APPENDIX A

Elgin O'Hare – West Bypass Initial Construction Plan Traffic Analysis Procedures and Findings

Initial Construction Plan (ICP) Design Year Traffic Forecasts

The ICP was developed to accommodate projected traffic demand through an interim 2030 design year period. Thus, the proposed improvements will provide acceptable operations for at least 5 years following completion of construction (year 2025) of the entire EOWB ICP. This section describes the traffic forecasting procedures and projected traffic forecasts for the 2030 ICP design year, including how the effects of tolling were considered in the traffic forecast development. The traffic forecasts for the proposed ICP improvements generally decrease travel on secondary roads and shift longer trips to access-controlled facilities, resulting in the appropriate trip type using the appropriate facility.

Traffic Forecasting Procedures

The travel forecasting process for the 2030 ICP design year used the travel demand modeling procedures employed in the development of the EOWB travel demand model. The travel demand model and processes of the Chicago Metropolitan Agency for Planning (CMAP) were used as a basis for the development of the EOWB sub-area travel demand model. The 2030 forecasts were generated on the basis of both the 2010 existing year and the 2040 Tier Two Build Alternative design year forecasts, where the 2030 volumes interpolated from the 2040 Tier Two Build Alternative forecasts.

As part of the Tier Two EIS, a 2040 Tier Two Build Alternative travel forecast was generated using CMAP's G*O TO 2040 Comprehensive Regional Plan* (CMAP, 2010), which both conformed regional transportation plan assumptions and reflected project-specific socioeconomic forecasts for the project. A set of project-specific population and employment forecasts, reflecting the projected effects of the Tier Two Build Alternative improvements on socioeconomic characteristics in the study area, were generated to assist with the trip generation process. CMAP assisted the project team in developing project-specific trip tables to generate the Tier Two Build Alternative traffic forecasts. Existing year and 2040 Tier Two Build Alternative trip tables were then used to generate travel demand forecasts for the 2030 ICP design year.

Socioeconomic assumptions and forecasts generated by CMAP for 2010, 2020, 2030, and 2040 as part of the *GO TO 2040 Comprehensive Regional Plan* (CMAP, 2010) efforts were used to generate contraction/expansion factors. The factors were used to develop the 2030 ICP design year trip tables, which generated 2030 traffic forecasts for the project. The 2040 Tier Two Build Alternative trip tables were factored down to 2030 for traffic assignment purposes. Factoring down the 2040 Tier Two Build Alternative trip tables to generate 2030 ICP design year data maintained the integrity of population and employment growth assumptions used for the Tier Two Build Alternative condition reflected in the Tier Two EIS. Details regarding socioeconomic forecasting procedures are documented separately in the *Population and Employment Forecasts Technical Memorandum* (SB Friedman & Company, 2011).

The 2030 traffic forecasts were derived using network coding assumptions reflected in the CMAP travel demand model. In addition, the network included all the existing plus

committed projects that were part of the 2040 No-Build (baseline) condition. Further, the project corridor was coded as a tolled facility during the traffic assignment process. To maintain consistency between the 2030 ICP design year and 2040 Tier Two Build Alternative design year, the project corridor was tolled using the same tolling schemes and assumptions for each.

The project team coordinated with the Illinois Tollway and their Traffic Consultant, CDM Smith to gather information on traffic assignments representing the toll diversion model. The traffic assignment process used in the development of the 2030 ICP design year travel forecasts incorporated the conceptual tolling schemes provided by CDM Smith along the proposed new corridors. This assured consistency between the toll diversion modeling results and the 2030 ICP design year traffic demand on the corridor.

Traffic assignment was performed using a multi-class equilibrium assignment process with a full complement of volume-delay functions used in the CMAP model to reflect congestion and tolling effects on route selection. The highway traffic assignments were performed for each of eight time periods matching CMAP time period categories and vehicle classes (automobile and light, medium, and heavy trucks). The link attributes used to drive the assignment functions were taken directly from the CMAP data and translated to additional new links in the study area, providing maximum compatibility with CMAP travel model outputs.

Table 1 shows the daily vehicle miles traveled (VMT) comparisons of 2010 existing year, 2030 ICP design year, and 2040 No-Build Alternative and Tier Two Build Alternative by roadway functional class.

TABLE 1
Daily VMT Comparisons: Existing Year (2010), 2030 ICP, and 2040 No-Build Alternative and Tier Two Build Alternative

Alternatives	Functional Class	Freeway	Principal Arterial	Minor Arterial	Collector	Total
2010 Existing	VMT	9,778,100	2,760,700	2,462,600	1,047,500	16,048,900
	% Functional Class	61	17	15	7	100
2030 ICP	VMT	12,204,700	1,756,100	1,855,700	864,100	16,680,600
	% Functional Class	73	11	11	5	100
2040 No-Build Alternative	VMT	10,929,900	3,118,800	2,779,500	1,187,400	18,015,600
	% Functional Class	61	17	15	7	100
2040 Tier Two Build Alternative	VMT	14,152,800	2,363,300	2,481,500	1,176,200	20,173,800
	% Functional Class	70	12	12	6	100

The travel demand forecast for the 2030 ICP was used to generate design hourly volumes (DHVs) that in turn were used to develop the proposed corridor sizing for the 2030 ICP design year, with consideration for the Tier Two Build Alternative condition. The first step in determining corridor sizing requirements was to establish forecasts for peak period traffic demand. The traffic forecasts for the 2030 ICP were based on network coding assumptions that are reflected in the CMAP 2040 regional transportation plan model. The adjusted peak period traffic forecasts were then converted to a peak hour volume. Given the saturated condition of traffic during the peak periods, a factor or 0.52 was used to convert the PM peak

period volume (2-hour volume) to a peak hour volume. The traffic volumes in the peak direction (AM or PM) of travel were then used in analyzing the level of service (LOS) for the corridor. The interchange ramps and corridor mainline were designed for the direction with the higher volume. For the Elgin O'Hare corridor and West Bypass, both the AM and PM peak hour traffic volumes were analyzed for the two directions of each corridor. The peak hour volumes were reassigned to the interchanges and balanced. Design year traffic forecasts were developed with consideration for estimates of turning volumes (rounded to nearest 10 vehicles per hour).

Projected 2030 Traffic Forecasts

Forecasts indicate study area travel growth of approximately 4 percent from 2010 to the 2030 ICP based on VMT. Exhibit 1 compares existing (2010) average daily traffic (ADT) and forecast ADT (2030 ICP and 2030 No-Build Alternative) on study area freeway and arterial segments. Comparisons of the link volumes shown in Exhibit 1 illustrate the expected change in travel patterns over the next 20 years. In general, the expected change would be a decrease in travel on secondary roads and a shift of longer trips to the access-controlled facilities. The construction of new or improved toll roads would reduce the demand on the secondary system. While tolling does temper demand for short-distance trips on mainline, the ICP will result in improved highway system performance.

West of I-290, changes in traffic volume along the Elgin-O'Hare Expressway and local arterial streets would be influenced in the 2030 ICP scenario by both expansion of the Elgin-O'Hare Expressway and the effects of tolling. Proposed widening of the facility would make the Elgin-O'Hare Expressway a more attractive alternative route, but tolling would divert some trips to local arterials. The overall combined effect of the actions would still redistribute traffic from secondary roadways to the access-controlled facility, as the facility now has improved connectivity to the region. Mainline ADT on the facility would stay the same or increase roughly 1 to 5 percent for the 2030 No-Build Alternative condition compared to an increase by 2 to 12 percent under the 2030 ICP scenario.

East of I-290, the extension of the Elgin-O'Hare Expressway would attract traffic from other competing routes. The forecasted traffic on the Elgin O'Hare corridor would be 126 to 230 percent greater than the No-Build Alternative of Thorndale Avenue. The traffic growth would be diverted from local arterials in this section of the study area and would reroute trips that would otherwise have used other regional freeways. Similarly, along the West Bypass corridor, part of the traffic growth would be diverted from parallel north-south arterials to the new access-controlled highway. Another source of traffic along the West Bypass would be rerouted trips that would otherwise have used I-294 and I-90.

Exhibits 2A to 2D are the 2030 ICP DHV diagrams for the I-290, West Bypass, I-294, and I-90 system interchanges.

Mainline and Interchange Lane Requirements and Level of Service

This section describes the design criteria and operational analysis procedures used to demonstrate the operational acceptability of the 2030 ICP. The 2030 ICP mainline and ramp improvements operate at acceptable LOS throughout the system. The 2030 ICP not only provides favorable operations, but also demonstrates its operational independence and benefits the system as a whole.

Design Criteria and Operational Analysis Procedures

LOS is an operational measure of the quality of traffic flow. Procedures for determining LOS for the EOWB project are consistent with *TRB Special Report 209* and the *2010 Highway Capacity Manual* (HCM, 2010). Because of the complex traffic operations at the Elgin O'Hare and I-290 system interchange, the interchange was analyzed with VISSIM microsimulation software. The analysis extended from Meacham Road to Prospect Avenue along Elgin O'Hare corridor and from south of the I-290/I-355 split to north of Biesterfield Road along I-290. Traffic operations along crossroads were analyzed using SYNCHRO traffic operational software.

LOS is not considered a controlling criterion in the highway design process. Whereas design manuals typically define prescribed LOS design criteria, the operational characteristics of a facility should be balanced with those of competing facilities. Also, it may be desirable to accept different LOS thresholds for different design elements of an interchange, such as basic freeway, ramp merge and diverge, and ramp termini. Design LOS is a factor that involves tradeoffs. Highway design, which accommodates a better LOS, generally requires a larger roadway footprint and higher costs, while providing improved operations during peak period travel times. Design that accommodates a lower LOS generally requires less right-of-way and fewer impacts and costs, but results in more congested operations during peak hours.

The EOWB ICP was developed to be compatible with the following LOS design criteria:

- For toll road segments (Elgin O'Hare, West Bypass, I-90, and I-294), corridor sizing was developed generally to accommodate LOS D with spot LOS E operations, consistent with project direction/coordination with Illinois Tollway.
- For freeway segments (I-290 near the Elgin O'Hare system interchange), corridor sizing was developed generally to accommodate LOS D operations, consistent with project direction/coordination with the Illinois Department of Transportation (IDOT) and FHWA for the urban Chicago region.
- For connecting arterial segments adjacent to proposed interchanges, arterial improvements, including ramp terminal intersections, were developed generally to accommodate LOS D operations, consistent with project direction/coordination with IDOT and FHWA for the urban Chicago region.

Proposed Corridor Sizing—Mainline and Interchange Ramps

Exhibits 3A to 3E are schematic corridor sizing diagrams showing the number of basic and auxiliary lanes together with lane arrangements at interchanges for the 2030 ICP. They present 2030 DHVs and projected LOS for mainline sections and ramps.

The proposed Elgin O'Hare corridor would generally be a 4-lane facility from west of the Gary Avenue interchange to the West Bypass system interchange with auxiliary lanes provided in high traffic areas (Exhibits 3A and 3B). West of the I-290 system interchange, the LOS would be D or better for all mainline segments and ramps. East of I-290, LOS would be D or better except for eastbound (AM peak) and westbound (PM peak) mainline between Park Boulevard and Prospect Avenue, and for ramp diverges eastbound to Wood Dale Road and Busse Road (IL 83) (AM and PM peaks) and westbound to Wood Dale Road and Prospect Avenue (PM peak), which would each operate at LOS E.

The proposed West Bypass would be a 4-lane facility between the I-294 system interchange and the I-90 system interchange (Exhibit 3C). An auxiliary lane would be added in each

direction between Irving Park Road (IL 19) and the system interchange with the Elgin O'Hare corridor. LOS would be D or better, except for the northbound ramp diverge to Touhy Avenue (IL 72) (PM peak) and the southbound ramp diverge to the westbound Elgin O'Hare corridor (AM and PM peaks), which would each operate at LOS E.

The section of northbound I-290 in the study area from the I-290/I-355 split to Biesterfield Road would be an 8-lane facility (Exhibit 3D). An auxiliary lane would be provided between the I-290/I-355 split and the ramp to the eastbound Elgin O'Hare corridor and Meacham Road, and between the ramp from the westbound Elgin O'Hare to south of Biesterfield Road. LOS would be D or better for all northbound mainline segments and ramps in the section. By comparison, this section of I-290 would operate at LOS F for the 2030 No-Build condition.

The section of southbound I-290 in the study area from Biesterfield Road to the Elgin O'Hare corridor would generally be an 8-lane facility from south of Elgin O'Hare to the I-290/I-355 split (Exhibit 3D). An additional auxiliary lane would be provided southbound from south of the Biesterfield Road off-ramp to the Elgin O'Hare corridor. LOS throughout would be D or better except for the weaving operation between the Biesterfield Road entrance ramp and the exit to Elgin O'Hare, which would be LOS E (PM peak). A comparison of travel times and speeds between the No-Build Alternative and ICP shows that the ICP provides a 50 percent reduction in travel times and improves the average speed by 50 percent as compared to the No-Build Alternative. Traffic operations were found to be acceptable for both facilities and within the system interchange on the basis of VISSIM operational analyses. VISSIM was used to provide additional analysis considering the 2010 HCM weaving methodologies limitations and showed that acceptable operations are provided in the weaving area.

The section of I-90 in the study area would be an 8-lane facility from east of the West Bypass system interchange to west of Elmhurst Road. The Illinois Tollway will expand the existing interstate from six to eight lanes prior to the construction of the West Bypass. A collector-distributor road would be provided in both directions between the West Bypass and Elmhurst Road interchange (Exhibit 3E). Eastbound, the ramp entrance from Arlington Heights Road (PM peak), the I-90 mainline west of Elmhurst Road interchange (AM and PM peak), and the I-90 mainline east of the West Bypass interchange (PM peak) LOS would be E. In the westbound direction, the ramp diverge to West Bypass and Elmhurst Road (AM peak), I-90 mainline east of the West Bypass interchange (AM peak), and the I-90 mainline west of Elmhurst Road interchange (AM and PM peak), LOS would be E. The Illinois Tollway's widening and reconstruction of I-90 is designed for a 2018 design year, and operations at each of the locations along I-90 would be at least LOS E when opened (2025).

Implementation of the 2030 ICP will affect traffic distribution on adjacent access-controlled roadways (freeway and toll road) and arterial/secondary roadways. The traffic redistribution will be in addition to the effects of area-wide growth, which would occur in the No-Build Alternative scenario. Exhibit 1 presents existing (2010), 2030 No-Build Alternative, and 2030 ICP ADT estimates for the existing and proposed roadway system in the study area. The following sections describe the projected traffic impacts of the 2030 ICP to proximate existing access-controlled roadways and arterials/secondary roadways.

Existing Freeways and Toll Roads

Implementation of the 2030 ICP will affect traffic distribution and demand along adjacent access-controlled roadways. Table 2 lists the estimated existing (2010) and projected (2030)

ADT for the No-Build Alternative and 2030 ICP condition along segments of the existing and proposed freeway and toll road system. Likewise, Table 3 lists the estimated existing and projected ADT for the cross streets in the project area. Traffic demand for the 2030 ICP along the Elgin O'Hare and West Bypass corridors reflects the attractiveness of the facilities for long-distance regional trips and represents in large part a redistribution of trips from adjacent existing roadways. The Elgin O'Hare and West Bypass corridor sizing was developed to accommodate acceptable traffic operations for the 2030 ICP design year.

The following subsections discuss project-related traffic impacts along existing freeway and toll road sections, and describe improvements included in the 2030 ICP to address the impacts.

I-90. A comparison of 2030 No-Build Alternative and ICP traffic forecasts suggests an increase in traffic demand along I-90 west of the I-90/West Bypass system interchange. The increase reflects the diversion of trips to I-90 and the West Bypass from I-290 and the local arterial roadway system, including the attraction of trips to the proposed full access interchange at I-90 at Elmhurst Road. The ICP includes new ramps to and from the west at I-90 and Elmhurst Road, which with or without the West Bypass the new ramps would redistribute Arlington Heights Road traffic farther east. East of the I-90/West Bypass system interchange, projected 2030 ICP traffic on I-90 would be substantially less than 2030 No-Build Alternative traffic. The reduction may be attributed to diversion of traffic from I-294 to the West Bypass.

The Illinois Tollway plans to widen I-90 from a 6-lane cross-section (3 lanes in each direction) to an 8-lane cross-section (4-lanes in each direction). The proposed cross-section west of Elmhurst Road is adequate to accommodate EOWB related traffic impacts, as shown in Exhibit 3E. Exhibit 3E also depicts eastbound and westbound collector-distributor roadways between Elmhurst Road and the I-90/West Bypass system interchange. The I-90 cross-section would also be kept at 4-lanes in each direction between the West Bypass system interchange and Lee Street.

I-290 / IL 53 / I-355. Traffic forecasts suggest a nominal change in traffic demand between existing and 2030 No-Build Alternative condition along the I-290/IL 53/I-355 corridors. With implementation of the 2030 ICP improvements, the change from existing traffic would still be minimal, except for the northernmost segment of I-290 near I-90. The 2030 ICP traffic assignment indicates a traffic reduction of 6 percent on the segment between I-90 and Biesterfield Road, attributable to a diversion of traffic from this section of the freeway to the West Bypass.

I-294 (Tri-State Tollway). Traffic forecasts suggest that the segment of I-294 between the West Bypass and North Avenue (IL 64) would experience a daily traffic increase in 2030 of 20 percent over the No-Build Alternative condition. The change in traffic demand on I-294 between the West Bypass and IL 19 ADT would be minimal. To accommodate 2030 ICP traffic demand, southbound I-294 would be widened from 4-lanes to 5 between the interchange with the West Bypass and the southbound exit ramp to County Line Road/IL 64. The proposed improvement would include an exit from southbound I-294 to County Line Road/IL 64.

Existing Arterials and Secondary Roadways

Implementation of the 2030 ICP will affect traffic distribution and demand on proximate arterials and secondary roadways. In general, the Elgin O'Hare and West Bypass corridors

will result in a reduction of traffic along parallel arterials, as longer-distance regional trips divert to the new facilities, and a moderate increase in traffic along crossroads near proposed service interchanges. Exhibit 1 compares the existing and projected 2030 No-Build Alternative and ICP daily traffic on the highway network.

A traffic analysis was conducted to identify the location and nature of required improvements to existing arterials and secondary roadways as a result of implementation of the 2030 ICP. The analysis was performed using the following sketch-level traffic analysis procedures:

- **Step 1:** ADT was determined for 2010 (existing) and 2030 ICP and No-Build Alternative conditions for each segment of the arterial/secondary road system. The ADTs were compared to threshold values for one-way traffic demand, which were used to aid in screening the potential need for additional capacity. Threshold values used for the analysis are as follows:
  - For existing arterials with one lane in each direction, an ADT of greater than 9,500 (directional) would require added travel lanes.
  - For existing arterials with two lanes in each direction, an ADT of greater than 18,500 (directional) would require added travel lanes.
  - For existing arterials with three lanes in each direction, an ADT of greater than 28,500 (directional) would require added travel lanes.
- **Step 2:** Projected 2030 ICP and No-Build Alternative ADTs for each segment were compared with the assumed threshold values to identify deficiencies under both conditions.
- **Step 3:** 2030 ICP and No-Build Alternative ADTs were compared to identify segments where a project-related traffic impact is expected; in other words, where the projected volume along the ICP exceeds the No-Build Alternative volume. For screening purposes, segments experiencing a nominal projected increase in daily traffic (less than 5 percent) were not considered to experience a project-related traffic impact. Segments were considered to require improvement if they experience a project-related traffic impact (2030 ICP ADTs exceed the 2030 No-Build Alternative ADTs by 5 percent or more) and the segment exceeds threshold volumes for its current cross-section.

Analyses indicate that three segments of the arterial/secondary roadway system will require capacity improvements as a result of traffic impacts related to the 2030 ICP. Specifically, project-related capacity improvements are needed in the following locations: Franklin Avenue from County Line Road to Taft Avenue; Franklin Avenue from Taft Avenue to Wolf Road; and Elmhurst Road from Oakton Street to I-90.

More detailed traffic analyses were performed for arterial segments near proposed interchanges along the Elgin O'Hare and West Bypass corridors. Peak hour DHVs were developed and SYNCHRO analyses were performed to determine the extent of improvements required to provide acceptable operations within the interchange influence area. Then, a preliminary layout of required improvements was prepared. The extent of the improvements typically requires added travel lanes, turning lanes, and updated traffic signals. Added travel lanes commonly extend from the interchange areas for varying distances as needed to allow interchange traffic to transition efficiently to the existing lane configuration. Table 4 lists the proposed 2030 ICP arterial improvements.

TABLE 2
Average Daily Traffic in 2010 and under 2030 No-Build Alternative and ICP Conditions - Freeway/Toll Road Segments

From	To	2010 ADT	2030 2-Way ADT		Difference 2010 to 2030 No-Build		Difference 2030 ICP to 2030 No-Build	
			No-Build	Build	ADT	% Difference	ADT	% Difference
Elgin O'Hare Corridor								
Lake Street (US 20)	Springinsguth Road	56,400	55,900	57,300	-500	-0.9	1,400	2.5
Springinsguth Road	Rodenburg Road	68,100	69,800	72,700	1,700	2.5	2,900	4.2
Rodenburg Road	Wright Boulevard	86,600	89,200	96,100	2,600	3.0	6,900	7.7
Wright Boulevard	Roselle Road	104,800	106,300	109,600	1,500	1.4	3,300	3.1
Roselle Road	Meacham Road	105,200	105,700	117,600	500	0.5	11,900	11.3
Meacham Road	IL 53	103,500	105,000	109,900	1,500	1.4	4,900	4.7
IL 53[a]	Arlington Heights Road	53,000	53,900	122,100	900	1.7	68,200	126.5
Arlington Heights Road [a]	Prospect Avenue	44,300	44,300	113,000	0	0.0	68,700	155.1
Prospect Avenue[a]	Wood Dale Road	41,800	43,700	112,000	1,900	4.5	68,300	156.3
Wood Dale Road [a]	IL 83	33,200	34,900	109,400	1,700	5.1	74,500	213.5
IL 83[a]	Elmhurst Road	31,800	32,500	88,800	700	2.2	56,300	173.2
West Bypass								
I-294	Franklin Avenue	N/A	N/A	59,500	N/A	N/A	N/A	N/A
Franklin Avenue	IL 19	N/A	N/A	50,100	N/A	N/A	N/A	N/A
IL 19	Elgin O'Hare Corridor	N/A	N/A	85,700	N/A	N/A	N/A	N/A
Elgin O'Hare Corridor	IL 72	N/A	N/A	93,000	N/A	N/A	N/A	N/A
IL 72	I-90	N/A	N/A	63,300	N/A	N/A	N/A	N/A
I-90								
I-290	Arlington Heights Road	149,800	167,700	179,000	17,900	11.9	11,300	6.7
Arlington Heights Road	Elmhurst Road	142,400	165,200	185,700	22,800	16.0	20,500	12.4
Elmhurst Road	Mount Prospect Road	175,900	194,000	181,000	18,100	10.3	-13,000	-6.7
I-290/IL 53/I-355								
I-355	Elgin O'Hare Corridor	208,300	212,400	217,400	4,100	2.0	5,000	2.4
Elgin O'Hare Corridor	Biesterfield Road	196,700	196,400	199,900	-300	-0.2	3,500	1.8
Biesterfield Road	IL 72	211,800	215,300	202,400	3,500	1.7	-12,900	-6.0
I-294								
IL 64	West Bypass	188,100	189,500	220,500	1,400	0.7	31,000	16.4
West Bypass	IL 19	188,100	189,500	192,000	1,400	0.7	2,500	1.3

[a]Segments are converted from arterial to a toll road in the 2030 ICP.

TABLE 3
Average Daily Traffic in 2010 and under 2030 No-Build and ICP Conditions - Cross Streets

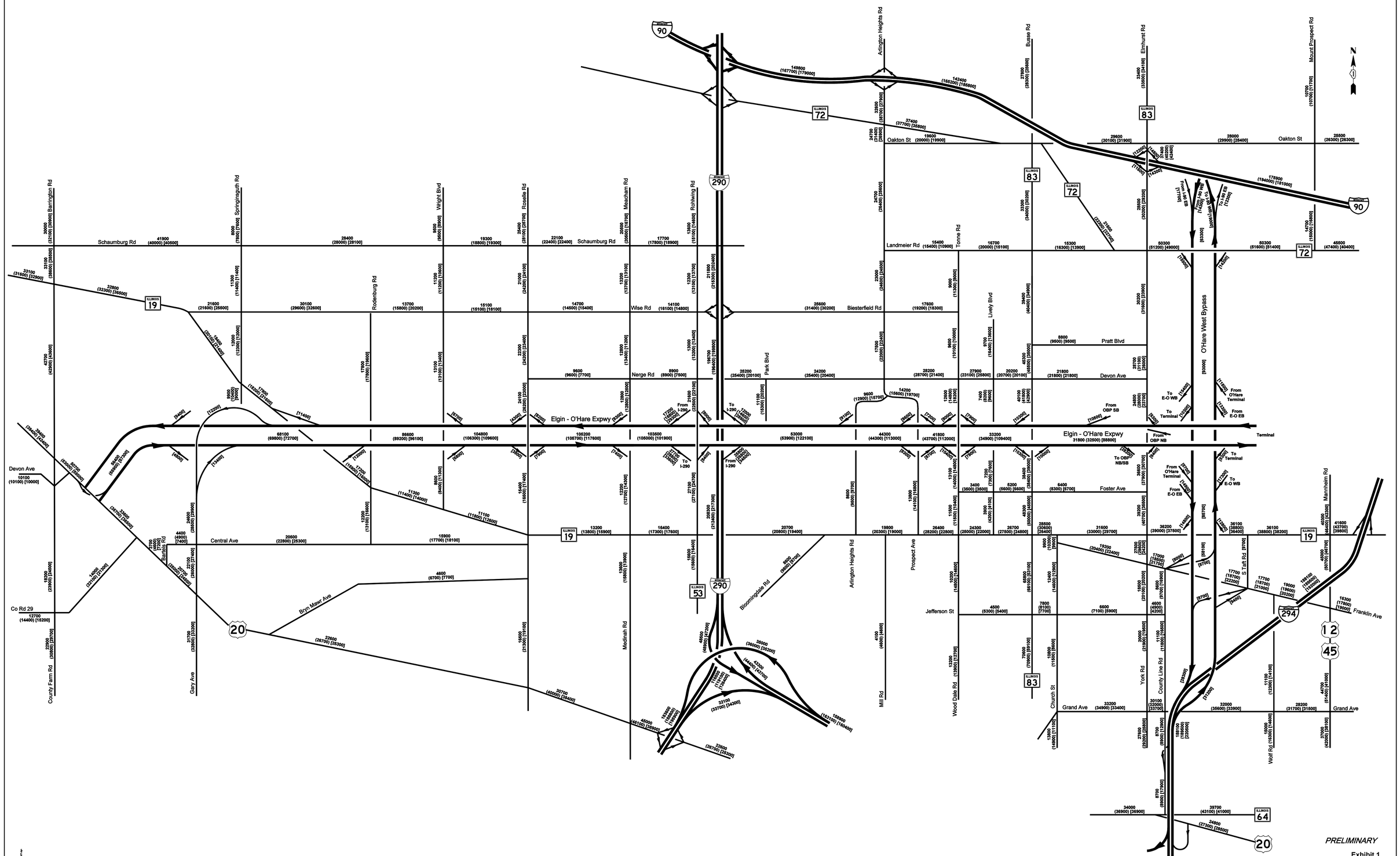
Cross Street	2010 ADT	2030 2-Way ADT		Difference 2010 to 2030 ICP		Difference 2030 ICP to 2030 No-Build		2010 2-Way Average DHV	2030 Build 2-Way Average DHV
		No-Build	Build	ADT	% Difference	ADT	% Difference		
Elgin-O'Hare Expressway									
Springinsguth Road	12,000	12,300	12,000	0	0	-300	-2.4	600	730
Gary Avenue	24,600	28,500	29,900	5,300	21.5	1,400	4.9	1,480	2,420
IL 19	17,900	18,200	21,600	3,700	20.7	3,400	18.7	2,200	2,230
Wright Boulevard	13,100	13,100	13,400	300	2.3	300	2.3	560	780
Roselle Road	24,100	26,200	23,000	-1,100	-4.6	-3,200	-12.2	1,780	1,600
Meacham Road	12,800	12,800	12,500	-300	-2.3	-300	-2.3	1,870	1,550
IL 53	27,100	27,100	24,700	-2,400	-8.9	-2,400	-8.9	1,890	1,500
Arlington Heights Road	9,600	12,900	15,700	6,100	63.5	2,800	21.7	590	1,120
Prospect Avenue	14,200	15,600	19,700	5,500	38.7	4,100	26.3	660	1,590
Wood Dale Road	12,600	14,800	18,200	5,600	44.4	3,400	23.0	1130	1,870
IL 83	40,100	41,800	42,900	2,800	7.0	1,100	2.6	3,720	2,120
West Bypass									
Franklin Avenue	17,700	18,700	22,200	4,500	25.4	3,500	18.7	1,480	1,560
IL 19	36,200	39,000	37,500	1,300	3.6	-1,500	-3.8	3,200	2,470
IL 72	50,300	51,200	49,000	-1,300	-2.6	-2,200	-4.3	3,800	2,140
I-90									
Elmhurst Road	37,400	40,200	42,400	5,000	13.4	2,200	5.5	2,290	2,960
I-294									
IL 64	39,700	43,100	41,000	1,300	3.3	-2,100	-4.9	2,130	5,320
US 20	24,800	27,300	28,500	3,700	14.9	1,200	4.4	900	2,040

TABLE 4
Crossing and Connecting Road Improvements: 2030 ICP

	Street Name	Length (ft)	Existing Cross-Section	Proposed ICP Improvements	Improvement Purpose
1	IL 19 (west)	2,300	4	Restriping; grading; pavement improvements; dual southbound left turns	Capacity improvements
2	Roselle Road	800	4	Restripe existing; ramp widening	Ramp capacity improvements
3	IL 53	2,800	4	4 through lanes; additional turn lanes; new frontage road intersections	Access control on Elgin O'Hare
4	Devon Avenue	1,000	4	Bridge lengthening; 4 through lanes	Provide ramp access on I-290
5	Park Boulevard	4,000	2	Moved alignment in southwest corner of I-290 interchange; road extended to connect to Ketter Drive (4 through lanes) with channelization	Improve access at Hamilton Lakes and traffic from the east
6	Arlington Heights Road	1,400	2	4 through lanes; new frontage road intersections	Provide interchange access; maintain access to local traffic
7	Prospect Avenue	1,800	4	4 through lanes; additional lanes; new frontage road intersections	Provide interchange access; maintain access to local traffic
8	Mittel Boulevard	1,400	2	New frontage road intersection; 4 through lanes	Provide interchange access; maintain access to local traffic
9	Wood Dale Road	2,500	4	4 through lanes; additional turn lanes; new frontage road intersections	Provide interchange access; maintain access to local traffic
10	IL 83	3,100	6	6 through lanes; additional turn lanes added; new frontage road intersections	Provide interchange access; maintain access to local traffic
11	Supreme Drive	900	2	New frontage road intersections; new turn lanes	Provide interchange access; maintain access to local traffic
12	Lively Boulevard	700	2	Extend over Elgin O'Hare; new T-intersection with frontage road	Frontage road access
13	York Road	3,100	4	4 through lanes; additional turn lanes and access	Provide access to West Terminal via interchange loops
14	IL 64	2,100	6	New connector	Improve travel time and intersection safety
15	County Line Road	2,100[a]	2	Along I-294; additional left-turn (northbound); 2 through lanes; new alignment and southbound ramp	Provide access for southbound I 294 traffic to IL 64
16	Northwest Avenue	2,600	2	2 through lanes; new alignment	Improve intersection spacing

TABLE 4
Crossing and Connecting Road Improvements: 2030 ICP

	Street Name	Length (ft)	Existing Cross-Section	Proposed ICP Improvements	Improvement Purpose
17	Grand Avenue	700	4	4 through lanes; restripe existing; meet vertical clearance	Accommodate West Bypass ramp terminal traffic
18	Franklin Avenue/Green Street	4,500	2	4 through lanes	Capacity improvements and accommodation of construction of West Bypass
19	Taft Avenue	4,000	NA	New Taft Avenue connector	Provide connection between north-south railroad tracks
20	County Line Road/Green Street	600	2	West Bypass interchange; new ramp intersection	Accommodate West Bypass ramp terminal traffic
21	IL 19	1,600	4	Roadway realigned; 6 through lanes; new intersection with turn lanes	Accommodate West Bypass interchange
22	IL 72	4,300	6	6 through lanes; new intersections	Integrate new West Bypass ramps to/from the south
23	Mount Prospect Road	2,400	4	Roadway realigned; new intersection	Accommodate IL 72 railroad overpass
24	Oakton Street	1,400	4	4 through lanes with new turn lanes	Capacity improvements
25	Elmhurst Road	5,500	4	6 through lanes; new interchange design	Capacity improvements



LEGEND Average Daily Traffic (ADT)

0000 = 2010 Existing
(0000) = 2030 Baseline (No-Build)
[0000] = 2030 ICP

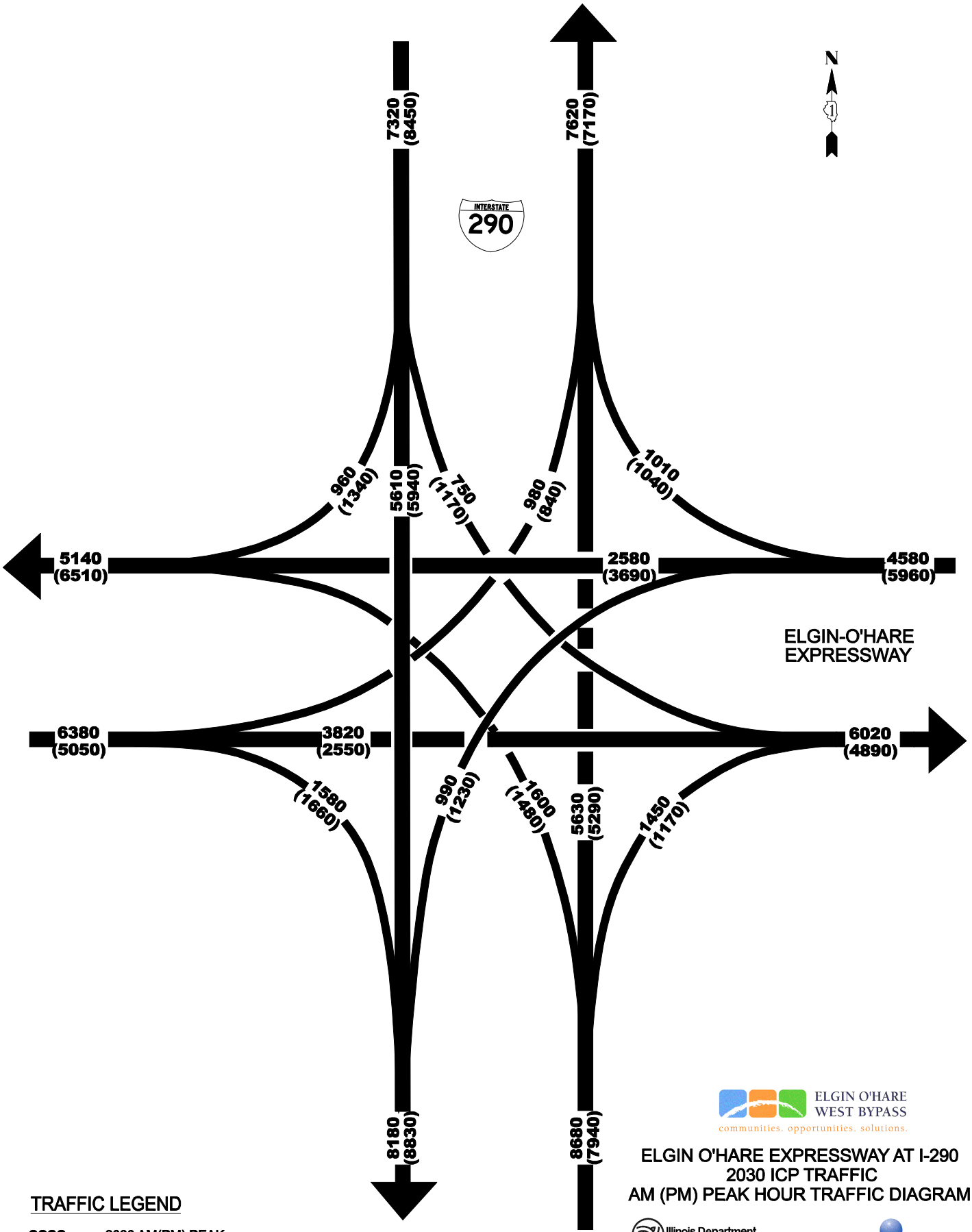
NOTES:
1. ADT DATA GENERATED USING ELGIN-O'HARE WEST BYPASS TRAVEL DEMAND MODEL
2. ADT VOLUMES ARE SUBJECT TO CHANGE BASED ON LOCALIZED ADJUSTMENT.

PRELIMINARY

Exhibit 1

Elgin O'Hare - West Bypass
Existing and 2030 ADT's (No-Build and Build)

May 2012



ELGIN O'HARE
WEST BYPASS
communities. opportunities. solutions.

ELGIN O'HARE EXPRESSWAY AT I-290
2030 ICP TRAFFIC
AM (PM) PEAK HOUR TRAFFIC DIAGRAM

TRAFFIC LEGEND

0000 2030 AM(PM) PEAK
(0000) HOUR VOLUME (VPH)

ALL VOLUMES ARE FOR SYSTEM AND SERVICE RAMP MOVEMENTS

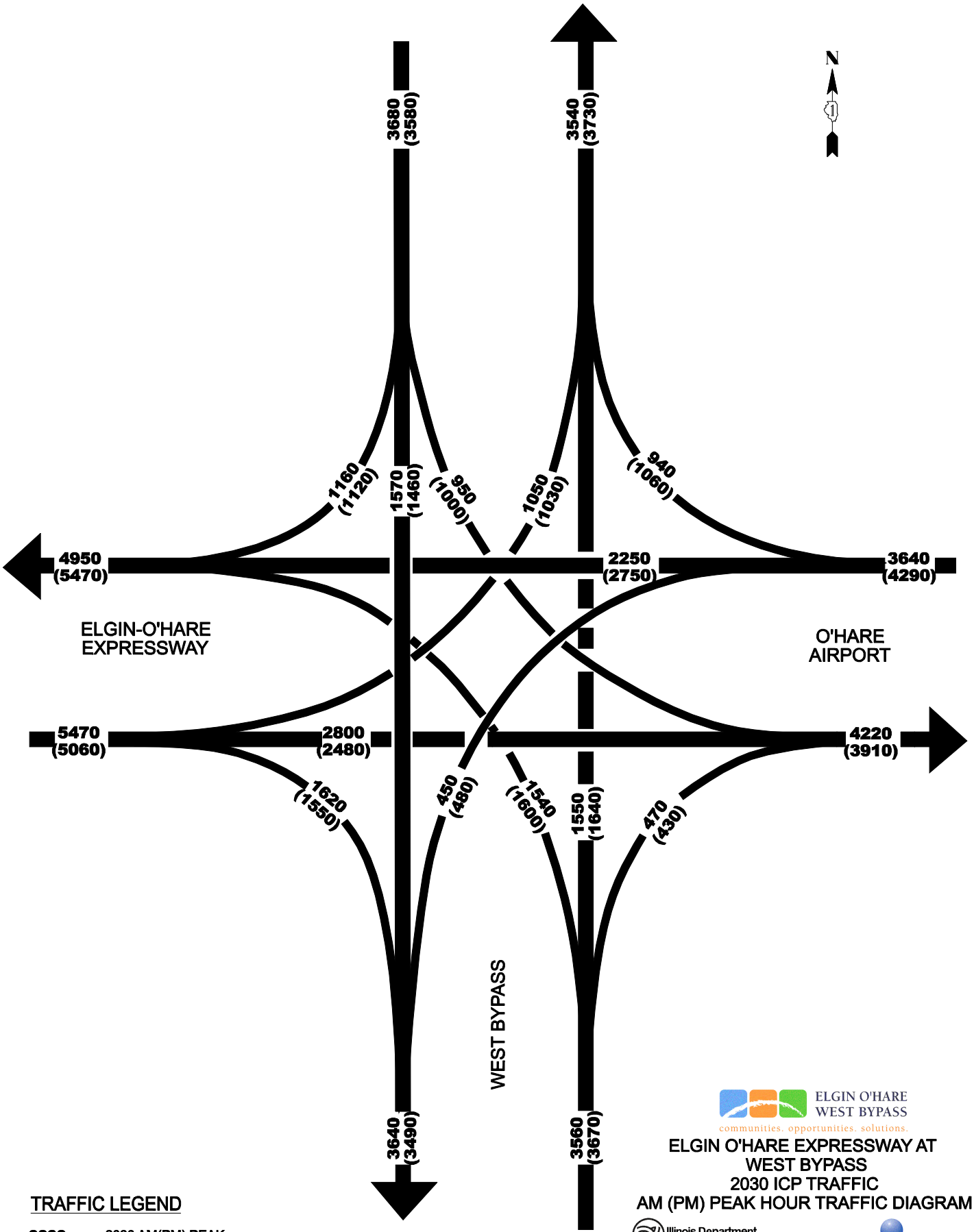
Illinois Department of Transportation

NTS
March 2012

CH2MHILL

Exhibit 2A

PLOT DATE = 3/8/2012 PLOT SCALE = 202.7471 '/IN.
USER NAME = Sgrabarek FILE NAME = D:\ECOWB-TP-ahs-2030TOLL\icp-005.dgn



ELGIN O'HARE WEST BYPASS
communities. opportunities. solutions.

ELGIN O'HARE EXPRESSWAY AT WEST BYPASS
2030 ICP TRAFFIC
AM (PM) PEAK HOUR TRAFFIC DIAGRAM

TRAFFIC LEGEND

0000 2030 AM(PM) PEAK
(0000) HOUR VOLUME (VPH)

ALL VOLUMES ARE FOR SYSTEM AND SERVICE RAMP MOVEMENTS

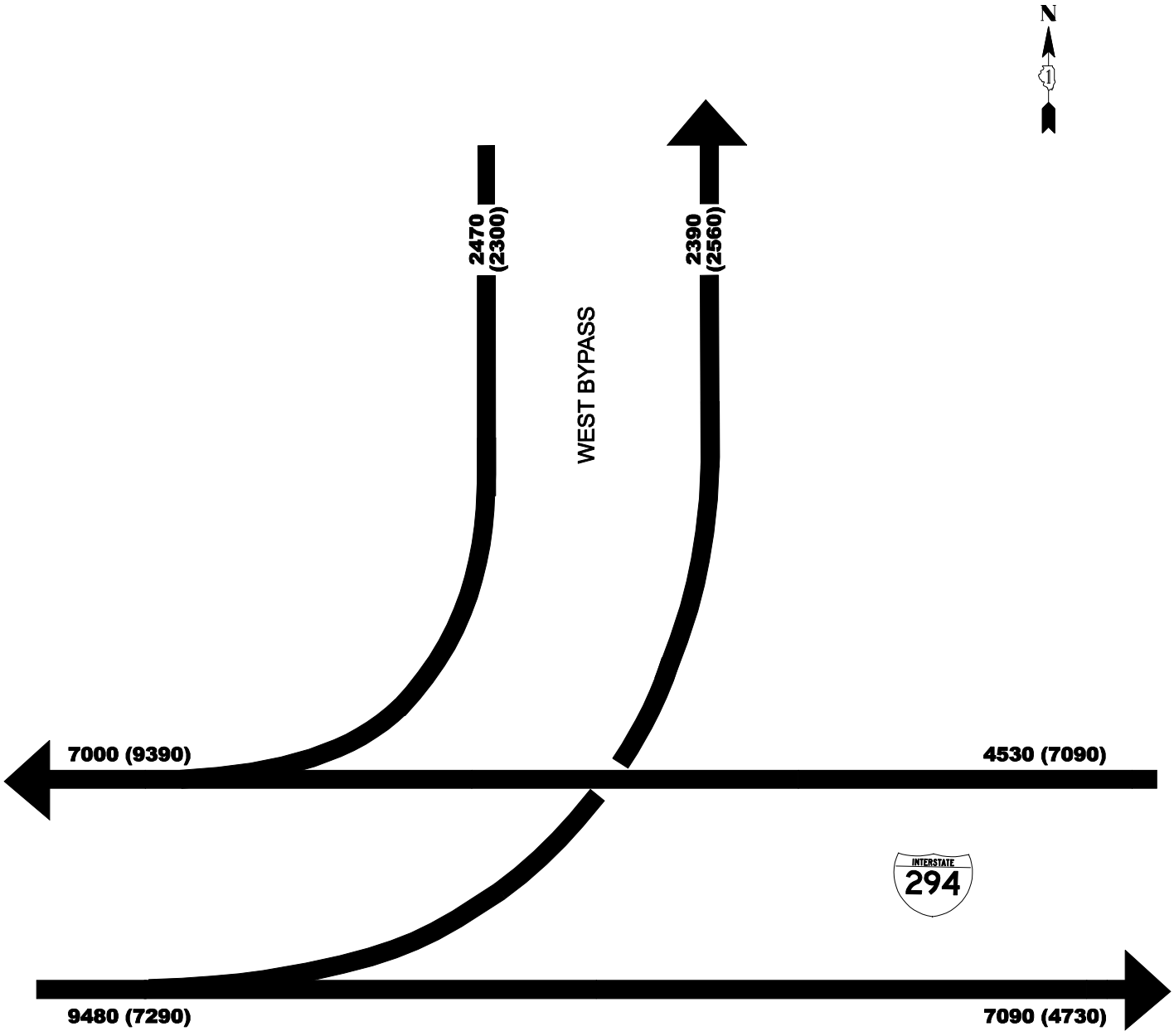
Illinois Department of Transportation

CH2MHILL

NTS
March 2012

Exhibit 2B

PLOT DATE = 3/8/2012 PLOT SCALE = 232.7471 '/IN.
USER NAME = Sgrabarek FILE NAME = D:\ECOWB-TP-ahs-2030TOLL\icp-008.dgn



ELGIN O'HARE WEST BYPASS
communities. opportunities. solutions.

WEST BYPASS AT I-294
2030 ICP TRAFFIC
AM (PM) PEAK HOUR TRAFFIC DIAGRAM

TRAFFIC LEGEND

0000 2030 AM(PM) PEAK
(0000) HOUR VOLUME (VPH)

ALL VOLUMES ARE FOR SYSTEM MOVEMENTS ONLY

Illinois Department of Transportation

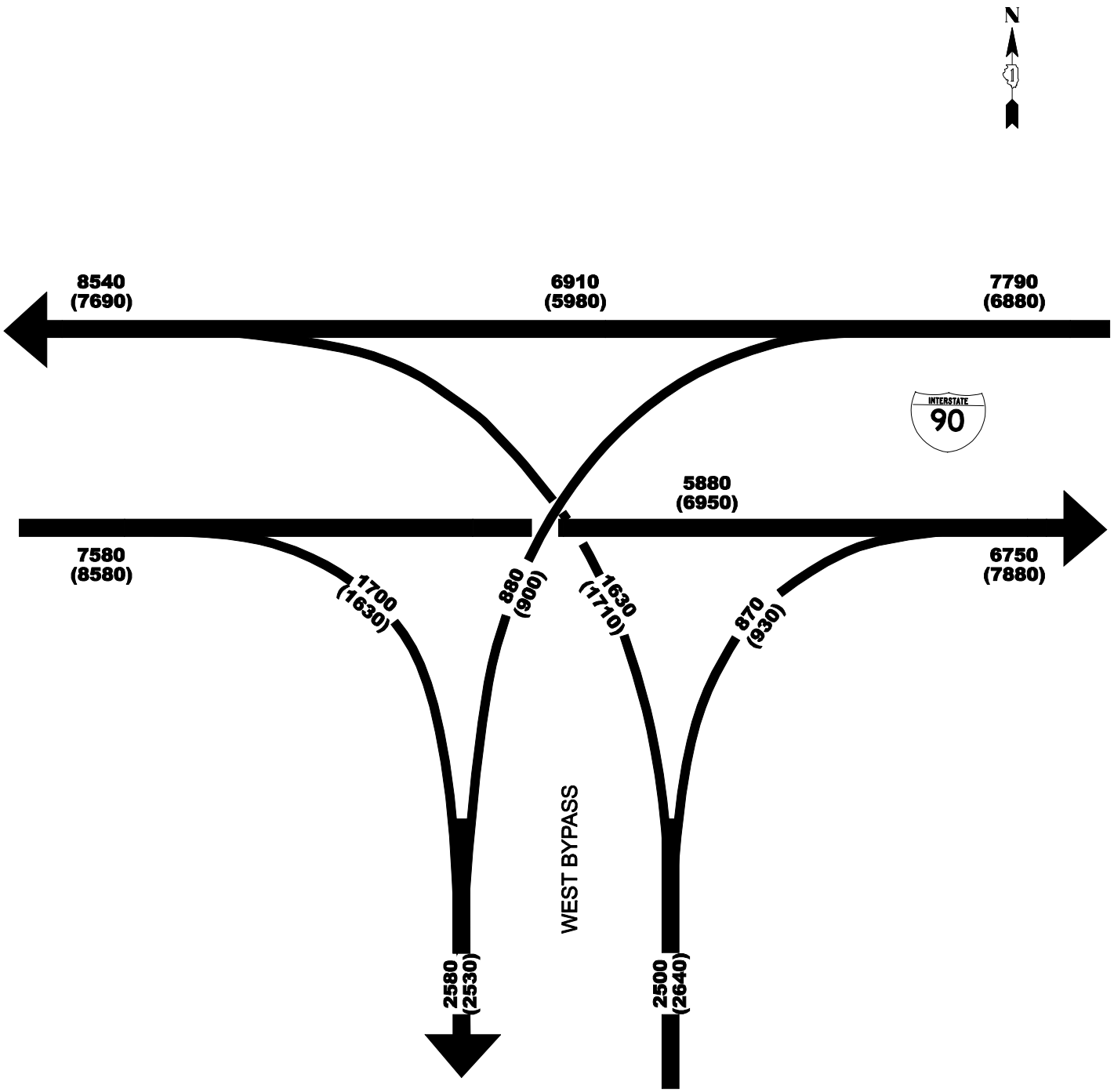
NTS
March 2012

CH2MHILL

Exhibit 2C

PLOT DATE = 3/6/2012 PLOT SCALE = 208.7471 '/IN.

USER NAME = Sgrabens FILE NAME = D:\EOWB-TP-ahs-2030TOLL\icp-007.dgn



ELGIN O'HARE WEST BYPASS
communities. opportunities. solutions.

WEST BYPASS AT I-90
2030 ICP TRAFFIC
AM (PM) PEAK HOUR TRAFFIC DIAGRAM

TRAFFIC LEGEND

0000 (0000)	2030 AM(PM) PEAK HOUR VOLUME (VPH)

Illinois Department of Transportation

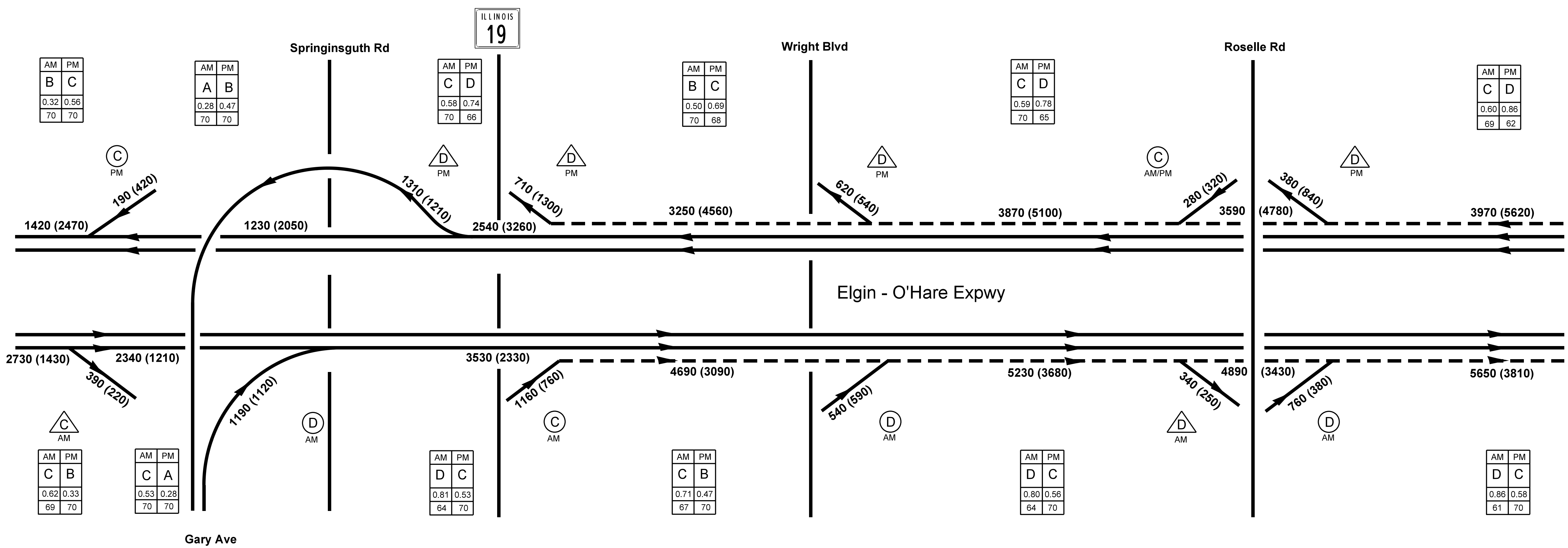
NTS
March 2012

CH2MHILL

Exhibit 2D

PLOT DATE = 3/6/2012 PLOT SCALE = 208.7471 '/IN.

USER NAME = Sgrabens FILE NAME = D:\EOWB-TP-ahn-2030TOLL\icp-008.dgn



LEGEND

000 (000) 2030 AM(PM) Peak Hour Volume (vph)

Basic Lane

Auxiliary Lane

AM	PM	
C	C	AM (PM) Mainline Level Of Service
0.00	0.00	Volume To Capacity Ratio
55	55	Average Speed AM/PM Peak Hour (mph)

C / AM — Diverge Level Of Service Critical Peak Hour

B / AM — Merge Level Of Service Critical Peak Hour

NOTE:

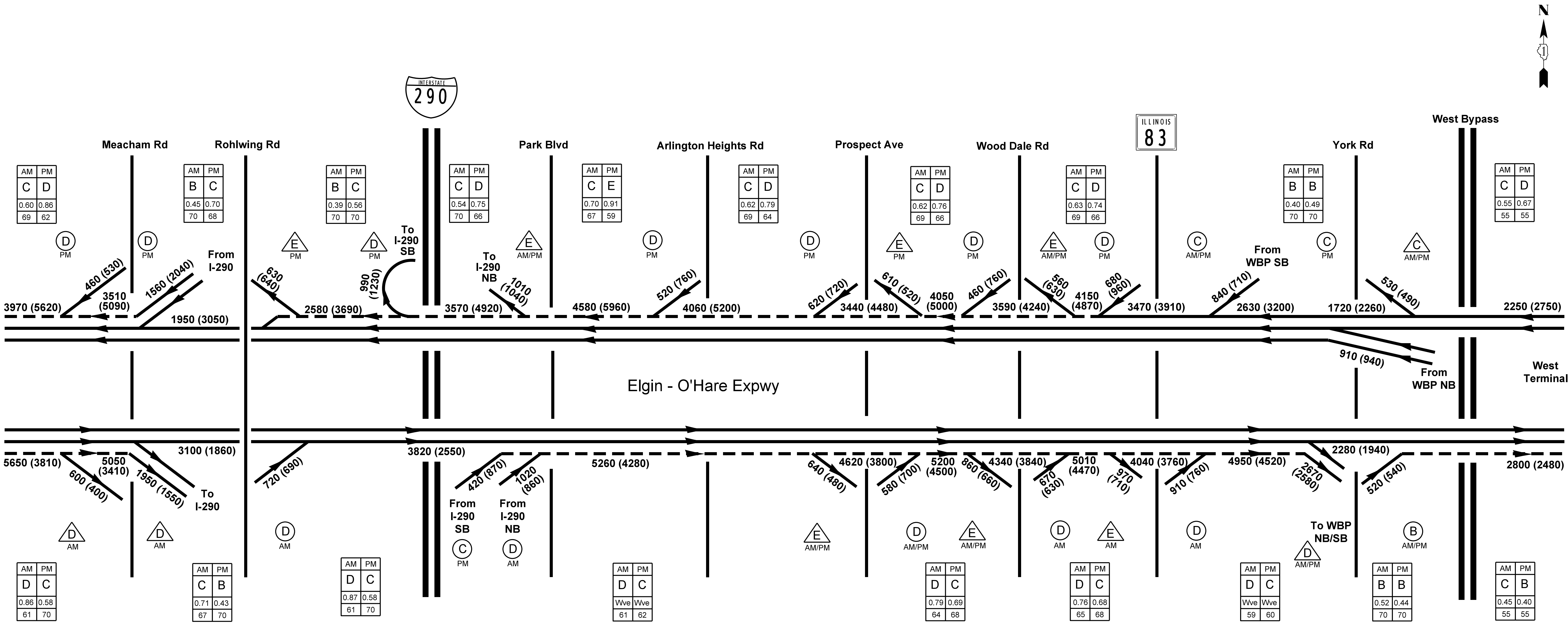
1. Levels of service are calculated using methodologies of the 2010 Highway Capacity Manual.

PRELIMINARY

Exhibit 3A

Elgin O'Hare - West Bypass
2030 ICP Traffic
Corridor Sizing
AM (PM) Peak Hour Traffic

March 2012



LEGEND

000 (000) 2030 AM(PM) Peak Hour Volume (vph)

Basic Lane

Auxiliary Lane

AM	PM	
		AM (PM)
C	C	Mainline Level Of Service
0.00	0.00	Volume To Capacity Ratio
55	55	Average Speed AM/PM Peak Hour (mph)

AM	PM	
		AM (PM)
D	D	Weaving Level Of Service
Wve	Wve	Weaving Controls Level of Service
55	55	Average Speed AM/PM Peak Hour (mph)

C (AM) Diverge Level Of Service Critical Peak Hour

B (AM) Merge Level Of Service Critical Peak Hour

NOTES:

1. System ramp design speeds vary from 30 mph to 50 mph based on proposed ramp radii.
2. Levels of service are calculated using methodologies of the 2010 Highway Capacity Manual.

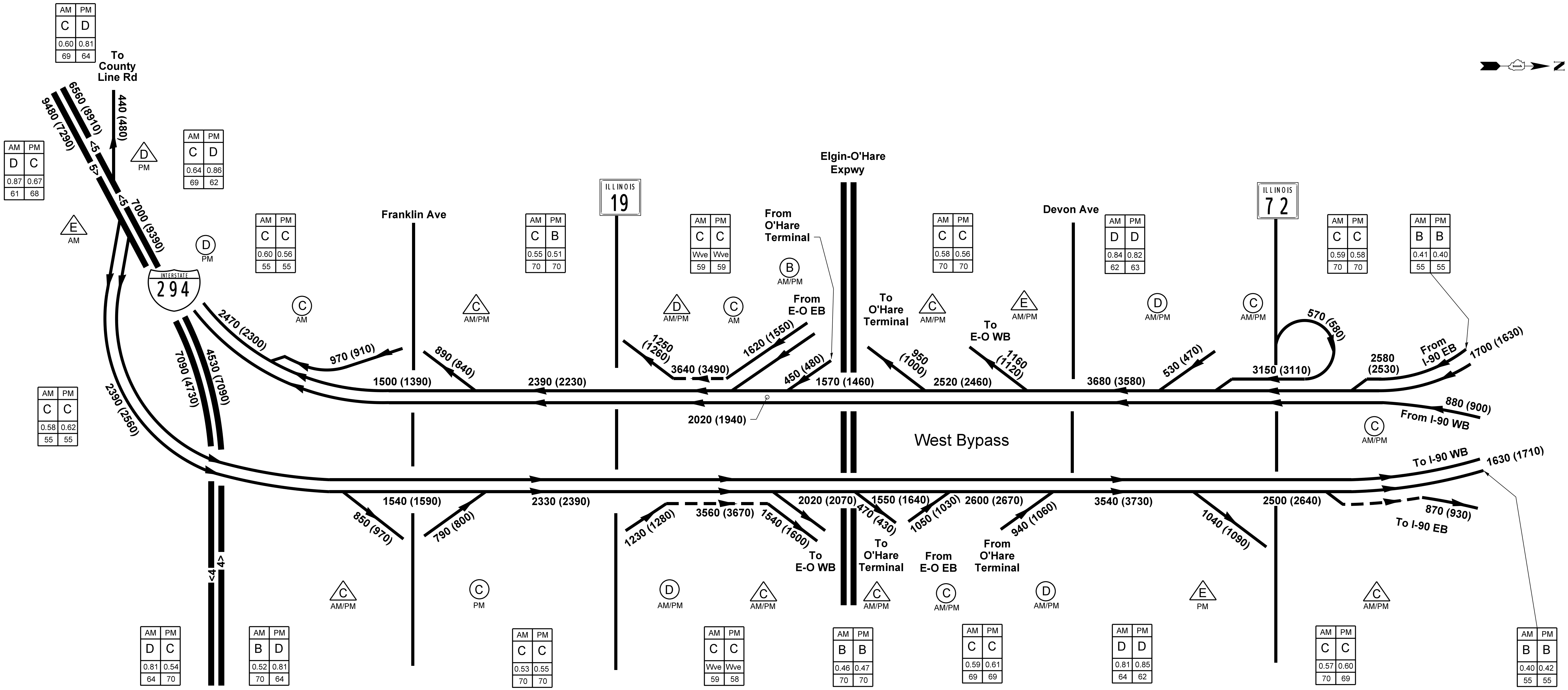
PRELIMINARY

Exhibit 3B

Elgin O'Hare - West Bypass
2030 ICP Traffic
Corridor Sizing
AM (PM) Peak Hour Traffic

March 2012

USER NAME = fgreberis
FILE NAME = DIEOWB-TP-sht-2030TOLLep-0024bB.dgn
PLOT DATE = 3/6/2012



LEGEND

000 (000) 2030 AM(PM) Peak Hour Volume (vph)

Basic Lane

Auxiliary Lane

AM (PM)
Mainline Level Of Service
Volume To Capacity Ratio
Average Speed AM/PM Peak Hour (mph)

AM (PM)
Weaving Level Of Service
Weaving Controls Level Of Service
Average Speed AM/PM Peak Hour (mph)

Diverge Level Of Service
Critical Peak Hour

Merge Level Of Service
Critical Peak Hour

NOTES:

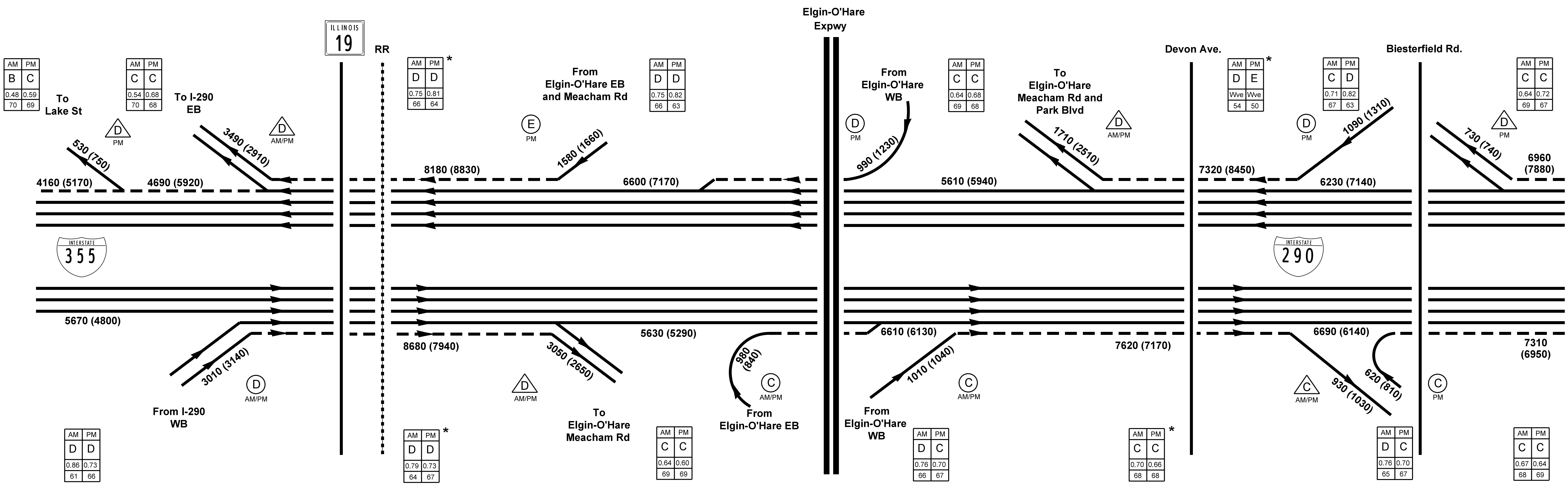
1. System ramp design speeds vary from 30 mph to 50 mph based on proposed ramp radii.
2. Levels of service are calculated using methodologies of the 2010 Highway Capacity Manual.

PRELIMINARY

Exhibit 3C

Elgin O'Hare - West Bypass 2030 ICP Traffic Corridor Sizing AM (PM) Peak Hour Traffic

March 2012



LEGEND

000 (000) 2030 AM(PM) Peak Hour Volume (vph)

Basic Lane

Auxiliary Lane

AM	PM	
		AM (PM)
C	C	Mainline Level Of Service
0.00	0.00	Volume To Capacity Ratio
55	55	Average Speed AM/PM Peak Hour (mph)

AM	PM	
		AM (PM)
D	D	Weaving Level Of Service
Wve	Wve	Weaving Controls Level Of Service
55	55	Average Speed AM/PM Peak Hour (mph)

C (AM) Diverge Level Of Service Critical Peak Hour

B (AM) Merge Level Of Service Critical Peak Hour

NOTES:

* Determination of weaving sections and weaving section analysis are based on the 2000 Highway Capacity Manual. VISSIM analysis shows acceptable performance on these segments.

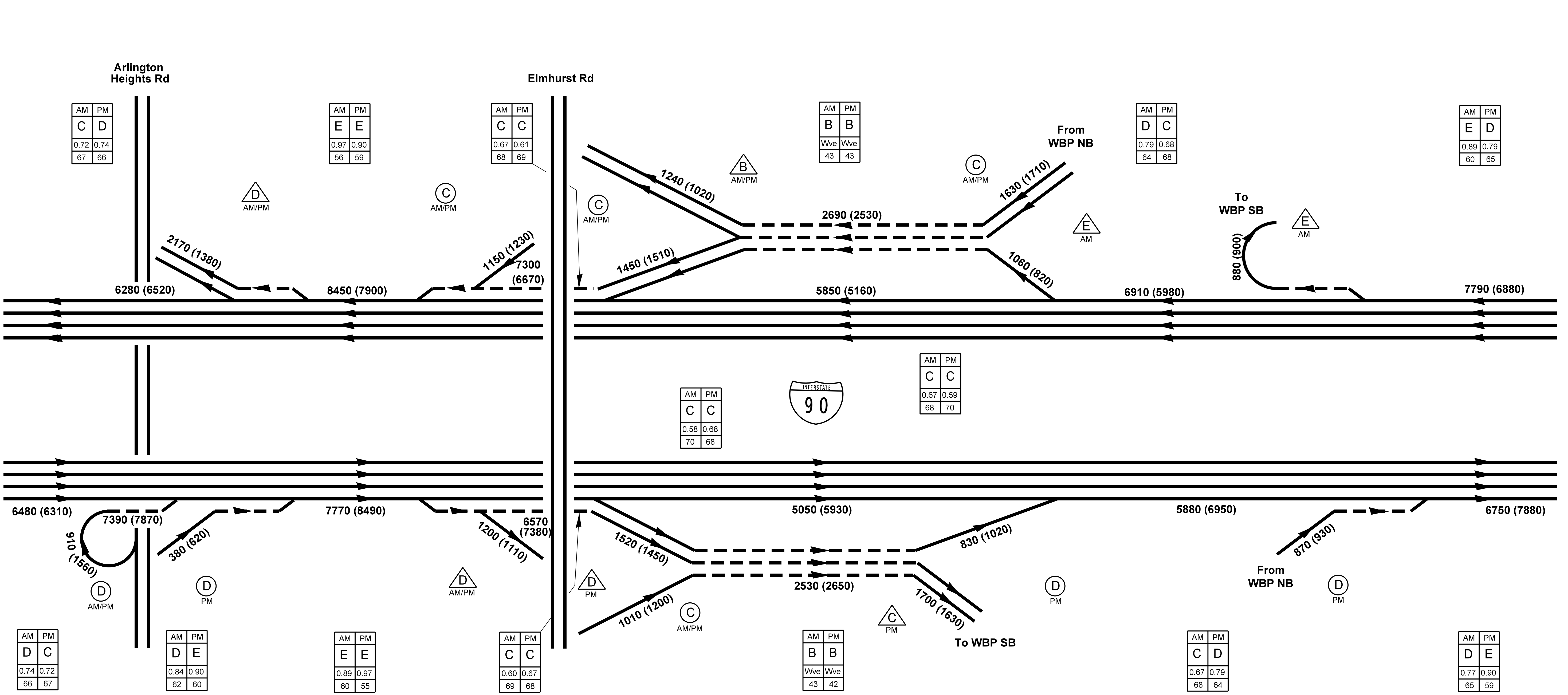
1. System ramp design speeds vary from 30 mph to 50 mph based on proposed ramp radii.
2. Levels of service are calculated using methodologies of the 2010 Highway Capacity Manual.

PRELIMINARY

Exhibit 3D

Elgin O'Hare - West Bypass
2030 ICP Traffic
Corridor Sizing
AM (PM) Peak Hour Traffic

March 2012



LEGEND

000 (000) 2030 AM(PM) Peak Hour Volume (vph)

Basic Lane

Auxiliary Lane

AM	PM
C	C
0.00	0.00
55	55

AM (PM)
Mainline Level Of Service
Volume To Capacity Ratio
Average Speed AM/PM Peak Hour (mph)

AM	PM
D	D
Wve	Wve
55	55

AM (PM)
Weaving Level Of Service
Weaving Controls Level of Service
Average Speed AM/PM Peak Hour (mph)

C (AM) Diverge Level Of Service Critical Peak Hour

B (AM) Merge Level Of Service Critical Peak Hour

NOTES:

1. System ramp design speeds vary from 30 mph to 50 mph based on proposed ramp radii.
2. Levels of service are calculated using methodologies of the 2010 Highway Capacity Manual.

PRELIMINARY

Exhibit 3E

Elgin O'Hare - West Bypass
2030 ICP Traffic
Corridor Sizing
AM (PM) Peak Hour Traffic

March 2012