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Redwood Residential Development Traffic Study
Aurora, IL

To: Kellie McIvor
Redwood USA, LLC

From: Steve Grabowski
Rempe-Sharpe & Assoc.

Date: May 7, 2021

Rempe-Sharpe & Associates has prepared a traffic evaluation for the proposed Redwood residential development in Oswego, IL. The site is located in the northeast quadrant of the Randall Rd./Indian Trail intersection and has a total area of approximately 35 acres, which is currently vacant land. The concept plan indicates that the development will have 1 full access point, a gated emergency access on the north side of the site and will contain 200 dwelling units.

The report presents the existing roadway conditions, existing peak hour traffic volumes at key intersections and a description of the proposed development. A directional distribution of the proposed development generated traffic and vehicle trip generation for the proposed development were estimated. Future traffic conditions on the existing roadways were developed to prepare traffic analyses for the morning and evening peak hours. Based on the projected traffic volumes and development generated traffic, analyses were conducted to determine the impact the development would have on area roadways.

Background Information

Site Location

The site is currently vacant and is located in the northeast quadrant of the Indian Trail/Randall Rd. intersection. North of the site is primarily residential, northwest of the site is the Aurora Central High School and the Illinois Math and Science Academy. South and southwest of the site is primarily residential neighborhoods. See Exhibit 1 for the site location map.

Roadway Network

The existing roadway characteristics near the site are described below and shown graphically in Exhibit 2. The site is accessed from Indian Trail with its full access located opposite the Orchard Village Apartments access drive.

Indian Trail is an east-west minor arterial roadway located on the south side of the site. Currently, in the vicinity of the site, it is a four lane roadway with a striped center median and has a posted speed limit of 35 mph. The intersection of Indian Trail and Mill Rd. is signalized. At the signalized intersection, Indian Trail provides a separate left turn lane and two thru lanes in both the eastbound and westbound directions.

Randall Rd. is a two lane north south minor arterial street. North of Indian Trail, the posted speed limit of 35 mph and south of Indian Trail the posted speed limit is 30 mph. At its signalized intersection with Indian Trail, Randall Rd. provides a separate left turn lane and a shared thru/right lane in both the northbound and southbound directions.

Orchard Village Access is a two lane private roadway serving the apartment complex. At its tee intersection with Indian Trail, the roadway is under stop control and provides separate northbound left and right turn lanes. A separate westbound left turn lane is also provided on Indian Trail.

Existing Traffic

Manual peak hour turning movement counts were conducted on Tuesday April 27th for the morning and evening peak periods. Existing traffic counts were conducted at the Randall Rd./Indian Trail intersection and the Indian Trail/ Orchard Village Apartment access drive.

The results of the traffic counts showed that the weekday morning peak hour occurred from 7:30 AM to 8:30 AM and the weekday evening peak hour occurred from 4:30 PM to 5:30 PM. Existing traffic volumes are shown in Exhibit 3.

Development Characteristics

Proposed Site and Development Plan

The conceptual development plan indicates that the total site area is approximately 35 acres with 200 units in 51 buildings. The development plan indicates that there is one access point, with a gated grasscrete emergency vehicle access on the north side of the site. The full access drive will be located opposite the Orchard Village Apartment access and will provide two outbound lanes striped as a separate left and a combination thru/right lane.

Directional Distribution

The directions from which development traffic will approach and depart the site were estimated based on the existing travel patterns determined from the existing traffic counts. The estimated directional distribution of site generated traffic is shown in Exhibit 4.

Estimated Site Traffic Generation

The estimates of the traffic to be generated by the development are based on the proposed land use type and size. The volume of traffic generated by the development was estimated using the trip generation study conducted for Redwood USA, LLC and also using the Institute of Transportation Engineers (ITE) rates for Low Rise Multi Family Land Use. The Redwood trip generation study surveyed four similar Redwood developments in Michigan and based on the data collected trip generation rates for the AM and PM peak hours were determined. Exhibit 5 tabulates the traffic generation calculations for the proposed development using the Redwood trip generation study and ITE rates for Low Rise Multi Family.

Year 2030 Baseline Traffic

The analysis of the site access drives will be based on future traffic conditions at buildout (3 years) plus 6 years, which is a 9 year time frame. The Chicago Metropolitan Agency for Planning (CMAP) was contacted to determine a growth rate for area roadways. Based on the ADT projections from CMAP, 2030 background traffic projections were estimated. A copy of the CMAP 2050 projections letter is included in the Appendix. The CMAP projections indicate that the increase in traffic volumes on Indian Trail and Randall Rd. ranged between 0.3% per year and 1.0% per year. Year 2030 Baseline Traffic is shown in Exhibit 6.

Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, background traffic due to regional growth per the CMAP traffic projections and the traffic estimated to be generated by the proposed development using both the Redwood trip generation study and ITE rates.

Site Traffic Assignment

Site traffic assignments were prepared for two scenarios, one based on ITE trip rates for Low Rise Multi Family land use and the second based on the Redwood trip generation study.

The site traffic assignment is based on the estimated directional distribution in Exhibit 4 and the estimated site trip generations for both scenarios from Exhibit 5. Using this information, the proposed development traffic was assigned to the proposed access drive and the Indian Trail/Randall Rd. intersection and is shown in Exhibit 7 (ITE trip rates) and Exhibit 7A (Redwood trip generation rates).

Total Traffic Assignment

The site generated traffic for both scenarios was added to the existing traffic volumes, factored for growth, to determine the 2030 total projected traffic volumes. These volumes can be seen in Exhibit 8 (ITE trip rates) and (Redwood trip generation study) Exhibit 8A.

Evaluation

The following provides an evaluation conducted for the weekday morning and evening peak hours. The analyses included conducting signalized capacity analyses at the Indian Trail/Randall Rd. intersection and two way stop control analyses at the site access drive on Indian Trail opposite

the Orchard Village access to determine their operations. The analyses were conducted for two scenarios, one using ITE trip rates for Low Rise Multi Family land use and the second using the Redwood trip generation study rates.

Intersection Capacity Analyses

The traffic analyses were conducted using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM) 2010* and prepared using the HCS7 Version 7.9 software. The analyses were conducted for existing traffic conditions, 2030 baseline traffic volumes and 2030 future traffic conditions.

Discussion and Recommendations

Summaries of the signalized and two way stop control analyses results were compiled showing the level of service and intersection delay for the Indian Trail/Randall Rd. intersection the Indian Trail/Site Access-Orchard Village access intersection. The summaries can be seen in Exhibits 9 (Existing Conditions), Exhibit 10 (2030 Baseline Traffic), Exhibit 11 (2030 Total Traffic ITE rates) and Exhibit 12 (2030 Total Traffic Redwood rates), the capacity worksheets can be seen in the Appendix. A discussion for each intersection follows.

Analyses Based on ITE Low Rise Multi Family Rates

- Indian Trail/Randall Rd.

  The results of the signalized capacity analyses for the 2030 Total Traffic Volumes indicate that all approaches in the morning peak hour will operate at a Level of Service C or better. The eastbound and westbound approaches operate at a Level of Service B. During the evening peak hour all approaches operate at a Level of Service C. These are the same levels of service that the intersection currently experiences with slight increases in seconds of delay.

  All movements in both the AM peak hour and PM peak hour for future conditions operate at acceptable levels of service. Improvements to the intersection are not necessary to accommodate the additional traffic generated by the Redwood development.

- Indian Trail/Site Access-Orchard Village Access

  This intersection was analyzed as a two way stop controlled intersection with the northbound and southbound movements under stop control. The lane configuration analyzed are a separate left turn lane and thru/right lane for the northbound and southbound approaches.

  Existing Indian Trail has a five lane cross section with two thru lanes in each direction and a striped center median. The center median should be restriped to provide a separate eastbound left turn lane for the Redwood development.

  The eastbound and westbound approaches were analyzed using a separate left turn lane, thru lane and a shared thru/right lane.

The results of the two way stop control analyses indicate that all movements will operate at a LOS B or better during the morning peak hour, with the eastbound and westbound left turn movements operating a LOS A. In the evening peak hour, all movements will operate at a LOS C or better with the eastbound left operating at a LOS B and the westbound left operating at a LOS A.

The lane configuration analyzed will accommodate traffic from the existing residential subdivision to the south and the traffic from the proposed Redwood development.

Analyses Based on Redwood Trip Generation Study Rates

The capacity analyses using site traffic generation rates based on the Redwood study of existing developments are almost identical to the results obtained using ITE trip generation rates. All Levels of Service for all study area intersections during both peak hours are the same. All discussions in the previous section apply to these analyses.

Summary

The existing counts were increased, based on CMAP 2050 projections, to the year 2030 representing a 3 year buildout plus 6 years. Traffic due to the development was generated for both ITE and Redwood trip generation study rates and assigned to the street system. Capacity analyses were conducted for all study area intersections for both peak hours using both ITE trip rates and Redwood trip rates. The results of both analyses indicate that all study area intersections will operate at acceptable levels of service. The traffic from the Redwood development can be accommodated by the existing area roadway system and additional improvements, other than those identified, are not needed to maintain acceptable operations.

Exhibits

EXHIBIT 1
SITE LOCATION

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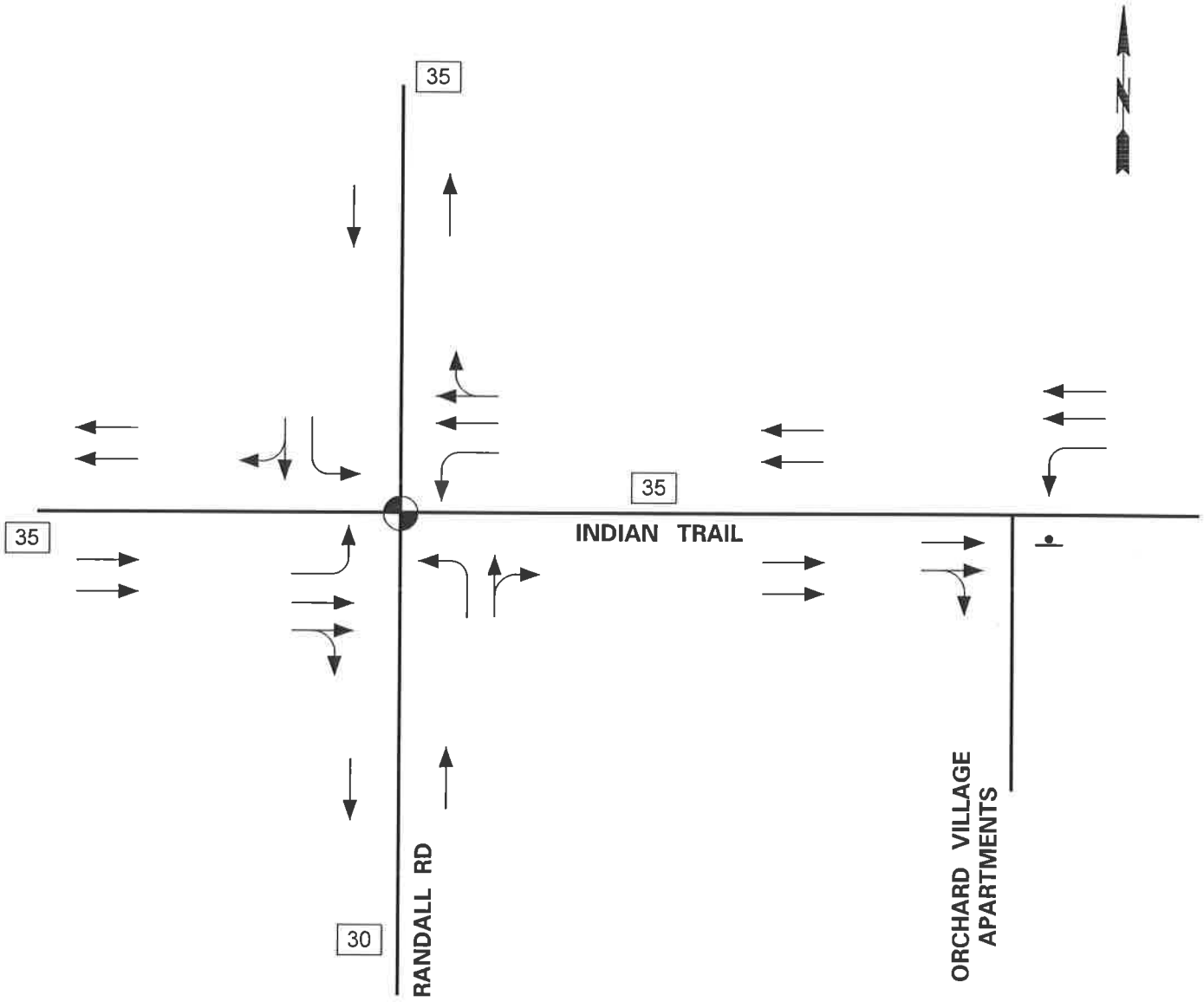

LEGEND

- TRAVEL LANE
- STOP SIGN
- TRAFFIC SIGNAL
- XX - SPEED LIMIT

EXHIBIT 2
ROADWAY CHARACTERISTICS

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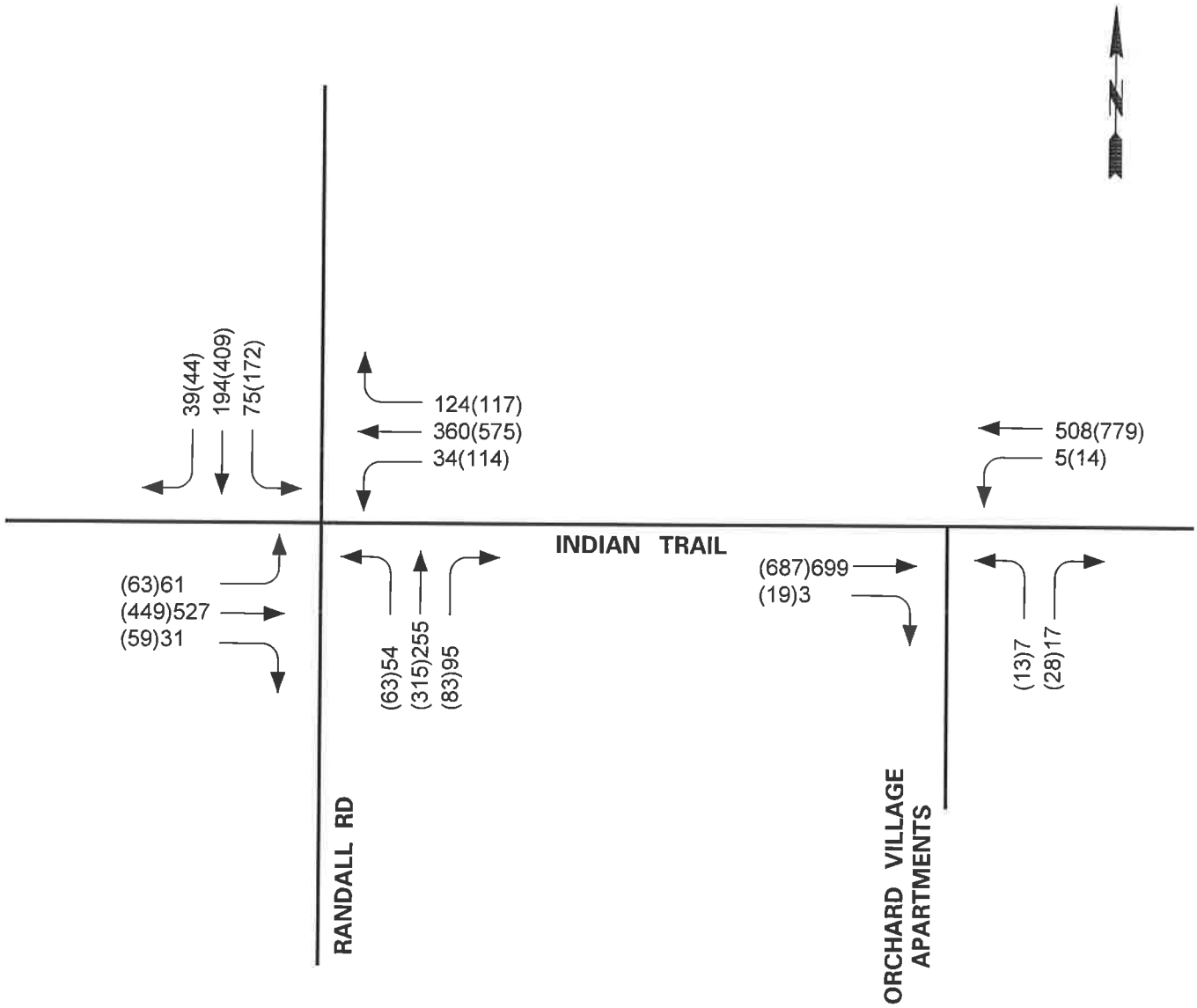
CONSULTING ENGINEERS



LEGEND

XX - AM PEAK HOUR
(XX) - PM PEAK HOUR

EXHIBIT 3
EXISTING TRAFFIC VOLUMES

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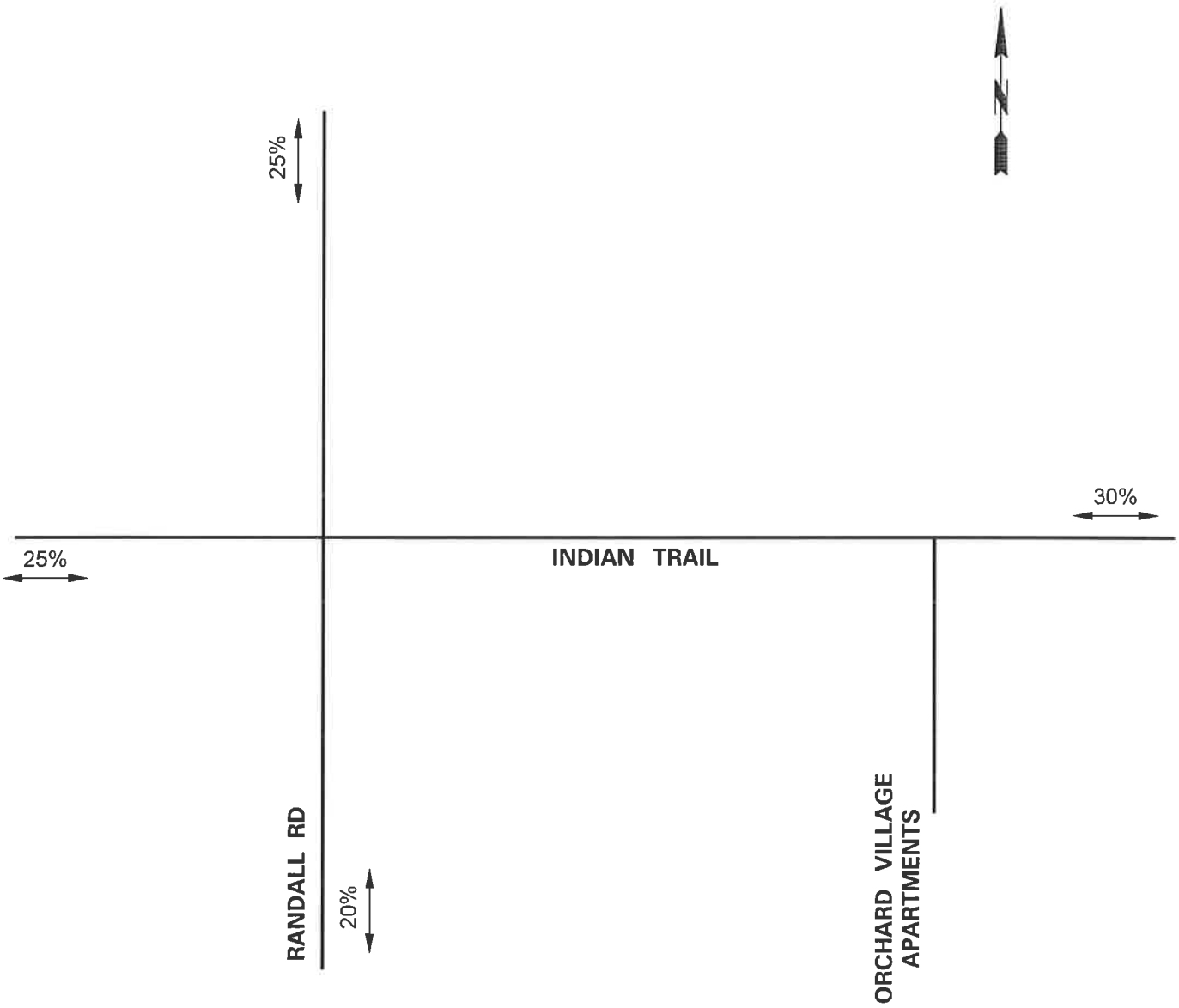

LEGEND

XX% - PERCENT DISTRIBUTION

EXHIBIT 4
ESTIMATED DIRECTIONAL DISTRIBUTION

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EXHIBIT 5
PROJECT DEVELOPMENT CHARACTERISTICS
ORCHARD VILLAGE APARTMENTS

		AM			PM		
	SIZE	IN	OUT	TOTAL	IN	OUT	TOTAL
REDWOOD TRIP GENERATION RATES	200 DU	14	58	72	54	29	83
ITE MULTI-FAMILY LOW RISE LUC 200	200 DU	21	71	92	69	40	109

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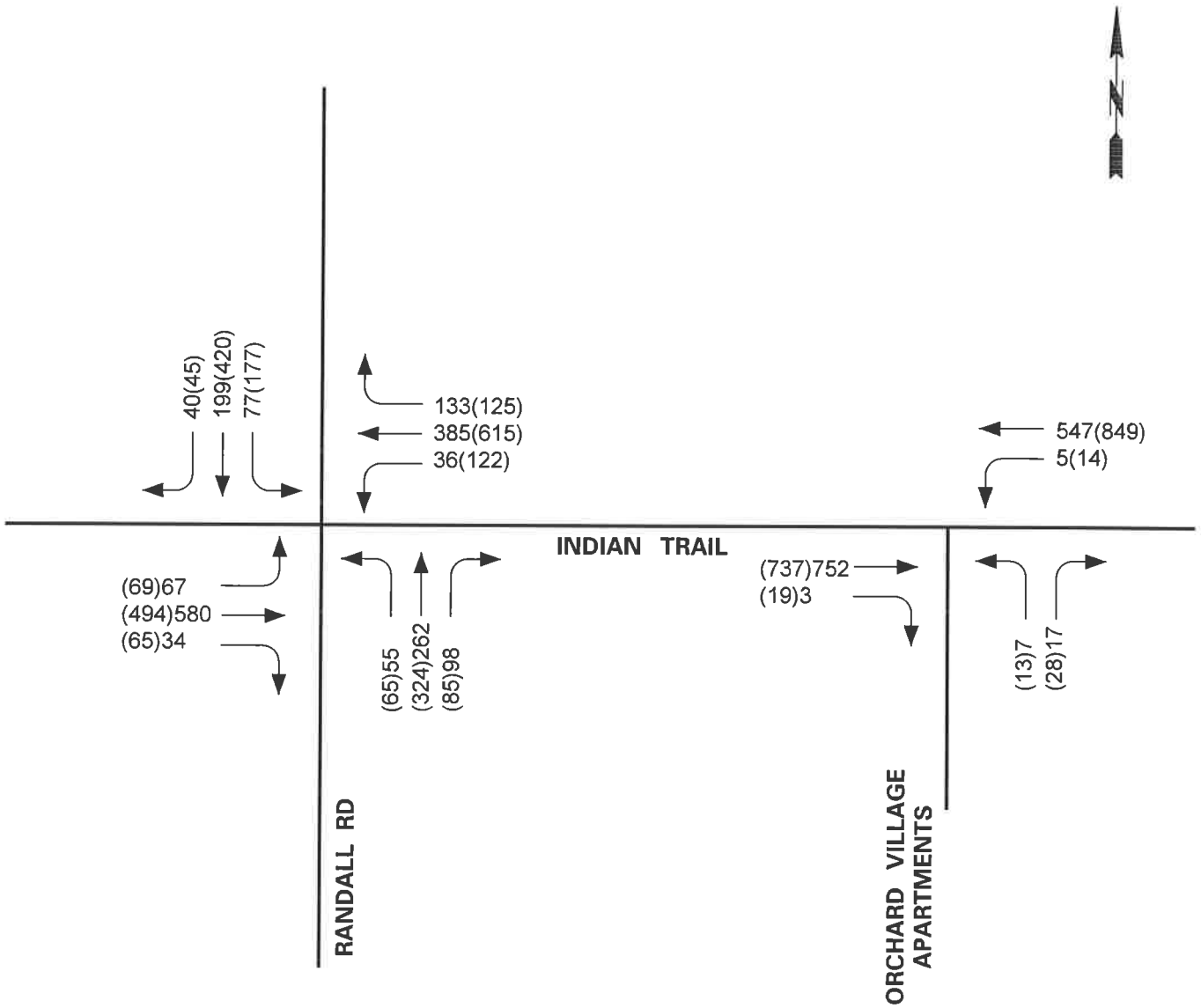

LEGEND

XX - AM PEAK HOUR
(XX) - PM PEAK HOUR

EXHIBIT 6
2030 BASELINE TRAFFIC

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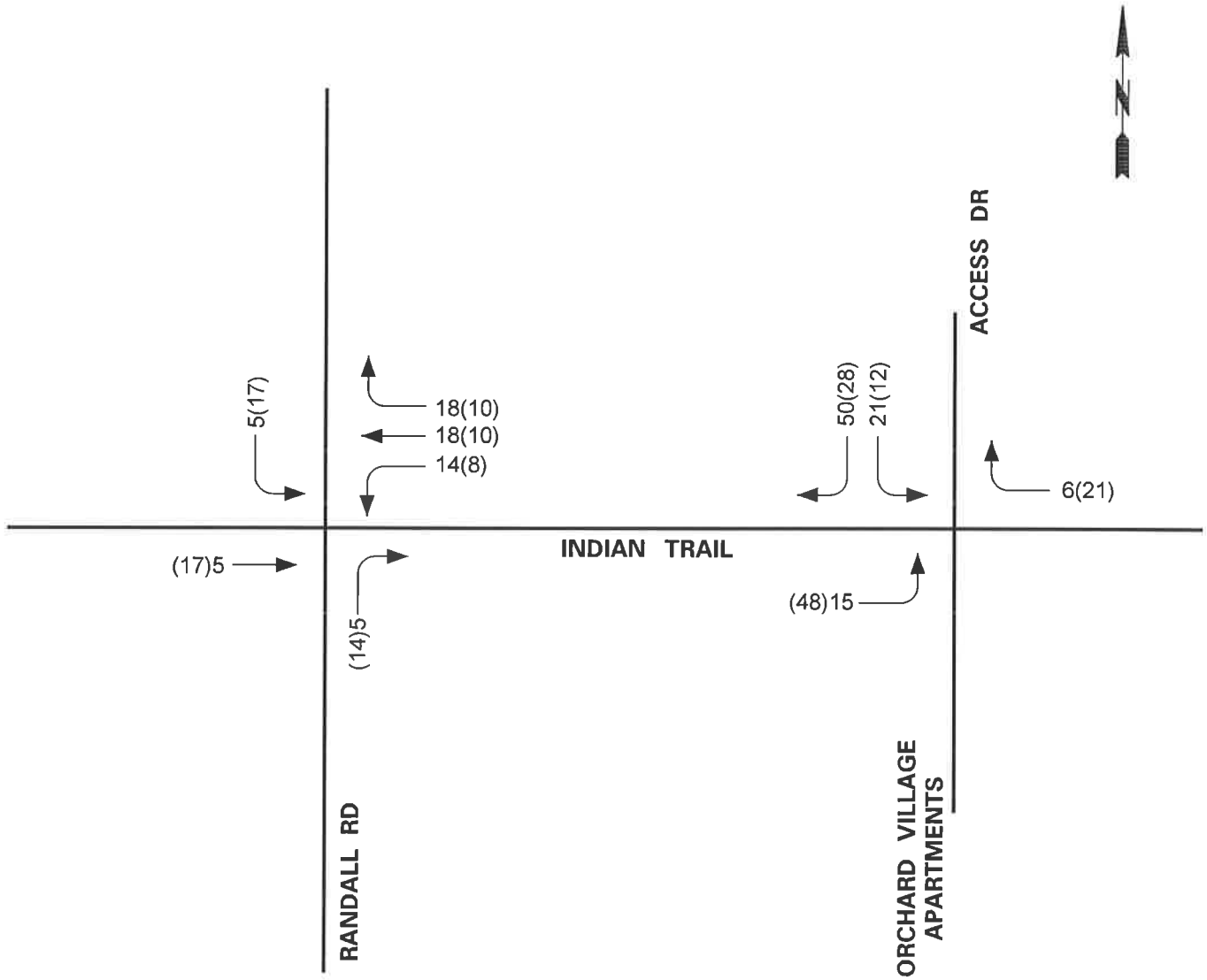

LEGEND

XX - AM PEAK HOUR
(XX) - PM PEAK HOUR

EXHIBIT 7
SITE TRAFFIC ASSIGNMENT
ITE TRIP RATES

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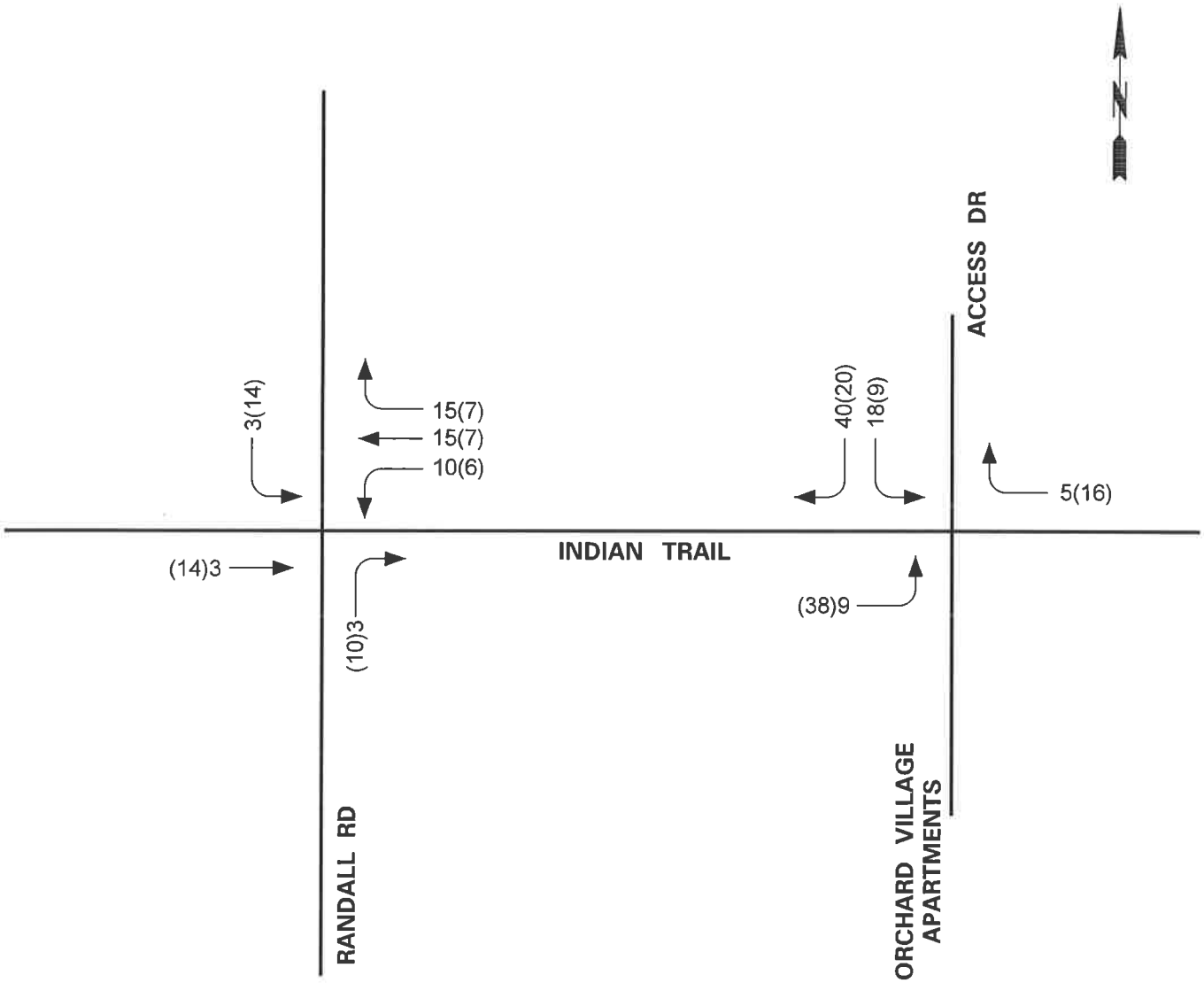

LEGEND

XX - AM PEAK HOUR
(XX) - PM PEAK HOUR

EXHIBIT 7A
SITE TRAFFIC ASSIGNMENT
REDWOOD TRIP RATES

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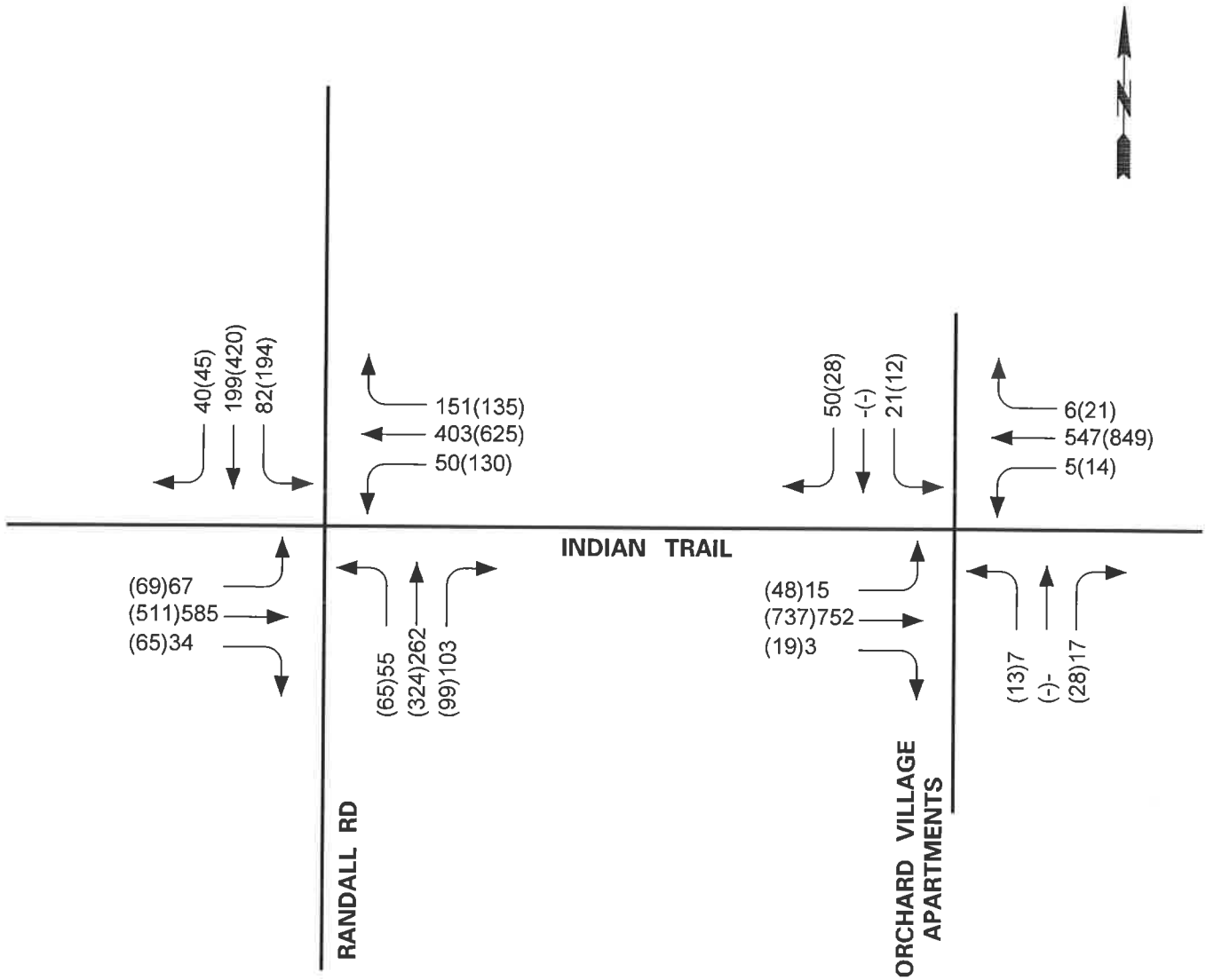

LEGEND

XX - AM PEAK HOUR
(XX) - PM PEAK HOUR

EXHIBIT 8
TOTAL TRAFFIC ASSIGNMENT
ITE TRIP RATES

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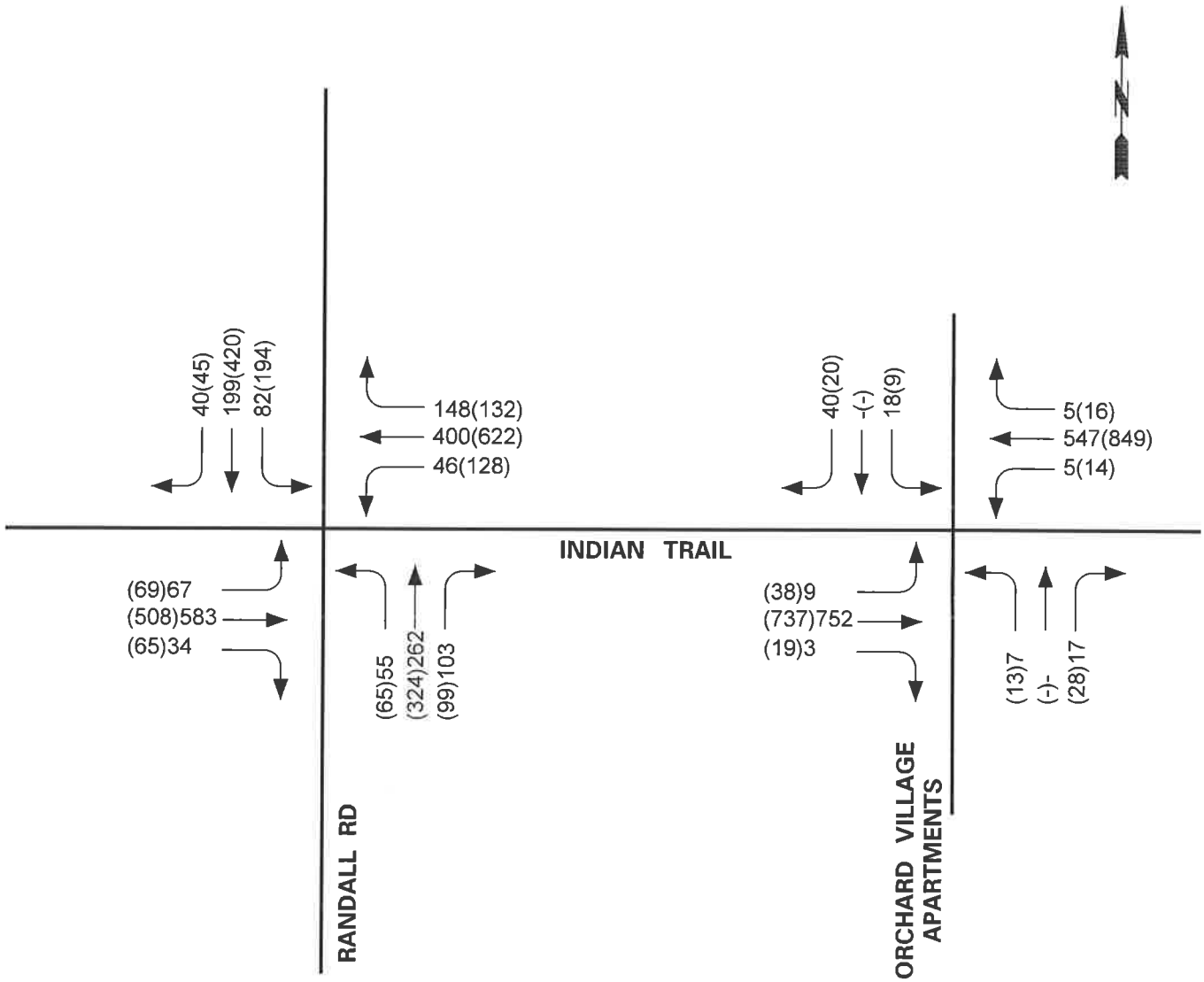

LEGEND

XX - AM PEAK HOUR
(XX) - PM PEAK HOUR

EXHIBIT 8A
TOTAL TRAFFIC ASSIGNMENT
REDWOOD TRIP RATES

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CONSULTING ENGINEERS

EXHIBIT 9

Intersection Level of Service

Existing Conditions

Intersection	Weekday Morning Peak Hour LOS	Weekday Morning Peak Hour Delay	Weekday Evening Peak Hour LOS	Weekday Evening Peak Hour Delay
Signalized				
Indian Trail @ Randall Road				
• Eastbound Approach	B	15.3	C	26.8
• Westbound Approach	B	15.7	C	27.2
• Northbound Approach	C	32.6	C	29.9
• Southbound Approach	C	27.7	C	26.6
2-Way Stop Control				
Indian Trail @ Orchard Village				
• Westbound – Left	A	9.2	A	9.3
• Northbound Approach	B	14.1	B	13.1

EXHIBIT 10

Intersection Level of Service

2030 Baseline Traffic

Intersection	Weekday Morning Peak Hour LOS	Weekday Morning Peak Hour Delay	Weekday Evening Peak Hour LOS	Weekday Evening Peak Hour Delay
Signalized				
Indian Trail @ Randall Road				
• Eastbound Approach	B	19.0	C	26.2
• Westbound Approach	B	19.5	C	26.4
• Northbound Approach	C	28.6	C	32.5
• Southbound Approach	C	24.5	C	28.8
2-Way Stop Control				
Indian Trail @ Orchard Village				
• Westbound – Left	A	9.4	A	9.5
• Northbound Approach	B	14.9	B	13.6

EXHIBIT 11
Intersection Level of Service
2030 Total Traffic
ITE Rates

Intersection	Weekday Morning Peak Hour LOS	Weekday Morning Peak Hour Delay	Weekday Evening Peak Hour LOS	Weekday Evening Peak Hour Delay
Signalized				
Indian Trail @ Randall Road				
• Eastbound Approach	B	19.5	C	28.6
• Westbound Approach	B	19.8	C	28.8
• Northbound Approach	C	29.7	C	31.4
• Southbound Approach	C	25.9	C	31.1
2-Way Stop Control				
Indian Trail @ Orchard Village				
• Eastbound Left	A	8.8	B	10.4
• Westbound Left	A	9.4	A	9.5
• Northbound Approach	B	13.8	C	15.8
• Southbound Approach	B	12.8	C	16.3

EXHIBIT 12
Intersection Level of Service
2030 Total Traffic
Redwood Rates

Intersection	Weekday Morning Peak Hour LOS	Weekday Morning Peak Hour Delay	Weekday Evening Peak Hour LOS	Weekday Evening Peak Hour Delay
Signalized				
Indian Trail @ Randall Road				
• Eastbound Approach	B	19.6	C	29.6
• Westbound Approach	B	20.0	C	29.9
• Northbound Approach	C	28.8	C	31.0
• Southbound Approach	C	24.4	C	26.4
2-Way Stop Control				
Indian Trail @ Orchard Village				
• Eastbound Left	A	8.8	B	10.3
• Westbound Left	A	9.4	A	9.5
• Northbound Approach	B	13.7	C	15.4
• Southbound Approach	B	12.8	C	15.9

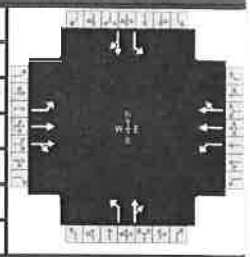
Appendix

Highway Capacity Analyses

Existing Conditions

HCS7 Signalized Intersection Results Summary

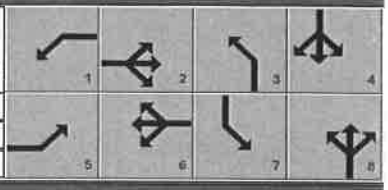
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/5/2021	Area Type	Other
Jurisdiction		Time Period	AM Existing	PHF	0.95
Urban Street		Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Indian Trail at Randall	File Name	Existing AM Randalll at Indian Trail.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	61 ✓	527 ✓	31 ✓	34 ✓	360 ✓	124 ✓	54 ✓	255 ✓	95 ✓	75 ✓	194 ✓	39 ✓

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.2	1.0		41.6	4.3	0.9	30.0					
Yellow	3.5	0.0		4.0	3.5	0.0	4.0					
Red	0.0	0.0		2.0	0.0	0.0	2.0					



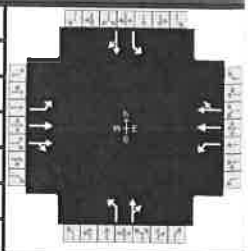
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	7.7	48.6	6.7	47.6	7.8	36.0	8.7	36.9
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0	4.1	6.1	4.1	6.1
Queue Clearance Time (g_s), s	4.0		3.1		4.1	20.0	5.0	12.9
Green Extension Time (g_e), s	0.2	0.0	0.1	0.0	0.1	5.6	0.2	5.9
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.03	0.00	0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	64	296	291	36	264	246	57	368		79	245	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1984	1945	1781	1969	1797	1795	1797		1767	1801	
Queue Service Time (g_s), s	2.0	8.0	8.1	1.1	7.3	7.4	2.1	18.0		3.0	10.9	
Cycle Queue Clearance Time (g_c), s	2.0	8.0	8.1	1.1	7.3	7.4	2.1	18.0		3.0	10.9	
Green Ratio (*g/C*)	0.46	0.43	0.43	0.45	0.42	0.42	0.34	0.30		0.35	0.31	
Capacity (*c*), veh/h	454	846	829	398	820	748	355	539		284	557	
Volume-to-Capacity Ratio (*X*)	0.142	0.350	0.351	0.090	0.322	0.328	0.160	0.683		0.278	0.440	
Back of Queue (*Q*), ft/ln (95 th percentile)	36.2	158.2	154.6	20.5	144.9	134.1	41.1	320.1		58.5	212.9	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.4	6.3	6.2	0.8	5.7	5.4	1.6	12.7		2.3	8.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	15.3	14.1	14.1	15.8	14.6	14.6	23.1	30.8		23.8	27.6	
Incremental Delay (d_2), s/veh	0.1	1.1	1.2	0.1	1.0	1.2	0.2	3.3		0.5	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	15.4	15.3	15.3	15.9	15.6	15.8	23.3	34.1		24.3	28.8	
Level of Service (LOS)	B	B	B	B	B	B	C	C		C	C	
Approach Delay, s/veh / LOS	15.3	B		15.7	B		32.6	C		27.7	C	
Intersection Delay, s/veh / LOS	21.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.91	B	1.91	B	2.29	B	2.28	B
Bicycle LOS Score / LOS	1.03	A	0.94	A	1.19	A	1.02	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/5/2021	Area Type	Other
Jurisdiction		Time Period	PM Existing	PHF	0.95
Urban Street		Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Indian Trail at Randall	File Name	Existing PM Randall at Indian Trail.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	63	449	59	114	575	117	63	315	83	172	409	44

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.9	2.3	34.7	4.6	0.9	40.0	1	2	3	4		
Yellow	3.5	0.0	4.0	3.5	3.5	4.0	5	6	7	8		
Red	0.0	0.0	2.0	0.0	0.0	2.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.4	40.7	10.7	43.1	8.1	46.0	12.6	50.4
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0	4.1	6.1	4.1	6.1
Queue Clearance Time (g_s), s	4.7		6.9		4.5	23.0	8.7	25.2
Green Extension Time (g_e), s	0.2	0.0	0.3	0.0	0.1	8.8	0.3	9.0
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.13	0.07	0.11

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	66	272	263	120	375	354	66	419		181	477	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1984	1903	1781	1969	1853	1795	1817		1767	1824	
Queue Service Time (g_s), s	2.7	10.7	10.8	4.9	15.4	15.5	2.5	21.0		6.7	23.2	
Cycle Queue Clearance Time (g_c), s	2.7	10.7	10.8	4.9	15.4	15.5	2.5	21.0		6.7	23.2	
Green Ratio (*g/C*)	0.36	0.32	0.32	0.39	0.34	0.34	0.41	0.36		0.46	0.40	
Capacity (*c*), veh/h	275	627	601	371	664	625	302	661		377	737	
Volume-to-Capacity Ratio (*X*)	0.241	0.434	0.437	0.323	0.564	0.566	0.219	0.634		0.480	0.647	
Back of Queue (*Q*), ft/ln (95 th percentile)	52	218.8	212.1	91.5	288	272.5	48.2	360		127.4	394.6	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	8.7	8.5	3.6	11.3	10.9	1.9	14.3		5.0	15.4	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	24.2	24.9	24.9	22.2	24.3	24.3	22.3	28.9		20.6	26.4	
Incremental Delay (d_2), s/veh	0.4	2.2	2.3	0.5	3.5	3.7	0.4	2.2		0.9	2.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	24.6	27.0	27.2	22.7	27.8	28.0	22.7	31.1		21.5	28.6	
Level of Service (LOS)	C	C	C	C	C	C	C	C		C	C	
Approach Delay, s/veh / LOS	26.8	C		27.2	C		29.9	C		26.6	C	
Intersection Delay, s/veh / LOS	27.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	0.98	A	1.19	A	1.29	A	1.57	B

HCS7 Two-Way Stop-Control Report

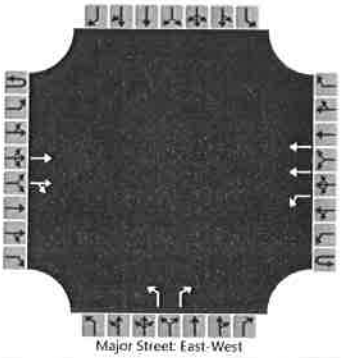
General Information

Analyst	
Agency/Co.	
Date Performed	5/5/2021
Analysis Year	2021
Time Analyzed	AM Exist
Intersection Orientation	East-West
Project Description	Redwood Aurora

Site Information

Intersection	Indian Tr@Orchard Apt
Jurisdiction	
East/West Street	Indian Trail
North/South Street	Orchard Apt
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		1	0	1		0	0	0
Configuration			T	TR		L	T			L		R				
Volume (veh/h)			699	3	0	5	508			7		17				
Percent Heavy Vehicles (%)					0	0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				6.80		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						5				8		18				
Capacity, c (veh/h)						859				225		622				
v/c Ratio						0.01				0.03		0.03				
95% Queue Length, Q_{95} (veh)						0.0				0.1		0.1				
Control Delay (s/veh)						9.2				21.6		11.0				
Level of Service (LOS)						A				C		B				
Approach Delay (s/veh)					0.1				14.1							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

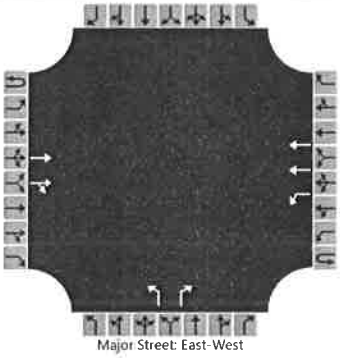
General Information

Analyst	
Agency/Co.	
Date Performed	5/5/2021
Analysis Year	2021
Time Analyzed	PM Exist
Intersection Orientation	East-West
Project Description	Redwood Aurora

Site Information

Intersection	Indian Tr@Orchard Apt
Jurisdiction	
East/West Street	Indian Trail
North/South Street	Orchard Apt
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		1	0	1		0	0	0
Configuration			T	TR		L	T			L		R				
Volume (veh/h)			687	19	0	14	779			13		28				
Percent Heavy Vehicles (%)					0	0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage			Left Only							1						

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				6.80		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

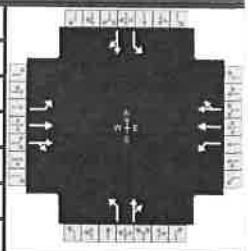
Flow Rate, v (veh/h)						15				14		30				
Capacity, c (veh/h)						855				304		620				
v/c Ratio						0.02				0.05		0.05				
95% Queue Length, Q_{95} (veh)						0.1				0.1		0.2				
Control Delay (s/veh)						9.3				17.4		11.1				
Level of Service (LOS)						A				C		B				
Approach Delay (s/veh)						0.2				13.1						
Approach LOS										B						

Highway Capacity Analyses

2030 Baseline Conditions

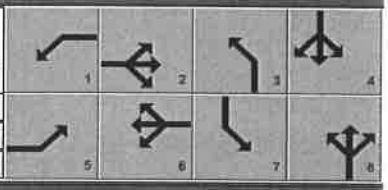
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/5/2021	Area Type	Other
Jurisdiction		Time Period	AM 2030 Baseline	PHF	0.95
Urban Street		Analysis Year	2030	Analysis Period	1> 7:00
Intersection	Indian Trail at Randall	File Name	2030 Baseline AM Randalll at Indian Trail.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	67✓	580✓	34✓	36✓	385✓	133✓	55✓	262✓	98✓	77✓	199✓	40✓

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



	EB			WB			NB			SB		
Green	3.4	1.2		37.4	4.2	0.9	34.0					
Yellow	3.5	0.0		4.0	3.5	0.0	4.0					
Red	0.0	0.0		2.0	0.0	0.0	2.0					

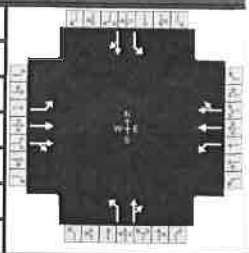
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.0	44.6	6.9	43.4	7.7	40.0	8.6	40.9
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0	4.1	6.1	4.1	6.1
Queue Clearance Time (g_s), s	4.4		3.3		4.1	19.6	4.9	12.6
Green Extension Time (g_e), s	0.2	0.0	0.1	0.0	0.1	5.6	0.1	6.0
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.05	0.00	0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	71	326	320	38	283	262	58	379		81	252	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1984	1945	1781	1969	1796	1795	1797		1767	1801	
Queue Service Time (g_s), s	2.4	10.2	10.2	1.3	8.9	9.1	2.1	17.6		2.9	10.6	
Cycle Queue Clearance Time (g_c), s	2.4	10.2	10.2	1.3	8.9	9.1	2.1	17.6		2.9	10.6	
Green Ratio (*g/C*)	0.42	0.39	0.39	0.41	0.37	0.37	0.38	0.34		0.39	0.35	
Capacity (*c*), veh/h	399	765	750	338	736	672	401	611		325	629	
Volume-to-Capacity Ratio (*X*)	0.177	0.426	0.427	0.112	0.384	0.391	0.144	0.620		0.250	0.400	
Back of Queue (*Q*), ft/ln (95 th percentile)	43.6	201.3	197.3	23.9	181.3	167.6	38.9	308.3		55.6	205.3	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	8.0	7.9	0.9	7.1	6.7	1.5	12.2		2.2	8.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.7	17.4	17.4	18.4	17.9	18.0	20.5	27.6		21.1	24.6	
Incremental Delay (d_2), s/veh	0.2	1.7	1.8	0.1	1.5	1.7	0.2	2.2		0.4	0.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.9	19.1	19.2	18.5	19.5	19.7	20.6	29.8		21.5	25.5	
Level of Service (LOS)	B	B	B	B	B	B	C	C		C	C	
Approach Delay, s/veh / LOS	19.0	B		19.5	B		28.6	C		24.5	C	
Intersection Delay, s/veh / LOS	22.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.92	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.08	A	0.97	A	1.21	A	1.04	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/5/2021	Area Type	Other
Jurisdiction		Time Period	PM 2030 Baseline	PHF	0.95
Urban Street		Analysis Year	2030	Analysis Period	1> 7:00
Intersection	Indian Trail at Randall	File Name	2030 Baseline PM Randall at Indian Trail.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	69 ✓	494✓	65 ✓	122✓	615✓	125✓	65✓	324✓	85 ✓	177✓	420✓	45✓

Signal Information					EB			WB			NB			SB		
Cycle, s	110.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	End	Green	5.1	2.4		36.1	4.8	1.2	38.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0		4.0	3.5	3.5	4.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		2.0	0.0	0.0	2.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.6	42.1	11.0	44.4	8.3	44.0	13.0	48.7
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0	4.1	6.1	4.1	6.1
Queue Clearance Time (g_s), s	4.9		7.1		4.7	24.4	9.1	26.7
Green Extension Time (g_e), s	0.2	0.0	0.4	0.0	0.1	8.9	0.3	9.2
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.17	0.10	0.14

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	73	299	289	128	401	378	68	431		186	489	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1984	1903	1781	1969	1853	1795	1817		1767	1824	
Queue Service Time (g_s), s	2.9	11.7	11.8	5.1	16.4	16.5	2.7	22.4		7.1	24.7	
Cycle Queue Clearance Time (g_c), s	2.9	11.7	11.8	5.1	16.4	16.5	2.7	22.4		7.1	24.7	
Green Ratio (*g/C*)	0.37	0.33	0.33	0.40	0.35	0.35	0.39	0.35		0.45	0.39	
Capacity (*c*), veh/h	275	650	624	369	688	648	276	628		353	708	
Volume-to-Capacity Ratio (*X*)	0.264	0.460	0.463	0.348	0.582	0.584	0.248	0.686		0.528	0.691	
Back of Queue (*Q*), ft/ln (95 th percentile)	55.7	232.9	225.6	95.6	300.5	283.5	51.7	383.5		136.5	420.4	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.2	9.2	9.0	3.8	11.8	11.3	2.1	15.2		5.3	16.4	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	23.4	24.1	24.1	21.4	23.5	23.5	23.7	30.9		22.0	28.1	
Incremental Delay (d_2), s/veh	0.5	2.3	2.5	0.6	3.6	3.8	0.5	2.9		1.2	2.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	23.9	26.4	26.6	22.0	27.1	27.3	24.2	33.8		23.2	30.9	
Level of Service (LOS)	C	C	C	C	C	C	C	C		C	C	
Approach Delay, s/veh / LOS	26.2	C		26.4	C		32.5	C		28.8	C	
Intersection Delay, s/veh / LOS	28.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.92	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.03	A	1.24	A	1.31	A	1.60	B

HCS7 Two-Way Stop-Control Report

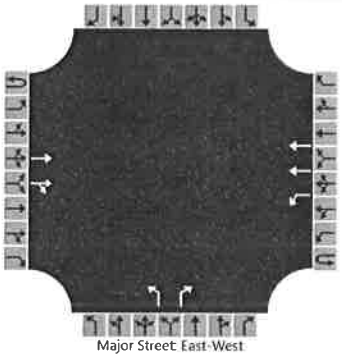
General Information

Analyst	
Agency/Co.	
Date Performed	5/5/2021
Analysis Year	2021
Time Analyzed	AM 2030 Baseline
Intersection Orientation	East-West
Project Description	Redwood Aurora

Site Information

Intersection	Indian Tr@Orchard Apt
Jurisdiction	
East/West Street	Indian Trail
North/South Street	Orchard Apt
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		1	0	1		0	0	0
Configuration			T	TR		L	T			L		R				
Volume (veh/h)			752	3	0	5	547			7		17				
Percent Heavy Vehicles (%)					0	0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				6.80		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						5				8		18				
Capacity, c (veh/h)						817				200		596				
v/c Ratio						0.01				0.04		0.03				
95% Queue Length, Q_{95} (veh)						0.0				0.1		0.1				
Control Delay (s/veh)						9.4				23.7		11.2				
Level of Service (LOS)						A				C		B				
Approach Delay (s/veh)					0.1				14.9							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

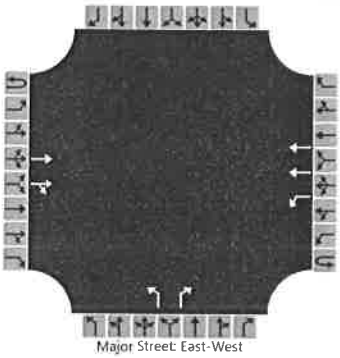
General Information

Analyst	
Agency/Co.	
Date Performed	5/5/2021
Analysis Year	2021
Time Analyzed	PM 2030 Baseline
Intersection Orientation	East-West
Project Description	Redwood Aurora

Site Information

Intersection	Indian Tr@Orchard Apt
Jurisdiction	
East/West Street	Indian Trail
North/South Street	Orchard Apt
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		1	0	1		0	0	0
Configuration			T	TR		L	T			L		R				
Volume (veh/h)			737	19	0	14	849			13		28				
Percent Heavy Vehicles (%)					0	0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage	Left Only									1						

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				6.80		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

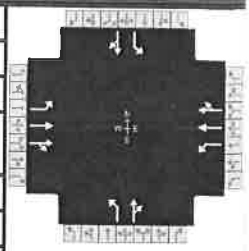
Flow Rate, v (veh/h)						15				14		30				
Capacity, c (veh/h)						816				282		596				
v/c Ratio						0.02				0.05		0.05				
95% Queue Length, Q_{95} (veh)						0.1				0.2		0.2				
Control Delay (s/veh)						9.5				18.5		11.4				
Level of Service (LOS)						A				C		B				
Approach Delay (s/veh)					0.2				13.6							
Approach LOS									B							

Highway Capacity Analyses

2030 Total Traffic Conditions

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/5/2021	Area Type	Other
Jurisdiction		Time Period	AM 2030 Total Traffic ITE	PHF	0.95
Urban Street		Analysis Year	2030	Analysis Period	1> 7:00
Intersection	Indian Trail at Randall	File Name	Total 2030 ITE AM Randalll at Indian Trail.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	67 ✓	585 ✓	34 ✓	50 ✓	403 ✓	151 ✓	55 ✓	262 ✓	103 ✓	82 ✓	199 ✓	40 ✓

Signal Information					EB			WB			NB			SB		
Cycle, s	100.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	End	Green	3.9	0.6		37.5	6.0	33.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0		4.0	3.5	4.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		2.0	0.0	2.0	0.0					

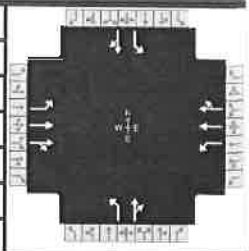
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.0	44.1	7.4	43.5	9.5	39.0	9.5	39.0
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0	4.1	6.1	4.1	6.1
Queue Clearance Time (g_s), s	4.4		3.8		4.0	20.3	5.1	12.9
Green Extension Time (g_e), s	0.2	0.0	0.1	0.0	0.1	5.6	0.2	6.0
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.07	0.00	0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	71	329	323	53	304	280	58	384		86	252	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1984	1946	1781	1969	1786	1795	1794		1767	1801	
Queue Service Time (g_s), s	2.4	10.5	10.5	1.8	9.7	9.9	2.0	18.3		3.1	10.9	
Cycle Queue Clearance Time (g_c), s	2.4	10.5	10.5	1.8	9.7	9.9	2.0	18.3		3.1	10.9	
Green Ratio (*g/C*)	0.42	0.38	0.38	0.41	0.37	0.37	0.39	0.33		0.39	0.33	
Capacity (*c*), veh/h	384	756	741	341	737	669	431	592		304	594	
Volume-to-Capacity Ratio (*X*)	0.183	0.435	0.436	0.154	0.412	0.418	0.134	0.649		0.284	0.423	
Back of Queue (*Q*), ft/ln (95 th percentile)	43.5	205.5	201.3	33	195.7	180.2	38.1	318.4		59.5	211.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	8.2	8.1	1.3	7.7	7.2	1.5	12.6		2.3	8.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.8	17.8	17.8	18.2	18.1	18.1	19.8	28.6		21.8	26.1	
Incremental Delay (d_2), s/veh	0.2	1.8	1.9	0.2	1.7	1.9	0.1	2.6		0.5	1.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	18.0	19.6	19.7	18.4	19.8	20.1	20.0	31.1		22.3	27.1	
Level of Service (LOS)	B	B	B	B	B	C	B	C		C	C	
Approach Delay, s/veh / LOS	19.5	B		19.8	B		29.7	C		25.9	C	
Intersection Delay, s/veh / LOS	22.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.92	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.08	A	1.01	A	1.22	A	1.05	A

HCS7 Signalized Intersection Results Summary

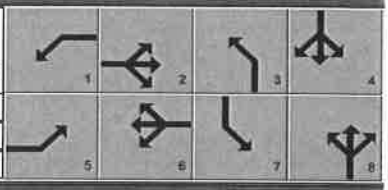
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/5/2021	Area Type	Other
Jurisdiction		Time Period	PM 2030 ITE	PHF	0.95
Urban Street		Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Indian Trail at Randall	File Name	Total 2030 ITE PM Randall at Indian Trail.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	69	511	65	130	625	135	165	324	99	194	420	42

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.2	2.8	34.1	9.0	1.3	38.7	
Yellow	3.5	0.0	4.0	3.5	0.0	4.0	
Red	0.0	0.0	2.0	0.0	0.0	2.0	



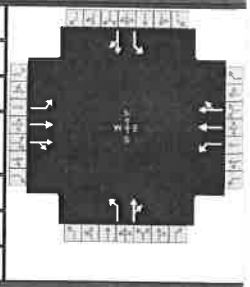
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.7	40.1	11.5	42.9	12.5	44.7	13.8	46.0
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0	4.1	6.1	4.1	6.1
Queue Clearance Time (g_s), s	5.0		7.6		8.7	25.3	10.0	27.4
Green Extension Time (g_e), s	0.2	0.0	0.4	0.0	0.3	8.8	0.3	8.7
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.06	0.20	0.19	0.22

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	73	308	298	137	412	388	174	445		204	486	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1984	1906	1781	1969	1847	1795	1809		1767	1826	
Queue Service Time (g_s), s	3.0	12.7	12.8	5.6	17.7	17.7	6.7	23.3		8.0	25.4	
Cycle Queue Clearance Time (g_c), s	3.0	12.7	12.8	5.6	17.7	17.7	6.7	23.3		8.0	25.4	
Green Ratio (*g/C*)	0.36	0.31	0.31	0.39	0.34	0.34	0.43	0.35		0.45	0.36	
Capacity (*c*), veh/h	256	614	590	352	660	619	317	636		362	664	
Volume-to-Capacity Ratio (*X*)	0.284	0.502	0.505	0.389	0.625	0.626	0.548	0.700		0.564	0.733	
Back of Queue (*Q*), ft/ln (95 th percentile)	57.7	250.2	242.4	104.4	324.6	305.5	129.5	396.8		153	437.8	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	9.9	9.7	4.1	12.8	12.2	5.1	15.7		6.0	17.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	24.8	26.0	26.0	22.4	25.1	25.1	23.4	30.7		22.3	30.4	
Incremental Delay (d_2), s/veh	0.6	2.9	3.1	0.7	4.4	4.7	1.5	3.3		1.4	3.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	25.4	28.9	29.1	23.1	29.6	29.9	24.8	33.9		23.7	34.2	
Level of Service (LOS)	C	C	C	C	C	C	C	C		C	C	
Approach Delay, s/veh / LOS	28.6	C		28.8	C		31.4	C		31.1	C	
Intersection Delay, s/veh / LOS	29.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.05	A	1.26	A	1.51	B	1.63	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/5/2021	Area Type	Other
Jurisdiction		Time Period	AM 2030 Redwood	PHF	0.95
Urban Street		Analysis Year	2030	Analysis Period	1> 7:00
Intersection	Indian Trail at Randall	File Name	Total 2030 Redwood AM Randall at Indian Trail.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	67 ✓	583✓	34 ✓	46✓	400✓	148✓	55 ✓	262✓	103✓	82✓	199✓	40✓

Signal Information					EB			WB			NB			SB		
Cycle, s	100.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	3.8	0.8		37.2	4.2	1.1	34.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0		4.0	3.5	0.0	4.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		2.0	0.0	0.0	2.0					

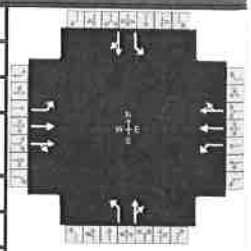
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.1	44.0	7.3	43.2	7.7	40.0	8.8	41.1
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0	4.1	6.1	4.1	6.1
Queue Clearance Time (g_s), s	4.4		3.6		4.1	20.0	5.1	12.5
Green Extension Time (g_e), s	0.2	0.0	0.1	0.0	0.1	5.6	0.2	6.1
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.06	0.00	0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	71	328	322	48	300	277	58	384		86	252	
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1984	1945	1781	1969	1788	1795	1794		1767	1801	
Queue Service Time (g_s), s	2.4	10.4	10.5	1.6	9.6	9.8	2.1	18.0		3.1	10.5	
Cycle Queue Clearance Time (g_c), s	2.4	10.4	10.5	1.6	9.6	9.8	2.1	18.0		3.1	10.5	
Green Ratio (g/C)	0.42	0.38	0.38	0.41	0.37	0.37	0.38	0.34		0.39	0.35	
Capacity (c), veh/h	384	754	739	338	732	665	403	610		324	633	
Volume-to-Capacity Ratio (X)	0.184	0.435	0.436	0.143	0.410	0.416	0.144	0.630		0.267	0.398	
Back of Queue (Q), ft/ln (95 th percentile)	43.8	205.2	201.3	30.6	195.1	179.8	38.9	313.2		59.3	204.7	
Back of Queue (Q), veh/ln (95 th percentile)	1.7	8.1	8.1	1.2	7.7	7.2	1.5	12.4		2.3	8.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.9	17.9	17.9	18.4	18.3	18.3	20.5	27.7		21.2	24.5	
Incremental Delay (d_2), s/veh	0.2	1.8	1.9	0.2	1.7	1.9	0.2	2.3		0.4	0.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	18.1	19.7	19.8	18.6	20.0	20.2	20.6	30.0		21.6	25.3	
Level of Service (LOS)	B	B	B	B	B	C	C	C		C	C	
Approach Delay, s/veh / LOS	19.6	B		20.0	B		28.8	C		24.4	C	
Intersection Delay, s/veh / LOS	22.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.92	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.08	A	1.00	A	1.22	A	1.05	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/5/2021	Area Type	Other
Jurisdiction		Time Period	PM 2030 Redwood	PHF	0.95
Urban Street		Analysis Year	2030	Analysis Period	1> 7:00
Intersection	Indian Trail at Randall	File Name	Total 2030 Redwood PM Randall at Indian Trail.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	69	508	65	128	622	132	65	324	99	194	420	45

Signal Information					EB			WB			NB			SB		
Cycle, s	110.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	End	Green	5.2	2.7		33.1	4.7	1.7	40.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0		4.0	3.5	3.5	4.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		2.0	0.0	0.0	2.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.7	39.1	11.4	41.9	8.2	46.0	13.4	51.2
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0	4.1	6.1	4.1	6.1
Queue Clearance Time (g_s), s	5.0		7.5		4.6	24.9	9.6	25.8
Green Extension Time (g_e), s	0.2	0.0	0.4	0.0	0.1	9.1	0.4	9.6
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.17	0.15	0.12

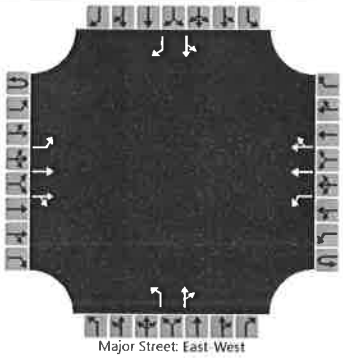
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	73	307	296	135	409	385	68	445		204	489	
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1984	1905	1781	1969	1849	1795	1809		1767	1824	
Queue Service Time (g_s), s	3.0	12.8	12.9	5.5	17.9	17.9	2.6	22.9		7.6	23.8	
Cycle Queue Clearance Time (g_c), s	3.0	12.8	12.9	5.5	17.9	17.9	2.6	22.9		7.6	23.8	
Green Ratio (g/C)	0.35	0.30	0.30	0.38	0.33	0.33	0.41	0.36		0.47	0.41	
Capacity (c), veh/h	250	597	574	344	642	603	304	658		371	750	
Volume-to-Capacity Ratio (X)	0.290	0.514	0.517	0.392	0.637	0.638	0.225	0.677		0.550	0.652	
Back of Queue (Q), ft/ln (95 th percentile)	58.6	254	245.8	104.5	329.9	311.1	49.8	387.1		144.1	401.7	
Back of Queue (Q), veh/ln (95 th percentile)	2.3	10.1	9.8	4.1	13.0	12.4	2.0	15.4		5.6	15.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	25.4	26.8	26.9	23.0	26.0	26.0	22.2	29.5		20.9	26.0	
Incremental Delay (d_2), s/veh	0.6	3.1	3.3	0.7	4.8	5.1	0.4	2.8		1.3	2.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	26.0	30.0	30.2	23.7	30.8	31.1	22.6	32.3		22.2	28.2	
Level of Service (LOS)	C	C	C	C	C	C	C	C		C	C	
Approach Delay, s/veh / LOS	29.6	C		29.9	C		31.0	C		26.4	C	
Intersection Delay, s/veh / LOS	29.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.05	A	1.25	A	1.34	A	1.63	B

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	Indian Tr@Orchard Apt
Agency/Co.		Jurisdiction	
Date Performed	5/5/2021	East/West Street	Indian Trail
Analysis Year	2021	North/South Street	Orchard Apt
Time Analyzed	AM 2030 Total ITE	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Redwood Aurora		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		1	1	0		0	1	1
Configuration		L	T	TR		L	T	TR		L		TR		LT		R
Volume (veh/h)	0	15	752	3	0	5	547	6		7	0	17		21	0	50
Percent Heavy Vehicles (%)	3	3			0	0				0	3	0		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized														No		
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.10				7.50	6.56	6.90		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.20				3.50	4.03	3.30		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16				5				8		18		23		54
Capacity, c (veh/h)		965				817				246		596		298		693
v/c Ratio		0.02				0.01				0.03		0.03		0.08		0.08
95% Queue Length, Q_{95} (veh)		0.1				0.0				0.1		0.1		0.2		0.3
Control Delay (s/veh)		8.8				9.4				20.1		11.2		18.1		10.6
Level of Service (LOS)		A				A				C		B		C		B
Approach Delay (s/veh)		0.2				0.1				13.8				12.8		
Approach LOS										B				B		

HCS7 Two-Way Stop-Control Report

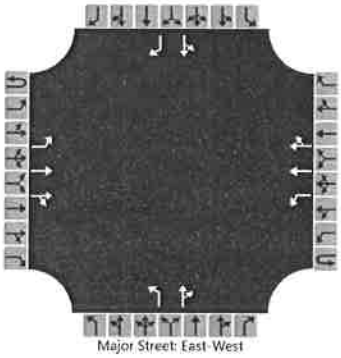
General Information

Analyst	
Agency/Co.	
Date Performed	5/5/2021
Analysis Year	2021
Time Analyzed	PM 2030 Total ITE
Intersection Orientation	East-West
Project Description	Redwood Aurora

Site Information

Intersection	Indian Tr@Orchard Apt
Jurisdiction	
East/West Street	Indian Trail
North/South Street	Orchard Apt
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		1	1	0		0	1	1
Configuration		L	T	TR		L	T	TR		L		TR		LT		R
Volume (veh/h)	0	48 ✓	737 ✓	19 ✓	0	14 ✓	849 ✓	21 ✓		13 ✓	0 ✓	28 ✓		12 ✓	0 ✓	28 ✓
Percent Heavy Vehicles (%)	3	3			0	0				0	3	0		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized														No		
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.10				7.50	6.56	6.90		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.20				3.50	4.03	3.30		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		52				15				14		30		13		30
Capacity, c (veh/h)		715				816				192		596		184		535
v/c Ratio		0.07				0.02				0.07		0.05		0.07		0.06
95% Queue Length, Q_{95} (veh)		0.2				0.1				0.2		0.2		0.2		0.2
Control Delay (s/veh)		10.4				9.5				25.3		11.4		26.1		12.1
Level of Service (LOS)		B				A				D		B		D		B
Approach Delay (s/veh)	0.6				0.2				15.8				16.3			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

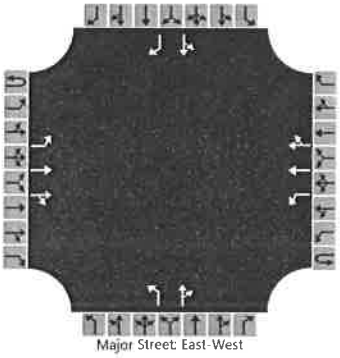
General Information

Analyst	
Agency/Co.	
Date Performed	5/5/2021
Analysis Year	2021
Time Analyzed	AM 2030 Total Redwood
Intersection Orientation	East-West
Project Description	Redwood Aurora

Site Information

Intersection	Indian Tr@Orchard Apt
Jurisdiction	
East/West Street	Indian Trail
North/South Street	Orchard Apt
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		1	1	0		0	1	1
Configuration		L	T	TR		L	T	TR		L		TR		LT		R
Volume (veh/h)	0	9 ✓	752✓	3 ✓	0	5 ✓	547✓	5 ✓		7 ✓	0✓	17✓		18✓	0 ✓	40 ✓
Percent Heavy Vehicles (%)	3	3			0	0				0	3	0		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized														No		
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.10				7.50	6.56	6.90		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.20				3.50	4.03	3.30		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				5				8		18		20		43
Capacity, c (veh/h)		966				817				253		596		302		693
v/c Ratio		0.01				0.01				0.03		0.03		0.06		0.06
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.1		0.1		0.2		0.2
Control Delay (s/veh)		8.8				9.4				19.7		11.2		17.7		10.5
Level of Service (LOS)		A				A				C		B		C		B
Approach Delay (s/veh)	0.1				0.1				13.7				12.8			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

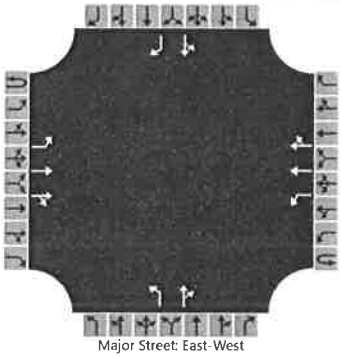
General Information

Analyst	
Agency/Co.	
Date Performed	5/5/2021
Analysis Year	2021
Time Analyzed	PM 2030 Total Redwood
Intersection Orientation	East-West
Project Description	Redwood Aurora

Site Information

Intersection	Indian Tr@Orchard Apt
Jurisdiction	
East/West Street	Indian Trail
North/South Street	Orchard Apt
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		1	1	0		0	1	1
Configuration		L	T	TR		L	T	TR		L		TR		LT		R
Volume (veh/h)	0	38	737	19	0	14	849	16		13	0	28		9	0	20
Percent Heavy Vehicles (%)	3	3			0	0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized														No		
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		41				15				14		30		10		22
Capacity, c (veh/h)		719				816				202		596		192		545
v/c Ratio		0.06				0.02				0.07		0.05		0.05		0.04
95% Queue Length, Q_{95} (veh)		0.2				0.1				0.2		0.2		0.2		0.1
Control Delay (s/veh)		10.3				9.5				24.2		11.4		24.8		11.9
Level of Service (LOS)		B				A				C		B		C		B
Approach Delay (s/veh)	0.5				0.2				15.4				15.9			
Approach LOS									C				C			

Existing Traffic Counts

Aurora, IL Weather: Very Warm and Dry 04/28/21
Indian Trail Rd and Orchard Village Apts Access 21:36:27
Tuesday April 27, 2021 Passenger Vehicles Only

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 9 indian/orchard/cars

Begin	N-Approach			E-Approach			S-Approach			W-Approach			Int
Time	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
700	0	0	0	0	404	5	25	0	6	6	645	0	1091
715	0	0	0	0	462	6	21	0	8	6	670	0	1173
730	0	0	0	0	495	5	17	0	7	3	686	0	1213
745	0	0	0	0	468	5	13	0	11	3	627	0	1127
800	0	0	0	0	460	8	16	0	14	3	570	0	1071
815	0	0	0	0	348	6	12	0	11	2	405	0	784*
830	0	0	0	0	245	5	10	0	10	1	244	0	515*
845	0	0	0	0	125	3	6	0	4	1	113	0	252*
1600	0	0	0	0	785	35	13	0	18	15	676	0	1542
1615	0	0	0	0	775	27	18	0	13	15	672	0	1520
1630	0	0	0	0	779	14	28	0	13	19	674	0	1527
1645	0	0	0	0	754	10	31	0	16	17	691	0	1519
1700	0	0	0	0	719	7	30	0	15	16	688	0	1475
1715	0	0	0	0	514	5	22	0	13	12	498	0	1064*
1730	0	0	0	0	315	3	11	0	10	4	338	0	681*
1745	0	0	0	0	165	2	5	0	4	2	157	0	335*

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 9 indian/orchard/cars

Begin	Approach Totals				Exit Totals				Int
Time	N	E	S	W	N	E	S	W	Total
700	0	409	31	651	0	670	11	410	1091
715	0	468	29	676	0	691	12	470	1173
730	0	500	24	689	0	703	8	502	1213
745	0	473	24	630	0	640	8	479	1127
800	0	468	30	573	0	586	11	474	1071
815	0	354	23	407	0	417	8	359	784*
830	0	250	20	245	0	254	6	255	515*
845	0	128	10	114	0	119	4	129	252*
1600	0	820	31	691	0	689	50	803	1542
1615	0	802	31	687	0	690	42	788	1520
1630	0	793	41	693	0	702	33	792	1527
1645	0	764	47	708	0	722	27	770	1519
1700	0	726	45	704	0	718	23	734	1475
1715	0	519	35	510	0	520	17	527	1064*
1730	0	318	21	342	0	349	7	325	681*
1745	0	167	9	159	0	162	4	169	335*

Aurora, IL Weather: Very Warm and Dry 04/28/21
Indian Trail Rd and Orchard Village Apts Access 21:39:46
Tuesday April 27, 2021 Multi Unit Trucks Only

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 10 indian/orchard/multi

Begin	N-Approach			E-Approach			S-Approach			W-Approach			Int
Time	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
700	0	0	0	0	2	0	0	0	0	0	1	0	3
715	0	0	0	0	2	0	0	0	0	0	1	0	3
730	0	0	0	0	2	0	0	0	0	0	1	0	3
745	0	0	0	0	3	0	0	0	0	0	2	0	5
800	0	0	0	0	1	0	0	0	0	0	2	0	3
815	0	0	0	0	1	0	0	0	0	0	2	0	3*
830	0	0	0	0	1	0	0	0	0	0	2	0	3*
845	0	0	0	0	0	0	0	0	0	0	1	0	1*
1600	0	0	0	0	3	0	0	0	0	0	1	0	4
1615	0	0	0	0	2	0	0	0	0	0	2	0	4
1630	0	0	0	0	0	0	0	0	0	0	2	0	2
1645	0	0	0	0	0	0	0	0	0	0	1	0	1
1700	0	0	0	0	0	0	0	0	0	0	2	0	2
1715	0	0	0	0	0	0	0	0	0	0	1	0	1*
1730	0	0	0	0	0	0	0	0	0	0	1	0	1*
1745	0	0	0	0	0	0	0	0	0	0	1	0	1*

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 10 indian/orchard/multi

Begin	Approach Totals				Exit Totals				Int
Time	N	E	S	W	N	E	S	W	Total
700	0	2	0	1	0	1	0	2	3
715	0	2	0	1	0	1	0	2	3
730	0	2	0	1	0	1	0	2	3
745	0	3	0	2	0	2	0	3	5
800	0	1	0	2	0	2	0	1	3
815	0	1	0	2	0	2	0	1	3*
830	0	1	0	2	0	2	0	1	3*
845	0	0	0	1	0	1	0	0	1*
1600	0	3	0	1	0	1	0	3	4
1615	0	2	0	2	0	2	0	2	4
1630	0	0	0	2	0	2	0	0	2
1645	0	0	0	1	0	1	0	0	1
1700	0	0	0	2	0	2	0	0	2
1715	0	0	0	1	0	1	0	0	1*
1730	0	0	0	1	0	1	0	0	1*
1745	0	0	0	1	0	1	0	0	1*

Aurora, IL Weather: Very Warm and Dry 04/28/21
Indian Trail Rd and Orchard Village Apts Access 21:42:40
Tuesday April 27, 2021 Single Unit Trucks Only

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 11 indian/orchard/single

Begin Time	N-Approach RT	N-Approach TH	N-Approach LT	E-Approach RT	E-Approach TH	E-Approach LT	S-Approach RT	S-Approach TH	S-Approach LT	W-Approach RT	W-Approach TH	W-Approach LT	Int Total
700	0	0	0	0	13	2	0	0	0	0	14	0	29
715	0	0	0	0	13	2	0	0	0	0	15	0	30
730	0	0	0	0	11	0	0	0	0	0	12	0	23
745	0	0	0	0	16	0	0	0	0	0	11	0	27
800	0	0	0	0	19	0	0	0	0	0	10	0	29
815	0	0	0	0	16	0	0	0	0	0	6	0	22*
830	0	0	0	0	13	0	0	0	0	0	6	0	19*
845	0	0	0	0	7	0	0	0	0	0	3	0	10*
1600	0	0	0	0	10	0	0	0	0	0	9	0	19
1615	0	0	0	0	7	0	0	0	0	0	6	0	13
1630	0	0	0	0	8	0	0	0	0	0	3	0	11
1645	0	0	0	0	7	0	0	0	0	0	3	0	10
1700	0	0	0	0	5	0	0	0	0	0	3	0	8
1715	0	0	0	0	4	0	0	0	0	0	2	0	6*
1730	0	0	0	0	2	0	0	0	0	0	1	0	3*
1745	0	0	0	0	1	0	0	0	0	0	1	0	2*

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 11 indian/orchard/single

Begin Time	Approach Totals N	Approach Totals E	Approach Totals S	Approach Totals W	Exit Totals N	Exit Totals E	Exit Totals S	Exit Totals W	Int Total
700	0	15	0	14	0	14	2	13	29
715	0	15	0	15	0	15	2	13	30
730	0	11	0	12	0	12	0	11	23
745	0	16	0	11	0	11	0	16	27
800	0	19	0	10	0	10	0	19	29
815	0	16	0	6	0	6	0	16	22*
830	0	13	0	6	0	6	0	13	19*
845	0	7	0	3	0	3	0	7	10*
1600	0	10	0	9	0	9	0	10	19
1615	0	7	0	6	0	6	0	7	13
1630	0	8	0	3	0	3	0	8	11
1645	0	7	0	3	0	3	0	7	10
1700	0	5	0	3	0	3	0	5	8
1715	0	4	0	2	0	2	0	4	6*
1730	0	2	0	1	0	1	0	2	3*
1745	0	1	0	1	0	1	0	1	2*

Aurora, IL Weather: Very Warm and Dry 04/28/21
Randall Rd and W Indian Trail 21:13:26
Tuesday April 27, 2021 Multi Unit Trucks Only

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 6 randall/indian/multi

Begin Time	N-Approach RT	N-Approach TH	N-Approach LT	E-Approach RT	E-Approach TH	E-Approach LT	S-Approach RT	S-Approach TH	S-Approach LT	W-Approach RT	W-Approach TH	W-Approach LT	Int Total
700	1	0	1	2	0	0	0	0	0	0	0	0	4
715	1	0	1	2	0	0	0	0	0	0	0	0	4
730	1	0	1	2	0	0	0	0	0	0	0	1	5
745	0	0	1	2	0	0	0	0	0	0	1	1	5
800	0	0	0	0	1	0	0	0	0	0	2	2	5
815	0	0	0	0	1	0	0	0	0	0	2	2	5*
830	0	0	0	0	1	0	0	0	0	0	2	1	4*
845	0	0	0	0	1	0	0	0	0	0	1	1	3*
1600	0	0	0	0	3	0	0	0	0	0	1	1	5
1615	0	0	0	0	2	0	0	0	0	0	2	0	4
1630	0	0	0	0	1	0	0	0	0	0	2	0	3
1645	0	0	0	0	0	0	0	0	0	0	1	0	1
1700	0	0	1	0	0	0	0	0	0	0	1	0	2
1715	0	0	1	0	0	0	0	0	0	0	0	0	1*
1730	0	0	1	0	0	0	0	0	0	0	0	0	1*
1745	0	0	1	0	0	0	0	0	0	0	0	0	1*

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 6 randall/indian/multi

Begin Time	Approach Totals N	Approach Totals E	Approach Totals S	Approach Totals W	Exit Totals N	Exit Totals E	Exit Totals S	Exit Totals W	Int Total
700	2	2	0	0	2	1	0	1	4
715	2	2	0	0	2	1	0	1	4
730	2	2	0	1	3	1	0	1	5
745	1	2	0	2	3	2	0	0	5
800	0	1	0	4	2	2	0	1	5
815	0	1	0	4	2	2	0	1	5*
830	0	1	0	3	1	2	0	1	4*
845	0	1	0	2	1	1	0	1	3*
1600	0	3	0	2	1	1	0	3	5
1615	0	2	0	2	0	2	0	2	4
1630	0	1	0	2	0	2	0	1	3
1645	0	0	0	1	0	1	0	0	1
1700	1	0	0	1	0	2	0	0	2
1715	1	0	0	0	0	1	0	0	1*
1730	1	0	0	0	0	1	0	0	1*
1745	1	0	0	0	0	1	0	0	1*

Aurora, IL Weather: Very Warm and Dry 04/28/21
Randall Rd and W Indian Trail 21:30:25
Tuesday April 27, 2021 Passenger Vehicles Only

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 8 randall/indian/cars

Begin Time	N-Approach RT	N-Approach TH	N-Approach LT	E-Approach RT	E-Approach TH	E-Approach LT	S-Approach RT	S-Approach TH	S-Approach LT	W-Approach RT	W-Approach TH	W-Approach LT	Int Total
700	33	227	84	95	278	31	84	298	52	35	458	43	1718
715	36	189	76	110	325	37	85	280	53	33	493	53	1770
730	37	189	70	120	351	34	94	252	54	31	518	60	1810
745	37	177	63	112	332	31	89	224	47	29	471	57	1669
800	28	165	59	121	312	38	82	215	35	28	418	52	1553
815	22	121	42	92	236	29	66	164	26	20	293	33	1144*
830	16	79	27	58	167	23	38	112	12	14	167	20	733*
845	7	43	12	28	83	14	16	49	6	4	81	10	353*
1600	43	408	180	117	562	115	68	318	47	63	421	52	2394
1615	43	403	186	109	549	124	78	309	59	61	426	55	2402
1630	42	406	171	115	568	113	82	313	63	58	445	63	2439
1645	53	391	153	111	549	111	80	287	59	51	457	66	2368
1700	67	368	163	117	511	107	83	276	54	50	450	63	2309
1715	54	273	113	89	366	79	61	196	36	34	317	44	1662*
1730	41	163	81	57	221	48	45	124	20	22	202	27	1051*
1745	22	84	45	33	117	25	21	56	11	8	92	11	525*

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 8 randall/indian/cars

Begin Time	Approach Totals N	Approach Totals E	Approach Totals S	Approach Totals W	Exit Totals N	Exit Totals E	Exit Totals S	Exit Totals W	Int Total
700	344	404	434	536	436	626	293	363	1718
715	301	472	418	579	443	654	259	414	1770
730	296	505	400	609	432	682	254	442	1810
745	277	475	360	557	393	623	237	416	1669
800	252	471	332	498	388	559	231	375	1553
815	185	357	256	346	289	401	170	284	1144*
830	122	248	162	201	190	232	116	195	733*
845	62	125	71	95	87	109	61	96	353*
1600	631	794	433	536	487	669	586	652	2394
1615	632	782	446	542	473	690	588	651	2402
1630	619	796	458	566	491	698	577	673	2439
1645	597	771	426	574	464	690	553	661	2368
1700	598	735	413	563	456	696	525	632	2309
1715	440	534	293	395	329	491	386	456	1662*
1730	285	326	189	251	208	328	233	282	1051*
1745	151	175	88	111	100	158	117	150	525*

Aurora, IL Weather: Very Warm and Dry 04/28/21
Randall Rd and W Indian Trail 21:20:20
Tuesday April 27, 2021 Single Unit Trucks Only

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 7 randall/indian/single

Begin Time	N-Approach RT	N-Approach TH	N-Approach LT	E-Approach RT	E-Approach TH	E-Approach LT	S-Approach RT	S-Approach TH	S-Approach LT	W-Approach RT	W-Approach TH	W-Approach LT	Int Total
700	2	6	3	2	9	2	1	4	0	0	9	0	38
715	2	6	3	3	9	1	1	4	0	0	11	0	40
730	1	5	4	2	9	0	1	3	0	0	9	0	34
745	2	2	2	2	14	0	2	3	0	0	8	0	35
800	2	2	1	3	15	1	1	3	0	0	10	0	38
815	2	0	1	2	12	1	1	2	0	0	5	0	26*
830	2	0	0	2	8	1	1	2	0	0	5	0	21*
845	0	0	0	2	3	1	0	1	0	0	3	0	10*
1600	2	2	1	1	9	1	3	3	0	0	4	0	26
1615	2	1	1	1	4	1	1	3	0	0	4	0	18
1630	2	3	1	2	6	1	1	2	0	1	2	0	21
1645	2	3	1	4	4	1	1	1	1	1	3	0	22
1700	0	2	0	3	2	0	1	0	1	2	4	0	15
1715	0	2	0	3	2	0	0	0	1	2	3	0	13*
1730	0	0	0	2	0	0	0	0	1	1	2	0	6*
1745	0	0	0	0	0	0	0	0	0	1	1	0	2*

TURNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 7 randall/indian/single

Begin Time	Approach Totals N	Approach Totals E	Approach Totals S	Approach Totals W	Exit Totals N	Exit Totals E	Exit Totals S	Exit Totals W	Int Total
700	11	13	5	9	6	13	8	11	38
715	11	13	5	11	7	15	7	11	40
730	10	11	4	9	5	14	5	10	34
745	6	16	5	8	5	12	2	16	35
800	5	19	4	10	6	12	3	17	38
815	3	15	3	5	4	7	1	14	26*
830	2	11	3	5	4	6	1	10	21*
845	0	6	1	3	3	3	1	3	10*
1600	5	11	6	4	4	8	3	11	26
1615	4	6	4	4	4	6	2	6	18
1630	6	9	3	3	4	4	5	8	21
1645	6	9	3	4	5	5	5	7	22
1700	2	5	2	6	3	5	4	3	15
1715	2	5	1	5	3	3	4	3	13*
1730	0	2	1	3	2	2	1	1	6*
1745	0	0	0	2	0	1	1	0	2*

CMAP Traffic Projections

Chicago Metropolitan
Agency for Planning

433 West Van Buren Street
Suite 450
Chicago, IL 60607

312-454-0400
cmap.illinois.gov

April 22, 2021

Mary L. Young, P.E., PTOE
CNECT, LLC
1 North LaSalle Street
Suite 325
Chicago, IL 60602

Subject: ***Randall Road @ Indian Trail Road***
IDOT

Dear Mr. Grabowski:

In response to a request made on your behalf and dated April 22, 2021, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current Volumes	Year 2050 ADT
Randall Rd north of Indian Trail Rd	17,000	18,700
Randall Rd south of Indian Trail Rd	17,000	18,800
Indian Trail Rd west of Randall Rd	10,900	14,900
Indian Trail Rd east of Randall Rd	20,400	25,500

Traffic projections are developed using existing ADT data provided in the request letter and the results from the December 2020 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Rios (IDOT)
2021_CY_TrafficForecast\Aurora\ka-15-21\ka-15-21 docx