

1.0 PURPOSE AND NEED

1.1 Purpose of the Proposed Action

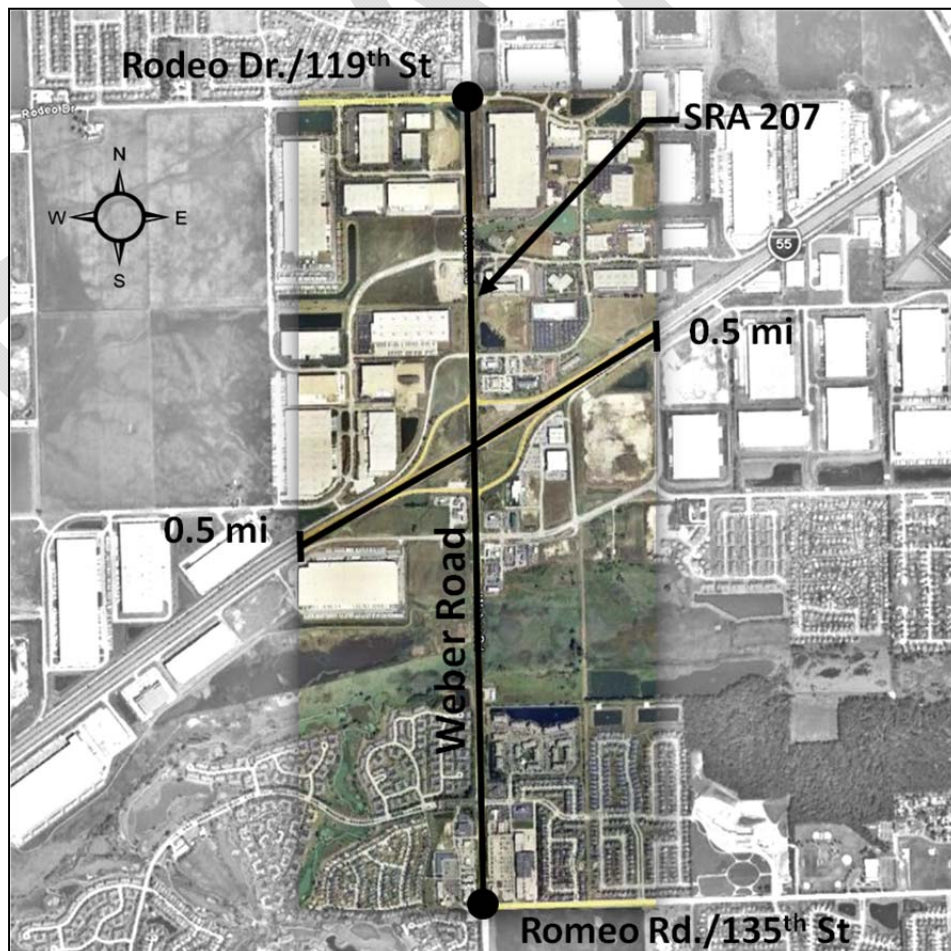
The purpose of the proposed action is to provide an improved transportation facility in the Interstate 55 and Weber Road Interchange project study area. The specific needs to be addressed include safety, operational, and capacity deficiencies.

1.2 Background

1.2.1 Project Study Area

The project is located in DuPage Township in northwest Will County and is situated within the Villages of Romeoville and Bolingbrook. The study area includes the Interstate 55 (I-55) at Weber Road interchange and ramps, and extends along I-55 a half-mile east and west of Weber Road (**Figure 1**). The study also includes two (2) miles of Weber Road, from the northern intersection of Rodeo Drive/119th Street to the southern intersection of Romeo Road/135th Street.

Figure 1: Project Study Area



1.2.2 Interchange History

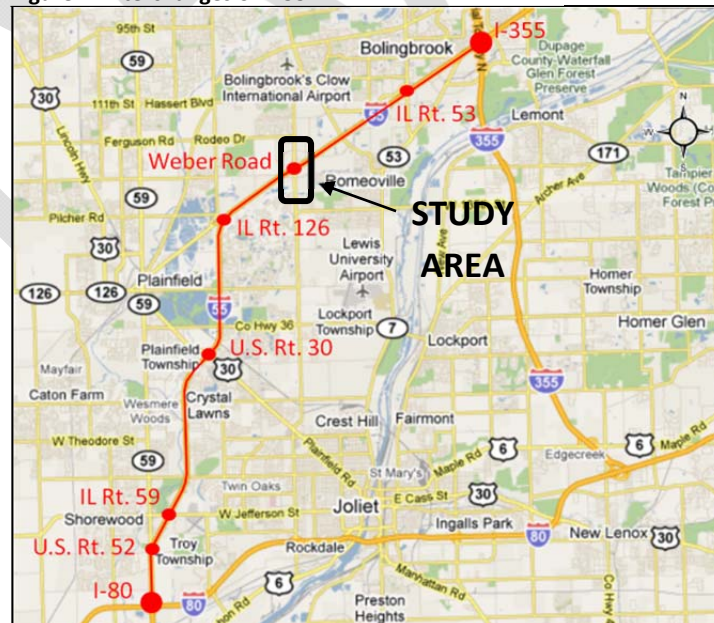
The I-55 at Weber Road interchange was built in 1990 in anticipation of growth in Will County and the municipalities adjacent to the interchange. At that time, much of the area around Weber Road was used for farming with a few residential subdivisions existing within the project study area. Will County is one of the fastest growing counties in the nation; the population has increased from 357,313 residents in 1990 to 681,097 residents in 2008, nearly doubling in size in 18 years. The area around the interchange has experienced similar growth, and land use has become more commercial/industrial in nature.

1.2.3 Classification and Regional Context

I-55 is a full access controlled north-south facility that serves local and regional traffic. I-55 connects Chicago and St. Louis and is a vital link in the transportation network of the Chicago Metropolitan Area and Will County, moving over 125,000 vehicles per day (vpd) in the project study area. I-55 and Interstate 57 (I-57), 25 miles east of the study area, are the only north/south Interstate facilities between the Chicagoland area and downstate Illinois.

The section of I-55 contained within the project study area is located along the diagonal stretch of roadway that connects to Interstate 80 (I-80) near Joliet and Interstate 355 (I-355) in Bolingbrook (**Figure 2**). I-55 was widened from two to three lanes in each direction between I-80 and Weber Road in 2008. In addition to the interchange at Weber Road, this portion of I-55 includes full interchanges at I-355 and IL Route 53 in Bolingbrook, U.S. Route 30 in Joliet, U.S. Route 52 and IL Route 59 in Shorewood, I-80 in Joliet, and a partial interchange at IL Route 126 in Plainfield. The Weber Road and I-55 interchange is located approximately three (3) miles southwest of the I-55 and IL Route 53 interchange and two (2) miles northeast of the I-55 at IL Route 126 interchange.

Figure 2: Interchanges on I-55



The “Strategic Regional Arterial (SRA) Design Concept Report,” developed in 1994 by the Illinois Department of Transportation (IDOT), outlined the SRA network of over 100 existing road sections in Northeastern Illinois and recommended improvement projects needed on each SRA route to adequately serve the increasing long-distance trip demands as supporting routes to the expressway system. Weber Road, between Naperville Road and Larkin Avenue, is identified as an SRA route (SRA 207). Naperville Road, between Weber Road and Boughton Road, and Larkin Avenue, between Weber Road and I-80, were also identified as part of SRA 207, providing a combined continuous north-south SRA corridor through the Bolingbrook, Crest Hill, Joliet and Romeoville areas and connecting to the freeways of I-55 and I-80 (**Figure 3**). The SRA report identified the Weber Road SRA section as a suburban route.

Weber Road is a Strategic Regional Arterial (SRA) under the jurisdiction of the Will County Department of Highways. Weber Road intersects I-55 at a full diamond interchange and provides access for the City of Naperville and the Village of Bolingbrook to the north and east, the Village of Plainfield to the west, and the Village of Romeoville, the Village of Crest Hill, and unincorporated areas of Will County to the south.

Figure 3: Strategic Regional Arterial Map



Source: Chicago Metropolitan Agency for Planning (CMAP), 2010

The Weber Road corridor has two systems of interconnected traffic signals. The south system consists of Weber Road intersections at Division Street, Ryan Drive, Renwick Road, Grand Haven Circle/Gaskin Drive, Airport Road, Creekside Drive, Highpoint Drive, Taylor Road, Lakewood Fall Drive, Romeo Road, and Grand Boulevard/ Carillon Drive. The north system of interconnected signals includes Weber Road intersections at Normantown Road, I-55 South Ramp, I-55 North Ramp, Windham

Parkway/Remington Road, 119th Street/Rodeo Drive, 115th Street, Hassert Boulevard and Lily Cache Lane. Weber Road is also known as FAP 856 and County Highway 88.

1.3 Existing Conditions

Will County is one of the fastest growing counties in Illinois, and is the 10th fastest growing county in the nation¹. The county's growth is expected to continue; the Chicago Metropolitan Agency for Planning (CMAP) projects that Will County's population will be over 1.1 million by 2030. The communities of Bolingbrook and Romeoville have experienced major growth in the last 20 years. The forecasted population growth, illustrated in **Table 1**, will continue to strain the area's transportation network.

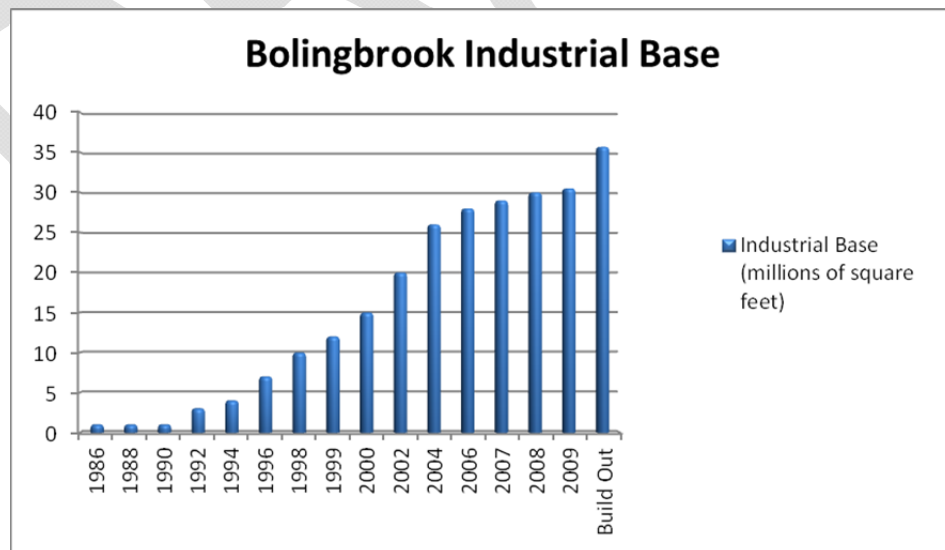
Table 1. Population Growth

	1990 Population	2000 Population	2010 Population	2030 Projection	Change 1990- 2010	Expected Change 2010 to 2030
Will County	357,313	502,266	677,560	1,076,446	90%	59%
Bolingbrook	40,843	56,321	73,366	84,733	80%	15%
Romeoville	14,074	21,153	39,680	43,883	182%	11%

Sources: U.S. Census Bureau, Chicago Metropolitan Agency for Planning (2010)

A January 2010 document developed by the Village of Bolingbrook ("Bolingbrook State of the Village," January 14, 2010) states that Bolingbrook's industrial buildings comprise nearly 30.5 million square feet, nearing its estimated total build-out figure of 35.7 million square feet. The chart below (**Figure 4**), per Bolingbrook's State of the Village report, shows the high rate of industrial base growth in Bolingbrook during the last two decades.

Figure 4. Bolingbrook Industrial Base

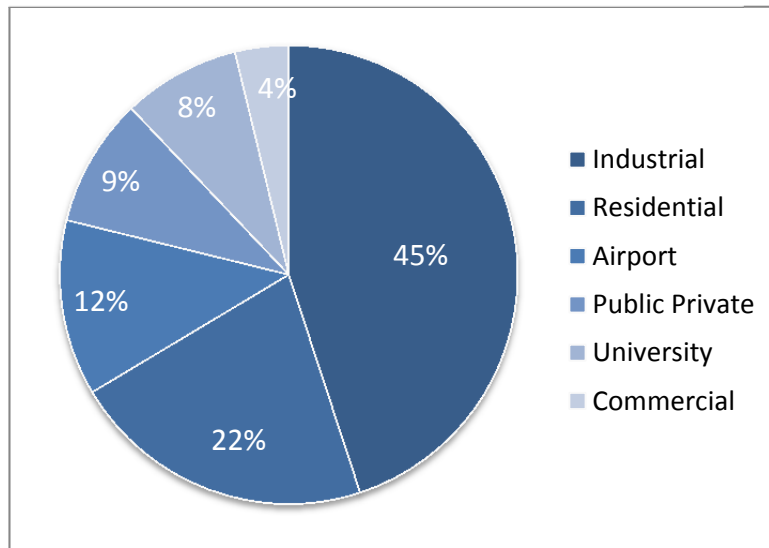


¹ Will County. *Will County Facts and Figures*. 2010.

<http://www.willcountyillinois.com/FactsFigures/tabid/245/Default.aspx>.

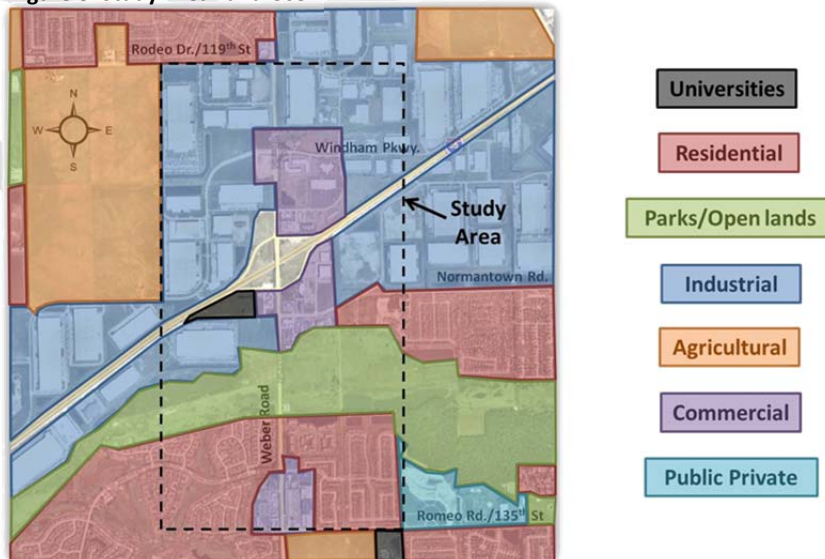
Land use data obtained from the Village of Romeoville's Community Development Department indicates that 45 percent of the land in Romeoville is used for the manufacturing industry (**Figure 5**). Much of this manufacturing land is adjacent to I-55. Companies located in this area depend on efficient freight transportation access to the interstate highway system. Nearly all of the allocated industrial area in the Village of Romeoville's 2001 Comprehensive Plan has been developed, indicating strong demand to locate manufacturing and other industrial companies in this area.

Figure 5. Romeoville Land Use



Much of the land in the project study area is currently zoned as either warehouse and distribution or business, with the majority being zoned for warehouse and distribution (**Figure 6**)².

Figure 6. Study Area Land Use



² Village of Romeoville. *Official Romeoville Zoning Map*. 2009
Village of Bolingbrook. *Official Bolingbrook Zoning Map*. 2008

Bolingbrook and Romeoville employment trends in freight transportation-dependent industrial sectors of manufacturing, wholesale trade, transportation, warehousing, and utilities show that these industrial sectors account for approximately 24 to 28 percent of all jobs in each community (**Table 2**).

Table 2. Freight-Dependent Industrial Sectors

	2000		2008		Percent Change
	Jobs	Percent of total Jobs	Jobs	Percent of total Jobs	From 2000 to 2008
<i>Bolingbrook</i>					
Manufacturing	4,419		4,864		10.1%
Wholesale Trade	1,257		2,063		64.1%
Transportation, Warehousing, and Utilities	2,251		2,166		-3.8%
Total	7,927	27.1%	9,093	23.8%	
<i>Romeoville</i>					
Manufacturing	2,003		2,450		22.3%
Wholesale Trade	538		1,031		91.6%
Transportation, Warehousing, and Utilities	1,035		1,994		92.7%
Total	3,576	31.4%	5,475	27.7%	

Source: US Census Bureau, 2008

The manufacturing base depends on efficient and reliable freight transportation access between its companies and the regional transportation system for materials and goods transportation. Weber Road is an important link in manufacturing companies' freight routes. Weber Road is located in the middle of Bolingbrook's largest industrial development area, and provides access to I-55 for both Bolingbrook's and Romeoville's industrial areas. The expanding manufacturing sector contributes to Weber Road traffic delays and increased truck traffic.

Recognizing the growing transportation problems around the interchange, Will County completed a Feasibility Study in 2009 to evaluate improvements to Weber Road and potential interchange modifications.

1.4 Public Input

IDOT identified the I-55 at Weber Road Interchange Study as a Context Sensitive Solutions (CSS) project, a process that requires early coordination with stakeholders to better understand the concerns and needs of the communities in the project study area. As a part of the ongoing stakeholder involvement throughout the study, the public's input has been sought in the development of the project's purpose. Using CSS guidelines, a Community Advisory Group (CAG) was formed from a diverse group of residents, local businesses, local and regional agency staff, and elected officials who volunteered at the project's first public meeting. The project study team met with the CAG to discuss the transportation problems, community issues, and the community context associated with the I-55 at Weber Road interchange. Input from the CAG was used to develop the project's problem statement; a written description of the transportation issues associated with the interchange from a stakeholder's perspective. The CAG reached an agreement on three elements for the I-55 at Weber Road problem statement:

- **Operations:** *I-55 ramps, Weber Road mainline, and Weber Road intersections experience delays due to high-volume turn movements, lane markings, merging issues, poor signage, and traffic signal density and timing.*
- **Capacity:** *The high volumes of truck traffic from warehouses and distribution centers, a lack of alternative north-south routes, and inadequate access to I-55 contribute to traffic in the interchange area.*
- **Safety and Efficiency:** *Traffic in the interchange area contributes to delays, impacts efficient access to local businesses, and contributes to crashes on I-55 and along Weber Road.*

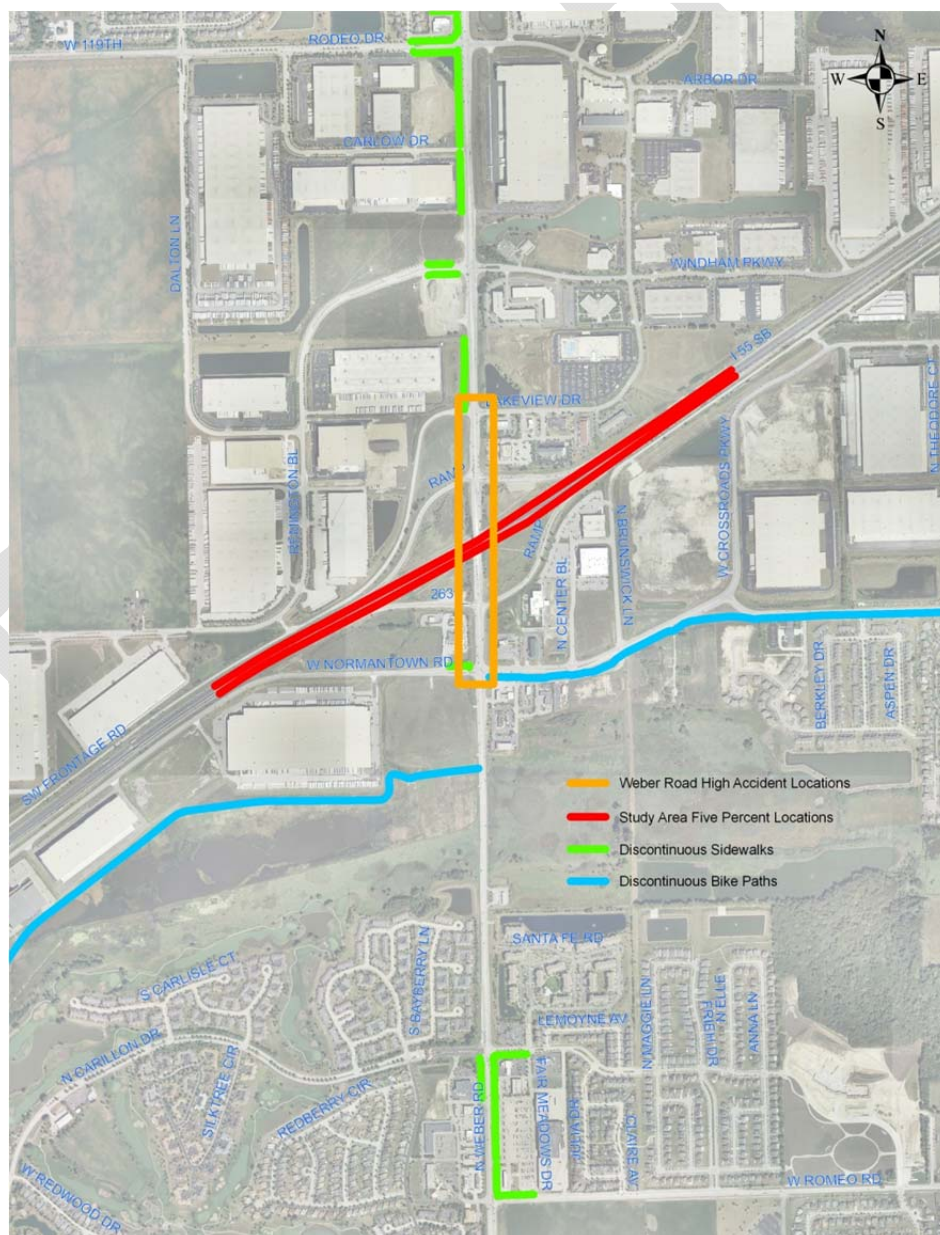
Based on stakeholder input, an inventory of existing conditions, 2040 traffic projections, and safety data, the following needs were identified for the proposed project: safety, operations, and capacity deficiencies.

1.5 Need for the Proposed Action

1.5.1 Improve Safety

An analysis of IDOT crash data from 2004-2008 has indicated the need for improved safety in the project study area. As part of the Federal Highway Administration Highway Safety Improvement Program, states are required to describe at least five percent (5%) of highway locations exhibiting the most pressing safety needs each year. Specifically, the safety issues that should be addressed in the study area include the 5 % locations identified in the study area, the high number of crashes on Weber Road near the interchange, and the lack of Americans with Disabilities Act (ADA), pedestrian, and bicycle accommodations. Identified safety needs are presented in **Figure 7**.

Figure 7. Study Area Safety Deficiencies



Interstate 55 (I-55) Safety

Two locations along I-55 around the Weber Road interchange were identified in IDOT's 2009 IL 5% report (**Figure 7**). Three fatalities occurred in the project study area; all along I-55. The fatalities resulted from impaired drivers and were likely contributors to the sections of I-55 around the Weber Road interchange being identified in 2009 as 5% locations.

Weber Road Safety

1,260 of the 1,666 crashes reported along Weber Road occurred within ¼ mile of the I-55 interchange, between Lakeview Road and Normantown Road (**Figure 7**). The high crash rates corresponded to the amount of traffic; the majority of crashes along Weber Road occurred during peak travel hours. However, there was a high amount of crashes occurring midday, indicating high levels of traffic throughout the day. A majority of the recorded crashes were rear end (67%) crashes, many of which resulted in property damage (84%); this type of crash is consistent with areas which have high levels of congestion.

ADA, Pedestrian, and Bicycle Safety

ADA, pedestrian, and bicycle access is limited around the interchange; Weber Road has roughly 0.9 miles of sidewalks throughout the project study area. There are two areas with sidewalks north of the I-55 at Weber Road interchange, both along the west side of Weber Road. One of the walkways stretches from 119th Street/Rodeo Drive to 550' south of Carlow Drive and the other from Remington Road/Wyndham Parkway to Lakeview Drive. These sidewalks are not continuous along Weber Road (**Figure 7**).

South of I-55, sidewalks exist on both sides of Weber Road from Grand Avenue/Carillon Drive to Romeo Road/ 135th Street. The leg of sidewalk on the west side of Weber Road terminates 450' north of Romeo Road/135th Street. Sidewalks in this area connects the Remington Luxury Apartments, Carillon, and Marquette Estates communities with the retail businesses and restaurants along Weber Road that represent much of the typical commercial industries in the southern portion of the project. The intersection of Weber Road and Grand Avenue/Carillon Drive represents the only intersection in the study area that has a sidewalk on both the east and west sides of Weber Road (SW and SE corners). However, the signal at this intersection signal does not include crosswalk marking or a pedestrian phasing for the crossing. Overall deficiencies include a lack of crosswalks and signalized crossings across Weber Road in the project study area. In addition, there is no existing provision for pedestrians or bicyclists on the Weber Road Bridge over I-55; however, pedestrians have been observed walking along the raised median to traverse the interstate bridge.

There are two multi-use paths in the study area, the Normantown Greenway and Panatoni Trail. They are separated by a 900-foot stretch of Weber Road (**Figure 7**) just south of Normantown Road. The Normantown Greenway extends from Weber Road 1.5 miles east along the south side of Normantown Road to Lukancic Middle School and meets the northern boundary of the 2 mile-long Com Ed trail. The Panatoni Trail travels 1.3 miles west through Lily Cache Slough from Weber Road, and terminates at Budler Road. It is currently not possible to access Panatoni Trail from Normantown Road without

entering private property. Multi-use path users that would like to connect between the Normantown Greenway and the Panatoni trail must cross Weber Road without a signalized crossing or crosswalk.

1.5.2 Address Operational Deficiencies

Intersection Density

When the interchange was originally designed and built, the northbound I-55 interchange ramps intersected Weber Road 600 feet north of Normantown Road (**Figure 8**). Ideally, when a new intersection is introduced it is intended to provide adequate space between the new and adjacent intersections to form two distinct intersections that do not impede traffic operations. Although the distance between Normantown Road and the northbound I-55 ramps meets minimum spacing requirements for access control along a crossroad at a diamond interchange, the spacing is inadequate for current traffic conditions. IDOT's BDE manual recommends that intersections are typically spaced at least 1320 feet or $\frac{1}{4}$ of a mile apart for Weber Road's posted speed of 45 mph and the existing traffic signal cycle lengths of 130 seconds. This recommendation allows for vehicles to adequately progress through the roadway corridor. However, the inadequate intersection spacing throughout the Weber Road corridor has introduced additional traffic signal delay that may discourage some users from using Weber Road because they perceive other routes, like Veterans Parkway, IL Route 53 or IL Route 59, to be quicker and easier to use.

Insufficient Accepting Throat Width

Figure 8 shows the turning movements of design vehicles for dual left turn lanes at the intersection of Weber Road and the southbound off ramp. The southbound exit ramp for I-55 has two 12-foot left turn-lanes and one 12-foot right turn-lane and the width of the roadway on southbound Weber Road is insufficient for the dual left turn-lanes exiting from southbound I-55. The existing accepting throat width (space available to make the turn) is 29 feet, creating a narrow turning path for dual left turning movements onto Weber Road. The accepting throat width for turning traffic is the most important design element for double left-turn lanes. Drivers are most comfortable with extra space between the turning queues of traffic. A 35-foot throat width is desirable for acceptance of two turning design vehicles because of the characteristics of vehicles (rear wheels do not follow the front wheels) and the relative difficulty of two abreast turns.

Thru-Lane Blockage

Stemming from inadequate storage and high traffic volumes, the left turn lane entering I-55 from southbound Weber Road exceeds capacity during peak travel periods. As a result, vehicles lined up to turn left from Weber Road back up into the left of two southbound through lanes between the bridge over the Interstate and the southbound ramp intersection. Vehicles turning left from the I-55 exit ramp onto southbound Weber Road must avoid traffic congestion in the left through lane by weaving into the right turn lane and the left-turning traffic in the adjacent. Although the north intersection at the I-55 at Weber Road interchange is affected, thru-lane blocking was observed throughout the study area.

Project area operational deficiencies are presented in **Figure 8** (next page).

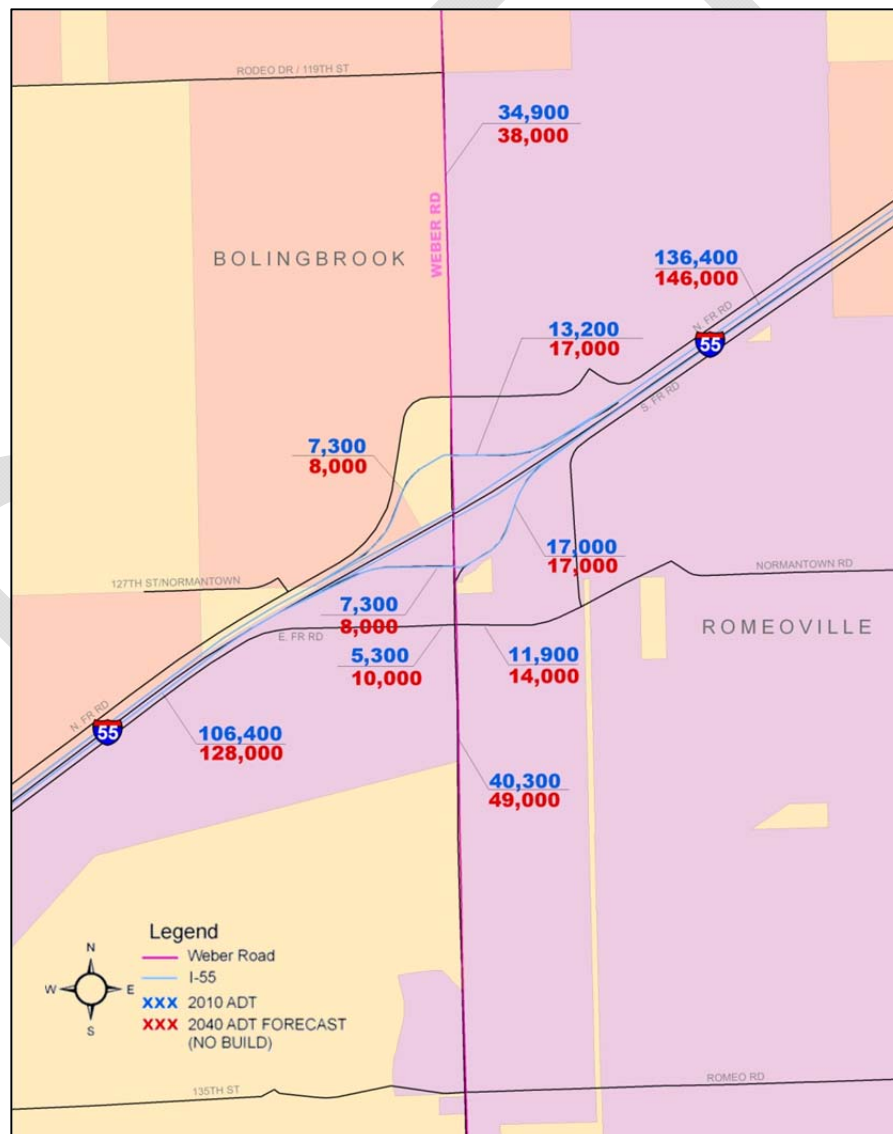
Figure 8. Project Area Operational Deficiencies



1.5.3 Improve Capacity

The demand from regional growth and industrial development has resulted in increased traffic delays along Weber Road, creating longer travel times for the efficient transport of both people and goods. **Figure 9** shows the 2010 two-way average daily traffic (ADT) volumes along I-55 are 106,400 vehicles per day (vpd) southwest of the Weber Road interchange and 136,400 vpd northeast of the interchange. The Chicago Metropolitan Agency for Planning) forecasts that traffic volumes will increase along I-55 by 20% to 128,000 vpd southwest of the Weber Road interchange and by 7% to 146,000 vpd northeast of the interchange by 2040. Without improvements to Weber Road or the I-55 at Weber Road Interchange (no build), CMAP forecasts that traffic will also increase along Weber Road. Due to the proximity and density of industry in the interchange area, the portion of heavy vehicles ranges from approximately 2% to 18% of the total traffic.

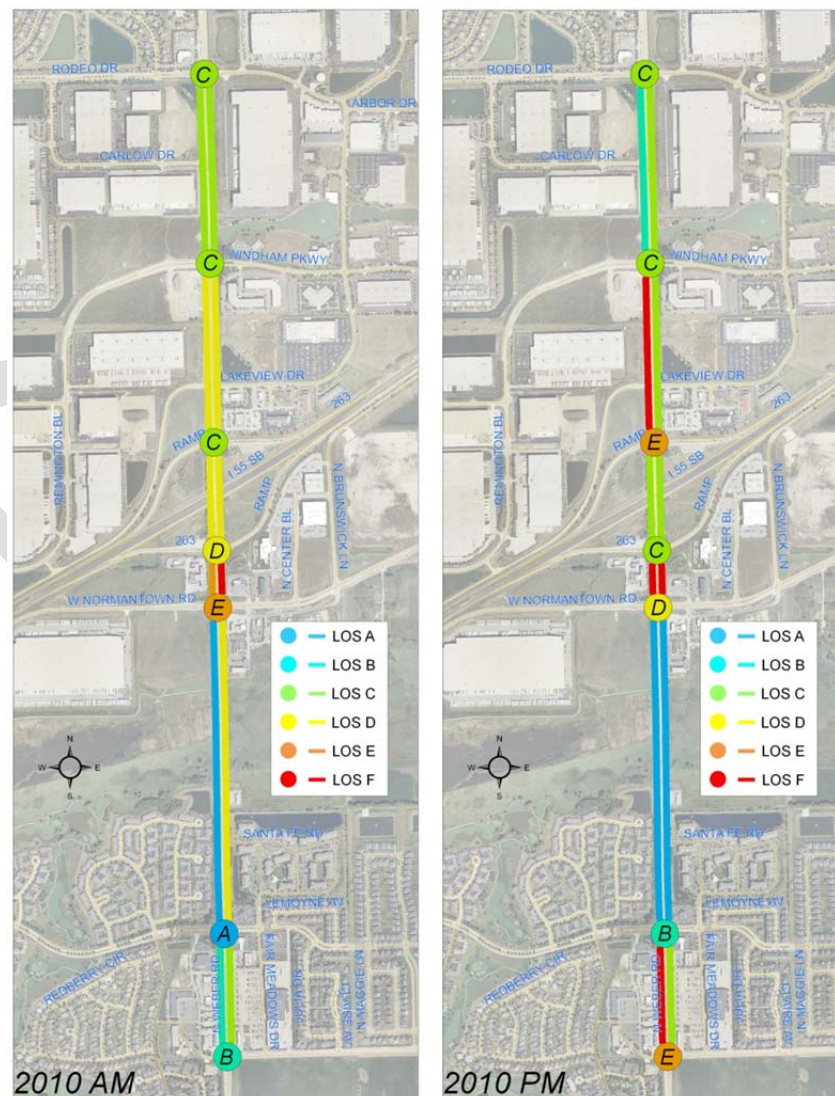
Figure 9. Existing and Forecasted Two-Way Average Daily Traffic



Level of Service (LOS) is the measure by which the quality of flow of a highway, roadway, or intersection operates under specific traffic conditions. LOS accounts for the operating speed, traffic density (vehicles per mile per lane), and traffic flow rate (vehicles per hour per lane). As travel speeds decrease and traffic density increases, traffic flow becomes increasingly unstable. LOS is graded from A to F; the AASHTO Highway Capacity Manual describes the LOS levels as A-Optimum free flow, B-Reasonable free flow, C-Stable flow, D-Approaching unstable flow, E-Unstable flow, F-Forced or breakdown flow. IDOT design standards require a Level of Service of C for suburban SRA routes, while LOS D is acceptable for some interchange elements (BDE 37-2.04).

Figure 10 illustrates AM and PM peak hour Level of Service for intersections and roadway sections along Weber Road under the existing (2010) conditions. Several intersections operate with less than desired standards (LOS E) during peak hours. Low LOS occurs for the intersection of Weber Road and Normantown Road in the AM peak hour and at the intersections of Weber Road and the Southbound I-55 ramps and Romeo Road/135th Street during the PM peak hour.

Figure 10. Weber Road Existing Level of Service (LOS)



Level of Service for the design year was also analyzed using projected 2040 traffic volumes. **Figure 11** shows that Weber Road intersections and roadway sections would continue to demonstrate low LOS in the future if no improvements are made. Five intersections and seven roadway sections show failing Levels of Service based on an analysis with 2040 projected traffic volumes.

Figure 11. Weber Road 2040 Level of Service (LOS)

