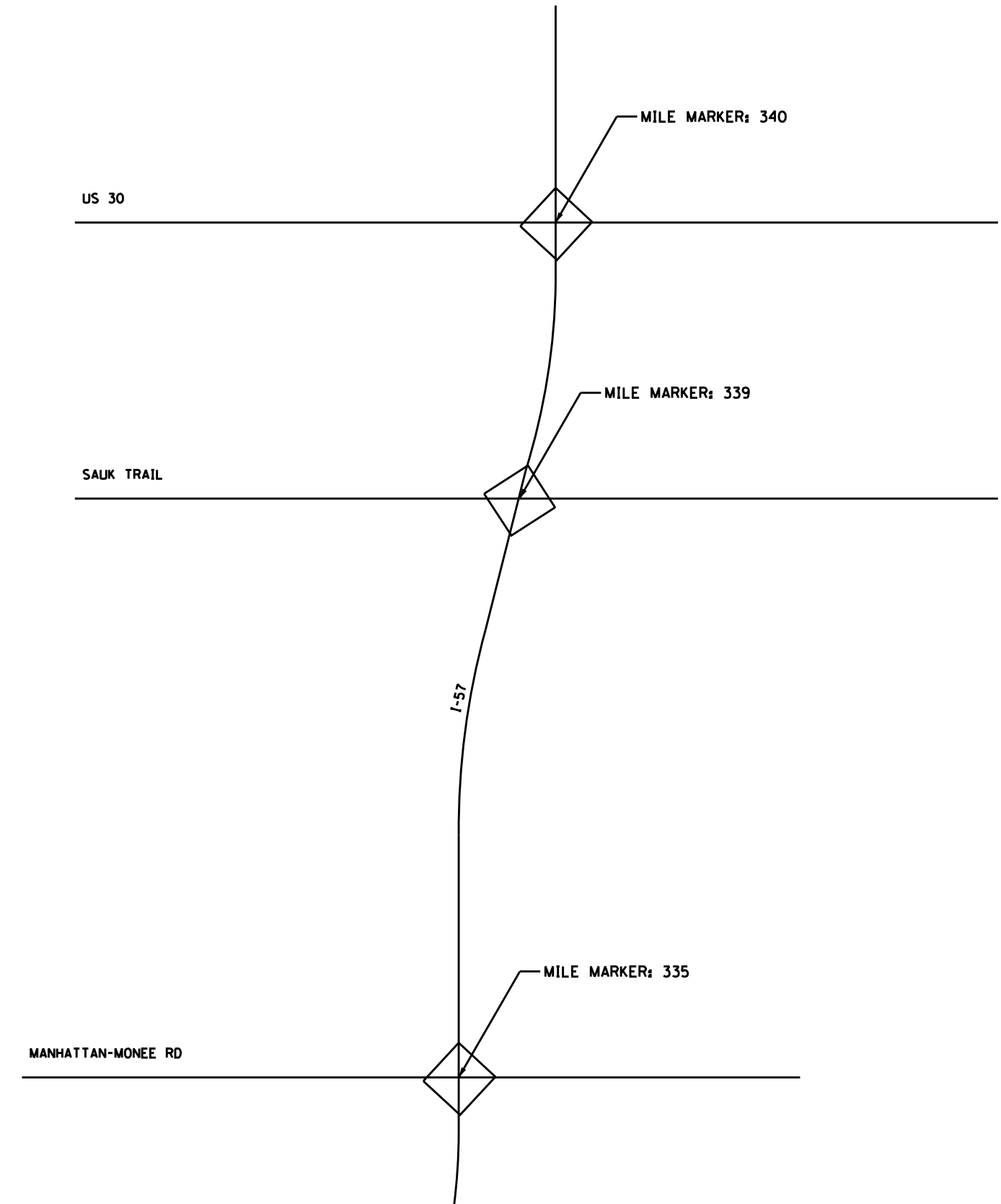
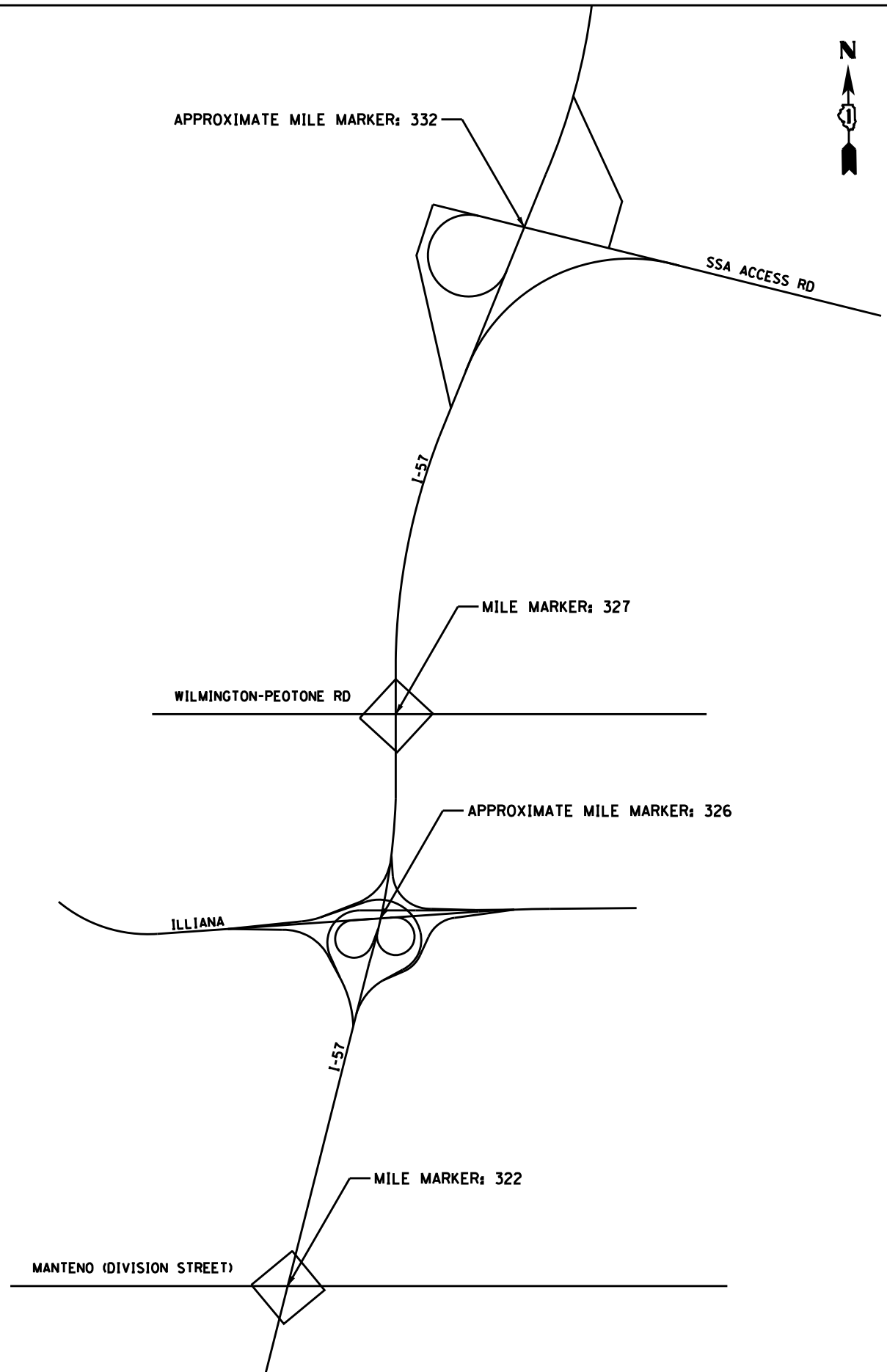
APPENDIX A

PROJECT LOCATION MAPS





Appendix A2 - Illiana Corridor Study Area and Preferred Alternative



	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	INTERCHANGE SPACING EXHIBIT			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	DRAWN -	REVISED -							WILL	1	1
	CHECKED -	REVISED -					CONTRACT NO.				
	DATE -	REVISED -		SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.	ILLINOIS FED. AID PROJECT	

APPENDIX B

PROPOSED INTERCHANGE LAYOUTS



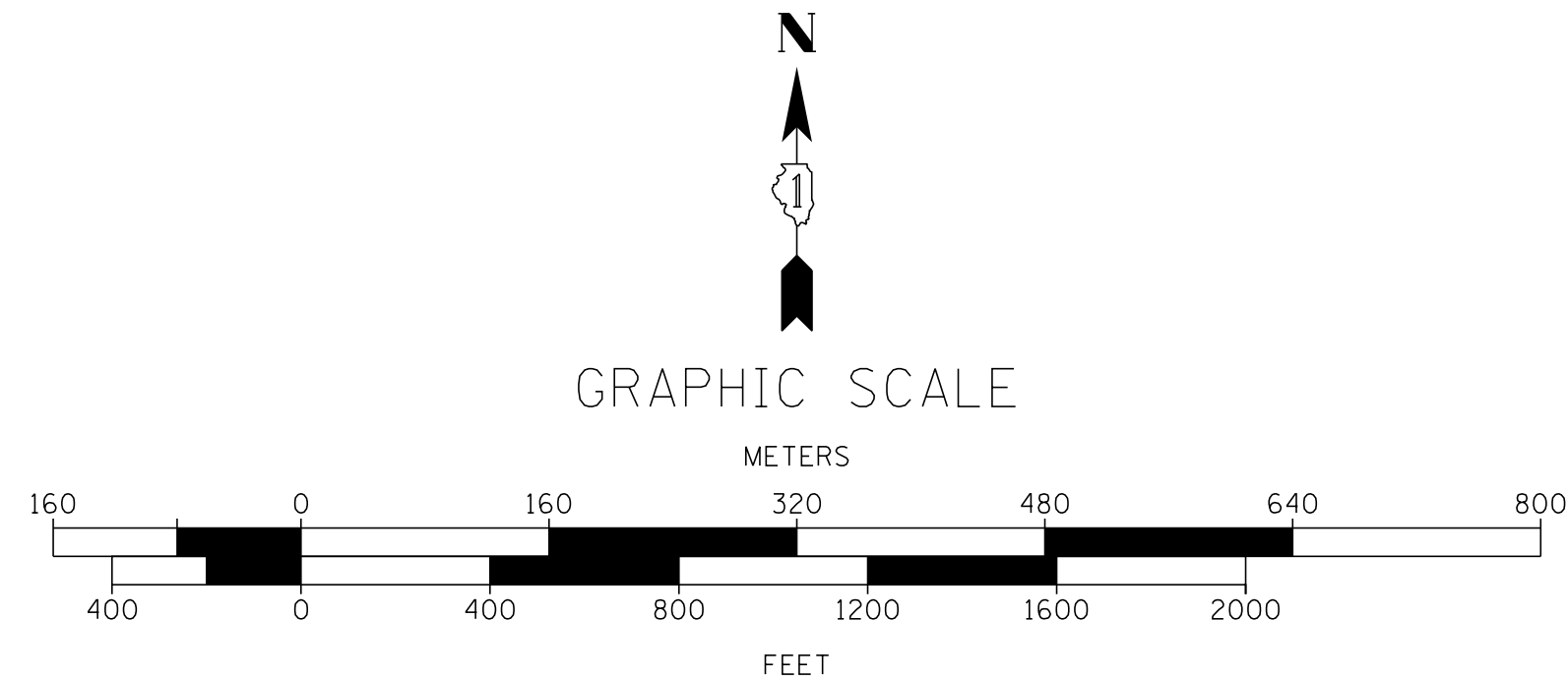
FILE NAME = IL04Interchange Layout.dgn	USER NAME = gfourti	DESIGNED -	REVISED - -
	PLOT SCALE = 1:400	DRAWN -	REVISED - -
	PLOT DATE = 11/22/2013	CHECKED -	REVISED - -
		DATE -	REVISED - -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED INTERCHANGE LAYOUT

SCALE: 1:400 SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		WILL	2	1
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



FILE NAME = IL04Interchange Layout.dgn	USER NAME = gfourti	DESIGNED -	REVISED - -
		DRAWN -	REVISED - -
	PLOT SCALE = 1:400	CHECKED -	REVISED - -
	PLOT DATE = 11/22/2013	DATE -	REVISED - -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED INTERCHANGE LAYOUT

SCALE: 1:400 SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		WILL	2	2
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

APPENDIX C

INTERCHANGE TYPE AND DESIGN STUDIES

APPENDIX C1

Interstate 57 – Illiana Corridor
Final Interchange Type Study
(Applicable pages included)

Final Interchange Type Study

Interstate 57



Prepared for

Illinois Department of Transportation and
Indiana Department of Transportation

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2.0	DISCUSSION AND EVALUATION OF INTERCHANGE TYPES.....	2
3.0	CONCLUSION	7

Exhibits

- Exhibit 1 – I-57 Interchange Type 1 (Flyover Alternative)
- Exhibit 1A – I-57 Interchange Type 1A (Flyover Alternative)
- Exhibit 2 – I-57 Interchange Type 2 (Full Cloverleaf Alternative)
- Exhibit 3 – I-57 Interchange Type 3 (Turbine Alternative)

1.0 Introduction

The Illinois Department of Transportation and the Indiana Department of Transportation, along with the Federal Highway Administration are the joint lead agencies for the evaluation of a potential transportation corridor connecting Interstate 55 in Illinois to Interstate 65 in Indiana. Due to the central location in the nation, northeastern Illinois and northwestern Indiana are critical transportation hubs for roadways, rail and air. In recent years, the area has seen rapid growth in intermodal transfer and logistics along with substantial growth in population and employment. Therefore, in 2010, a partnership between Illinois and Indiana was formed to plan a new link between northeast Illinois and northwest Indiana.

The Illiana Corridor evaluation is being completed as a tiered Environmental Impact Statement (EIS). The Tier One EIS evaluates potential corridors to determine the alternative that overall has the best balance of avoiding social and environmental impacts, providing transportation benefits and incorporating community goals. The Tier Two EIS develops, refines and evaluates design alternatives within the preferred corridor.

The Tier Two process requires the development of Interchange Type Studies (ITS) along the preferred corridor. This memorandum presents and discusses the interchange types that were evaluated at the intersection of Interstate 57 (I-57) and Corridor B3.

A Geometric Workshop was held to discuss draft interchange types and geometry with the Illinois Department of Transportation and the Indiana Department of Transportation. Design direction provided by the State agencies as a result of the Geometric Workshop has been incorporated into this memorandum and the exhibits referenced herein.

2.0 Discussion and Evaluation of Interchange Types

Existing Conditions

The location of the proposed interchange is approximately one (1) mile south of the existing I-57 interchange at Wilmington-Peotone Road on the western edge of the Village of Peotone in southern Will County, Illinois. The proposed interchange is approximately four (4) miles north of the next I-57 interchange to the south (C.H. 9/Division Street in the Village of Manteno) and is approximately ten (10) miles north of Kankakee, Illinois.

Kennedy Road, which is an east-west collector roadway, falls within the limits of the proposed interchange. Currently, Kennedy Road does not extend across I-57. West of I-57, Kennedy Road turns 90 degrees to the north and connects with 88th Avenue. Kennedy Road dead-ends east of I-57. Both Kennedy Road and 88th Avenue are under the jurisdiction of Peotone Township.

I-57, near Kennedy Road (milepost 322), is a four lane divided highway with a grass median and a combination of hot-mix asphalt and aggregate shoulders. The roadway surface is also hot-mix asphalt. At Kennedy Road, the I-57 alignment is skewed approximately 25 degrees to the northeast. There is a slight curve to the left in the I-57 alignment immediately north of Kennedy Road.

The current land use surrounding the proposed interchange is entirely agricultural. The Village of Peotone occupies the area east of the existing I-57 interchange at Wilmington-Peotone Road.

Design Constraints

A variety of design constraints were considered during the development and evaluation of the interchange types discussed herein. Below is a list of those design constraints that could be considered major due to the potential additional permitting, land acquisition and/or cost required if these existing features were impacted by the project:

- A cellular tower exists just inside the Kennedy Road curve, between Kennedy Road and 88th Avenue.
- Com Ed right-of-way containing two (2) sets of electric transmission lines and towers parallel Corridor B3 in this area and are located less than one-quarter ($\frac{1}{4}$) mile north of the proposed centerline.
- The gores for the south ramps at the existing I-57/Wilmington-Peotone Road interchange are less than one (1) mile from the proposed centerline of Illiana.

- A large regional storm water detention facility exists in the northeast quadrant of the I-57/Wilmington-Peotone Road interchange (impacts options for reconfiguration of the Wilmington-Peotone Road interchange if necessary due to lack of spacing from Illiana).
- Twin bridges carry the I-57 mainline over a multi-use trail, just north of Wilmington-Peotone Road (impacts options for reconfiguration of the Wilmington-Peotone Road interchange if necessary due to lack of spacing from Illiana).

The major design constraints listed above are depicted on the Interchange Type Study Exhibits.

Proposed Interchange Types

In addition to the major design constraints, three (3) interchange types were evaluated on the basis of proposed traffic operations and-safety. The designs are based on the Illinois Department of Transportation Bureau of Design and Environment (BDE) Manual geometric requirements.

Type 1 (Flyover Alternative)

The flyover alternative consists of four (4) diagonal ramps, two (2) inner loop ramps (southwest and southeast quadrants) and directional flyover ramps carrying the northbound to westbound movement and the westbound to southbound movement. Each of the diagonal and directional flyover ramps has a design speed of 50 mph, while each inner loop ramp has a design speed of 40 mph. A continuous collector-distributor (C-D) road with a design speed of 50 mph is provided along eastbound Illiana through the I-57 ramps. Auxiliary lanes are utilized along northbound and southbound I-57 between the north ramps of the Illiana interchange and the south ramps of the Wilmington-Peotone Road interchange. This alternative is depicted on Exhibit 1 (I-57 Interchange Type 1).

The flyover alternative optimizes traffic operations for the two (2) flyover movements, which have higher projected traffic volumes and significantly higher truck percentages as compared to the south loop ramps. The flyover alternative also maximizes separation from the I-57/Wilmington-Peotone Road interchange. Approximately 1,650 feet and 2,000 feet of separation (measured nose to nose) are provided in the northbound and southbound directions, respectively. Modifications to the I-57 & Wilmington-Peotone Road interchange are limited to the reconstruction of the northbound exit and southbound entrance ramps. The structure carrying Wilmington-Peotone Road over I-57 as well as the northbound entrance and southbound exit ramps are not impacted.

The flyover alternative requires nine (9) structures for vertical separation of the flyover ramps from Illiana, I-57 and the inner loop ramps.- Longitudinal slopes on certain segments of the directional ramps may need to be 3% to 4% in order to accommodate bridge superstructure depths and achieve the proper vertical clearances. The flyover alternative should not impact the existing cellular tower, assuming gated access can be provided from the southwest loop ramp.

Type 1A (Flyover Alternative)

This alternative is a version of Type 1 that is modified for the northern mainline alternative and incorporates revisions based on direction provided as a result of the Geometric Workshop. The radii of entrance curves preceded by a long tangent segment on the outer, diagonal ramps have been increased to exceed a design speed of 60 mph. The larger radii provide a factor of safety for a motorist's tendency to accelerate on the long tangent segment prior to the curve.

The northbound to westbound and westbound to southbound flyover ramps have been realigned outside of the inner loop ramps. The eastbound to southbound and northbound to eastbound outer, directional ramps have been adjusted slightly to accommodate the realigned flyover ramps. The outer, directional and flyover ramps are now combined for a longer distance with the splits occurring closer to the inner loop ramps. The reconfiguration of these ramps eliminates two (2) bridges for a new total of seven (7) structures, which includes the primary bridge carrying the Illiana mainline over the I-57 mainline. In addition, the flyover ramps cross I-57 much closer to the Illiana mainline and providing increased ramp spacing from the Wilmington-Peotone Road interchange. This alternative is depicted on Exhibit 1A (I-57 Interchange Type 1A).

Interchange Type 1A impacts two (2) residences and two (2) Com Ed transmission towers. A ramp capacity analysis was performed using the 2010 Highway Capacity Software. According to the analysis, all ramps will be operating at a Level of Service (LOS) B or above. In addition, a crash prediction analysis was performed using the Enhanced Interchange Safety Analysis Tool (ISATe). The analysis predicts that 27.4 crashes per year will occur with this interchange geometry for the traffic volumes predicted for the design year 2040.

Type 2 (Full Cloverleaf Alternative)

The cloverleaf alternative consists of four (4) diagonal ramps and four (4) inner loop ramps. Each of the diagonal ramps has a design speed of 50 mph, while each inner loop ramp has a design speed of 40 mph. Continuous collector-distributor (C-D) roads, each with a design speed of 50 mph, are used along both Illiana and I-57 to separate weaving sections from mainline traffic. thereby improving traffic operations and safety, particularly for the acceleration, deceleration and weaving of the projected high truck

volumes. The C-D roads could allow for further tightening of the radii on the inner loop ramps to reduce the footprint of the Illiana & I-57 interchange, if desired. This alternative is depicted on Exhibit 2 (I-57 Interchange Type 2).

Due to the proximity of the north ramps at the Illiana interchange and the south ramps at and the Wilmington-Peotone Road interchange, this alternative would require replacement or significant modification to the existing bridge carrying Wilmington-Peotone Road over I-57 as well as the existing twin bridges carrying I-57 over the trail located just north of the Wilmington-Peotone Road. In addition, this alternative will impact two (2) sets of Com Ed transmission towers. This alternative is dismissed due to the significant impacts identified.

Type 3 (Turbine Alternative)

The turbine alternative consists of semi-directional ramps throughout, and has its left-turning ramps sweep around the center of the interchange in a spiral pattern in right-hand drive. Each of the directional ramps has a design speed of 50 mph. Auxiliary lanes are utilized along northbound and southbound I-57 between the north ramps of the Illiana interchange and the south ramps of the Wilmington-Peotone Road interchange. This alternative is depicted on Exhibit 3 (I-57 Interchange Type 3).

The turbine alternative requires thirteen (13) structures for vertical separation. This alternative impacts one (1) residence and four (4) Com Ed transmission towers. A ramp capacity analysis was performed using the 2010 Highway Capacity Software. According to the analysis, all ramps will be operating at a Level of Service (LOS) B or above. In addition, a crash prediction analysis was performed using the Enhanced Interchange Safety Analysis Tool (ISATe). The analysis predicts that 27.7 crashes per year will occur with this interchange geometry for the traffic volumes predicted for the design year 2040.

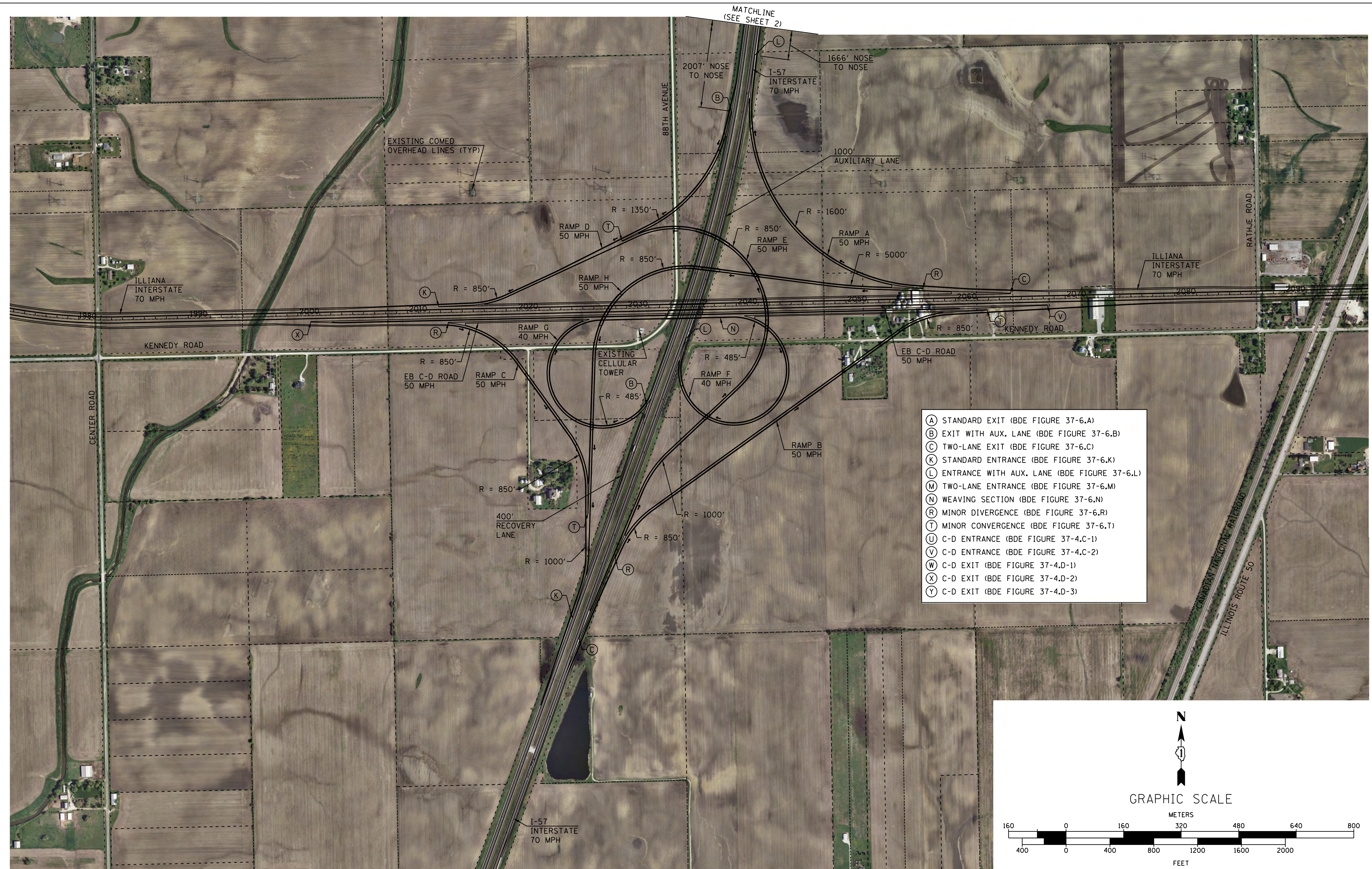
3.0 Conclusion

Of the three interchange types considered at this location, the full cloverleaf alternative was dismissed due to the significant impacts to the existing Wilmington-Peotone Road interchange and the flyover alternative was refined for further evaluation. The summary of the various impacts for the revised flyover alternative (Type 1A) and the turbine alternative (Type 3) are listed in the table below.

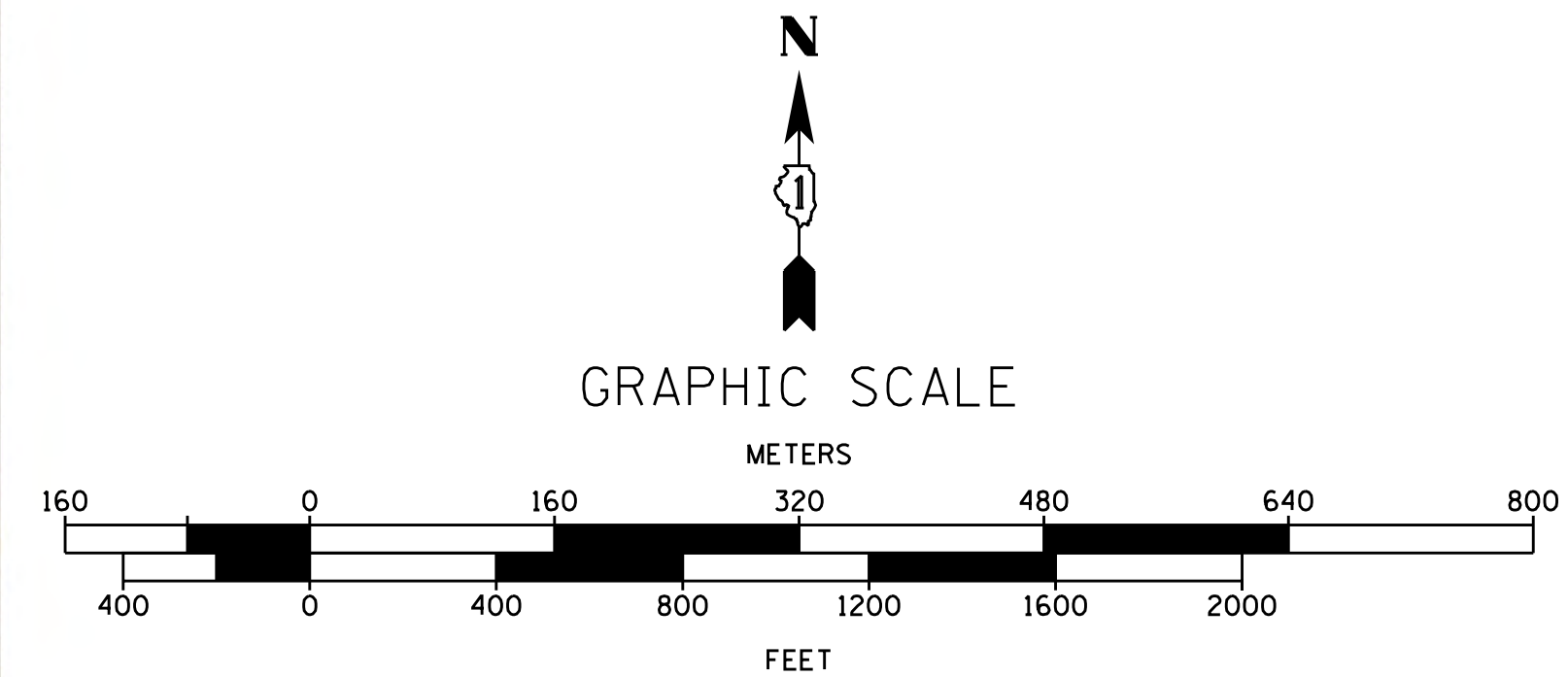
	Flyover (Type 1A)	Turbine (Type 3)
Residences Impacted (ea)	2	1
Right of Way required (ac)	233	228
Other Structures Impacted (ea)	2 Com Ed Transmission Towers	4 Com Ed Transmission Towers
Structures Required	145,000 SF Bridges / 26,000 SF Retaining Wall	226,000 SF Bridges / 59,400 SF Retaining Wall
Cost	\$55,328,000	\$77,334,000
Predicted Crash Rate	27.4 ¹	27.7 ¹

¹Values given in number of predicted crashes per year, per ISATe analysis

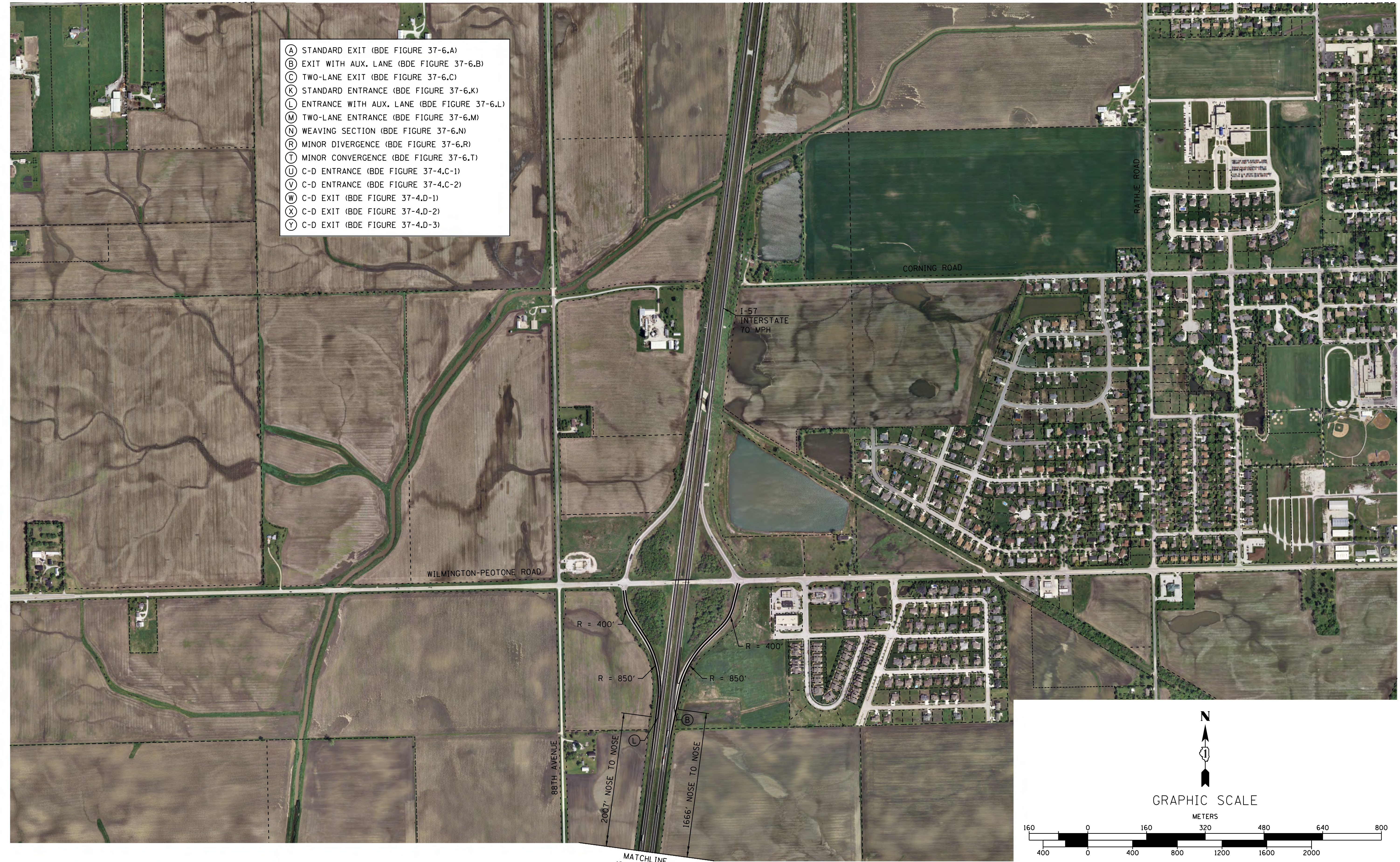
With the fewer number of utility impacts and structures required, it is recommended that Interchange Type 1A be selected for the interchange of Illiana and I-57.



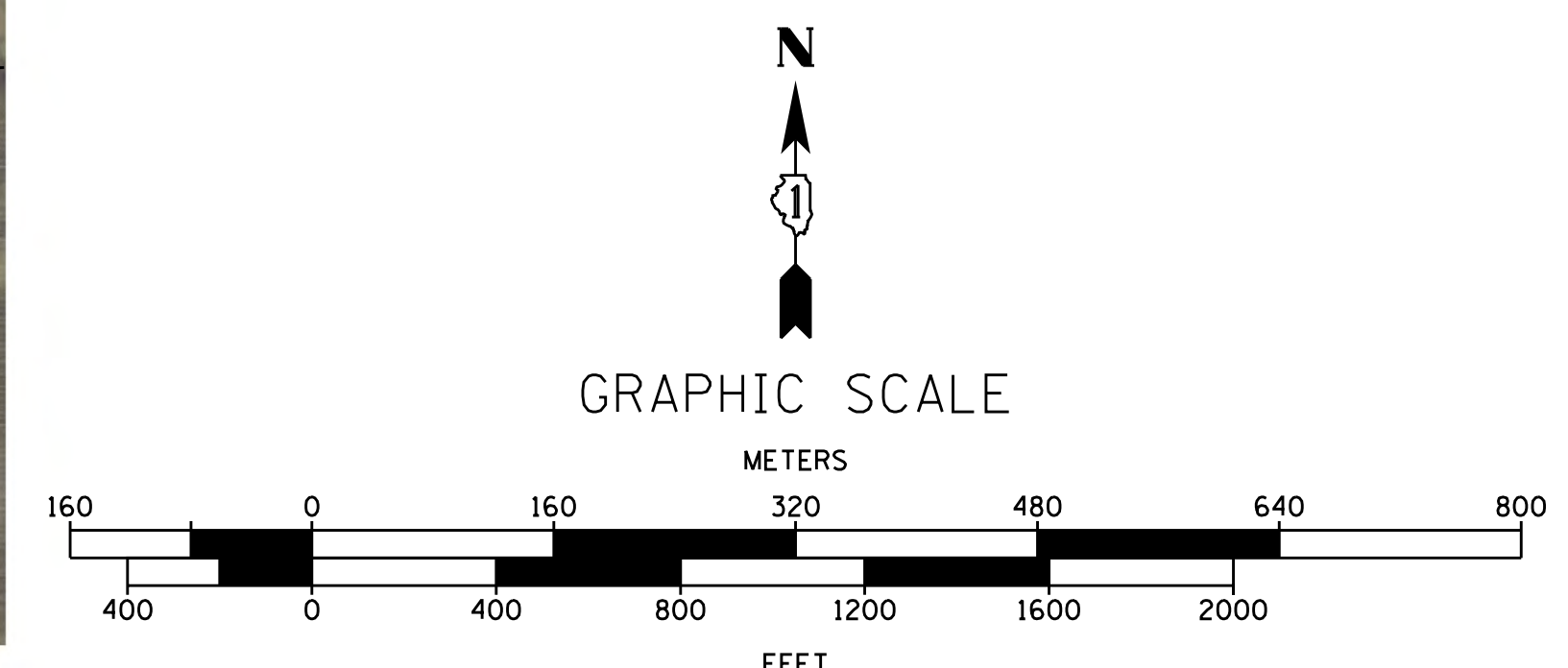
- (A) STANDARD EXIT (BDE FIGURE 37-6.A)
- (B) EXIT WITH AUX. LANE (BDE FIGURE 37-6.B)
- (C) TWO-LANE EXIT (BDE FIGURE 37-6.C)
- (K) STANDARD ENTRANCE (BDE FIGURE 37-6.K)
- (L) ENTRANCE WITH AUX. LANE (BDE FIGURE 37-6.L)
- (M) TWO-LANE ENTRANCE (BDE FIGURE 37-6.M)
- (N) WEAVING SECTION (BDE FIGURE 37-6.N)
- (R) MINOR DIVERGENCE (BDE FIGURE 37-6.R)
- (T) MINOR CONVERGENCE (BDE FIGURE 37-6.T)
- (U) C-D ENTRANCE (BDE FIGURE 37-4.C-1)
- (V) C-D ENTRANCE (BDE FIGURE 37-4.C-2)
- (W) C-D EXIT (BDE FIGURE 37-4.D-1)
- (X) C-D EXIT (BDE FIGURE 37-4.D-2)
- (Y) C-D EXIT (BDE FIGURE 37-4.D-3)



FILE NAME = I-57_Alt1.exhibits.dgn	USER NAME = rbest	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	EXHIBIT 1.1 I-57 INTERCHANGE TYPE 1				F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 1:400	DRAWN - RCB	REVISED -								WILL		
	PLOT DATE = 8/26/2013	CHECKED - APS	REVISED -		SCALE: 1:400 SHEET NO. OF SHEETS STA. TO STA.				CONTRACT NO.				
		DATE - 05-30-2013	REVISED -						ILLINOIS FED. AID PROJECT				9 of 16



- (A) STANDARD EXIT (BDE FIGURE 37-6.A)
- (B) EXIT WITH AUX. LANE (BDE FIGURE 37-6.B)
- (C) TWO-LANE EXIT (BDE FIGURE 37-6.C)
- (K) STANDARD ENTRANCE (BDE FIGURE 37-6.K)
- (L) ENTRANCE WITH AUX. LANE (BDE FIGURE 37-6.L)
- (M) TWO-LANE ENTRANCE (BDE FIGURE 37-6.M)
- (N) WEAVING SECTION (BDE FIGURE 37-6.N)
- (R) MINOR DIVERGENCE (BDE FIGURE 37-6.R)
- (T) MINOR CONVERGENCE (BDE FIGURE 37-6.T)
- (U) C-D ENTRANCE (BDE FIGURE 37-4.C-1)
- (V) C-D ENTRANCE (BDE FIGURE 37-4.C-2)
- (W) C-D EXIT (BDE FIGURE 37-4.D-1)
- (X) C-D EXIT (BDE FIGURE 37-4.D-2)
- (Y) C-D EXIT (BDE FIGURE 37-4.D-3)



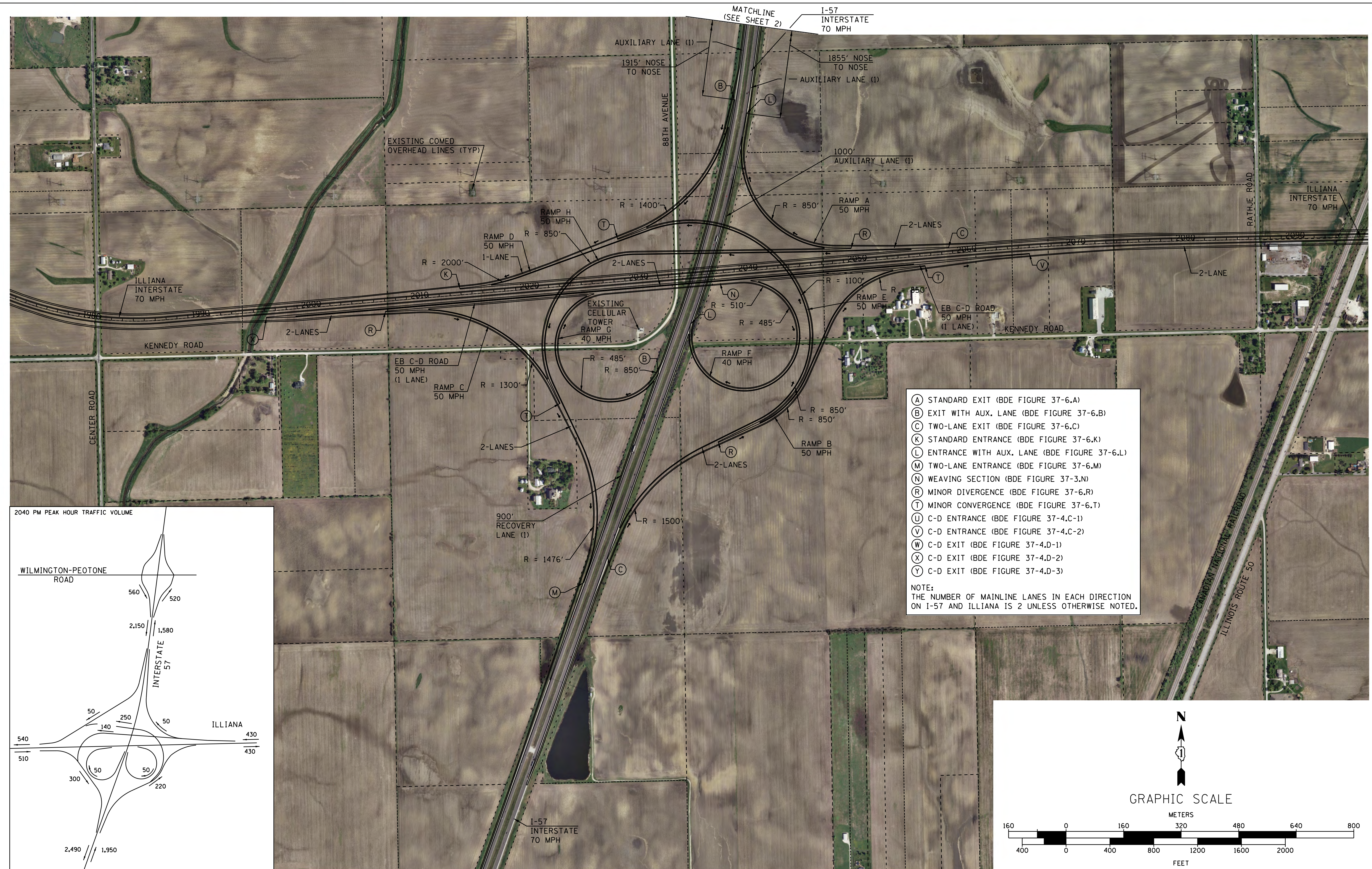
FILE NAME = I-57_Alt1.exhibits.dgn	USER NAME = rbest	DESIGNED -	REVISED -
		DRAWN - RCB	REVISED -
	PLOT SCALE = 1:400	CHECKED - APS	REVISED -
	PLOT DATE = 8/26/2013	DATE - 05-30-2013	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

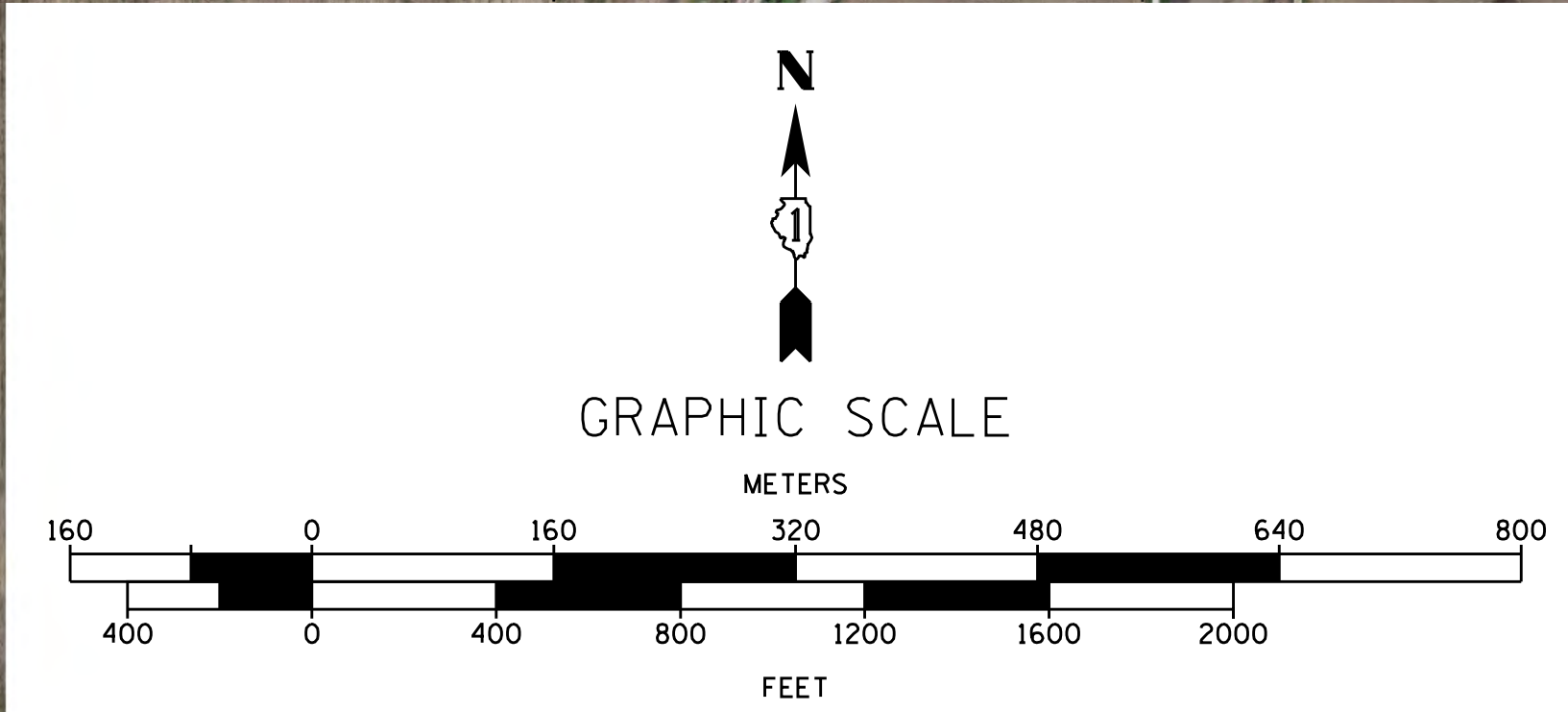
EXHIBIT 1.1
I-57 INTERCHANGE TYPE 1

SCALE: 1:400 SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		WILL		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



- (A) STANDARD EXIT (BDE FIGURE 37-6.A)
(B) EXIT WITH AUX. LANE (BDE FIGURE 37-6.B)
(C) TWO-LANE EXIT (BDE FIGURE 37-6.C)
(K) STANDARD ENTRANCE (BDE FIGURE 37-6.K)
(L) ENTRANCE WITH AUX. LANE (BDE FIGURE 37-6.L)
(M) TWO-LANE ENTRANCE (BDE FIGURE 37-6.M)
(N) WEAVING SECTION (BDE FIGURE 37-3.N)
(R) MINOR DIVERGENCE (BDE FIGURE 37-6.R)
(T) MINOR CONVERGENCE (BDE FIGURE 37-6.T)
(U) C-D ENTRANCE (BDE FIGURE 37-4.C-1)
(V) C-D ENTRANCE (BDE FIGURE 37-4.C-2)
(W) C-D EXIT (BDE FIGURE 37-4.D-1)
(X) C-D EXIT (BDE FIGURE 37-4.D-2)
(Y) C-D EXIT (BDE FIGURE 37-4.D-3)
- NOTE:
THE NUMBER OF MAINLINE LANES IN EACH DIRECTION ON I-57 AND ILLIANA IS 2 UNLESS OTHERWISE NOTED.



FILE NAME = I-57_Alt1A-exhibits.dgn	USER NAME = rbest	DESIGNED - JPS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	EXHIBIT 1.2 I-57 INTERCHANGE TYPE 1A				F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - RCB	REVISED -								WILL		
	PLOT SCALE = 1:400	CHECKED - APS	REVISED -		CONTRACT NO.								
	PLOT DATE = 8/26/2013	DATE - 05-30-2013	REVISED -		SCALE: 1:400	SHEET NO.	OF SHEETS	STA.	TO STA.				