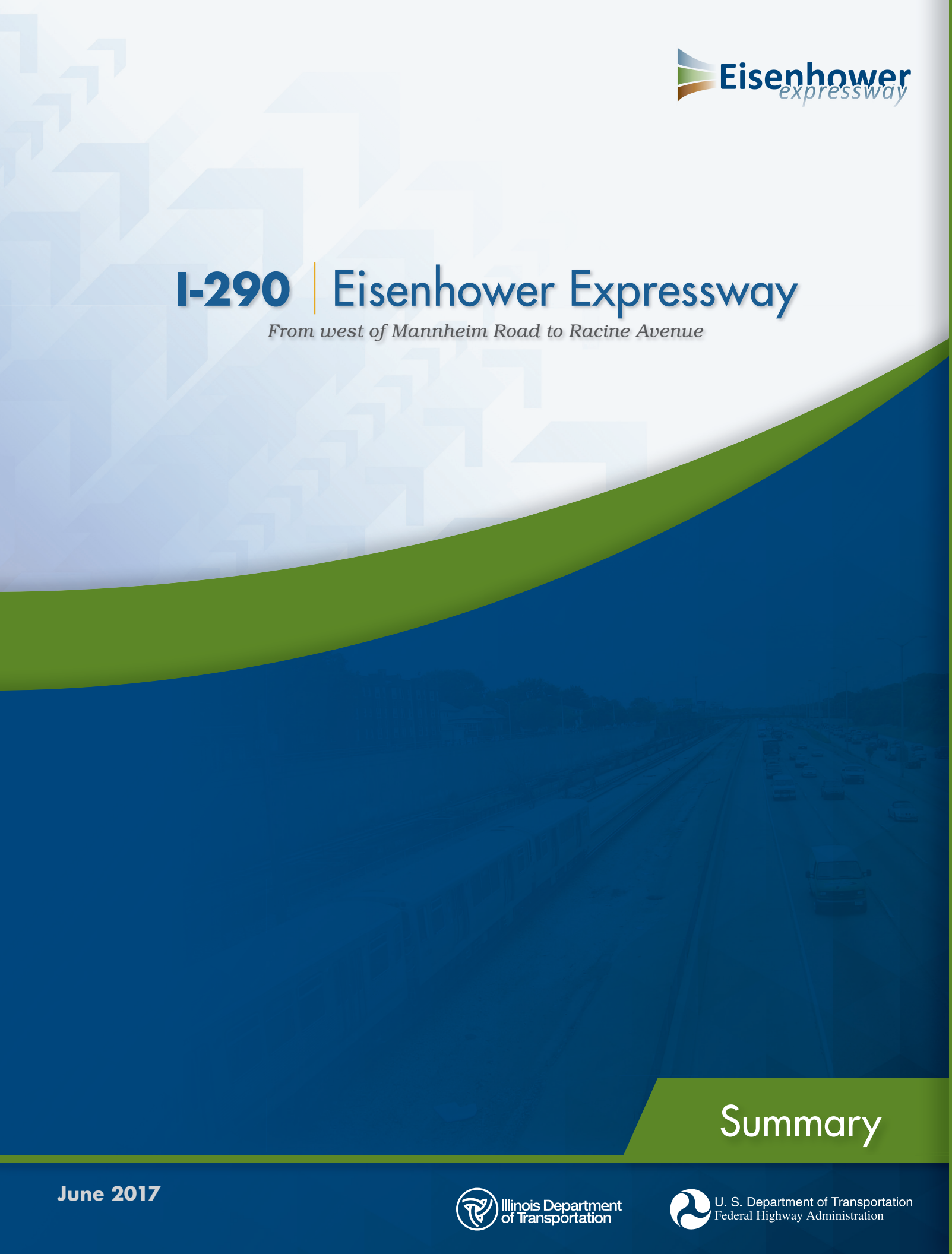
Eisenhower expressway

I-290 | Eisenhower Expressway

From west of Mannheim Road to Racine Avenue

SUMMARY



Summary

June 2017

Illinois Department of Transportation

U. S. Department of Transportation
Federal Highway Administration

S.0 Summary

Since publication of the Draft Environmental Impact Statement (DEIS), the following substantive changes to this section have been made:

- Updated Section S.4 with a more detailed description of Round 2 alternatives advanced into Round 3;
- Updated Sections S.5 and S.6 to describe the results of the Section 106 effects findings for historic properties within the Area of Potential Effects (APE); and
- Updated Sections S.5 and S.6 to confirm receipt of Officials with Jurisdiction (OWJ) concurrence to *de minimis* impact and Section 4(f) exception findings within Village of Forest Park parklands and Columbus Park.

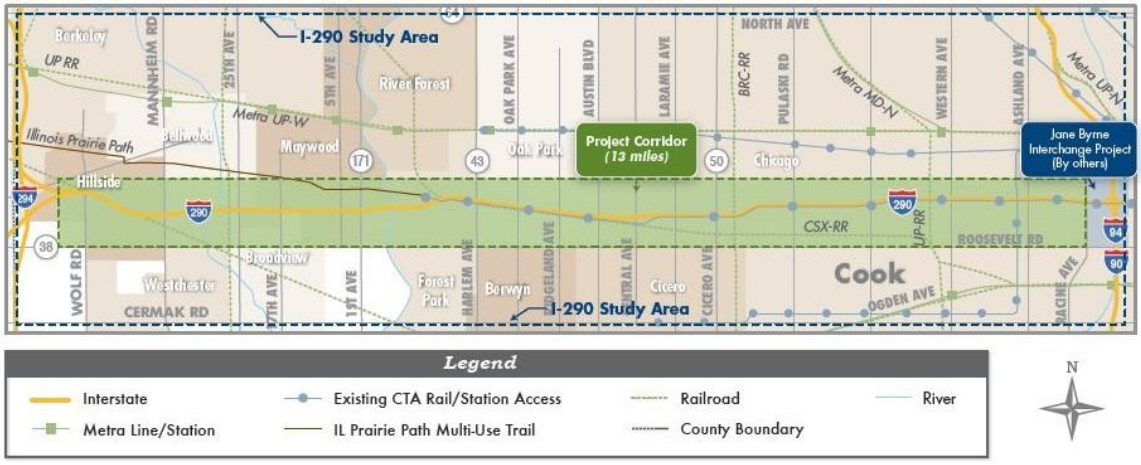
S.1 Project Description

The purpose of this proposed project is to provide an improved transportation facility along the Interstate 290 (I-290) Eisenhower Expressway multimodal corridor. Five purpose and need points were identified for improving transportation along this facility: 1) mobility for regional and local travel; 2) access to employment; 3) safety; 4) modal connections and opportunities; and 5) transportation facility deficiencies. The lead agencies developing the project are Illinois Department of Transportation (IDOT) and Federal Highway Administration (FHWA). Cooperating agencies include Federal Railroad Administration and Federal Transit Administration.

Project Background and Study Area: 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 1950s, this facility was designed and constructed according to early standards that were newly created for the interstate highway system. A Chicago Transit Authority (CTA) rapid transit line, the Forest Park Branch (Blue Line), and a freight railroad (CSX) run parallel and adjacent to I-290 for a portion of its length from Forest Park to Chicago.

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 S-1, 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 S-1. I-290 Study Area

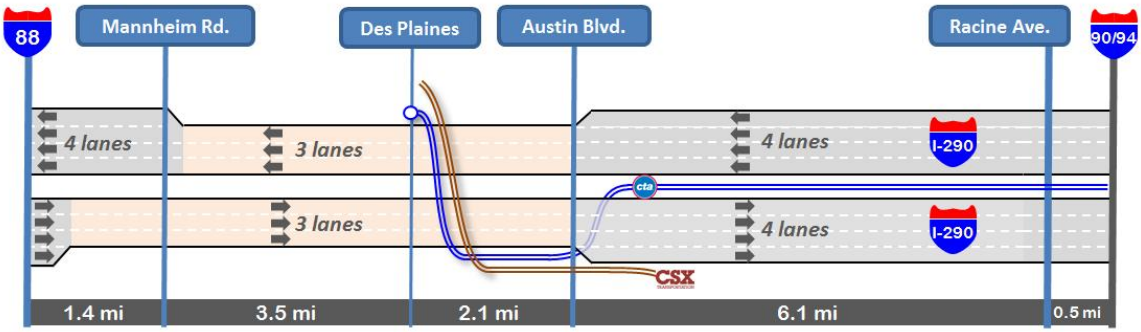


Source: WSP Parsons Brinckerhoff, 2016

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 which began construction in 2013).

In the sections west of Mannheim Road and east of Austin Boulevard, I-290 has four lanes in each direction; and between Mannheim Road and Austin Boulevard, I-290 has three lanes in each direction, as shown in Figure S-2. This reduction in lanes and lane imbalance has been a long-standing source of safety, operational, and capacity concerns.

Figure S-2. I-290 Existing Configuration



Source: WSP Parsons Brinckerhoff, 2016.

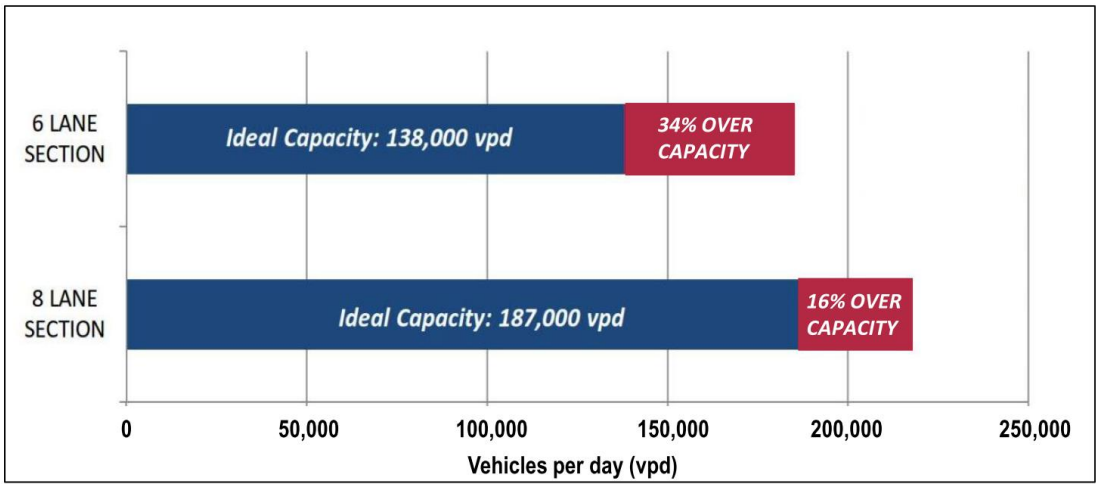
The I-290 Eisenhower Expressway is identified as a fiscally constrained major capital project in the region's metropolitan transportation plan adopted by the Metropolitan Planning Organization (MPO) Policy Committee, which is the designated MPO for the northeast Illinois region.

S.2 Purpose of and Need for Action

Five principal needs or need points were identified through technical analysis and through stakeholder and public input.

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. Existing mainline bottlenecks and daily traffic volumes far exceed the existing ideal capacity in the corridor, which negatively affect local and regional travel. Figure S-3 shows the capacity deficiencies in the six-lane and eight-lane sections of I-290.

Figure S-3. I-290 Capacity Deficiencies[1]



Source: WSP Parsons Brinckerhoff, 2016.

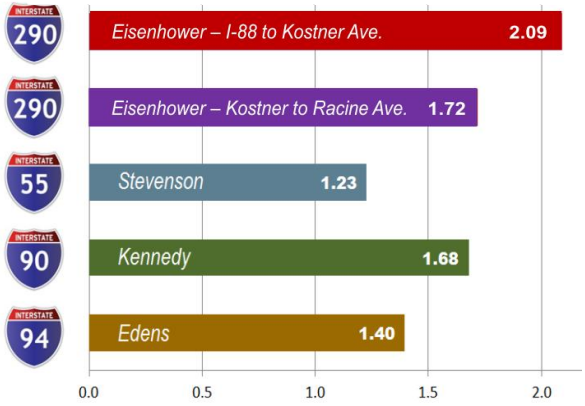
Figure S-4. Existing I-290 Congestion

Access to Employment: 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 local and regional employment areas (Figure S-4). These conditions affect the traditional commute (i.e., travelers heading inbound to Chicago during the morning peak period and outbound from Chicago in the evening) and the reverse commute (travelers heading outbound in the morning peak period and inbound in the evening peak), along with other commuter travel markets. Traffic congestion on I-290 and parallel routes also negatively impacts bus transit travel times and reliability, the ability to make modal connections, and access to transit by automobile.

1 "Ideal Capacity" represents maximum orderly traffic flow in vehicles per day; from 2000 Highway Capacity Manual, Exhibit 13-6, using volume at 10 percent of Average Daily Traffic at Level of Service E.

Safety for All Users: Within the western part of the Study Area from I-294/I-88 to Kostner Avenue (including the six-lane section between 25th Avenue and Austin Boulevard), I-290 experiences crash rates that are 24 to 70 percent higher than comparable Chicago area freeways. Crashes in the eight-lane section from Kostner Avenue to Racine Avenue in the eastern part of the Study Area were also higher than other comparable freeways, but 21 percent lower than the western section of I-290. High crash rate locations were primarily associated with the mainline capacity bottleneck loations and the left-hand ramps at Austin Bouelvard and Harlem Avenue. Figure S-5 provides a comparison of expressway crash rates in crashes per million vehicles per mile.

Figure S-5. Comparison of Expressway Crash Rates



Source: WSP Parsons Brinckerhoff, 2016.

Modal Connections and Opportunities: Usage of the existing transit facilities within the Study Area is higher than for the region as a whole; however, these transit facilities do not operate at full capacity, and facility deficiencies in the corridor inhibit access to transit facilities and hamper optimum provision of transit services. Pedestrian and bicycle access is also constrained within the Study Area (Figure S-6). Several opportunities for improving transit facilities and services in the Study Area have been identified, and the I-290 Study has been coordinated with the transit agencies for the purpose of accommodating future transit improvements within the footprint of this proposed project.

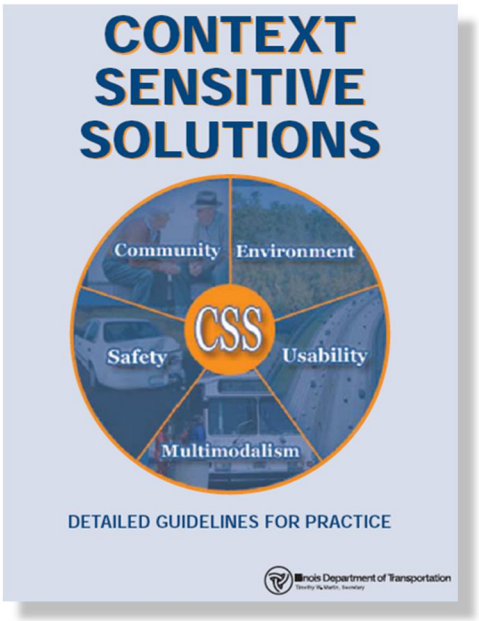
Figure S-6. Existing CTA Access, I-290 at Harlem Avenue

Transportation Facility Deficiencies: The existing facility was designed and constructed in the 1950s according to the design standards at the time. Since then, design standards have evolved to provide optimal safety and operational configurations. The existing pavement and bridges are now more than 50 years old, exceeding their typical service life (i.e., approximately 30 years for pavement and 50 years for bridges) and is in need of modernization. Several facility deficiencies have been identified related to: 1) pavement and structure conditions; 2) design features; 3) pedestrian, bicycle, and transit facilities; and 4) the existing drainage system and pavement flooding (Figure S-7).

Figure S-7. I-290 Flooding East of DesPlaines Avenue

S.3 Context Sensitive Solutions and Public Outreach

IDOT's Context Sensitive Solutions (CSS) process was implemented as part of the Environmental Impact Statement (EIS) study process beginning with project scoping and development of the project and was effective in guiding the project toward consensus on a preferred alternative. The CSS process for the EIS was initiated in October 2009 with the initial assembly of the project Corridor Advisory Group (CAG). The CAG consisted of representatives from each corridor community, transportation agencies, and interest groups and was open to the general public. Twenty-two (22) meetings were held with this group along the National Environmental Policy Act (NEPA) process and at study milestones. The CAG participants played a key role in the identification, development, and refinement of build alternatives, including recommendation of a preferred alternative.



Parallel to the CAG process, individual community, agency, and other stakeholder meetings were held to present information, listen to stakeholder concerns and needs, and discuss and refine ideas. The stakeholders for this project can be categorized broadly as federal and state regulatory agencies; state, county, and municipal officials; interest groups and organizations; other entities, such as utilities, public transit agencies, railroads, and businesses; and private citizens. Stakeholder identification and

communication is described in more detail in Section 4.0 of the Final Environmental Impact Statement (FEIS) and the Stakeholder Involvement Plan.[2]

Six NEPA/404 Merger team coordination meetings were held, and more than 150 meetings were held individually with project stakeholders. A series of 10 Transit Working Group (TWG) meetings were conducted to guide the overall corridor-level development of the alternatives, which included representatives from IDOT, CTA, Illinois Tollway, Pace, Metra, and RTA.

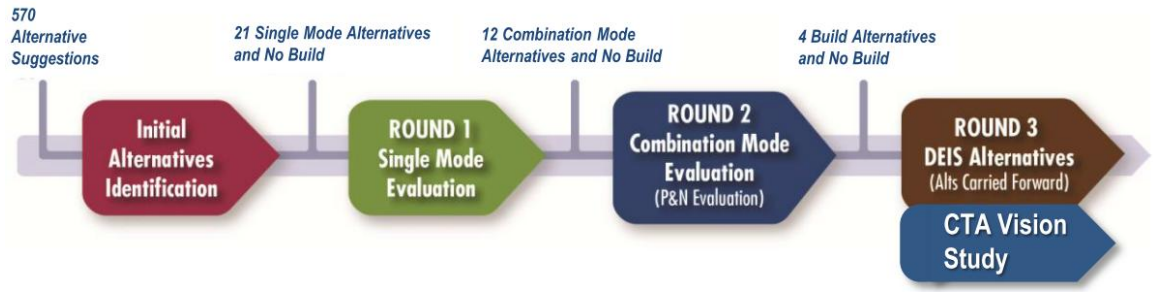
A series of three public meetings and four town hall meetings were also held throughout the project development process. These meetings were supplemented with various other speaking engagements at the request of stakeholders. Two public hearings on the I-290 DEIS were held at two different locations on January 25 and 26, 2017 following the Notice of Availability of the DEIS on December 30, 2016. Approximately 332 unique comments on the DEIS were received and were addressed in the FEIS.

A suite of outreach tools was used to reach all stakeholders, with an emphasis on environmental justice (EJ) communities. These tools included a project website (www.eisenhowerexpressway.com), newsletters, e-mail blasts to a 3,000-count stakeholder mailing list, billboards, content prepared for village websites, and media releases. As a result of this collective outreach and community involvement, more than 1,700 public comments were received and considered from October 2009 to April 2017. The culmination of this robust stakeholder outreach program has resulted in a project that broadly reflects community and stakeholder values in the Project Corridor.

S.4 Alternatives Considered

The process for developing and evaluating alternatives for the I-290 Eisenhower Expressway multimodal corridor consisted of four sequential steps, as shown in Figure S-8.

Figure S-8. Alternatives Development and Evaluation Process



Source: WSP Parsons Brinckerhoff, 2016.

[2] Stakeholder Involvement Plan, Version 6 (2017) http://www.eisenhowerexpressway.com/pdfs/i290_stakeholderinvolvementplan_v5.pdf

Through these four consecutive evaluation steps, a wide range of alternatives was systematically identified, evaluated, and screened down to the identification of four build alternatives and the No Build Alternative to be carried forward for detailed evaluation in the Draft Environmental Impact Statement (DEIS). A range of factors was considered in the evaluation process, including how well the alternatives addressed the Purpose and Need (i.e., regional and local travel performance, access to employment, safety, modal connections and opportunities, and facility deficiencies), environmental constraints, displacements, and stakeholder input.

The process included a close examination of all transit modes within the Study Area, the results of which can provide input into the planning of other area transportation agencies. In partnership with IDOT and the I-290 Study, CTA conducted a concurrent Blue Line Forest Park Branch Feasibility/Vision Study[3] to assess current conditions and identify modernization needs for rail infrastructure and customer amenities for the near and long term in this Project Corridor.

The regional travel demand model from the MPO was adapted for this corridor and used as an evaluation tool for travel performance testing of the alternatives in Rounds 1, 2, and 3. For Rounds 1 and 2, a 2040 baseline or No Build population and employment forecast was used as input in the travel demand model. A total of 33 alternatives (21 in Round 1 and 12 in Round 2) were evaluated with this forecast methodology. For Round 3, a 2040 Build population and employment forecast was developed assuming I-290 corridor capacity and transit improvements, including an additional lane on I-290 in each direction between Mannheim Road and Austin Boulevard, a CTA Blue Line extension to Mannheim Road, and supporting transit feeder services.

No Build Alternative: The No Build Alternative assumes no major capital improvements to I-290 or the CTA Blue Line Forest Park Branch in the Study Area, but includes other major capital projects outside the Study Area included in the Chicago Metropolitan Agency for Planning (CMAP) 2040 fiscally constrained plan. The No Build Alternative is "alternative neutral" and is the baseline condition against which the transportation performance of alternatives is evaluated.

Initial Range of Stakeholder Suggestions: Alternatives suggestions for the I-290 Study were actively solicited from project stakeholders and the public through public meetings, CAG/Task Force (TF) meetings, stakeholder meetings, and public comments. A total of 570 suggestions were submitted regarding alternatives.

Round 1 – Single Mode Alternatives Identification and Evaluation: After condensing the 570 alternatives into 33 concept categories, they were prescreened to identify "single mode" alternative concepts to be carried forward for evaluation in Round 1. From these 33 concept categories, 21 single mode transit, highway, and arterial alternatives were developed by the project team and CAG/TF for evaluation in Round 1: eleven I-290

[3] Blue Line Forest Park Branch Feasibility/Vision Study Website: http://www.transitchicago.com/blueweststudy/

expressway alternatives, nine transit alternatives, and one arterial highway widening alternative. The arterial highway widening alternative was fatally flawed due to limited available right-of-way and potential impacts. The remaining 20 alternatives were evaluated with respect to transportation performance criteria, and the results were used to inform the next round of alternatives development. It was determined that the expressway alterantives provide the best overall performance and stand alone transit alternatives did not improve I-290 performance, but have other benefits. The results of Round 1 were used to inform the next round of alternatives development.

Round 2 – Combination Mode Alternatives Identification and Evaluation: Based on the findings of the Round 1 single mode alternative evaluation, combination mode alternatives were assembled for evaluation in Round 2. The approach was to test the overall performance of the expressway modes in combination with additional benefits of transit modes. The Round 2 alternatives tested included two transit modes, Express Bus service (EXP) or a combination EXP and High Capacity Transit (HCT) extension to Mannheim Road, in combination with the following expressway modes: General Purpose (GP) Lanes (all lanes non-tolled GP lanes); High Occupancy Vehicle (HOV) 2+ (one HOV lane and three GP lanes in each direction); Toll (all lanes tolled); High Occupancy Toll (HOT) 3+ (one HOT lane and three GP lanes in each direction); and an expressway alternative that paired Toll Lanes and HOT 3+.

Each of these ten combination alternatives featured a highway lane addition in each direction within the existing six-lane section of I-290. During the evaluation of the initial 10 combination mode alternatives, the CAG identified two additional combination mode alternatives that combined transit and expressway management strategies, but without a lane addition in the existing six-lane section of I-290.

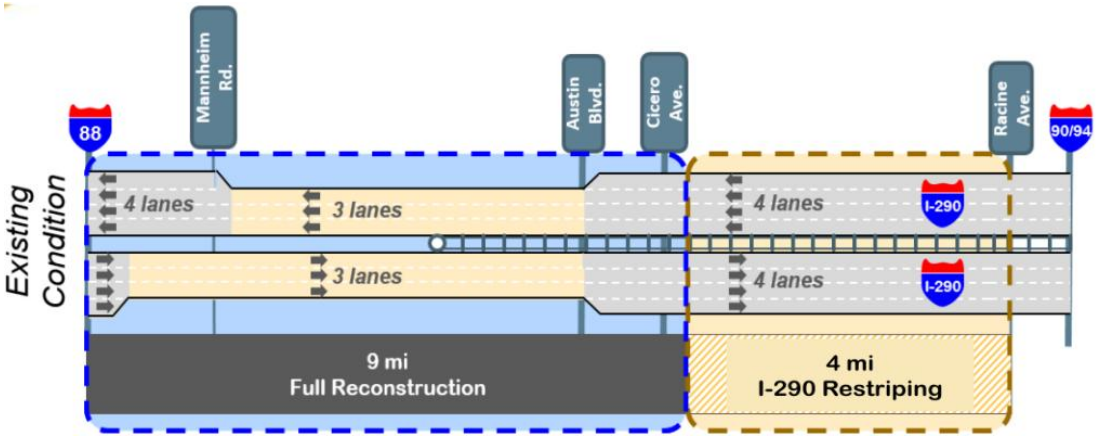
The alternatives were scored against the project purpose and need two ways, using "rank" scoring (where each need point category contributes equally to the overall score) and "ratio" scoring (weighting for each measure based on the relative performance differences between the alternatives). Based on the results of the Round 2 evaluation, the top four performing alternatives were advanced for further evaluation in Round 3.

Round 3 – Further Definition and Refinement of Build Alternatives: In Round 3, the Study Area was formally extended an additional 4 miles east to Racine Avenue (Section 2.5.1) to connect to the improvements being constructed at the Jane Byrne interchange. Interchange type and expressway access studies were layered in with the further design refinement and detailed performance and environmental evaluation of alternatives in Round 3.

Full reconstruction of the expressway from west of Mannheim Road to east of Cicero Avenue is required to accommodate mainline capacity and interchange improvements. Based on condition assessment and operational analysis of the build alternatives, no new expressway reconstruction or capacity improvements were identified for the eight-lane section; at most, only a restriping and appropriate signage of the eight-lane section is required to implement a build alternative. As such, reconstruction of the eight-lane section east of Cicero Avenue is not proposed; however, the condition of the overhead

bridges in this section is being addressed as part of a separate study. Figure S-9 shows the Project Corridor sections.

Figure S-9. I-290 Project Corridor Sections



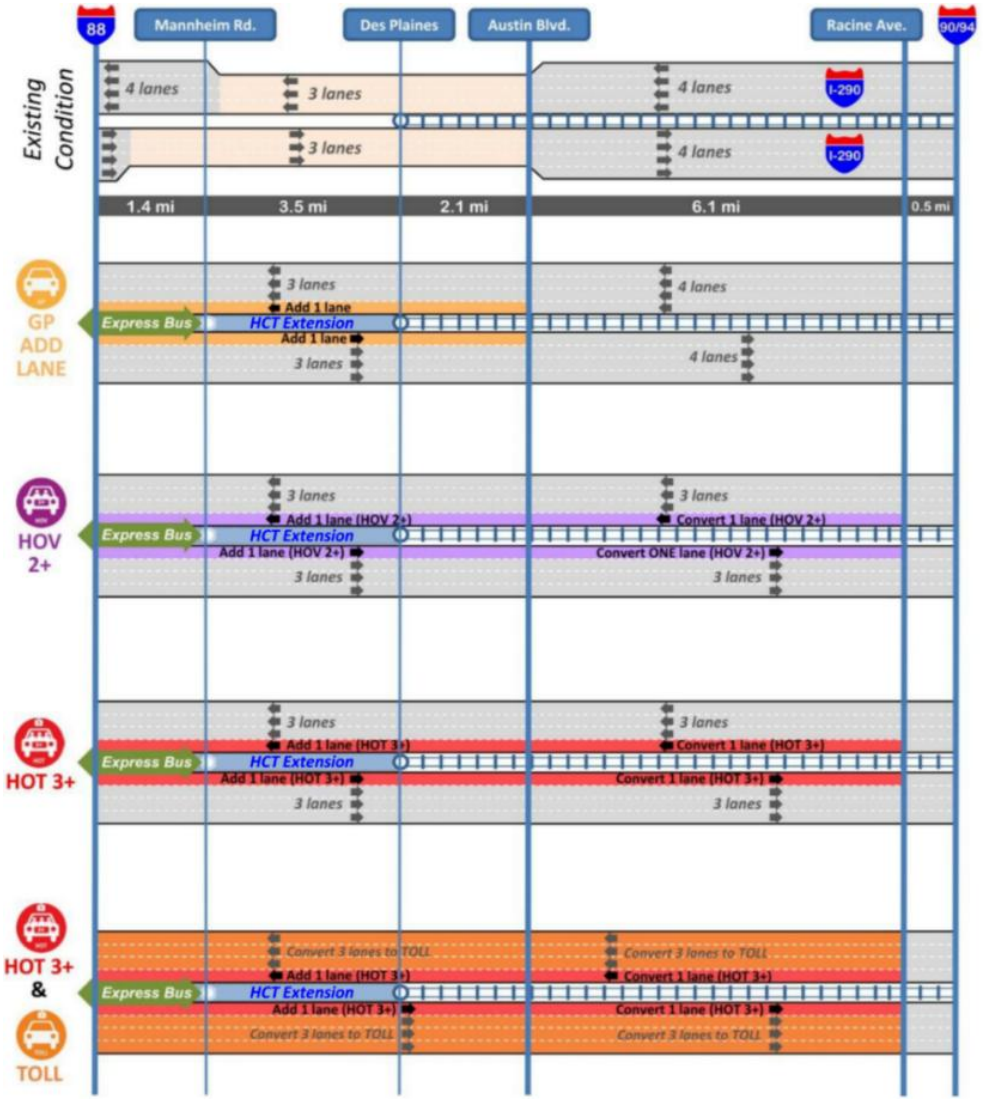
Source: WSP Parsons Brinckerhoff, 2016.

The top four alternatives identified in Round 2 for further development and refinement in Round 3 are described as follows. Figure S-10 shows a graphic description of the four build alternatives.

- **GP & EXP & HCT** (also referred to herein as GP Lane), consisting of adding one GP lane[4] in each direction between 25th Avenue and Austin Boulevard and includes provisions for EXP and HCT;
- **HOV 2+ & EXP & HCT** (also referred to herein as HOV 2+), consisting of adding one HOV 2+ (two or more occupants required for use) lane in each direction between 25th Avenue and Austin Boulevard, conversion of one existing GP lane in each direction west of 25th Avenue and east of Austin Boulevard to HOV use, and provisions for EXP and HCT;
- **HOT 3+ & EXP & HCT** (also referred to herein as HOT 3+), consisting of adding one HOT 3+ (three or more occupants per vehicle required for non-tolled use, or one/two occupants per vehicle paying a toll) lane in each direction between 25th Avenue and Austin Boulevard, conversion of one existing GP lane in each direction west of 25th Avenue and east of Austin Boulevard to HOT 3+ use, and provisions for EXP and HCT; and

[4] "General purpose lanes (also referred to as "mixed-use" or "mixed-flow" lanes) are those where use is allowed by all vehicles (except certain small motorized vehicles, bicycles, and pedestrians on limited-access highways), without restriction on number of occupants or imposition of a toll. All lanes on I-290 are currently GP.

Figure S-10. Four Build Alternatives Advanced to DEIS



Source: WSP Parsons Brinckerhoff, 2016.

- **HOT 3+ & TOLL & EXP & HCT** (also referred to herein as HOT 3+ & TOLL), consisting of adding one HOT 3+ lane in each direction between 25th Avenue and Austin Boulevard, conversion of one existing GP lane in each direction west of 25th Avenue and east of Austin Boulevard to HOT 3+ use, conversion of the remaining GP lanes to toll lanes (all users of these lanes paying a toll), and provisions for EXP and HCT.

The proposed footprint and interchange concepts are the same for each build alternative. Notable interchange concepts include: 1) reconstruction of 25th and 1st Avenue interchanges as Single-Point Urban Interchanges (SPUI), 2) reconstruction of Harlem Avenue and Austin Boulevard interchanges, which currently have left-hand ramps, to a modified SPUI design with right-hand ramps that retain a center intersection where the ramps converge with the cross road, 3) a braided ramp design between Austin

Boulevard and Central Avenue interchanges, and 4) reconfiguring ramps between Cicero Avenue and Laramie Avenue to remove a substandard mainline weaving condition and adding in frontage road U-turns to improve local circulation.

The travel performance of the four Round 3 build alternatives was evaluated using 2040 Build population and employment forecasts and compared to the No Build Alternative. A detailed comparison of the travel performance of the alternatives is shown in Table S-1. For clarity, table values in red in the Transportation Performance (2040), Social / Economic, Air Quality, Traffic Noise, and Natural Resources-Floodplains sections represent reduced performance or greater impacts as compared to the No Build Alternative, and table values in green in these sections represent better performance or lesser impacts as compared to the No Build Alternative.

Other Round 3 Refinements and Considerations: Based on the findings for the right-of-way and profile evaluations and in consideration of CTA's Blue Line Forest Park Branch Feasibility/Vision Study findings, the proposed expressway design is configured to accommodate a future HCT guideway along the median of I-290 from 1st Avenue to east of Mannheim Road, uses 10 feet of CTA right-of-way from west of Circle Avenue to east of Austin Boulevard to provide improved expressway safety performance, and improves clearances over the CSX Railroad to a minimum of 21-feet 9-inches via reduced cross-road bridge depths and minor track lowering. Intelligent Transportation System (ITS) components are recommended to facilitate lane management and to further improve safety. A diagram of the four build alternatives carried forward for detailed evaluation in the DEIS (and the FEIS) is shown in Figure S-10.

CTA Blue Line Forest Park Branch Feasibility/Vision Study findings: The CTA's findings include the need for reconstruction of the entire Forest Park Branch. Other key recommendations include:

- Maintain existing entrance locations;
- Remove stations closed in 1970s;
- Improve infrastructure to a state of good repair;
- No third track or express service;
- Improve the terminal site at Forest Park;
- Maintain existing service; and
- Work with IDOT on Project Corridor improvements through design, construction, and funding.

In the short term, CTA would continue to perform interim work to address slow zones and other maintenance items.

Table S-1. Comparison Matrix of Alternatives

	Resource	Analysis Level	No Build Alternative	Build Alternatives			
				GP Lane	HOV 2+	HOT 3+	HOT 3+ & TOLL
1.0	**Transportation Performance (2040)**						
1.1	Regional vehicle miles traveled (VMT) (miles)	Quantitative	201,187,710	+151,380	+72,492	+52,211	+33,774
1.2	Regional vehicle hours traveled (VHT) (hours)	Quantitative	8,067,709	-9,840	-9,773	-16,161	-17,300
1.3	I-290 Travel Time (Min) (GP/ML)	Quantitative	30.7 / NA	21.2 / NA	23.2 / 13.7	23.0 / 13.5	14.8 / 12.6
1.4	Study Area Arterial VMT (miles)	Quantitative	4,294,011	-24,560	+6,944	-8,853	+147,834
1.5	Study Area Arterial VHT (Hours)	Quantitative	255,282	-1,996	-967	-1,643	+6,778
1.6	Person Throughput	Quantitative	459,122	+25,247	+31,871	+28,604	+25,294
1.7	Job Accessibility	Quantitative	5,151,539	+105,053	+364,948	+397,660	+326,499
1.8	Overall Safety (crashes per million person miles per year)	Quantitative	0.287	-4.86%	-6.44%	-6.21%	-4.65%
1.9	East-West Transit Trips	Quantitative	76,950	+4,375	+2,150	+4,425	+8,425
2.0	**Social/Economic (including Environmental Justice)**						
2.01	Traffic diversion to local roads (VMT)	Quantitative	--	-24,560	+6,944	-8,853	+147,834
2.02	Average change in travel time to job destinations from the 2040 No Build Alternative, Environmental Justice (EJ) Communities	Quantitative	--	-1 to -3 minutes	0 to -9 minutes	-1 to -10 minutes	-1 to -9 minutes
2.03	Average change in travel time to job destinations from the 2040 No Build Alternative, non-EJ Communities	Quantitative	--	-2 minutes	-2 to -5 minutes	-2 to -5 minutes	-4 to -6 minutes
2.04	Bicycle and Pedestrian accommodations	Qualitative	No change in existing condition	Provision of a new east-west separated shared path from DesPlaines Avenue to Austin Boulevard (approximately 2 miles); improved pedestrian crossings; new pedestrian refuge islands; improved pedestrian/bicycle safety with new/wider sidewalks; improved shared-use path connectivity; improved pedestrian/bicycle accommodations at I-290 cross roads.			
2.05	Housing units displaced	Quantitative	0	0			

Table S-1. Comparison Matrix of Alternatives (continued)

	Resource	Analysis Level	No Build Alternative	Build Alternatives			
				GP Lane	HOV 2+	HOT 3+	HOT 3+ & TOLL
2.06	Public services displaced	Quantitative	0	0			
2.07	Businesses displaced	Quantitative	0	0			
2.08	Construction-related jobs created	Quantitative	--	18,904	18,904	18,980	18,980
2.09	Productivity (based on travel time savings)	Quantitative	--	+$1.6 B	+$1.6 B	+$2.7 B	+$2.9 B
2.10	Consistency with local and regional plans	Qualitative	No Effect	CMAP includes capacity improvements in the Project Corridor in its Go To 2040 Plan and classifies improvements to the I-290 Eisenhower Expressway as one of the region's 'priority projects'. The local comprehensive plans for Oak Park, Maywood, Broadview, Hillside, and Bellwood all express a desire to improve access to I-290.			
2.11	Community cohesion	Qualitative	No Effect	Improvements to roadways crossing the highway would improve community cohesion.			
2.12	Land use changes	Quantitative	No Effect	No major land use changes are expected as a result of the project, which mostly stays within existing right-of-way.			
2.13	Right-of-way acquisition	Quantitative	0	5.972 acres of right-of-way (ownership) and permanent easement			
3.0	Historic Resources						
3.1	Historic properties impacted	Qualitative	No Adverse Effect to Historic Properties	No effect to 6 historic properties and no adverse effect to 17 historic properties in the APE. No direct physical impacts to 22 of the 23 historic properties would occur; a temporary easement and proposed improvements would be located in the NHL boundary of Columbus Park, but they would have no adverse effect to the property. No indirect effects to historic properties would occur. FHWA made a no adverse effect finding to built historic properties and the SHPO concurred on May 25, 2017.			

Table S-1. Comparison Matrix of Alternatives (continued)

	Resource	Analysis Level	No Build Alternative	Build Alternatives			
				GP Lane	HOV 2+	HOT 3+	HOT 3+ & TOLL
3.2	Parks, Recreational Areas, Wildlife/Waterfowl Refuges						
3.3	Parkland impacts	Quantitative & Qualitative	No Effect	Improved access to the 51 parks and recreation areas along the Project Corridor by new or improved pedestrian and bicycle routes. Pedestrian access improvements requested by the Village of Forest Park require the permanent use of 0.031 acre and the temporary use of 0.137 acre from Veterans Park, the Dog Park, and Park District of Forest Park Recreational Center (Roos Property) within the Village of Forest Park. Section 4(f) exception of 2.74 acres at Columbus Park.			
3.4	Section 4(f)	Quantitative & Qualitative	*de minimis*	*De minimis* impact including 0.031 acre of permanent use and 0.137 acre of temporary use to parks within the Village of Forest Park to accommodate widened and new sidewalks. No other direct or constructive use of publicly owned parks and recreational areas is required by the four build alternatives. The enhancement of 2.74 acres at Columbus Park is an exception to Section 4(f) under 23 CFR 774.13(g).			
4.0	**Visual Resources**						
4.1	Visual impacts/benefits	Qualitative	No Effect	Proposed transportation improvements with respect to the visual environment are the same for all build alternatives. Aesthetic treatments would be evaluated for the Preferred Alternative. 46 of 63 eligible noise barriers were favored by "benefited receptor" stakeholders and are likely to be built, pending future project coordination.			

Table S-1. Comparison Matrix of Alternatives (continued)

	Resource	Analysis Level	No Build Alternative	Build Alternatives			
				GP Lane	HOV 2+	HOT 3+	HOT 3+ & TOLL
5.0	**Air Quality –** *Provided as sensitivity test for informational purposes; not intended for Preferred Alternative selection.*						
	Pollutant Burden (annual burden – tons) – *Provided as sensitivity test for informational purposes; not intended for Preferred Alternative selection.*						
5.1	VOC (Hydrocarbon)	Quantitative	1,270	+0.10%	-0.01%	-0.14%	-0.02%
5.2	NO_X (Nitrogen Oxide)	Quantitative	2,776	+0.21%	-0.12%	-0.07%	-0.60%
5.3	CO (Carbon Monoxide)	Quantitative	23,708	+0.73%	-0.51%	-0.34%	-0.35%
5.4	PM_{10} (Particulate Matter)	Quantitative	1,813	-0.06%	-0.03%	-0.31%	-0.43%
5.5	$PM_{2.5}$ (Particulate Matter)	Quantitative	326	+0.09%	-0.13%	-0.30%	-0.50%
	Greenhouse Gas Emissions (annual burden – million tons) – Provided as sensitivity test for informational purposes; not intended for Preferred Alternative selection.						
5.6	CO_2e (Carbon Dioxide Equivalents)	Quantitative	10.517	+0.24%	+0.03%	-0.01%	-0.10%
	Mobile Source Air Toxics (MSAT) (annual tons) – *Provided as sensitivity test for informational purposes; not intended for Preferred Alternative selection.*						
5.7	Acrolein	Quantitative	1.17	-0.08%	-0.07%	-0.17%	-0.62%
5.8	Benzene	Quantitative	16.55	+0.30%	-0.04%	-0.08%	+0.05%
5.9	1,3 Butadiene	Quantitative	0.07	-0.20%	-0.08%	-0.20%	-0.83%
5.10	Diesel PM	Quantitative	50.24	+0.10%	-0.13%	-0.16%	-1.11%
5.11	Formaldehyde	Quantitative	25.90	-0.07%	-0.07%	-0.17%	-0.60%
5.12	Naphthalene	Quantitative	2.19	-0.02%	-0.06%	-0.16%	-0.53%
6.0	**Traffic Noise**						
6.1	Receptors approaching, meeting or exceeding the noise abatement criteria (NAC)	Quantitative	227	230	228	229	220
7.0	**Hazardous Waste**						
7.1	Hazardous materials REC sites affected	Quantitative	0	495 sites within Project Corridor; 13 sites within or directly adjacent to proposed right-of-way acquisition.			

Table S-1. Comparison Matrix of Alternatives (continued)

	Resource	Analysis Level	No Build Alternative	Build Alternatives			
				GP Lane	HOV 2+	HOT 3+	HOT 3+ & TOLL
8.0	**Natural Environment**						
8.1	Wildlife (number of species impacted)	Quantitative & Qualitative	0	0			
8.2	Wetlands (acres)	Quantitative	0	0			
8.3	Floodplains, volume change from existing (acre-feet)	Quantitative	0	-12.94 acre-feet, normal to 100-year flood elevation (overall flood storage capacity increased)			
8.4	Water quality – Are water quality standards met (chlorides, metals, and TSS)? (yes/no)**						
	Salt Creek	Quantitative & Qualitative	Yes	Yes			
	Des Plaines River	Quantitative & Qualitative	Yes	Yes			
	South Branch of Chicago River	Quantitative & Qualitative	Yes	Yes			
9.0	**Other**						
9.1	Construction cost	Quantitative	--	$2,558M	$2,558M	$2,571M	$2,571M
9.2	Toll revenue (2040 annual revenue in 2014 $)	Quantitative	--	--	--	$20M	$100M

* Per policy, noise impacts are only identified for the build condition.

** Increased concentration and loading for any build alternative would be offset with BMP and deicing practices.

S.5 Environmental Resources, Impacts, and Mitigation

The Study Area is situated in a highly developed urban environment and, as such, there are limited existing natural environmental resources. The primary environmental consideration is the communities along the corridor and the environmental impacts that affect them. All requisite environmental resources were evaluated and are documented in the FEIS. A detailed comparison of the impacts for each alternative is shown in Table S-1. For clarity, table values in red in the Transportation Performance (2040), Social/Economic, Air Quality, Traffic Noise, and Natural Resources-Floodplains sections represent reduced performance or greater impacts as compared to the No Build Alternative, and table values in green in these sections represent better performance or lesser impacts as compared to the No Build Alternative.

The primary environmental factors evaluated in the context of this corridor are summarized below.

Social/Economic Impacts: The Project Corridor traverses highly developed areas of the Chicago metropolitan region and is almost fully built-out with little unused underdeveloped urban land. The predominant racial groups in the Project Corridor are Whites at 29.8 percent of the total population, Black at 58.1 percent, and 9.7 percent of the population considers themselves Hispanic or Latino. Median household incomes for all core communities are higher than the poverty guidelines. Westchester and Elmhurst had the lowest percentages of persons living below the poverty line, while communities with the highest percentages below poverty were generally found on the eastern portion of the corridor. Chicago has the highest percentage of persons below the poverty line at 21.4 percent.

Year 2040 No Build and Build socio-economic forecasts were prepared as part of the I-290 Study based on the change in highway and transit accessibility. The I-290 Study Area population and employment forecasts for the No Build versus Build Scenario indicate a less than one percent change due to the existing built-out urban conditions in the Study Area and that the proposed project reflects improvements to an existing facility that already provides accessibility to the Study Area. All of the build alternatives would result in long-term benefits from improved access to and from I-290 and annual productivity savings in 2040 that would range from $86 to $152 Million.[5] The build alternatives would not change land use patterns and comply with local and regional comprehensive plans. All existing access points to I-290 would be maintained. There would be no residential or business displacements, and 5.972 acres of right-of-way (ownership) and permanent easement would be required.

[5] Productivity savings is travel time savings multiplied by the time value of money. Assumes $24 per hour value of time per the NCHRP Report 456 Guidebook for Assessing the Social and Economic Effects of Transportation Projects.

Environmental Justice: No substantial differences in transportation access were found with any of the build alternatives with respect to EJ communities, as compared to non-EJ communities, and all build alternatives had benefits in job accessibility and nonmotorized and transit access for EJ communities that were similar to non-EJ communities. Of the build alternatives, the HOT 3+ & TOLL Alternative impacted the 2040 arterial traffic more than the No Build Alternative, while the other three build alternatives showed positive effects. Environmental effects, such as those to air, noise, and social and economic resources (including construction impacts), were similar for EJ and non-EJ communities, and no residences or businesses in either EJ or non-EJ communities are proposed to be displaced by any of the build alternatives. Public involvement was encouraged by the participation of representatives of EJ communities in the project's CAG study group, as well as traditional and nontraditional means of engaging the public in participation at public and community meetings. Though there would be impacts (i.e., noise and construction impacts in particular) to EJ and non-EJ communities along the Study Area, upon implementation of the planned mitigation, as described in this EIS, and coordinated with each community, the impacts would not be disproportionately high and adverse to EJ communities.

Cultural Resources Impacts: Within the Area of Potential Effects (APE), existing resources include one National Historic Landmark (NHL) property, Columbus Park, five National Register of Historic Properties (NRHP)-listed properties, and one historic district pending NRHP designation. Two historic properties, including one district, were previously determined eligible for inclusion in the NRHP for a total of the nine NRHP-listed and previously determined NRHP-eligible properties within the APE. Based on an intensive-level survey of the cultural resources 50 years of age or older, 14 additional historic properties within the APE were determined eligible for inclusion in the NRHP.

A comprehensive assessment of the project's potential effects to historic properties was completed and submitted in a report to the State Historic Preservation Officer (SHPO) and the Section 106 consulting parties for review and comment. Based on FHWA's Section 106 effect finding, the Preferred Alternative would have no effect to six historic properties and no adverse effect to 17 historic properties in the APE. A consulting parties meeting was also held to discuss the effects findings and provide an opportunity for the consulting parties to comment. These effects findings and additional consultation have been summarized and included in this combined Final Environmental Impact Statement (FEIS)/Record of Decision (ROD).

No direct physical impacts to 22 of the 23 historic properties would occur as a result of the Preferred Alternative because the proposed improvements generally fit within existing right-of-way, outside of NRHP boundaries. Project activity is proposed within the NHL boundary of Columbus Park, but the proposed enhancements would have no adverse effect to the property, and qualify for a Section 4(f) exception under 23 CFR 774.13 (g). Additionally, no indirect effects to historic properties would occur because traffic noise and visual project components would not adversely diminish their integrity or alter the characteristics qualifying these properties for the NRHP. Therefore, FHWA made an overall project finding of no adverse effect.

Traffic Noise Impacts: Under existing conditions, 220 of the 288 noise receptors identified currently approach or exceed the Noise Abatement Criteria (NAC).[6] Of the four build alternatives, the HOT 3+ & TOLL Alternative resulted in the fewest receptors that approach, meet, or exceed the NAC (220 receptors), while the GP Lane Alternative has the greatest number (230 receptors). The No Build Alternative, HOV 2+, and HOT 3+ alternatives also had similar effects (227, 228, and 229 receptors respectively). The slight difference in traffic noise impacts among the build alternatives correlates to their traffic volume differences, with the HOT 3+ & TOLL Alternative having the lowest projected traffic volumes and affected receptors and the GP Lanes Alternative having the highest projected traffic volumes and affected receptors.

Air Quality: Air quality analysis of the four build alternatives included pollutant burden analysis, Mobile Source Air Toxics (MSATs), and greenhouse gas (GHG) emissions. Overall, the build alternatives are expected to show minor changes (generally less than one percent better or worse) in regional pollutants, GHG emissions, and MSATs compared to the No Build Alternative, and no local impacts are currently identified. Of the four build alternatives, the HOT 3+ Alternative provided the best overall air quality benefits, with reductions in all of the air quality measures evaluated.

Natural Resources Impacts: The build alternatives are located predominantly in developed areas associated with existing roadways. No impacts to forest preserves or state-designated lands are proposed, and all of the four build alternatives would result in the same impacts to habitat. Overall, project-related impacts to wildlife associated with the build alternatives would be minimal.

Water Resources/Quality: Each of the four build alternatives would cross three streams: Addison Creek, the Des Plaines River, and the South Branch of the Chicago River. For Addison Creek and the South Branch, no change in pollutant concentrations would occur. Addison Creek receives no runoff from I-290, and the I-290 drainage to the South Branch is unchanged from existing to the No Build and build condition. There would be an increase in chloride loading to the Des Plaines River associated with the build alternatives. Given the chloride impairment of the Des Plaines River, IDOT would use best management practices (BMPs) to offset the potential increase to the Des Plaines River, as discussed in Section 3.7.3.

Floodplains Impacts: There would be a small amount of proposed net fill in the Des Plaines River floodplain, while there would be a net cut in the Addison Creek floodplain; the net benefit would be 12.94 acre-feet of additional storage from the normal to the 100-year flood elevation for both floodplains within the Study Area. No floodway impacts are anticipated at Addison Creek or the Des Plaines River with the build alternatives.

[6] Per IDOT policy, traffic noise impacts are identified only for the future build condition, not for the existing or future No Build condition. Comparisons of the existing and future No Build noise levels to the NAC are for comparison purposes only.

Special Waste/Hazardous Waste Impacts: The Illinois State Geological Survey (ISGS) Preliminary Environmental Site Assessment (PESA) reports identified numerous recognized environmental condition (REC) sites, all of which have the potential for soil or groundwater contamination and could potentially pose a risk to construction activities. Thirteen (13) REC sites were identified as being within or directly adjacent to the proposed right-of-way acquisitions. These REC sites may require further evaluation including testing (preliminary site investigation [PSI]). The determination whether further assessment is necessary will be evaluated as the proposed project progresses and detailed design becomes available. The decision generally depends on the nature of the REC, its proximity to the planned construction activities, and its potential impact to the proposed project. Mitigation is discussed in Section 3.11.3.

Special Lands: The proposed project would require small areas of new right-of-way from two parks in the Village of Forest Park to accommodate pedestrian and bicycle access improvements requested by the Village and the temporary use of a third park during construction. The proposed improvements would occur as follows:

- Veterans Park (at 631 Circle Avenue): 0.027 acre (temporary)/0.018 acre (permanent) to provide for a wider, 12-foot wide sidewalk and a new on-street 6-foot wide bicycle lane along Circle Avenue, and a new sidewalk on the park's western boundary to connect the park with the proposed shared-use path (requested by the Village).
- The Dog Park (at 632 Circle Avenue): 0.019 acre (temporary)/0.013 acre (permanent) to provide for a wider, 10-foot wide sidewalk along Circle Avenue and a new on-street 6-foot wide bicycle lane (requested by the Village).
- Park District of Forest Park (Recreational Center-Roos property): 0.091 acre (temporary) to provide work space for installing a 5-foot wide sidewalk on the west side of Circle Avenue south of I-290.

As stated in Section 3.12.3, FHWA issued a *de minimis* impact finding in this FEIS for Veterans Park, the Dog Park, and the Roos Property based on the minimization measures proposed and concurrence received from the Officials with Jurisdiction (OWJs) that there is not an adverse effect to the features, attributes, and activities that make the properties eligible for 4(f) protection. The project would not adversely impact the long-term use, function, or development of these parks.

At Columbus Park, the project proposes to enhance bicycle and pedestrian access along the southern boundary of Columbus Park between Austin Boulevard and Central Avenue north of I-290 where no connectivity currently exists. This access improvement would require work space of approximately 1.03 acres in the southwestern corner of the park to allow construction of a 450-foot long shared-use path. This would provide a connection from the proposed shared-use path at Austin Boulevard, connecting to the park's existing trail, thus providing continuous nonmotorized access between the Illinois Prairie Path at DesPlaines Avenue to Central Avenue. Landscape enhancements would also be undertaken along the eastern half of the park's southern boundary requiring work space of 1.71 acres. The Chicago Park District and SHPO concurred that these

improvements have no adverse effect on the park and that the requirements of 23 CFR 774.13(g) for a Section 4(f) exception have been met.

Visual Resources: In those sections to be reconstructed along the Project Corridor, an effort will be made to create a consistent corridor aesthetic. While the final design is yet to be completed, the general appearance of walls, noise barriers, bridge piers, and fencing is anticipated to include the textures and forms illustrated in Section 3.13.4.

The quality and character of the existing viewsheds of the Project Corridor as viewed from the adjacent land uses is a result of the original I-290 construction. Since that time, the density and quality of existing vegetation affects the ability to view one side of the corridor from the other where the right-of-way is wider and the vegetation is densest. The primary visual consequence of the build scenarios as viewed from outside the corridor would be the loss of this vegetation and the potential placement of noise barriers. To mitigate for this loss, the retaining walls and other structures would be located such that the maximum amount of green space is created between the new retaining walls and the adjacent off-corridor land uses. Where space permits, landscape planting would be installed to restore the lost vegetation and to soften the appearance of the noise barriers, as described in Section 3.13.5.2.

Indirect and Cumulative Impacts: Indirect impacts are those caused by an action and are later in time or further removed in distance but are still reasonably foreseeable. Cumulative impacts result from the incremental consequences of an action when added to other past and reasonably foreseeable future actions. Analysis of indirect and cumulative impacts of the build alternatives includes effects on regional growth and development patterns, as well as air and water quality, noise, wetlands, biological and cultural resources, and other resources. The geographic extent of these analyses varies with the resource. A summary of findings is as follows:

- Indirect population and employment effects of the build alternative, as well as cumulative effects, are limited by the Study Area's urban, largely developed character.
- Air quality was evaluated in a regional context and no indirect or cumulative impacts are anticipated.
- Traffic noise impacts are anticipated to be direct; the project is not expected to have a cumulative effect on regional noise levels, but noise would be reduced in the Study Area by installation of noise barriers.
- Where there are no direct impacts to natural resources (e.g., wetlands) or adverse impacts to cultural resources, the indirect and cumulative impacts of the build alternatives are not anticipated to be different than status quo development within the Study Area.
- Increased traffic and impervious surfaces have a potential effect on water resources; maintaining water quality standards and utilizing BMPs are anticipated to minimize adverse indirect and cumulative impacts to water resources in the Study Area.

Please refer to Section 3.15 for a complete evaluation of these impacts.

Potential Mitigation: Mitigation and abatement measures would be completed in accordance with the policies and procedures of FHWA and IDOT and the requirements of the appropriate federal and state resource agencies. Section 3.19 provides a detailed summary of mitigation commitments. Due to the limited amount of right-of-way required and that there are no displacements for any of the build alternatives, few mitigation measures are required. Some of the primary mitigation measures identified are:

- Forty-six (46) noise walls, which would benefit 4,027 receptors, were determined reasonable and feasible after completing the viewpoints solicitation. Future coordination in the design phase may result in reopening the viewpoints solicitation process where warranted by changes in the number/location of benefited stakeholders, the benefited stakeholders' opinions, or noise wall technology. The noise barriers likely to be constructed are shown in the Section 3.0 Map Set.
- Mitigation for visual impacts may include implementation of context sensitive design, which involves public input, and landscape improvements for the replacement of existing landscaping, creation of new landscape areas, public input in the use of alternative materials and design of noise barriers, and installation of containerized plantings located on the cross-road overpass bridges.
- Impacts to trees would be minimized with installation of construction fencing and exclusion zones to reduce compaction of roots and soil. Mitigation for trees removed would be guided by IDOT's Preservation and Replacement of Trees (IDOT, 2002) policy and Chapter 59 ("Landscape Design") of the Bureau of Design and Environment (BDE) Manual (IDOT, 2014).
- A landscaping plan would be developed during the design phase that would identify areas where trees, shrubs, and grasses would be planted on highway side slopes, on back slopes, and in the median, except where clear vision needs to be maintained at highway entrances and exits, intersections, and median openings.

S.6 Comparison of Alternatives

Because the build alternatives have identical footprints, they are generally very similar to one another. The primary differences between the alternatives are related to travel performance and social, economic, and environmental impacts due to the manner in which traffic would be managed and the differences in traffic volumes and patterns resulting from this management.

The proposed improvements are almost entirely contained within existing I-290 right-of-way, with the exception of 5.972 acres including proposed right-of-way (ownership) and permanent easement near five interchanges and a 10-foot wide strip of right-of-way from the CTA Blue Line. As desired by the communities, no residential or commercial displacements would result from the build alternatives, and all I-290 interchange access locations would be retained. Each of the four build alternatives accommodates

improvements to the existing HCT (the CTA Blue Line) where it exists today and provides for a westward expansion of HCT to Mannheim Road.

With regard to environmental resources, the four build alternatives have no impacts to wetlands, wildlife, and agricultural resources and result in the same 12.94 acre-feet net decrease in floodplain fill volume. There would be no direct use of adjacent Section 4(f) resources required by any of the build alternatives except for a *de minimis* impact to public parkland in the Village of Forest Park, as well as a Section 4(f) exception at Columbus Park to provide new trail connections and other amenities. Effects to historic properties are undifferentiated among the alternatives, as each would have no effect to six historic properties and no adverse effect to 17 historic properties in the APE. No indirect effects to historic properties would occur because traffic noise and visual project components would not adversely diminish their integrity or alter the characteristics qualifying these properties for the NRHP.

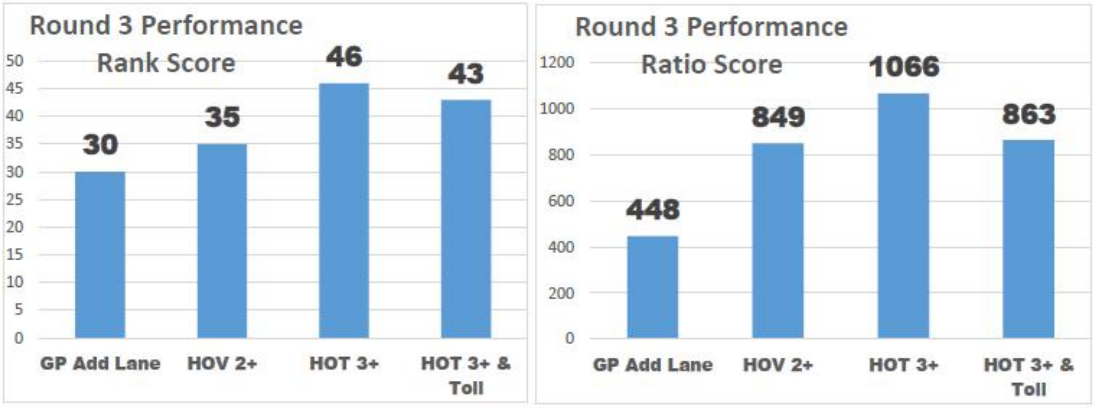
When comparing the evaluation measures of all four alternatives against the No Build Alternative, the HOT 3+ Alternative scored highest in rank and ratio scoring, with 46 out of 64 possible points by rank (ordinal) scoring and 1,066 out of 1,600 possible points by ratio scoring, as shown in Table S-2 and Figure S-11.

Table S-2. Build Alternatives Rank and Ratio Scoring Comparison Matrix

#	Round 3 DEIS Performance Measure	Unit	No-Build	GP Add Lane	HOV 2+	HOT 3+	HOT 3+ & Toll
1.1	Regional vehicle miles traveled (VMT)	miles	201,187,710	151,380	72,492	52,211	33,774
1.2	Regional vehicle hours traveled (VHT)	hours	8,067,709	-9,840	-9,773	-16,161	-17,300
1.3	I-290 Travel Time (GP Lane / Managed Lane)		30.7/NA	21.2/NA	23.2/13.7	23/13.5	14.8/12.6
1.4	Study Area Arterial VMT	miles	4,294,011	-24,560	6,944	-8,853	147,834
1.5	Study Area Arterial VHT	hours	255,282	-1,996	-967	-1,643	6,778
1.6	Person Throughput	persons	459,122	25,247	31,871	28,604	25,294
1.7	Job Accessibility	# of jobs	5,151,539	105,053	364,948	397,660	326,499
1.8	Overall Safety (crashes per million person miles per year)	rate	0.287	-4.86%	-6.44%	-6.21%	-4.65%
1.9	East-West Transit Trips	# of trips	76,950	4,375	2,150	4,425	8,425
2.01	Traffic Diversion to Local Roads	VMT	4,294,011	-24,560	6,944	-8,853	147,834
2.02	Average Change in travel time to job destinations, EJ Communities	Min	-	-1 to -3	0 to -9	-1 to -10	-1 to -9
2.03	Average Change in travel time to job destinations, Non-EJ Communities		-	-2 to -2	-2 to -5	-2 to -5	-4 to -6
2.08	Construction related jobs created	#	-	18,904	18,904	18,980	18,980
2.09	Productivity (based on travel time savings)	$B	-	$ 1.6	$ 1.6	$ 2.7	$ 2.9
6.1	Noise Receptors approaching, meeting, or exceeding noise abatement criteria (NAC)		227	230	228	229	220
9.1	Round 3 Construction Cost Difference ($ Millions)		$ -	$ -	$ -	$ 13	$ 13
		Rank Score (1 to 4)		30	35	46	43
		Ratio Score (0 to 100)		448	849	1066	863

Source: WSP Parsons Brinckerhoff, 2016.

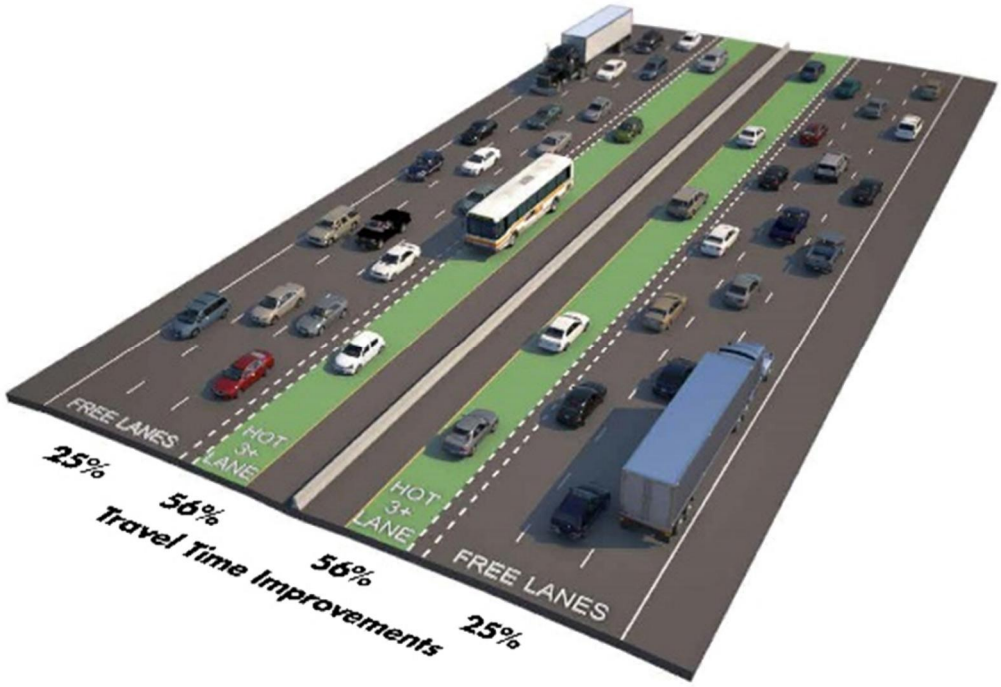
Figure S-11. Build Alternatives Rank and Ratio Score Comparison Bar Chart



Source: WSP Parsons Brinckerhoff, 2016.

In considering the key factors identified with respect to meeting project goals and objectives, travel performance, and social/economic and environmental impacts, the HOT 3+ Alternative provides the best balance of benefits, avoids social/economic and environmental impacts, and provides travel benefits to EJ communities. The HOT 3+ Alternative results in a 25 percent travel time savings in the GP lanes and a 56 percent travel time saving for users of the managed lane (Figure S-12).

Figure S-12. HOT 3+ Alternative Typical Section and Travel Time Improvements



Source: WSP Parsons Brinckerhoff, 2016.

The managed lane can be used for free by cars with three or more occupants and by transit, as shown in Figure S-12. The managed lane offers more travel choices for all users of the facility and offers a reliable trip time. With the potential contribution from anticipated toll receipts from the HOT lanes, the HOT 3+ Alternative also provides additional flexibility in funding to the initial construction cost, as well as ongoing operation and maintenance.

Based on these factors, the HOT 3+ Alternative is selected as the Preferred Alternative.

S.7 Other Proposed Actions

The major federal and state transportation projects identified as other actions are described in full in CMAP's GO TO 2040 Comprehensive Regional Plan. The largest nearby project is the I-290 Jane Byrne (formerly Circle) Interchange Reconstruction Project, which began construction in 2013, near the eastern limits of the Study Area. That project would improve circulation between I-290 and I-90/I-94.

S.8 Major Unresolved Issues with Other Agencies

There are no unresolved issues at this time.

S.9 Other Federal Actions Required for the Proposed Action

As described in Section 3.18, federal permits will be required prior to construction. There are no other federal actions needed for this FEIS in connection with the I-290 Reconstruction Project. An Access Justification Report is being prepared for FHWA approval to document operational changes of the I-290 Preferred Alternative associated with proposed interchange improvements.

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