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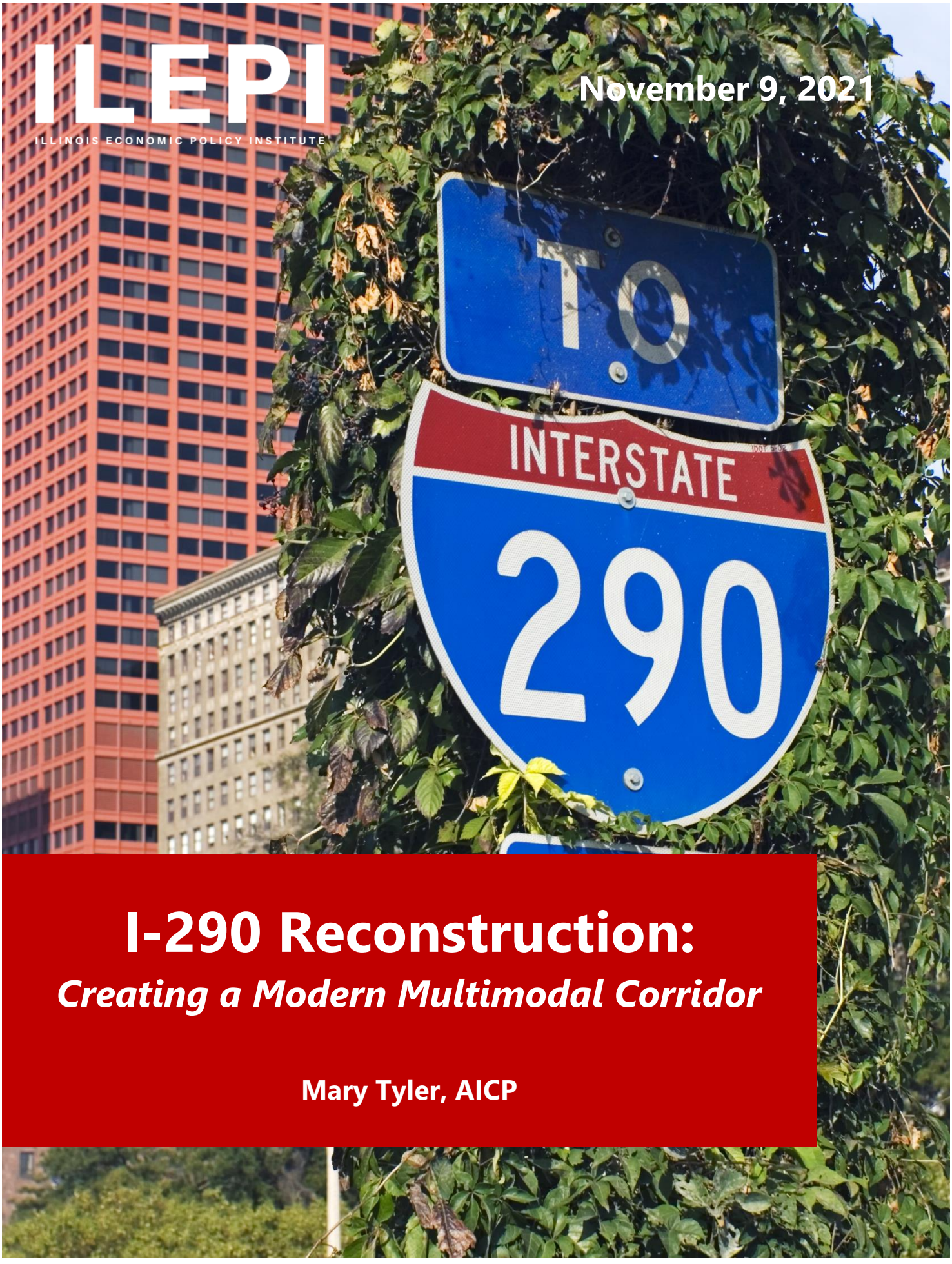

I-290 Reconstruction:

Creating a Modern Multimodal Corridor

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EXECUTIVE SUMMARY

The I-290 corridor is one of Chicago's original interstates. It is a multimodal interstate corridor, with the CTA's Blue Line running parallel between Forest Park and Chicago. The 13-mile segment of I-290 between I-94 and the I-88/I-294 interchange is currently under consideration for reconstruction and the addition of a managed lane. This project is unique in that it includes not only highway improvements, but also enhanced mobility for transit, new pedestrian and transit access, and the promotion of carpooling. The many benefits offered by this project were outlined in the recently passed Senate Joint Resolution (SJR) 31. This Illinois Economic Policy Institute report expands on these benefits and explores the proposed project and its potential equity, multimodal, mobility, and economic impacts on the Chicago region.

Creating a modern corridor, the I-290 reconstruction project offers improvements to all modes of transportation to serve the future needs of both nearby residents and commuters.

- Transit access to the CTA's Blue Line would be enhanced, including improved sidewalks, pedestrian crosswalks, and the addition of other amenities at certain stations.
- Pedestrian connectivity would be improved for communities on either side of I-290, minimizing the interstate barrier for nearby neighborhoods.
- Instead of simply constructing an additional lane where needed, this project will use a managed lane; allowing express bus access through Pace Bus and encouraging carpooling.

The existing design of I-290 is outdated.

- As much as 90% of the existing underlying pavement and subbase is original to its 1950s construction.
- Of the 44 bridges, 34% are considered "structurally deficient" and 86% are "functionally obsolete."
- I-290 reduces from four lanes to only three between Mannheim Road and Austin Boulevard, leading to bottlenecks, safety concerns, and severe congestion.
- CTA Blue Line stations adjacent to I-290 require transit riders to use narrow sidewalks along busy roads and pedestrian crosswalks that lack appropriate markings and signals across I-290 ramps.

I-290 has operational and safety issues that necessitate reconstruction and improvements.

- The 13-mile stretch of I-290 had 43 fatal crashes from 2010 through 2019, with 4.3 fatal crashes occurring on average each year; overall, I-290 had higher crash rates compared to comparable roadways.
- Both eastbound and westbound traffic experiences severe congestion during peak hours, exceeding design capacity by between 16 and 34 percent, with several stretches producing speeds below 10 miles per hour.

The I-290 project would deliver accessibility, equity, mobility, and economic benefits to the Chicago region.

- The project would support broader equity goals, ranking as one of the best highway projects in the Chicago region to improve job accessibility for residents of economically disconnected areas (EDAs).
- Wider sidewalks, pedestrian plazas, safety islands, high visibility crosswalks, lighting, and pedestrian signals would be added to better facilitate pedestrians and transit riders at existing stations.
- Travel times would reduce 25% on general purpose lanes and 56% on the managed lane.
- The construction of I-290 is estimated to create nearly 22,000 jobs and boost Cook County's gross domestic product by more than $2.6 billion.

Funding has yet to be identified for the project, but local and federal funding sources can be considered.

- The HOT3+ managed lane – a toll free lane for a vehicle with 3+ passengers – could offer some financial support, with the tolling estimated to generate $20 million annually by 2040.
- A Transit Facility Improvement Area (TFIA), which acts as a tax increment finance (TIF) district specifically for transit, could be enacted to offer funding for the concurrent CTA Blue Line project.
- I-290 may be eligible for funding under transportation funding programs of the recently passed Bipartisan Infrastructure Investment and Jobs Act.

INTRODUCTION

The I-290 corridor – also known as the Eisenhower Expressway – is one of Chicago's original interstate highways, built between 1954 and 1960. It was unique in being the first multimodal interstate corridor in the United States that incorporated a transit rail line within its right-of-way. Maintaining its multimodal status to this day, the Chicago Transit Authority's (CTA) Forest Park Branch Blue Line continues to run parallel to and down the center of the expressway between Forest Park and Chicago. I-290 runs due west out of the City of Chicago, serving as a primary link for commuters from the western suburbs into the Loop. It provides further connectivity for residents of southern Cook County to major job centers around I-88 and O'Hare International Airport (IDOT, 2021a).

The segment of I-290 between I-94 and the I-88/I-294 interchange is currently under consideration for reconstruction and the addition of a managed lane to improve mobility, safety, and infrastructure condition issues. A concurrent CTA project is also being considered in the same corridor to rehabilitate Blue Line track, station, and terminal infrastructure. An Environmental Impact Statement (EIS) was completed and approved for the I-290 rehabilitation project in June 2017. Currently, funding has yet to be identified for either project, however the many benefits offered by the I-290 reconstruction project were outlined in the recently passed Senate Joint Resolution (SJR) 31.

This report primarily focuses on the I-290 reconstruction project, exploring the need and potential equity, multimodal, mobility, and economic impact throughout the Chicago region. The revitalization of the I-290 corridor offers an exciting opportunity to improve the multimodal transportation system for the Chicago region through both highway improvements and improved access to transit.

AN INNOVATIVE PROJECT FOR CORRIDOR MODERNIZATION

The proposed I-290 reconstruction project includes not only highway improvements, but also enhanced mobility for transit, new pedestrian and transit access, and the promotion of carpooling. It is rare to find a highway project that truly incorporates multiple modes of transportation, but the transit and pedestrian components make this project an innovative proposal that supports a modern corridor.

As described in more detail in the following sections, transit access to the CTA's Blue Line would be improved at existing I-290 interchanges that have transit stops, pedestrian crosswalks and other amenities would be added, and a new pedestrian and bicycle path would be constructed. This will not only address safety issues, but also improve pedestrian connectivity for communities on either side of I-290, minimizing the interstate barrier for nearby neighborhoods.

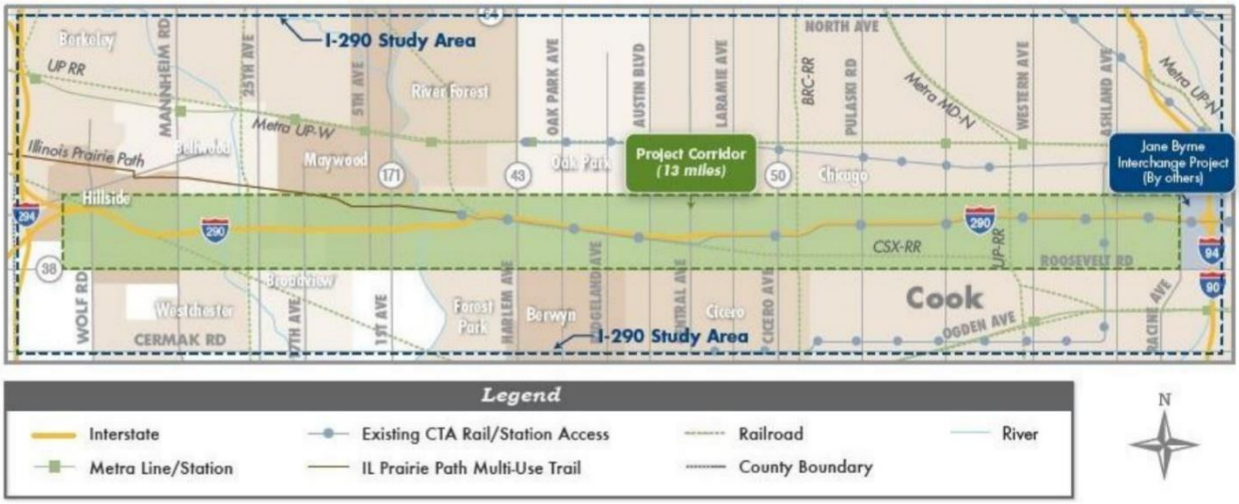
Furthermore, instead of simply constructing an additional lane where needed, this project will use a managed lane – the first in the Chicago region – for new construction, while also converting one existing general purpose lane to a managed lane in certain areas. The managed lane will support express bus access through Pace Bus and encourage carpooling by implementing tolling for any vehicle with less than three passengers.

Unlike many other highway projects, this project offers benefits to all modes of transportation, modernizing the corridor to serve the future transportation needs of both nearby residents and commuters.

PROJECT OVERVIEW

The proposed reconstruction project spans I-290 between Wolf Road and Racine Avenue, as shown in Figure 1. It intersects eight municipalities, including Chicago, Bellwood, Broadview, Forest Park, Hillside, Maywood, Oak Park, and Westchester (IDOT, 2017a).

Figure 1: Proposed Project Location



Source: I-290 Eisenhower Expressway Environmental Impact Statement (IDOT, 2017a)

The Environmental Impact Statement (EIS) considered four alternatives to improve the corridor which included different lane, traffic management, and transit options. These alternatives were evaluated on a variety of measures to determine the option that best meets project goals and objectives, including maximizing travel benefits and minimizing social, economic, and environmental impacts.

The final selected project design consists of adding one High Occupancy Toll 3+ (HOT3+) lane in each direction between 25th Avenue and Austin Boulevard – the portion of the roadway with only three existing lanes. Additionally, it will convert one existing general purpose (GP) lane in each direction west of 25th Avenue and east of Austin Boulevard to a HOT3+ lane – the sections that have four existing lanes. This will maintain three GP lanes through the entire corridor. The HOT3+ lane will not charge a toll for any vehicle with three or more occupants, with any vehicle with one or two occupants required to pay a toll. The HOT3+ lane will also allow for Express Bus service through Pace. The project would fully reconstruct I-290 between Wolf Road and Cicero Avenue and only require restriping and signage between Cicero Avenue and Racine Avenue (IDOT, 2017a).

The I-290 reconstruction project also includes interchange reconstruction and improved multimodal connectivity. Specific reconstruction and design improvements were identified at the 25th Avenue, 1st Avenue, Harlem Avenue, and Austin Boulevard interchanges, in addition to new design between Austin Boulevard and Central Avenue and reconfiguring ramps between Cicero Avenue and Laramie (IDOT, 2017a). Additionally, wider sidewalks, pedestrian plazas, safety islands, high visibility crosswalks, lighting, and pedestrian signals would be added to better facilitate pedestrian and bicycle traffic and transit riders. A provision is also included to construct a new east-west separated pedestrian path from Des Plaines Avenue to Austin Boulevard (IDOT, 2017a; IDOT, 2017b).

The concurrent CTA project would modernize and reconstruct the entire Forest Park Branch, including track and related infrastructure, stations from UIC-Halsted to Forest Park, and six substations. Specific improvements include ensuring all stations are ADA accessible and adding auxiliary entrances to stations that currently only have one entrance (Western, Pulaski, and Cicero). This also includes the redesign and reconstruction of the Forest Park Yard, maintenance shop, and terminal.

The Chicago Metropolitan Agency for Planning (CMAP) identified both the I-290 reconstruction and CTA Blue Line projects in their ON TO 2050 long range plan (CMAP, 2018a). While funding has not been identified for either project, they are both included in CMAP's Transportation Improvement Program for a future year past fiscal year 2024. The I-290 project is estimated to cost $2.7 billion and the Blue Line project is estimated to cost $1.7 billion (CMAP, 2021a; CMAP, 2021b).

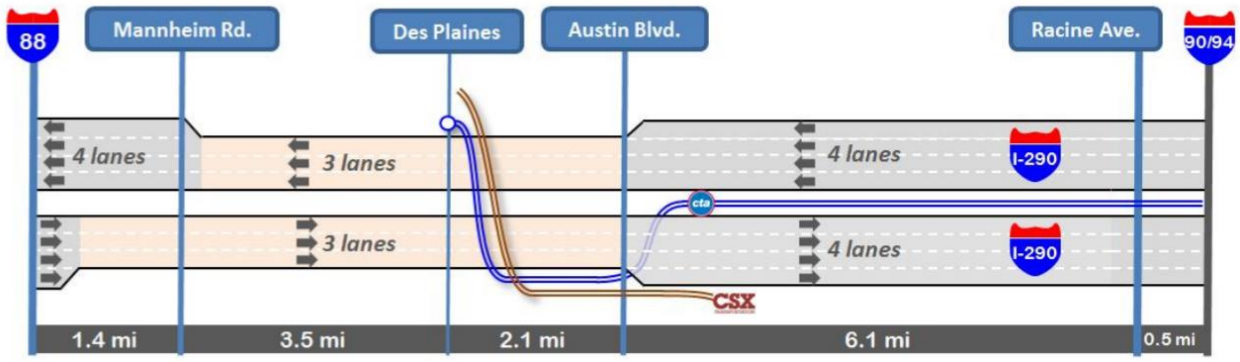
EXISTING INFRASTRUCTURE CONDITIONS

Design

Originally constructed in the 1950s, limited updates have been made to this 13-mile stretch of I-290 and it still operates within the now-outdated designs from that time. Over the years, state and federal design standards for highways have been updated to facilitate better operations and a safer roadway. As such, I-290's ramp entrance and exit departure angles, vertical curves, and interchange geometrics do not meet current standards (IDOT, 2017a).

Additionally, I-290 currently has only three lanes traveling in each direction between Mannheim Road and Austin Boulevard, with sections east of Austin Boulevard and west of Mannheim Road having four travel lanes (Figure 2). This design causes particular issues as the reduction in lanes leads to bottlenecks and general operational issues, in addition to safety concerns.

Figure 2: I-290 Existing Lane Configuration



Source: I-290 Eisenhower Expressway Environmental Impact Statement (IDOT, 2017a)

Pavement Condition

Much of the existing pavement structure of I-290 is original to its 1950s construction. Maintenance – like pavement resurfacing – has been performed over the years to extend the life of the facility, however this has not addressed underlying structural issues. The 2017 EIS found that over 90% of the underlying existing Portland cement concrete pavement and subbase are now more than 50 years old (IDOT, 2017c).

Past research from the Federal Highway Administration (FHWA) reports that the majority of pavements used within the initial construction of the interstate system were designed for a 20–25-year service life. While construction practices have shifted to pavements with a longer design life, most of which average around 30 years with some extending to 40 years, the I-290 structure well exceeds the appropriate pavement life and requires reconstruction (FHWA, 2007).

Bridge Conditions

This 13-mile stretch of I-290 has 44 bridges, the majority of which are carrying cross-street traffic over I-290 and the CTA Blue Line. Of the total 44 bridges, 15 – or 34% – are considered "structurally deficient." IDOT defines structurally deficient under their Bridge Information System as a bridge that has significant load-carrying elements in poor condition. While it does not immediately suggest that the bridge is unsafe, it does indicate that the bridge requires significant maintenance and repair to remain open to the public and will eventually require rehabilitation or replacement (IDOT, 2018).

Furthermore, of the 44 bridges, 38 – or 86% – are considered "functionally obsolete." IDOT defines those bridges as incorrectly designed for current traffic. While the bridge was adequately designed when originally built, due to a change in traffic demands, the bridge's design is no longer sufficient (IDOT, 2018).

IDOT also rates each bridge on the following four factors to generate a "bridge sufficiency rating": (1) structural adequacy and safety, (2) serviceability and functional obsolescence, (3) essentiality for public use, and (4) special reductions (based on certain limiting features). The rating is a number between 0 and 100, with 100 being an entirely sufficient bridge (IDOT, 2018). Figure 3 illustrates the ratings for all bridges on I-290 between Wolf Road and Racine Avenue. Of the total 44 bridges, 11 have a sufficiency rating below 50, with three rating at 17, two between 20 and 21, and four in the 30s. An additional 11 bridges rank between 63 and 68 (Figure 3).

Figure 3: Bridge Sufficiency Ratings, 2019

Source: Author's analysis using data from IDOT, 2021b

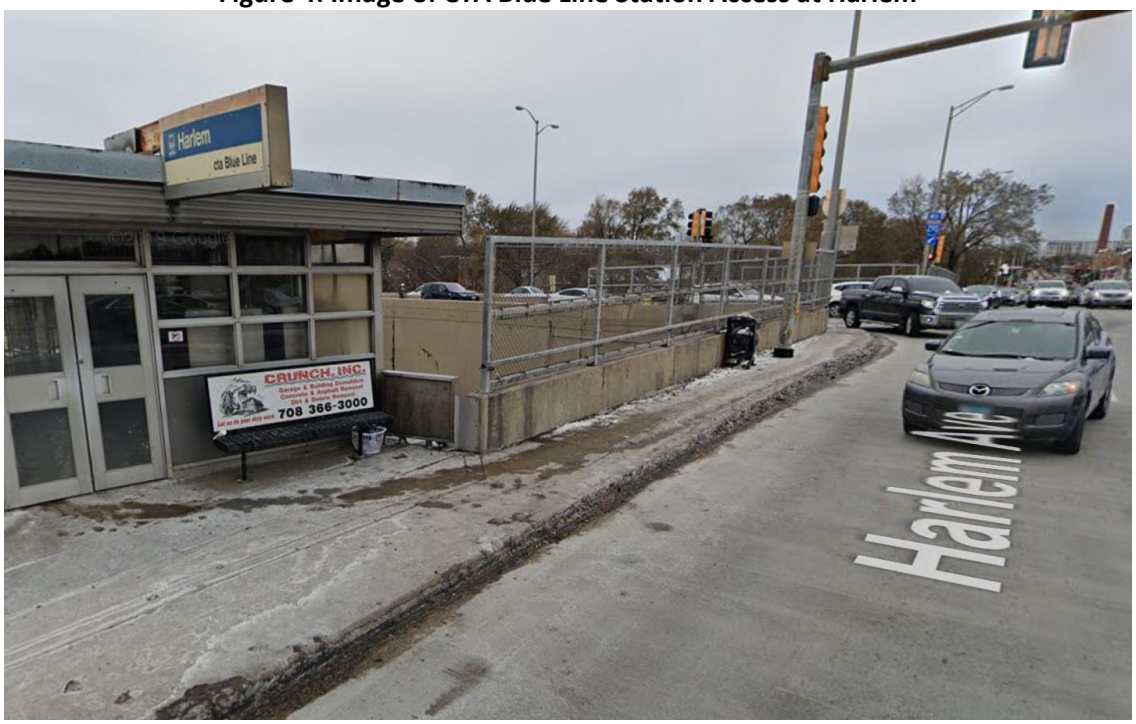
Transit Infrastructure

Focusing solely on transit infrastructure that is part of the proposed I-290 reconstruction project, the existing CTA Blue Line stations adjacent to I-290 have significant limitations for pedestrian access. Stations at Harlem, and Austin both coincide with I-290 ramps proposed to be reconstructed. They require transit riders to use narrow sidewalks along busy roads and dangerous pedestrian crosswalks

across I-290 exit and entrance ramps. The use of many of these facilities would be difficult, if not impossible, for a person in a wheelchair.

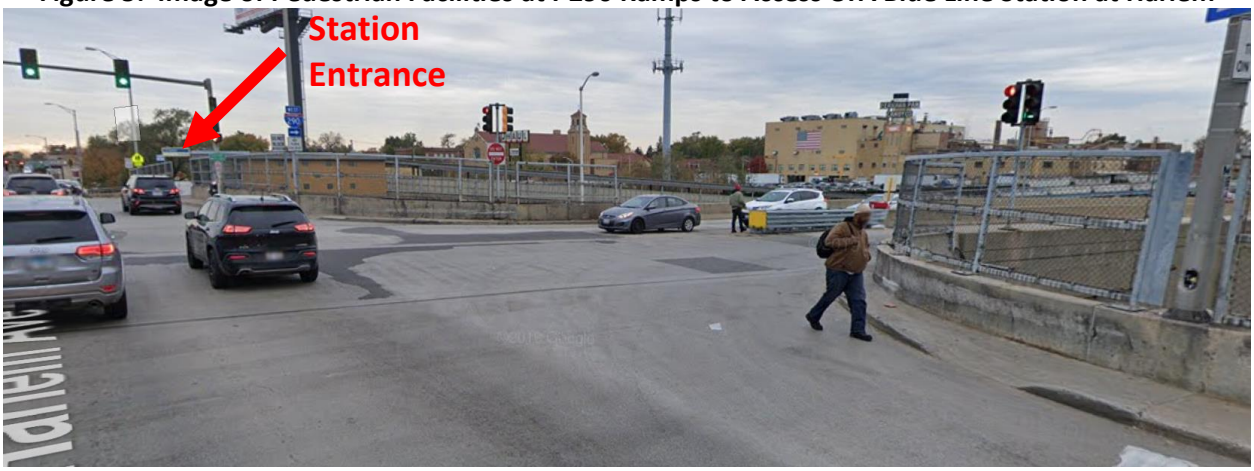
Figure 4 is a view of the Harlem Blue Line station entrance and Figure 5 shows crossing conditions at a nearby entrance and exit ramp to I-290. Both exemplify the subpar pedestrian infrastructure along the I-290 corridor, with narrow sidewalks, proximity to heavy traffic, lacking pedestrian pavement markings and signals, and the large distance pedestrians are required to cross.

Figure 4: Image of CTA Blue Line Station Access at Harlem



Source: Google Maps Street View, Image Captured October 2019 (Google Maps, 2019a)

Figure 5: Image of Pedestrian Facilities at I-290 Ramps to Access CTA Blue Line Station at Harlem



Source: Google Maps Street View, Image Captured October 2019 (Google Maps, 2019b)

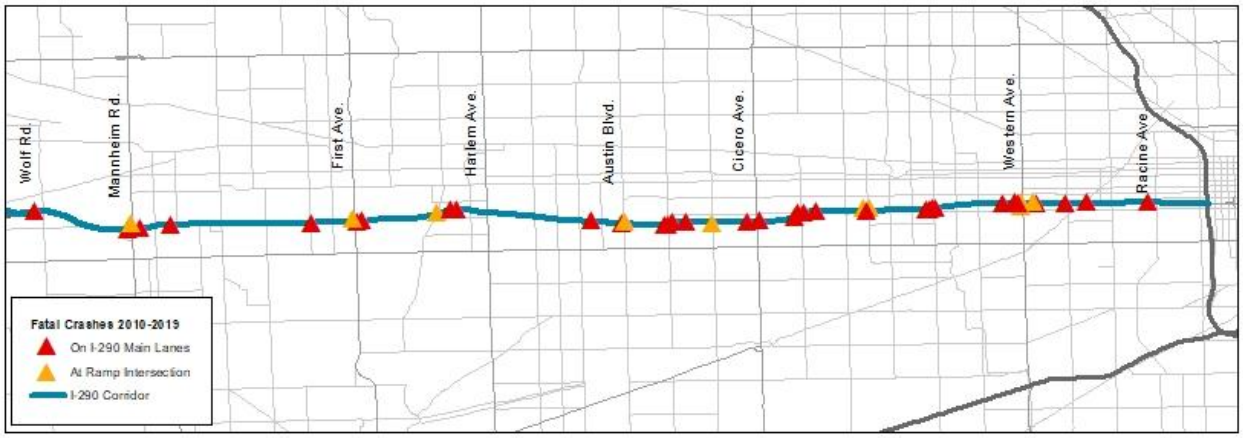
SAFETY AND MOBILITY NEEDS

Safety

Data from the National Highway Traffic Safety Administrations (NHTSA) Fatality Analysis Reporting System (FARS) is used in the following analysis. FARS provides annual data on crashes on a public roadway that resulted in a fatality. Data is gathered from police crash reports, death certificates, coroner/medical examiner reports, and other sources (NHTSA, 2021b). For this analysis, data was collected for the study area of I-290, in addition to I-90 between Division Street and Cumberland Avenue and I-55 between Halted Street to Harlem Avenue for comparison.

The 13-mile stretch of I-290 between Wolf Road and Racine Avenue experienced a total of 43 fatal crashes from 2010 through 2019. Figure 6 illustrates the location of crashes, with 10 occurring at ramp intersections while 33 were on the I-290 main lanes. The majority of crashes occurred in the eastern portion of the study area, with 30 happening at or east of Austin Boulevard. While this map does not distinguish between east- and west-bound travel, it makes sense to see an increased number of crashes east of Austin Boulevard. The I-290 main lanes decrease from four to three at Austin Boulevard for those traveling westbound, understandably causing potential traffic conflicts and safety issues.

Figure 6: Location of Fatal Crashes on I-290 between Wolf Road and Racine Avenue, 2010-2019

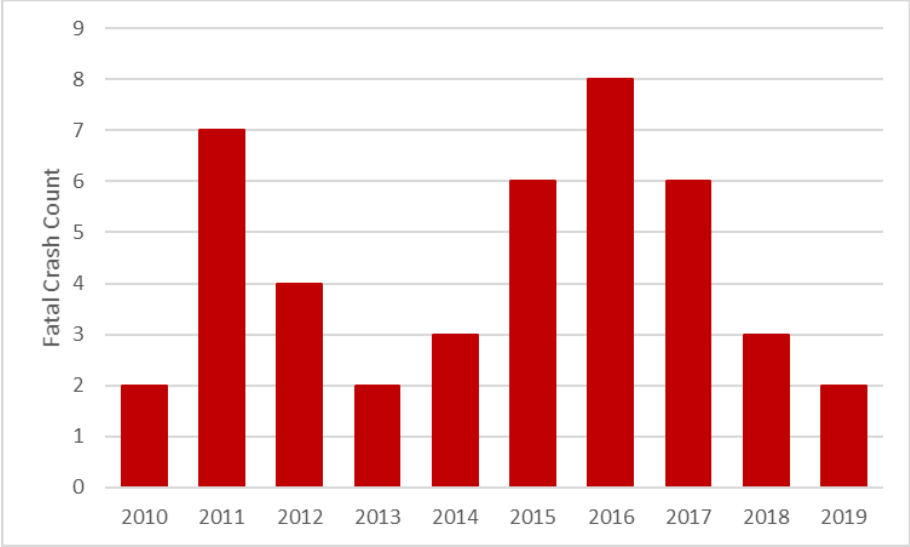


Source: Author's analysis using data from NHTSA, 2021a

Figure 7 summarizes fatal crashes for the I-290 study area by year. At least two fatal crashes have occurred each year since 2010, with 2016 experiencing a high of eight. On average, 4.3 fatal crashes happened each year in this 10-year period.

In order to understand how the study area of I-290 compares to comparable roadways, fatal crash data was gathered for I-55 between Halsted Street and Harlem Avenue and I-90 between Division Streets and Cumberland Avenue (Figure 8). The crash data is shown for all three roadways in two separate ranges for years from 2010 to 2014 and 2015 to 2019; when evaluating crashes it is recommended to use a range of five-years to have a long enough time period to account for outliers, but also ensure the most recent road conditions are reflected.

Figure 7: Count of Fatal Crashes on I-290 between Wolf Road and Racine Avenue, 2010-2019



Source: NHTSA, 2021a

Figure 8: Summary of Fatal Crashes on I-290 and Comparison to I-55 and I-90

Roadway	Distance (miles)	AADT*	Fatal Crashes			Fatal Crashes / Mile			Fatal Crash Rate**		
			Total	2015-2019	2010-2014	Total	2015-2019	2010-2014	Total	2015-2019	2010-2014
I-290 (Racine Ave. to Wolf Rd.)	12.8	177,658	43	25	18	3.4	2.0	1.4	0.52	0.60	0.43
I-55 (Halsted St. to Harlem Ave.)	10.0	151,475	23	13	10	2.3	1.3	1.0	0.42	0.47	0.36
I-90 (Division St. to Cumberland Ave.)	11.3	211,415	20	9	11	1.8	0.8	1.0	0.23	0.21	0.25

*Average Annual Daily Traffic; calculated as average of entire corridor using 2019 IDOT data
**Crash rate expressed as crashes per 100 million vehicle miles of travel

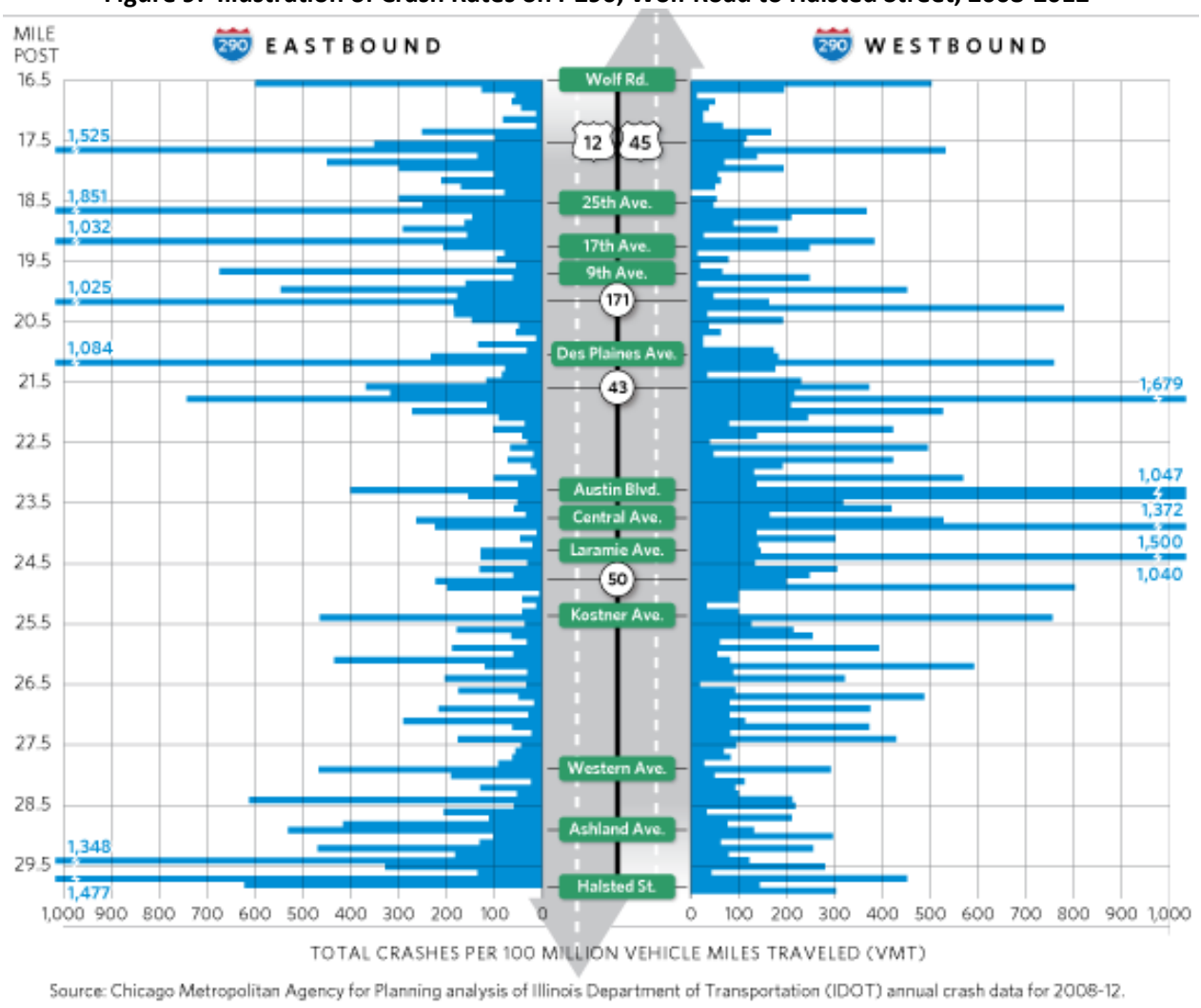
Sources: Author's analysis using data from IDOT, 2020 (AADT); NHTSA, 2021a (fatal crashes); FHWA, 2011 (crash rate formula)

I-290 experienced both the highest number of fatal crashes and the highest number of fatal crashes per mile for all time periods. Specifically, I-290 had 25 crashes between 2015 and 2019, almost twice as many experienced on I-55 (13 fatal crashes) and nearly thrice as many on I-90 (9 fatal crashes). The fatal crashes per mile for 2015 to 2019 is calculated at 2.0 for I-290, compared to 1.3 for I-55 and 0.8 for I-90.

A fatal crash rate was also calculated, which is an equation that measures the number of crashes per 100 million vehicle miles of travel by taking into account the total number of crashes, average number of vehicles per day, and length of the roadway (FHWA, 2011). After accounting for the different traffic volumes, I-290 still had the highest fatal crash rate at 0.60 crashes per 100 million vehicle miles of travel between 2015 and 2019, compared to 0.47 for I-55 and 0.21 for I-90 (Figure 8). In summary, this stretch of I-290 experienced more fatal crashes within each time period, on a per-mile basis, and after accounting for traffic volumes. This data indicates that I-290 has safety issues when evaluated against comparable roadways.

To provide a broader view on safety, Figure 9 illustrates the location and frequency of all crashes (not just fatal) along I-290 between Wolf Road and Halsted Street for the years 2008 to 2012. The graphic shows the frequency of crashes by mile marker for both directions of travel. A longer blue line indicates a higher rate of crashes at that particular location. Similar to the fatal crash trends shown in the previous maps, crash rates are higher in the miles leading up to and at Austin Boulevard traveling westbound, further indicating safety issues as I-290 experiences a lane reduction. Traveling westbound, crash rates are highest – measuring between 1,040 and 1,679 per 100 million VMT – between Laramie Avenue and Route 43. Traveling eastbound, crash rates are worst between Route 12/45 and Des Plaines Avenue, with the highest rate being 1,851 at 25th Avenue.

Figure 9: Illustration of Crash Rates on I-290, Wolf Road to Halsted Street, 2008-2012



Source: CMAP, 2016b

When comparing the crash rates illustrated in Figure 9 to the intensity of congestion in Figure 12, it is clear to see that crashes go hand-in-hand with congestion. While this data is not as current as the fatal crash rates, it still demonstrates that I-290 experiences a significant number of crashes that could be addressed with roadway improvements.

Traffic Volumes

Average daily traffic in 2019 averaged over 177,000 vehicles per day for I-290 between Wolf Road and Racine Avenue. As shown in Figure 10, most of the corridor experiences traffic volumes above 170,000 vehicles per day, with stretches between Cicero Avenue and Western Avenue reaching above 200,000. Traffic is slightly lower west of Mannheim Road as it approaches the I-88/I-294 interchange.

Figure 10: Annual Average Daily Traffic (AADT), 2019

Source: Author's analysis using data from IDOT, 2020

To understand travel over time, Figure 11 summarizes vehicle miles traveled (VMT) between 1984 and 2016 on this stretch of I-290. The corridor experienced significant growth between 1984 and 2000, with VMT growing by 22%. While VMT experienced a drop between 2000 and 2010 – a common occurrence with overall travel reducing nationwide surrounding the Great Recession – traffic grew slightly by 6% between 2010 and 2016. Overall, VMT grew by 16% between 1984 and 2016. This is significant, as minor upgrades have been made to I-290 in this time, yet VMT continues to increase (Figure 11).

Figure 11: Average Daily Vehicle Miles Traveled (VMT) on I-290 between I-94 and I-88

	1984	1990	2000	2010	2015	2016
Eastbound	1,112,610	1,254,417	1,350,628	1,240,984	1,279,950	1,309,594
Westbound	1,108,271	1,254,097	1,355,959	1,208,316	1,276,466	1,282,440
Total	2,220,881	2,508,514	2,706,587	2,449,300	2,556,416	2,592,034
	% Increase 1984-2000		22%	**% Increase 2010-2016**		6%

Source: CMAP, 2016a

The 2017 EIS found that current traffic demand exceeds I-290's available capacity, leading to severe congestion. Referencing current highway engineering standards, it was calculated that the six-lane portion of I-290 is ideally designed for 138,000 vehicles per day and the eight-lane portion is ideally designed for 187,000 vehicles per day. Comparing that to current traffic, the six-lane portion of I-290 is 34% over capacity while the eight-lane section is 16% over capacity (IDOT, 2017c).

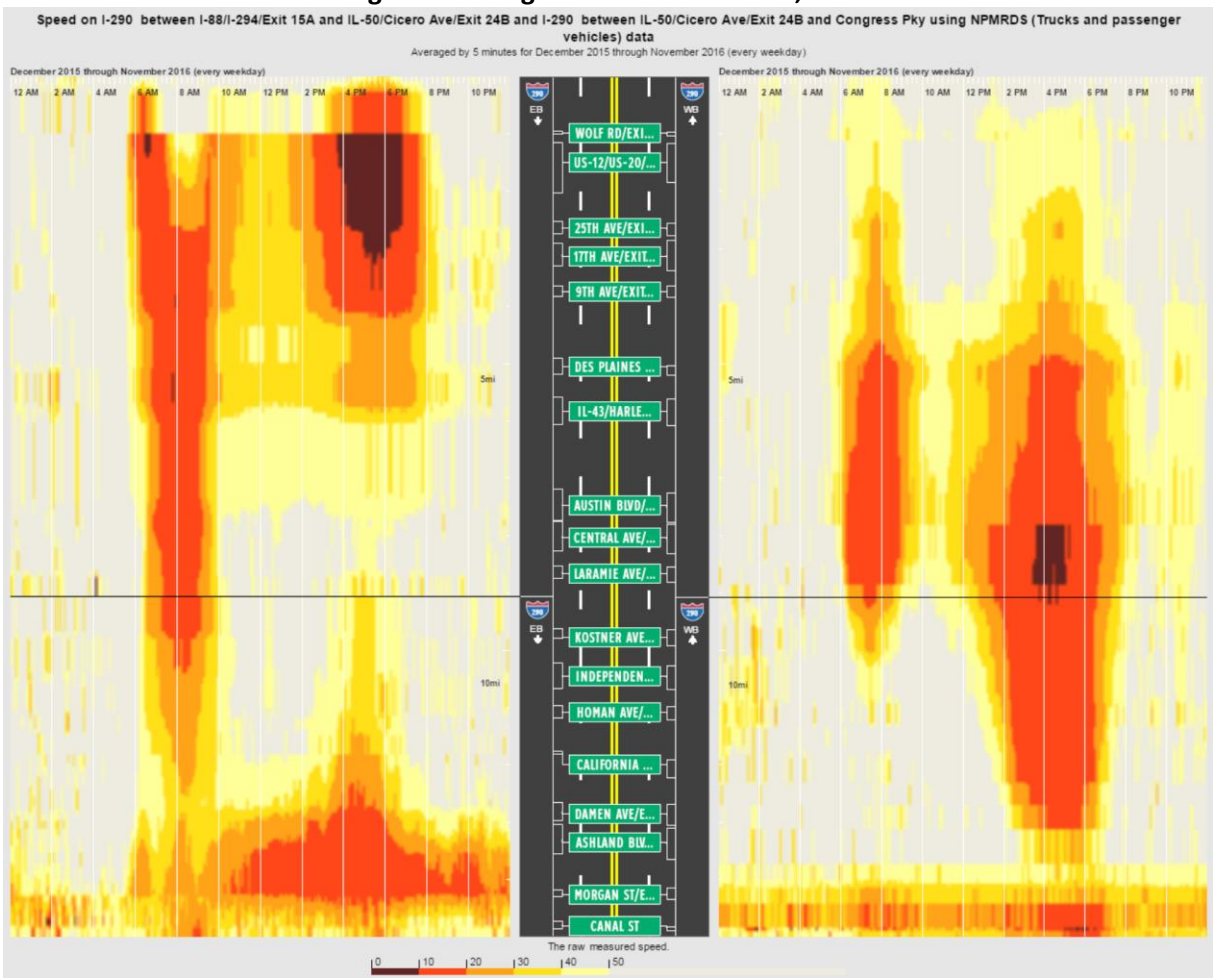
Congestion

Figure 12 illustrates weekday congestion experienced between December 2015 through November 2016. Traveling eastbound, heavy traffic persists along this entire stretch of I-290 between 6:00am and 10:00am. The evening rush – between 4:00pm and 6:00pm similarly experiences heavy traffic along most of the corridor, with speeds staying below 10 mile per hour between Wolf Road and 17th Avenue.

Additionally, it is notable that the stretch of I-290 around Damen Avenue and Ashland Boulevard experiences congestion almost the entire day.

Traveling westbound, the morning rush hour is not as harsh, however traffic slows to between 10-20 miles per hour between Des Plaines Avenue and Kostner Avenue between 6:00am and 10:00am. The evening rush is much more significant, stretching this entire corridor between 2:00pm and 6:00pm, with speeds below 10 miles per hour around Central Avenue and Laramie Avenue. This is because traffic is forced to reduce from four to three travel lanes leading up to Austin Boulevard.

Figure 12: Congestion Scans for I-290, 2016



Source: Chicago Metropolitan Agency for Planning (CMAP), 2016b

As described in the previous section, much of this congestion can be attributed to increased vehicular demand without corresponding infrastructure improvement to address the added stress. Much of the congestion can be attributed to the reduction in travel lanes from four to three. While congestion affects local, commuter, and commercial traffic using I-290, it also leads to congestion on nearby collector and arterial streets (IDOT, 2017c). This affects both nearby residents and bus transit travel times and reliability (IDOT, 2017a).

ACCESSIBILITY, EQUITY, & MOBILITY IMPACTS

The I-290 reconstruction project is expected to improve access to jobs and mobility both within the direct vicinity of the project and the Chicago region. This project has the unique advantage of also providing improved access to the transit system and pedestrian and bicycle facilities. Many of the project's impacts have been identified through the EIS, in addition to analyses performed in CMAP's long-range transportation program. While the previous sections of this report illustrated some of the many needs for the project, the following section summarizes the expected transportation impacts.

The reconstruction of I-290 was identified in CMAP's long-range regional transportation plan as a "regionally significant project." In order to understand the impact of a project, CMAP uses a travel demand model (TDM) to predict traffic movements throughout the region based on socioeconomic and employment parameters. The model is analyzed in both existing and anticipated future conditions – in this case, the year 2050 – as a means to understand how a future project will influence the transportation network.

Figure 13: Estimated 2050 Impacts of I-290 Project and Comparison to Other CMAP Highway Projects

Accessibility Measurements		Change in Value	Rank
Economic impact due to industry clustering ($M)*	Annual dollar value of increased labor productivity by enhanced business-to-business interaction and access to larger labor pool brought about by a project's changes to travel times	$68.50	1
Change in access to low barrier jobs for Economically Disconnected Areas (jobs)	Average number of higher-wage jobs that do not require a college degree that are accessible to households living in EDAs within 45 minutes by auto	+1,316	2
Change in job accessibility (jobs)	Average number of jobs each household can reach by auto within 45 minutes	+17,300	2
Project use by residents of Economically Disconnected Areas (% of VMT)	Proportion of VMT from trips originating in EDAs; reflects the degree to which a project directly benefits those areas	31%	3
Mobility and Congestion Measurements		**Change in Value**	**Rank**
Change in regional work trip travel time (minutes)	Average travel time for commutes beginning anywhere in the CMAP area	-0.20	3
Change in work trip travel time in corridor (minutes)	Average travel time for commutes beginning only in five-mile buffer around the project	-0.48	3
Change in congested VHT in region (hours daily)	Vehicle hours traveled (VHT) spent in congestion for entire CMAP region	-5,000	15
Change in congested VHT in corridor (hours daily)	Vehicle hours traveled (VHT) spent in congestion within five-mile buffer around the project	+1,800	21
Note: observed change is the result of build scenario (all planned CMAP projects in 2050) to no build scenario (removing each individual proposed project from analysis)			

Source: CMAP, 2018a

Figure 13 summarizes the predicted accessibility and mobility benefits of reconstructing and adding a managed lane on I-290. The rank column indicates how the I-290 project ranks in comparison to the 23 other highway projects listed as regionally significant by CMAP. The I-290 project provides the biggest effects on economic impact, access to jobs, and work trip travel time, ranking in the top 3 most impactful projects across each of these metrics.

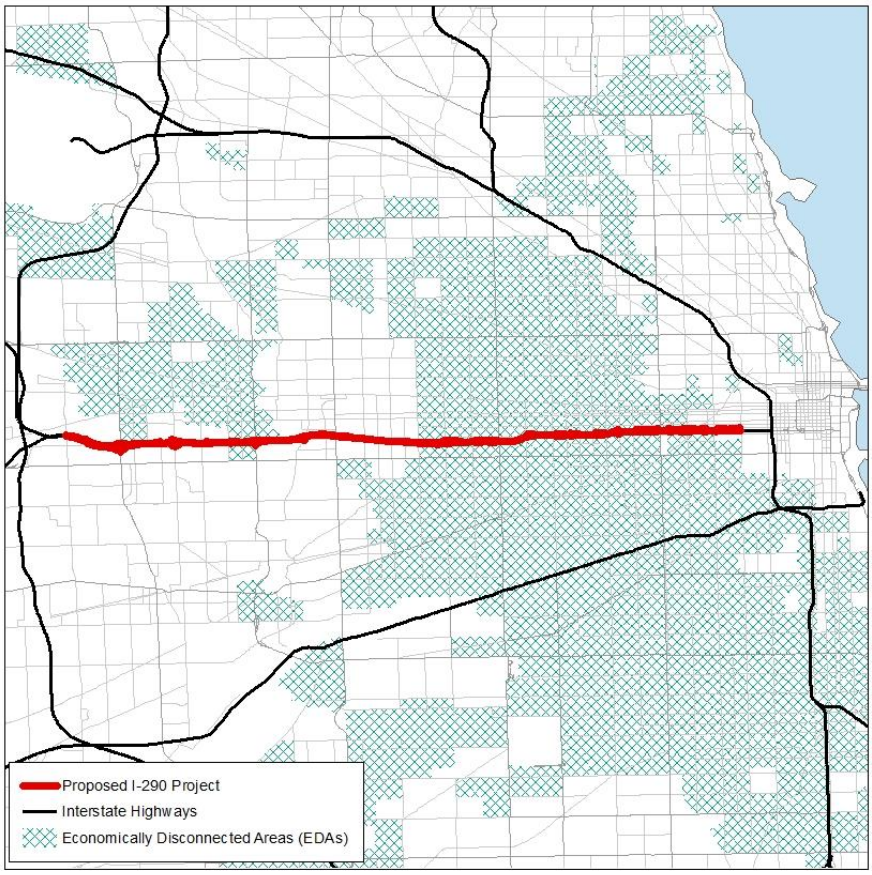
Accessibility

Ranking first compared to all other CMAP highway projects, the I-290 project will increase regional economic activity by $68 million as a result of improved travel times leading to enhanced business-to-business interaction and access to a larger labor pool. This is further shown in the anticipated increase in job accessibility, increasing the number of jobs each regional household can reach within 45 minutes by 17,300. Furthermore, the construction of the project will also improve access to low barrier jobs for Economic Disconnected Areas (EDAs). Specifically, over 1,300 more higher-wage jobs that do not require a college degree will be accessible to residents of EDAs. Both of these accessibility measures rank second compared to CMAP's other highway projects. Further proving the benefits of the I-290 project for EDAs, 31% of VMT trips originating in EDAs will use the corridor, ranking third amongst CMAP's other highway projects (Figure 13).

Equity

Disparities in employment, health, educational attainment, and income persist for Black and Hispanic residents within the metropolitan Chicago region. But transportation plays an important role in equity by creating transportation options and facilitating connections to economic and other opportunities. The Economically Disconnected Areas (EDAs) previously discussed were specifically defined by CMAP in coordination with stakeholders to facilitate appropriate planning and policy recommendations to support equitable growth by improving connections between residents and the region's economy. EDAs are defined as areas with a concentration of low-income residents and either minority residents or residents with limited proficiency in English (CMAP, 2018b).

Figure 14: Proposed I-290 Project and Economically Disconnected Areas (EDAs)



Source: Author's analysis using data from CMAP, 2020 (EDAs); IDOT, 2020 (road network)

As shown in the previous accessibility data, the proposed I-290 project will provide some of the most significant benefits to EDAs compared to all other CMAP highway projects. Specifically, it ranks 2nd in improving accessibility to higher wage jobs that do not require a college degree for residents living in EDAs and ranks 3rd for use of the facility by residents of EDAs. Figure 14 illustrates the location of EDAs within the Chicago region directly surrounding the proposed I-290 project location. EDAs are primarily concentrated on the west and south sides of Chicago. The proposed I-290 project bisects many of these areas, making it clear why it has the potential to facilitate equity improvements.

Transit and Pedestrian Facilities

The I-290 reconstruction project also includes improved multimodal connectivity to transit and pedestrian and bicycle facilities, further offering improved modal options for both local residents and residents of EDAs. The proposed managed lane offers the opportunity for Pace express bus service on the interstate, while a reduction in general congestion would improve transit travel times on nearby local streets. Additionally, wider sidewalks, pedestrian plazas, safety islands, high visibility crosswalks, lighting, and pedestrian signals would be added to better facilitate pedestrian and bicycle traffic and transit riders. A provision is also included to construct a new east-west separated pedestrian path from Des Plaines Avenue to Austin Boulevard (IDOT, 2017a; IDOT, 2017b).

Figure 15 offers an illustration of these pedestrian improvements proposed specifically near the Harlem and Austin Blue Line Stations. In particular, the safety islands – illustrated below – are beneficial in reducing the distance a person must cross in a limited time, providing a safe spot to stop if needed. Overall, these improvements offer both improved facilities for pedestrian use and added visibility of pedestrians for vehicles, creating a more comfortable and safer environment.

Figure 15: Proposed Pedestrian Improvements Near Transit Stations along I-290

Source: IDOT, 2017b

Mobility

In terms of congestion, the I-290 project would reduce congestion on the entire network throughout the CMAP region by 5,000 hours in 2050. While it is not anticipated to provide a long-term reduction in congestion within a five-mile buffer of the project, it ranks as one of the best projects in terms of reducing work trip travel time for both the region and locally around the project. The I-290 reconstruction project ranks third in terms of work trip travel time reductions both regionally and locally (Figure 13).

The EIS performed a similar TDM analysis to estimate travel times on the different types of lanes proposed under the I-290 project. With a forecast year of 2040, travel times would be 25% less on the general purpose lanes of I-290. The newly constructed managed lane would offer a 56% reduction in travel time compared to the existing travel conditions (Figure 16).

Figure 16: Estimated I-290 Travel Time Comparison

Lane	No-Build (baseline)	With Proposed Reconstruction and Managed Lane Project	% Change
General Purpose Lane	30.7	23	-25%
Managed Lane	N/A	13.5	-56%

Source: IDOT, 2017a

ECONOMIC IMPACTS

In addition to the accessibility, mobility, and equity benefits, the I-290 reconstruction project will also reap positive economic impacts. The following analysis considers the short-term economic impact from the construction of improvements to I-290.

This section uses IMPLAN (IMpact analysis for PLANning) to assess the net impact of the costs and benefits on economic activity and employment, particularly in Cook County, Illinois. IMPLAN is an input-output software that estimates the multiplier, or ripple effect, of changes in industry spending or household expenditures based on U.S. Census Bureau data. In essence, IMPLAN follows each dollar flowing through the economy and uses recent trends to estimate the impact of future policy changes or events. IMPLAN is considered the "gold standard" for economic impact modeling (Vowels, 2012).

It was assumed that the total project construction costs are $2.7043 billion and construction year was assumed to be 2025. These costs represent the total project costs as outlined in CMAP's 2019-2024 Transportation Improvement Program (TIP). The TIP includes all projects that are considered regionally significant or are expected to receive federal funding. This project cost estimate is planned for a future fiscal year and is only included for illustrative purposes. Funding has yet to be identified, but the proposed project remains consistent with CMAP's ON TO 2050 long-range plan, which identifies the complete reconstruction and addition of a managed lane as necessary improvements (CMAP, 2021a).

Figure 17 summarizes the anticipated economic impact if the I-290 reconstruction project moves forward. The construction is expected to create nearly 22,000 jobs and over $2.6 billion in Cook County's gross domestic product. More specifically, IMPLAN identifies the overall impact by direct, indirect, and induced effects, which differentiate between the source of the added value.

- Direct impacts represent the inherent additional expenditures associated with the construction process.
- Indirect impacts are the result of other businesses supplying goods and services to those performing the construction work.
- Induced impacts are the product of both project employees and indirect employees purchasing goods and services. This is also known as the induced economic effect.

The project would create over 14,000 direct jobs that pay middle-class incomes of $81,000 on average. The project would also create over 2,400 indirect jobs in industries such as manufacturing, finance, and

legal services. Furthermore, the construction of I-290 would induce over 5,000 jobs, which add another $587 million to the local economy (Figure 17).

Figure 17: Net Economic Impact from Construction of I-290

	Jobs	Compensation Per Job	Total Value Added (GDP)
Direct	14,359	$81,105	$1,608,817,564
Indirect	2,432	$97,671	$434,414,471
Induced	5,025	$65,629	$587,443,139
Total Effect	21,816	$79,387	$2,630,675,174

Source: Author's analysis of total project cost inputs using IMPLAN

Additionally, the project would produce over $70 million in both state and local tax revenue. This includes state income tax revenue, sales tax revenue, local property tax revenue, and other government taxes (Figure 18).

Figure 18: Public Budget Impact from Construction of I-290

Impact	Local	State	Federal	Total
Direct	$7,937,530	$28,999,289	$204,145,665	$241,082,483
Indirect	$29,359,899	$18,604,785	$47,450,731	$95,415,415
Induced	$32,902,863	$22,450,745	$66,278,099	$121,631,708
Total	$70,200,292	$70,054,818	$317,874,495	$458,129,605

Source: Author's Analysis of total project cost inputs using IMPLAN

LOOKING TO THE FUTURE

Despite the many transportation, equity, and economic benefits, funding has not been identified for the I-290 reconstruction project. Appropriate planning and analyses of the impacts and benefits has been performed, and now the identification of funding should be a priority. The following section will explore some existing funding components of the project and potential options to pursue in the future. Both the I-290 reconstruction and CTA Blue Line projects have the unique opportunity to provide certain local funding options, and future federal funding sources may also offer funding prospects.

Managed Lane Tolling

As previously discussed, the I-290 reconstruction project includes the addition of one High Occupancy Toll 3+ (HOT3+) lane in each direction between 25th Avenue and Austin Boulevard, and the conversion of one existing General Purpose (GP) lane in each direction west of 25th Avenue and east of Austin Boulevard to a HOT3+ lane.

A HOT lane has become a common strategy to improve congestion on highways. It allows vehicles not meeting a certain occupancy requirement to "buy-into" the lane by paying a toll. HOT lanes provide an alternate travel option for travelers wanting a more dependable route that bypasses congestion. The HOT lane also provides the benefit of reducing congestion on the main travel lanes of a highway (FHWA, 2020). In the case of I-290, the HOT3+ lane will remain toll-free for any vehicle with three or more occupants. Any vehicle with one or two occupants will be required to pay a toll. The HOT3+ lane will also allow for express bus service through Pace (IDOT, 2017a).

The HOT3+ lane will also offer some financial support for the I-290 reconstruction project, in addition to ongoing operation and maintenance funding. The EIS estimated annual revenues from the HOT3+ lane would generate over $20 million by the year 2040 (IDOT, 2017a).

Transit Facility Improvement Areas (TFIA)

While not available for the I-290 reconstruction project specifically, a Transit Facility Improvement Area (TFIA) can offer support for the concurrent CTA Blue Line project. TFIAs were created under a new law adopted in 2016 by the Illinois State Legislature (65 ILCS 5). Acting as a Tax Increment Finance (TIF) district specifically for transit, TFIAs work by allocating a set amount of the projected tax revenues on property value increase above the "base" assessed value. While TFIA's were only permitted for a limited number of transit projects, the CTA Blue Line Forest Park Extension is an eligible project. The TFIA can last up to 35 years and expires when the improvement is paid for and applies to up to one half mile from the project. Funding can be used for rail transit infrastructure, stations, and similar expenses (CMAP, 2019).

The first TFIA in Illinois was approved by the Chicago City Council in November 2016 to provide local match funding for the CTA Red and Purple Line modernization project (CTA, 2021). A TFIA for the CTA Blue Line project can also be considered as a means to provide a portion of needed funding to improve the transit facilities through this corridor.

Federal Funding

The Bipartisan Infrastructure Investment and Jobs Act – totaling $1.2 trillion – was recently passed on November 5, 2021. Several of the transportation programs may offer an opportunity for funding for the I-290 reconstruction project. Specifically, $110 billion is designated for roads, bridges, and major projects (The White House, 2021a). Of that, $16 billion is dedicated for major projects that are "too large or complex for traditional funding programs" but will create economic benefits for communities (The White House, 2021b). It has been estimated that based on formula funding alone, Illinois can expect to receive $9.8 billion for federal-aid highway and $1.4 billion for bridge replacement and repairs (Miller, 2021). As details emerge regarding these funding programs, Illinois should consider the I-290 project as a potential project submission.

CONCLUSION

The reconstruction of I-290 and addition of a managed lane will provide a multitude of transportation, equity, and economic benefits to the Chicago region. It is a prime example of a roadway in need of improvements. Its design is no longer adequate for existing traffic, exemplified by the 86% of bridges that are considered functionally obsolete and severe congestion due to a reduction in main travel lanes. This 13-mile stretch of I-290 also exhibits safety concerns and is still operating on pavement subbase from its original construction in the 1950s. Future growth and demand are only going to worsen these conditions and put further stress on the roadway. Improvements are needed, yet funding has not been identified.

I-290 also has the unique ability to not only improve vehicular travel and congestion issues, it offers improved connections to transit and pedestrian and bicycle facilities. Furthermore, it supports broader equity goals, traveling through the heart of historically disconnected areas, and ranking as one of the best highway projects in the Chicago region to improve job accessibility for residents of economically

disconnected areas. As policymakers continue to debate infrastructure funding at both the state and federal levels, roadways like I-290 should remain at the forefront of their minds.

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