

## **1.0 Purpose and Need for Action**

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There have been no substantive changes to this section since publication of the DEIS.

The Interstate 290 (I-290) Eisenhower Expressway provides the primary east-west roadway access to the Chicago central business district. It serves northwest Cook County and DuPage County, connecting to the Reagan Memorial Tollway (I-88) and the Tri-State Tollway (I-294) on the west, and I-90/I-94 (Kennedy and Dan Ryan Expressways) on the east. A parallel Chicago Transit Authority (CTA) rail transit facility, the Blue Line Forest Park Branch is co-located in the eastern portion of the corridor along I-290, serving transit passenger travel between Forest Park and Chicago. CSX Transportation also has freight railroad right-of-way co-located in the western portion of the Study Area.

### **1.1 Project Background**

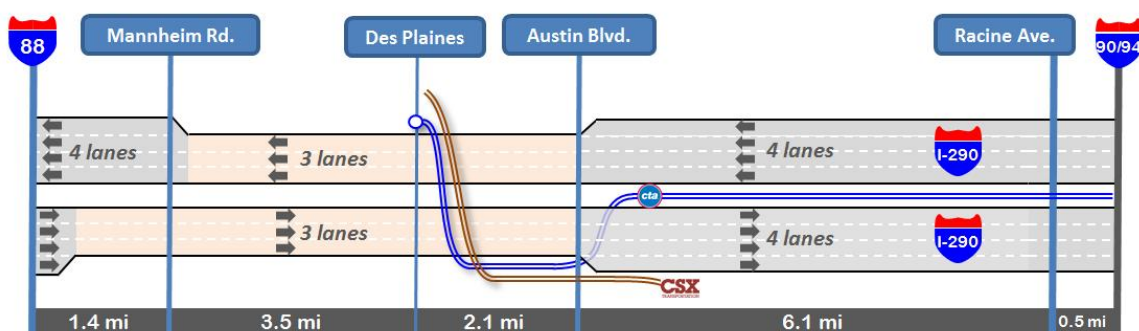
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The Eisenhower Expressway (I-290), originally constructed as the Congress Expressway, was one of the first multimodal facilities in the United States. Opened to traffic in sections beginning in the mid to late 1950's, this facility was designed and constructed according to early standards that were newly created for the interstate highway system.

During the original construction of the Eisenhower Expressway, the CTA Garfield Park rapid transit branch was removed and replaced with what is now known as the Blue Line Forest Park Branch. This heavy rail transit line was constructed parallel to the Eisenhower Expressway, running along the south side of the roadway or in the median. As part of the construction of the Eisenhower Expressway, the freight railroad owned by Baltimore & Ohio Chicago Terminal Railroad, which ran at-grade along the current alignment of the Expressway, was grade-separated and relocated adjacent to the south side of the CTA tracks, sharing the same "cut" with the CTA and the expressway from east of DesPlaines Avenue to Central Avenue. This freight rail line is now owned and operated by CSX Transportation. This section of rail is part of CSX's Altenheim Subdivision and includes the right-of-way for three tracks, including two continuous tracks and a third intermittent track. A portion of the former Chicago, Aurora and Elgin electric interurban railway was also relocated at Forest Park as part of the original expressway construction, but passenger service on that line was discontinued in 1957.

West of Mannheim Road and east of Austin Boulevard, I-290 has four lanes in each direction (Figure 1-1). Between Mannheim Road and Austin Boulevard, I-290 has three lanes in each direction. This reduction in lanes and reduced capacity has been a long standing source of safety, operational, and capacity concerns.

**Figure 1-1. I-290 Existing Configuration**



Source: WSP Parsons Brinckerhoff, 2015.

Since its original construction, I-290 has undergone periodic resurfacing and maintenance throughout the corridor. In 2001, the Hillside Interchange Reconstruction Project, located on the west end of the Study Area, was completed. This project was a spot improvement that addressed the Mannheim Road Interchange, and in doing so, addressed safety and operations at I-88's connection with I-290 and improved connections with Mannheim Road. While weaving conflicts on I-290 were reduced by the addition of the eastbound collector-distributor roadway, the project did not address capacity needs along the I-290 mainline. In 2010, 27 miles of I-290 from Thorndale Avenue to I-90/I-94 were resurfaced, and 37 bridges were repaired.

**Jane Byrne Interchange**  
 The Jane Byrne Interchange, formerly referred to as the Circle Interchange, is undergoing a 4-year reconstruction from 2014 to 2018.

In 2012, the Illinois Department of Transportation (IDOT) initiated a Phase I preliminary engineering study for the I-90/I-94 and I-290 Jane Byrne Interchange, whose western study limits extend to Racine Avenue on I-290. This improvement project includes widening of the northbound-to-westbound ramp from I-90/94 to I-290 and the eastbound-to-northbound ramp from I-290 to I-90/I-94 from one to two lanes, as well as multimodal transportation system improvements, including wider sidewalks and improved access to public transit.

The I-290 Eisenhower Expressway is identified as a fiscally constrained major capital project in the region's metropolitan transportation plan adopted by the Metropolitan Planning Organization (MPO) Policy Committee, which is the designated MPO for the northeast Illinois region.

## 1.2 Project Purpose

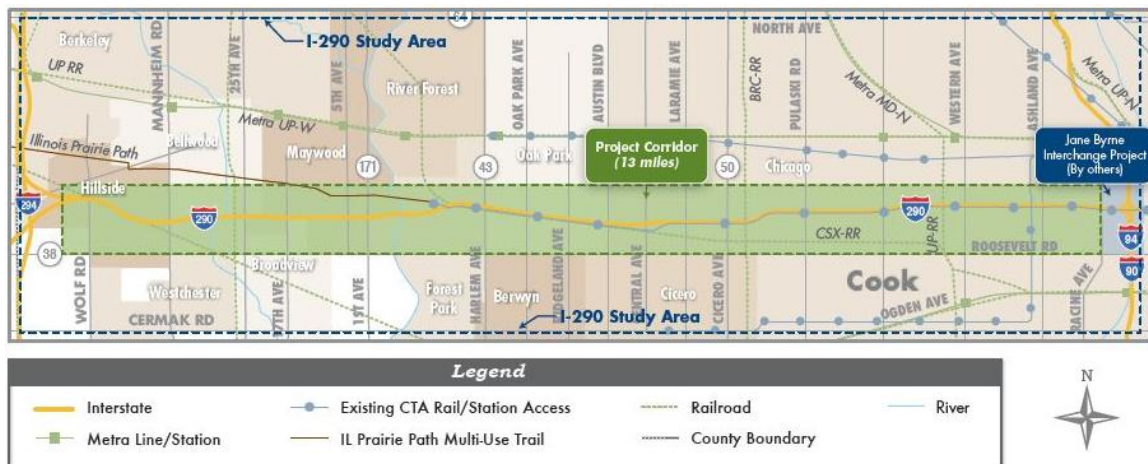
The purpose of this proposed project is to provide an improved transportation facility along the I-290 Eisenhower Expressway multimodal corridor. More specifically, the purpose of the project is to improve: 1) mobility for regional and local travel; 2) access to employment; 3) safety; 4) modal connections and opportunities; and 5) transportation facility deficiencies.

### 1.3 Study Area

The Study Area is centered along I-290 in Cook County, extending from west of Mannheim Road to Racine Avenue. The northern boundary of the Study Area is North Avenue, and the southern boundary is Cermak Road, an area of approximately 55 square miles.

The Study Area, shown in Figure 1-2, includes adjacent transit and freight railroads, interchanges, cross streets, and other parallel and crossing features that are within or in close proximity to I-290.

Figure 1-2. I-290 Study Area



Source: WSP Parsons Brinckerhoff, 2015.

The logical termini for the I-290 Study are identified as I-290 west of Mannheim Road (where there are currently four lanes in each direction) to Racine Avenue (adjacent to the Jane Byrne Interchange project). These rational end points were selected to evaluate a continuous section of the expressway corridor between two system interchanges. The scope of the I-90/I-94 at I-290 Jane Byrne Interchange project is to improve operations, safety, and capacity of that interchange. In addition, CTA, in cooperation with IDOT, is conducting a *Blue Line Forest Park Branch Feasibility/Vision Study* and associated facilities, which are currently located within the logical termini. The purpose of this parallel study is to determine CTA’s near- and long-term vision for the Blue Line corridor and coordinate those objectives with the I-290 Study. Overhead crossroad bridges in the I-290 Study Area east of Kostner Avenue are being studied by IDOT separately from this I-290 Study.

## 1.4 Project Need

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A transportation system improvement(s) is needed in the Study Area to address the following needs:

1. Regional and Local Travel;
2. Access to Employment;
3. Safety for All Users;
4. Modal Connections and Opportunities; and,
5. Transportation Facility Deficiencies.

These five principal needs or need points were identified in the technical analysis documented in the *Existing Transportation System Performance Report (2010)* and *Addenda (2013)*<sup>1</sup>, and through stakeholder and public input.

### 1.4.1 Regional and Local Travel

This need point addresses the identified need to improve mobility, or the movement of people and goods, within the region and the Study Area. For this study, regional travel is considered as travel that begins and ends outside the Study Area. Local travel is travel that either begins, ends, or occurs entirely within the Study Area.

#### 1.4.1.1 Regional Travel

There is substantial travel and congestion in the Study Area that reduces the corridor's ability to serve regional travel (Figure 1-3). One of the primary factors contributing to congestion in the corridor is that traffic demand exceeds the capacity on I-290. I-290 generally carries 185,100 to 217,700 vehicles per day (vpd), including approximately five percent trucks, on its six- and eight-lane freeway sections, respectively, according to 2012 traffic data. However, based on today's highway engineering standards, I-290 is ideally designed for 138,000 vpd for the six-lane section of the Study Area and 187,000 vpd for the eight-lane section of the Study Area for orderly traffic flow<sup>2</sup>, and the existing mainline traffic exceeds its ideal capacity by 34 percent in the six-lane section and 16 percent in the eight-lane section (Figure 1-3). Estimated year 2040 No Build traffic on I-290 is projected to increase by an average of seven percent over the existing traffic volumes. This forecasted increase in traffic reflects the lack of available capacity on I-290 to accommodate additional traffic, the fully developed land uses and transportation network throughout the

#### **No Build 2040**

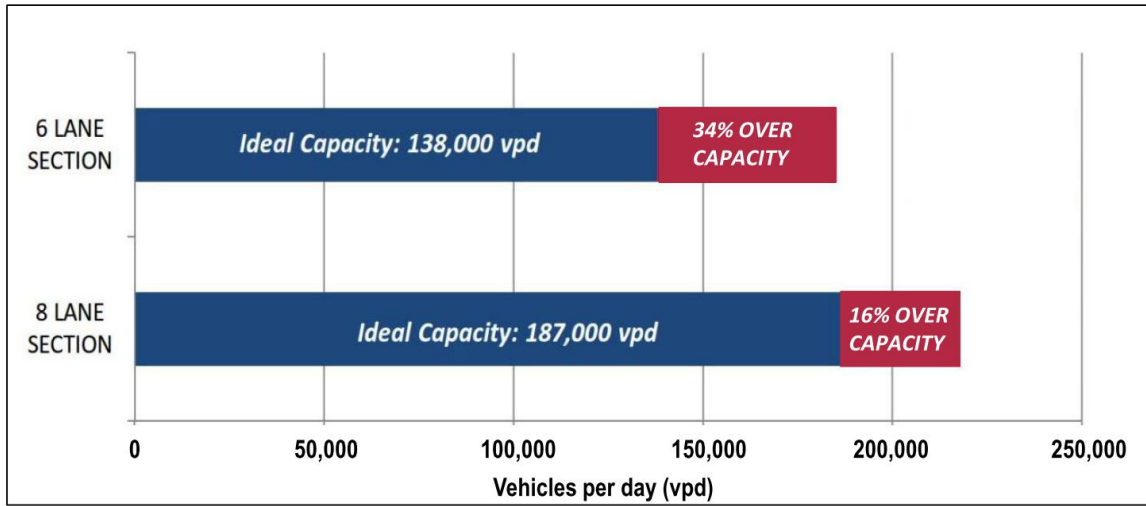
No Build (2040) traffic volumes represent a condition through year 2040 that includes all future planned and programmed infrastructure improvements, except this I-290 project. In other words, as if this I-290 project is not built.

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<sup>1</sup> [http://eisenhowerexpressway.com/info\\_center/reports.aspx](http://eisenhowerexpressway.com/info_center/reports.aspx).

<sup>2</sup> From *2000 Highway Capacity Manual*, Exhibit 13-6 using volume at 10 percent of average daily traffic (ADT) at LOS E.

**Figure 1-3. Existing I-290 Capacity**



Source: WSP Parsons Brinckerhoff, 2015.

corridor, and the additional capacity of the I-290/I-90/I-94 Jane Byrne Interchange, which is scheduled for completion in 2018.

Peak period travel speeds in the six-lane section of the Study Area are estimated to be as low as 24 miles per hour (mph) in 2010, and they are projected to slow down to as low as 12 mph for the 2040 No Build scenario. Estimated average peak period traffic speeds in the eight-lane section are projected to remain unchanged at 35 mph in 2040 for the No Build scenario.

Much of the congestion in the eight-lane section occurs in the westbound direction, from Austin Boulevard and extending approximately 5 miles back toward the east<sup>3</sup>. This congestion is attributed to the high vehicular demand in the corridor and to the abrupt I-290 mainline lane reduction from four to three lanes where the left I-290 through lane becomes the westbound off-ramp to Austin Boulevard. Similar congestion is experienced by eastbound traffic where mainline lanes are reduced from four to three lanes at 25<sup>th</sup> Avenue.

This severe traffic congestion on I-290 impacts regional travel for eastbound travel towards Chicago and Chicago's central business district, as well as for westbound travel heading towards the western suburbs in Cook and DuPage counties. This severe traffic congestion impacts through traffic, daily commuters, and commercial vehicles alike.

<sup>3</sup> Chicago Metropolitan Agency for Planning 2011 Congestion Scan  
<http://www.cmap.illinois.gov/mobility/roads/cmp/performance-measurement/scans/i-290-eisenhower-expressway-canal-street-to-wolf-road>.

### 1.4.1.2 Local Travel

Local travel, which is regarded as travel that either begins, ends, or occurs entirely within the Study Area, is negatively affected by mainline I-290 congestion, poor I-290 interchange operations, and congested arterial highways.

The I-290 interchange operations are negatively affected by the inability of vehicles to efficiently perform “movements” at the ramp/cross-street intersections. These movements include left turns, right turns, and through-intersection travel. When an interchange cannot adequately convey the traffic volumes at an intersection, the movements will become congested, cause backups, and begin to operate at very low levels of service (LOS). For arterial highways, IDOT policy indicates LOS D is acceptable in urban areas. Four out of five interchanges in the six-lane section of I-290 between 25<sup>th</sup> Avenue and Austin Boulevard currently have one or more movements that are failing (LOS E or F), compared to one out of the 11 interchanges in the eight-lane section of the Study Area. Factors affecting intersection operations include traffic demand exceeding design capacity, inadequate turn lane storage length, overburdened signal timing and phasing, and constrained intersection geometry.

The I-290 mainline traffic congestion in the six-lane section causes traffic to divert to Study Area collector and arterial streets, placing additional burden on the local road network. The existing performance of east-west and north-south arterial streets in the Study Area was evaluated based on volume to capacity (v/c) ratios. In the v/c ratio, the volume, “v,” is the number of vehicles using the roadway, and the capacity, “c,” is the number of vehicles the roadway can accommodate just before breakdown occurs. When the volume of vehicles (v) on a street reaches its breakdown capacity (c), the ratio is equal to one, and when v/c ratio exceeds 1 ( $v/c > 1$ ), operations become very unstable with closely spaced vehicles moving at slow, variable speeds. Minor disruptions within the traffic stream cannot be dissipated and result in operations that deteriorate to LOS F. Figure 1-4 illustrates the 2010 peak period v/c analysis for arterial streets, based on the I-290 existing conditions travel model results. In 2010, 80 percent of the Study Area east-west arterials corresponding to the six-lane expressway section operated at very congested conditions with v/c ratios greater than 0.90 corresponding to LOS E and F<sup>4</sup>, compared with 47 percent of the east-west arterials at very congested conditions corresponding to the eight-lane section of the expressway.

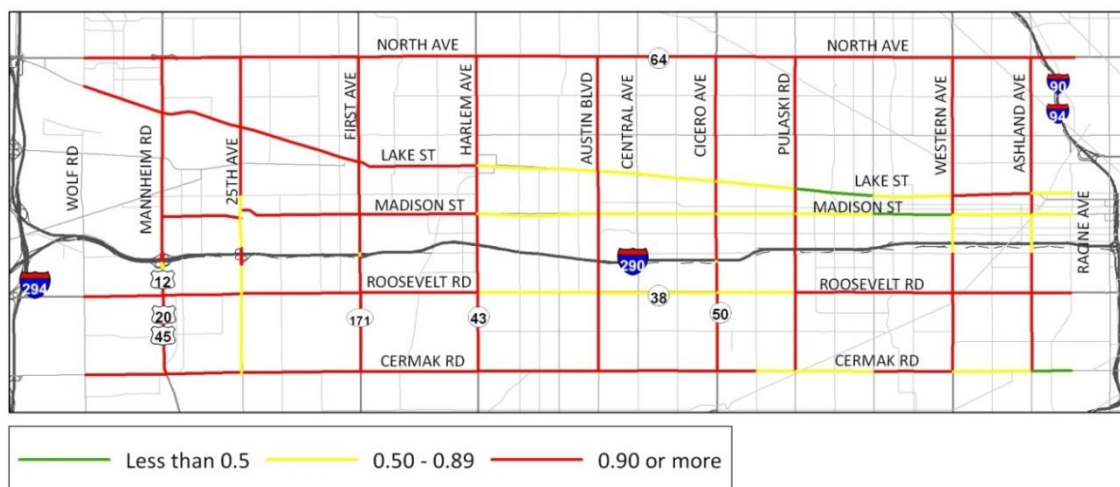
#### **Level of Service (LOS)**

A qualitative system used to measure the effectiveness of a roadway to transport vehicles by comparing traffic counts, number of lanes, and functional classifications. The LOS system uses the letters A through F, with A being best and F being worst.

- A = Free flow
- B = Reasonably free flow
- C = Stable flow
- D = Approaching unstable flow
- E = Unstable flow
- F = Forced or breakdown flow

<sup>4</sup> Transportation Research Board, *Highway Capacity Manual*, Special Report 209.

**Figure 1-4. 2010 Existing Arterial Peak Period Volume to Capacity Ratios**



Source: WSP Parsons Brinckerhoff, 2015.

Note: At v/c less than 0.5, the local road network can handle the traffic volumes. At v/c 0.50 to 0.89, the local road network is congested but can handle the traffic volumes. At v/c 0.90 or more, there are unstable, breakdown conditions, and the local road network cannot handle the traffic volumes.

## 1.4.2 Access to Employment

This need point addresses mobility for workers who reside in, work within, or travel through the Study Area, as well as the needs of regional employers. Traffic congestion on I-290 and the major arterial roads in the Study Area, and the inability to adequately accommodate additional traffic, limit the effectiveness of these transportation facilities to serve additional growth in the traditional commute (travelers heading inbound to Chicago from western and northwestern Cook, DuPage, and Kane counties during the morning peak period, and outbound from Chicago in the evening). The reverse commute (travelers heading outbound in the morning peak period and inbound in the evening peak) is also adversely affected, as are other smaller commuter travel markets. Traffic congestion on I-290 and parallel routes negatively impacts bus transit travel times and reliability, and the ability to make modal connections, as well as access to transit by automobile.

The Regional Transportation Authority's (RTA) *2005 Cook-DuPage Corridor Travel Market Analysis*<sup>5</sup>, which evaluated the current travel market within and near the Study Area from Cicero Avenue on the east to DuPage County on the west, found that there are multiple options for traditional commuters who use the existing transit network and that they have access to the central business district and other destinations within Chicago via a combination of Metra commuter rail, CTA rapid transit and CTA/Pace bus. For the Cook-DuPage travel markets within the Study Area, 33 percent of traditional commute work trips use public transit. For the reverse commute, the *Cook-DuPage Corridor Travel Market Analysis* found that there are limited transit options to jobs in western Cook and eastern DuPage counties for workers in Cook County who live east

<sup>5</sup> *Cook-DuPage Corridor Travel Market Analysis Final Report*, Regional Transportation Authority with Cambridge Systematics, Inc., December 2005.

of Cicero Avenue. The RTA study found that reverse commuters come from areas with less automobile ownership than the Cook-DuPage region as a whole, and more reverse and other commute transit options are needed. For the Cook-DuPage travel markets within the Study Area, 15 percent of the reverse commute work trips use public transit. These percentages of public transit usage for traditional and reverse commute work trips are relatively higher than the five percent of work trips provided by public transportation in the US, and 11 percent of work trips provided by public transportation in the Chicago-Naperville-Joliet, IL-IN-WI Metropolitan Statistical Area, indicating relatively high percentages of commuters in the Study Area already using public transit.<sup>6</sup>

Heavy traffic congestion on I-290 and major arterial roads in the Study Area constrains connectivity to and from the Study Area in all directions (east-west and north-south). This results in longer travel times for highway trips from or to the Study Area, especially during peak periods, with traffic congestion worsening into the future. Job accessibility from the Study Area is depicted in Table 1-1. For example, using the 2010 highway network, there are 449,000 regional 2040 jobs<sup>7</sup> accessible within 15 to 30 minutes by automobile for a trip that begins from within the Study Area. Only 302,000 regional jobs would be accessible within 15 to 30 minutes for the 2040 No Build network, a decrease of approximately 33 percent. This decrease in regional job accessibility between 2010 and 2040 is due to growing traffic congestion resulting from the inability of the existing transportation system and planned improvements (excluding major improvements in the Project Corridor) to serve the projected travel demand.

**Table 1-1. Regional 2040 Jobs Accessible by Auto from Study Area<sup>8</sup>**

<b>Auto Travel Time</b>	<b>Number of 2010 Network Jobs</b>	<b>Number of 2040 No Build Network Jobs</b>	<b>Percentage of Jobs Inaccessible by 2040</b>
Up to 15 Minutes	107,000	79,000	-26%
15 – 30 Minutes	449,000	302,000	-33%
30 – 45 minutes	1,601,000	1,391,000	-13%
45 – 60 Minutes	1,760,000	1,613,000	-8%

Source: WSP Parsons Brinckerhoff, 2015.

<sup>6</sup> *Commuting in the United States: 2009, American Community Survey Reports, ACS-15.* US Census Bureau, Washington, D.C.

<sup>7</sup> “Regional 2040 Jobs” are job destinations projected to be in place by 2040. Access to these job destinations is projected using both the existing 2010 network and the 2040 No Build network to demonstrate that job accessibility from the Study Area will be reduced by 2040, even with planned regional transportation improvements, excluding major transportation improvements in the Study Area.

<sup>8</sup> A location near the center of the Study Area was used for this analysis.



Transit travel time to jobs includes in-vehicle (travel in the rail or bus vehicle) and out-of-vehicle travel time (access time, wait times, egress times). Job accessibility from the Study Area via transit is depicted in Table 1-2. As seen in this table, there is very little change between 2010 and 2040 (less than one percent) in accessibility from the Study Area to work opportunities in the region for transit trips under 45 minutes. This can be attributed to the majority of the CTA rail and bus service in the greater I-290 corridor remaining stable between 2010 and 2040. However, for transit trips between 45 and 60 minutes, a 12 percent increase between 2010 and 2040 in the number of jobs accessible is forecasted, mainly due to the transit expansion projects identified in the Chicago Metropolitan Agency for Planning (CMAP) GO TO 2040 Comprehensive Regional Plan outside the Study Area.

**Table 1-2. Regional 2040 Jobs Accessible by Transit from Study Area<sup>9</sup>**

Transit Travel Time	Number of 2010 Network Jobs	Number of 2040 No Build Network Jobs	Percentage of Jobs Inaccessible by 2040
Up to 15 Minutes	4,000	4,000	0%
15 – 30 Minutes	57,000	57,000	0%
30 – 45 minutes	796,000	786,000	-1%
45 – 60 Minutes	477,000	534,000	12%

Source: WSP Parsons Brinckerhoff, 2015.

### 1.4.3 Safety for All Users

This need point addresses the frequency and severity of vehicular crashes in the Study Area and the conflicts between vehicles and pedestrians/bicyclists on facilities that accommodate these modes.

A crash analysis was initially performed for the 2006-2008 reporting period and then updated for the 2011-2013 reporting period, using data compiled by IDOT based on local and state police crash reports. For the 2011-2013 period, a total of 5,365 crashes and 711 injuries were reported along I-290, for an average of 1,788 crashes and 237 injuries per year. Crashes are categorized using the KABCO reporting system<sup>10</sup> as fatal (Type K); incapacitating injury (Type A); apparent but non-incapacitating injury (Type B); no apparent injury but a complaint of pain (Type C); or property damage only (Type O, also referred to as PDO).

The threshold for reporting property damage in Illinois was raised from \$500 to \$1,500 per crash in 2009. Overall, crash trends in the 2011-2013 period were similar to those in 2006-2008, with high crash locations and predominant types of crashes being similar. Recently available crash data from 2013-2015 was also analyzed to determine if crash trends were similar to the previous two reporting periods. As compared to the 2011-2013 period, overall crashes increased 12 percent but crashes involving an injury decreased by

<sup>9</sup> A location near the center of the Study Area was used for this analysis.

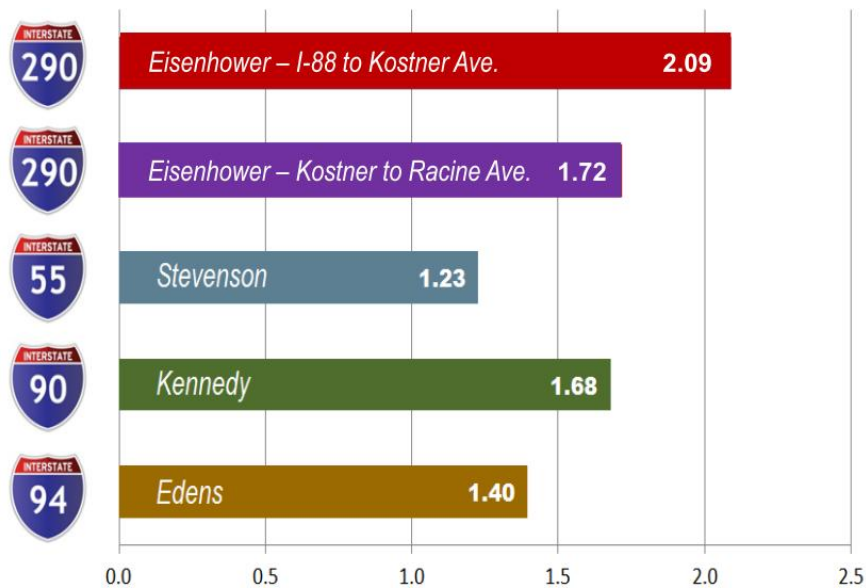
<sup>10</sup> *Manual on Classification of Motor Vehicle Traffic Accidents*, Seventh Edition, National Safety Council, 2007.

32 percent. These trends indicate that more crashes occurred at lower speeds in the 2013-2015 period as compared to the 2011-2013 period, with increased congestion being the primary contributing factor. A more detailed crash analysis, including the updated 2011-2013 and 2013-2015 crash information, is in Appendix A of this Final Environmental Impact Statement.

### 1.4.3.1 Crash Rate on I-290

Within the western part of the Study Area from I-294 to Kostner Avenue (including the six-lane section between 25<sup>th</sup> Avenue and Austin Boulevard), I-290 experiences crash rates that are 24 to 70 percent higher than comparable Chicago area freeways. Within the eight-lane section from Kostner Avenue to Racine Avenue in the eastern part of the Study Area, I-290 experienced crash rates that, while higher than other comparable freeways, were 21 percent lower than the western section. Figure 1-5 illustrates the comparison of crash rates for I-290 compared to other area expressways. As represented by Figure 1-5, I-290 in the eastern part of the Study Area does not experience the high rate of crashes of the western part of the Study Area. The overall crash rate of 1.72 crashes per million vehicle miles in the section of I-290 from Kostner Avenue to Racine Avenue is indicative of the less frequent crash occurrences within this section compared to the crash rate of 2.09 in the section of I-290 from I-294 to Kostner Avenue.

**Figure 1-5. Comparison of Chicago Freeway Mainline Crash Rates (2006-2008, 2011-2013)<sup>11</sup>**



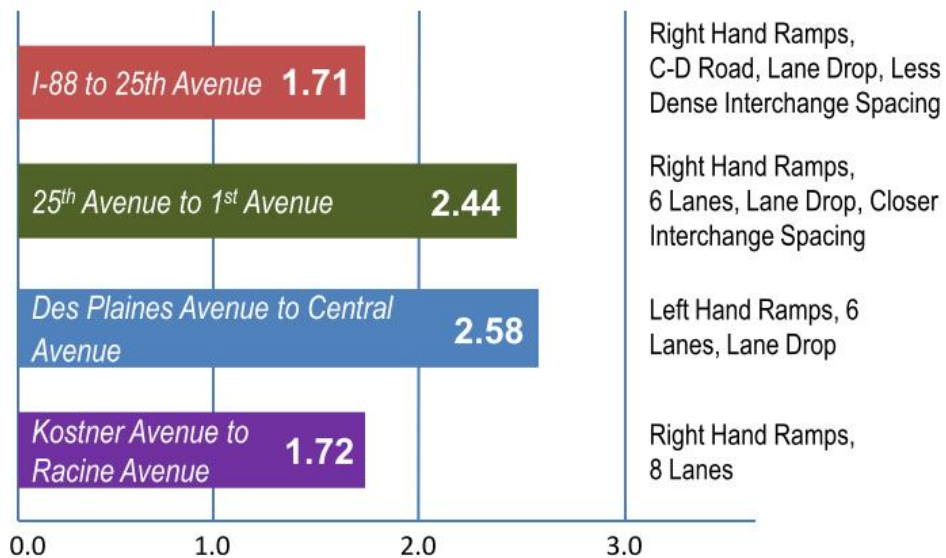
Source: WSP Parsons Brinckerhoff, 2015.

Note: Values Calculated as Crashes per Million Vehicle Miles

<sup>11</sup> 2009-2010 omitted. There was a major resurfacing on I-290 in 2010.

Within certain sections of I-290, there are variations in the crash experience based on the underlying characteristics of the roadway (Figure 1-6). For example, the eastern section between Kostner Avenue and Racine Avenue has eight travel lanes, conventional right-hand ramps, and less dense interchange and ramp spacing than the western section between 25<sup>th</sup> Avenue and 1<sup>st</sup> Avenue, and had a crash rate of 1.72 crashes per million vehicle miles in the combined 2006-2008 and 2011-2013 reporting periods. A higher crash section is located from 25<sup>th</sup> Avenue to 1<sup>st</sup> Avenue; this section has four interchanges in each direction located within a 1.5 mile distance, six travel lanes, and a lane drop from four to three lanes eastbound at 25<sup>th</sup> Avenue; this section has a crash rate of 2.44, which is higher than the average overall crash rate of I-290 from I-294 to Kostner Avenue. The section between DesPlaines Avenue and Central Avenue (which includes the Harlem Avenue and Austin Boulevard interchanges) has an even higher combined crash rate of 2.58; this section contains two interchanges with left-hand ramps, a lane drop from four to three lanes westbound at Austin Boulevard, and six travel lanes from DesPlaines Avenue to Austin Boulevard. The section between I-88 and 25<sup>th</sup> Avenue contains a lane drop from four to three lanes at 25<sup>th</sup> Avenue in the eastbound direction, but otherwise it is designed to modern standards; its crash rate is a relatively low 1.71 compared to other sections of I-290, but it is higher than the average rates of other area expressways.

**Figure 1-6. Crash Comparison of I-290 Mainline Sections (2006-2008, 2011-2013)**



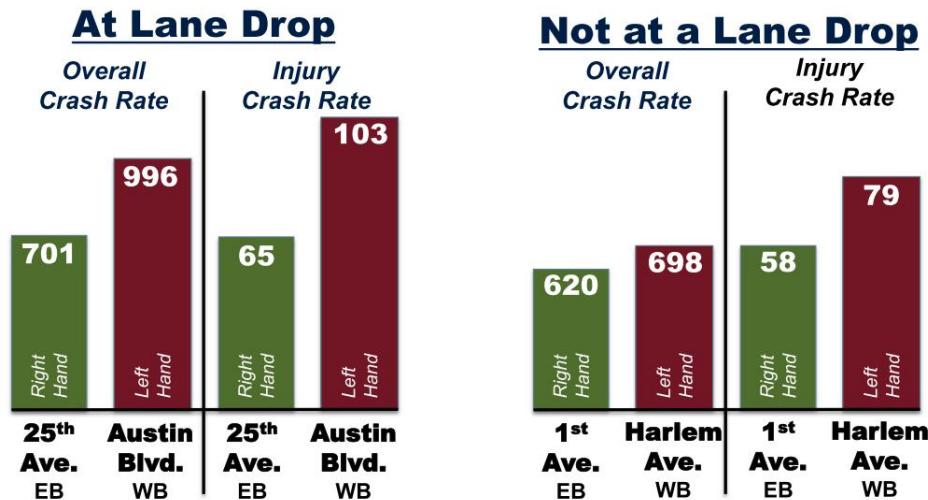
Source: WSP Parsons Brinckerhoff, 2015.

Note: Values Calculated as Crashes per Million Vehicle Miles

In the sections with higher crash rates, the presence of lane drops, close interchange spacing, left-hand ramps, and/or less mainline lane capacity contributes to the higher crash experience of those sections.

Figure 1-7 further shows that the Austin Boulevard interchange, with both left-hand ramps and the westbound lane drop, has comparatively worse crash and injury rates than other interchanges (Harlem Avenue, 25<sup>th</sup> Avenue, and 1<sup>st</sup> Avenue) with only one or none of those features. Of the interchanges without a lane drop, 1<sup>st</sup> Avenue, with right-hand ramps, has comparatively lower crash and injury rates than Harlem Avenue, which has left-hand ramps.

**Figure 1-7. Lane Drop/No Lane Drop and Left-Hand/Right-Hand Ramp Crash Comparison (2006-2008, 2011-2013)**



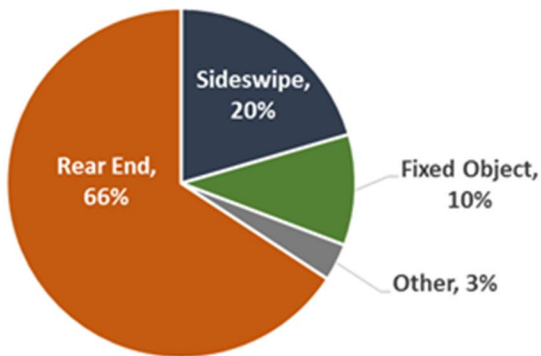
Source: WSP Parsons Brinckerhoff, 2015.  
 Note: Values Calculated as Crashes per Mile

### 1.4.3.2 Severity of Crashes

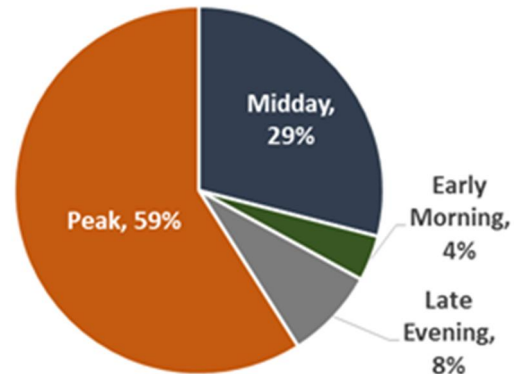
The overall predominant crash type along I-290 is rear-end (66 percent overall on a 24-hour basis) with 88 percent of rear-end crashes occurring during the peak period and midday congested travel periods between 6:00 a.m. and 11:00 a.m. (Figure 1-8 and Figure 1-9). During congested periods, rear-end collisions represent 75 percent of all crashes. National studies, as well as field observation of I-290 within the Study Area, indicate congestion as a primary cause of rear-end crashes due to erratic, stop-and-go traffic conditions with reduced space (headway) between vehicles that requires increased driver attentiveness to react to those conditions.

The other two prevalent crash types on the I-290 mainline are same-direction sideswipe and fixed object collisions off the roadway, which represent approximately 20 and 10 percent of overall crashes, respectively. Many same-direction sideswipes occur in areas where there are numerous lane-changing and weaving movements, such as near entrance and exit ramps. Most of the same-direction sideswipes are also occurring during congested conditions.

**Figure 1-8. Overall Crash Type  
(2006-2008, 2011-2013)**



**Figure 1-9. Rear-End Crash – Time of Day  
(2006-2008, 2011-2013)**



Source: WSP Parsons Brinckerhoff, 2015.

For the western portion of the Study Area, there were eight fatal crashes and 37 incapacitating injury crashes on I-290 within the 2011-2013 reporting period; 56 percent of these severe crashes involved a rear-end collision, 11 percent involved a fixed object collision, and seven 7 percent involved a same direction sideswipe. A majority of the fatal and severe crashes in the six-lane section occurred during uncongested conditions.

For the eastern portion of the Study Area, there were five fatal crashes (Type K) and 17 incapacitating injury crashes (Type A) on I-290 within the 2011-2013 reporting period; of the severe accidents, 41 percent involved a rear-end collision, 28 percent involved a fixed object collision, and approximately 19 percent involved a sideswipe collision. A majority of the fatal and severe crashes occurred during uncongested conditions.

Overall, the western portion of I-290 within the Study Area experiences a 21 percent higher crash rate than the eastern portion. Crash types in the section are predominantly rear-end crashes that occur in congested conditions and where congestion occurs, clustered around closely spaced interchange ramps, left-hand ramps, and immediately upstream of the existing four- to three-lane expressway transitions.

#### 1.4.4 Modal Connections and Opportunities

This point addresses the need to improve connections between all modes of transportation, including nonmotorized connections to transit, and improving the opportunities to better accommodate all transportation modes through cooperation and joint planning with municipalities and transit providers.

#### **Transit**

Transit for the I-290 project includes CTA rail rapid transit, Metra commuter rail, and CTA and PACE bus services.

The Study Area has a well-developed public transportation system that carries 21 percent of Study Area home-to-work travel, compared to 12 percent for the Chicago region overall. Although usage of the existing transit facilities within the Study Area is higher than for the region as a whole, these transit facilities, particularly with respect to

bus service and the Blue Line, do not operate at full capacity, and facility deficiencies hamper optimum provision of transit services.

#### 1.4.4.1 Access to Transit

With the location of the existing CTA Blue Line stations within the median or adjacent to I-290, and the original design of many of the bridge structures that serve the station entrances dating to the 1950s, access deficiencies to the existing CTA Blue Line stations have been identified. These access deficiencies include all access modes, including pedestrian, bicycle, bus, and auto. The majority of existing Blue Line station entries are pedestrian trips. Pedestrian conflicts occur due in part to heavy traffic volumes and narrow sidewalks on the bridges that serve the station entrances (Figure 1-10). Bicycle access across I-290 is difficult due to lack of bicycle accommodations. Thus, nonmotorized access to existing CTA Blue Line stations is in need of improvement.

**Figure 1-10. Narrow Sidewalks with Obstructions at Harlem and Oak Park Avenues**



Bus transfer connections from CTA and Pace bus routes to the existing CTA Blue Line stations are located on the overpasses over I-290, except for the Forest Park station. The bus routes serving these stations, depending on their direction of travel, require pedestrians to cross to the opposite side of the bridge to reach these CTA Blue Line station entrances. Due to the lack of protected pedestrian crossings, transit users often jaywalk across two to four lanes of traffic during transfers between bus routes and Blue Line stations.

For auto access, the only CTA Blue Line park-and-ride facility in the Study Area is at the Forest Park terminal station, which operates at 85 percent capacity<sup>12</sup>. Access to the CTA and Village of Forest Park park-and-ride facilities is constricted by the congested traffic patterns at the I-290 DesPlaines Avenue interchange, with backups caused by traffic waiting to enter the westbound I-290 entrance ramp. The closely spaced traffic signals

<sup>12</sup> CTA Forest Park station parking utilization as reported by RTA (<http://www.rtams.org/rtams/station.jsp?id=51100390>).

on DesPlaines Avenue and left turns required for egress/ingress for Pace and CTA bus operations also results in delays to transit operations.

#### 1.4.4.2 *Nonmotorized Connections*

There is limited pedestrian and bicycle access within the Study Area. Between the west end of the Study Area and east of Cicero Avenue, there are only two pedestrian/bicycle dedicated crossings of I-290. In addition, five major street crossings of I-290 in this section (Wolf Road, Mannheim Road, 1<sup>st</sup> Avenue, DesPlaines Avenue, and Cicero Avenue) are designated “Not Recommended for Bicycle Travel” by IDOT’s Bicycle Map, and the remainder of the I-290 street crossings in the six-lane section do not have bicycle accommodations that would provide safer, more comfortable operating zones for bicyclists, except for Ridgeland Avenue in Oak Park, which has marked shared bike lanes. In the eight-lane section from east of Cicero Avenue to Racine Avenue, designated bicycle/pedestrian crossings occur every mile, on average. These crossings are being examined as part of the previously mentioned IDOT bridge projects within the Extended Study Area.

#### **Nonmotorized**

Nonmotorized for the I-290 project includes pedestrian and bicycle facilities, such as sidewalks, trails, bike lanes, and bike racks.

#### 1.4.4.3 *Multimodal Opportunities*

The *Cook-DuPage Corridor Study* and the *Existing Transportation System Performance Report* identified several opportunities for improving transit facilities and services in the Study Area. These opportunities included renewal of the existing rail and bus infrastructure in the Study Area, potential new transit services and transportation facilities to better serve the reverse commute, and more convenient direct access to jobs for Study Area residents. The I-290 Study has been coordinated with the transit agencies and other stakeholders in the planning of future transit opportunities for the purpose of accommodating future transit improvements within the footprint of this proposed project.

#### 1.4.5 **Transportation Facility Deficiencies**

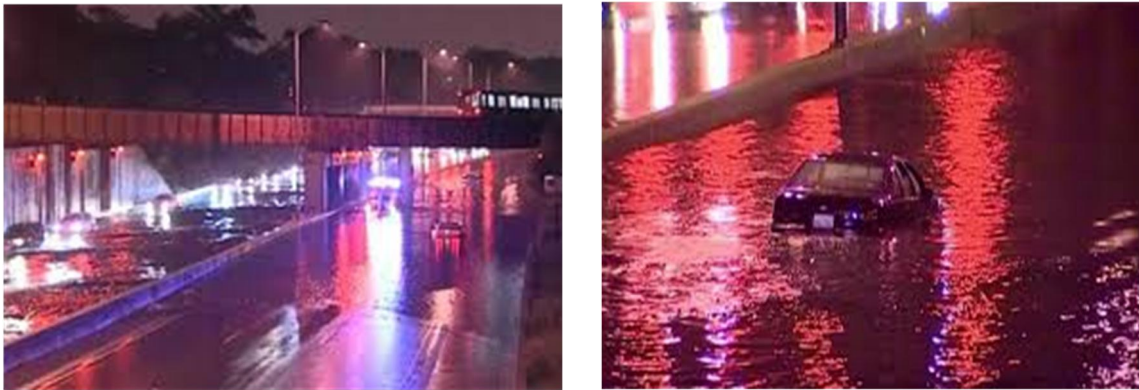
This final need point evaluates the following transportation facility deficiencies: 1) pavement and structure conditions; 2) the ability of the existing transportation system in meeting current design standards; 3) pedestrian, bicycle and transit facilities; and 4) the existing drainage system. Opened to traffic beginning in the mid to late 1950s, I-290 was designed and constructed according to early standards that were created prior to the interstate highway system. As such, the existing pavement and bridges are now more than 50 years old, exceeding their typical service life (approximately 30 years for pavement and 50 years for bridges). Regular cycles of maintenance and rehabilitation have been successful in extending the service life; however, maintenance cycles will become more frequent and do not address many of the underlying issues.

Most of the existing pavement structure on I-290 west of Cicero Avenue is original to the 1950s construction. Although the expressway was resurfaced with asphalt in 2010, more than 90 percent of the underlying existing Portland cement concrete pavement and sub-

base in the Study Area are now more than 50 years old, exceeding their typical service life by 30 years.

The drainage system, also installed in the 1950s, is in need of improvement. A detailed hydrologic evaluation of the trunk sewer in the six-lane section of the Study Area revealed that the I-290 pavement, which drainage was designed for a 10-year frequency storm, would be overtopped by a 100-year storm. This has now occurred in the July 2010, April 2013, and August 2014 storms that flooded the roadway and forced closures of I-290 and CTA rapid transit (Figure 1-11). The pump station located at the Des Plaines River is being replaced and expanded in advance of the overall I-290 reconstruction project.

**Figure 1-11. Flooding on I-290 in the Study Area**



Since the original construction of I-290, state and federal design standards for highways have been updated to provide better operations and improved safety. As such, many existing design elements do not meet current standards, including ramp entrance and exit departure angles and vertical curves, as well as interchange geometrics, including turning radii and complete street requirements.

Like the existing mainline pavement, almost all of the existing cross road structures are original to the 1950s construction. Due to rehabilitations and regular maintenance, all bridges in the Study Area west of Cicero Avenue are currently rated as structurally adequate; however, deterioration of the structures is resulting in more frequent maintenance cycles.

Having been constructed in the 1950s before the requirements of the Americans with Disabilities Act (ADA) were enacted, much of the original cross road construction that still exists in the Study Area does not meet ADA standards for sidewalk widths and pedestrian ramps. Improvements will meet ADA compliance, will accommodate high-traffic sidewalk widths, and will address pedestrian safety, especially for persons with disabilities.