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1100 N. Brand (aLoft Hotel Building)

Traffic Impact Analysis

City of Glendale, CA

March 28, 2016



Prepared by:

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To: Wayne Ko, P.E., Principal Traffic Engineer, City of Glendale
From: Jano Baghdanian, P.E., JB & Associates
Date: March 28, 2016
Subject: aLoft Hotel Building (1100 N. Brand Blvd) Traffic Analysis

JB & Associates is pleased to present the aLoft Hotel Building (“the Project”) traffic analysis. The purpose of this memorandum is to document the Project trip generation, trip distribution, trip assignment, and levels of services at nearby study intersections.

Project Overview

The Project site located at 1100 N. Brand Boulevard in the City of Glendale. The Project consists of the construction of a 6 story hotel building that will consist of 85 guestrooms. The Project will have a 2 level subterranean parking structure that will provide 85 parking spaces. Access to the Project will be provided from a 24 foot wide driveway located on Dryden Street, just east of Brand Boulevard. Please refer to **Appendix A** for an illustration of the Project’s site plan.

Existing Land Use

The Project will consist of the demolition of the existing land uses:

- Recess Restaurant: 4,300 Sqft (1,650 Sqft of restaurant building + 2,650 Sqft of outdoor dining area)
- Beauty Salon: 600 Sqft
- Office/Warehouse: 700 Sqft (currently vacant)
- Mechanic Shop: 1,000 Sqft (currently vacant)

Project Trip Generation Methodology

Trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual 9th Edition* were used in this analysis.

Table 1 Summarizes the trip generation findings.

TABLE 1: PROJECT TRIP GENERATION ¹

Land Use (ITE Code)	Size	Units	AM Peak Hour Trips				PM Peak Hour Trips				Daily Trips	
			Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total
New Project Land Use Added												
Hotel (310)	85	du	0.53	45	27	18	0.6	51	26	25	8.17	694
Subtotal				45	27	18	-	51	26	25	-	694
Existing Land Use Removed												
Restaurant (931) ²	4.3	tsf	0.81	-3	-2	-1	7.49	-32	-21	-11	89.95	-387
Beauty Salon (918)	0.6	tsf	1.21	-1	-1	0	1.45	-1	0	-1	-	-
General Office (710) ³	0.7	tsf	-	-	-	-	-	-	-	-	-	-
Automobile Care Center (942) ³	1	tsf	-	-	-	-	-	-	-	-	-	-
Subtotal				-4	-3	-1	-	-33	-21	-12	-	-397
Net Trip Generation				41	24	17	-	18	5	13	-	307

¹ ITE "Trip Generation" Manual, 9th Edition, 2012

² Includes 1,650 Sqft of restaurant building + 2,650 Sqft of outdoor dining area

³ Currently vacant

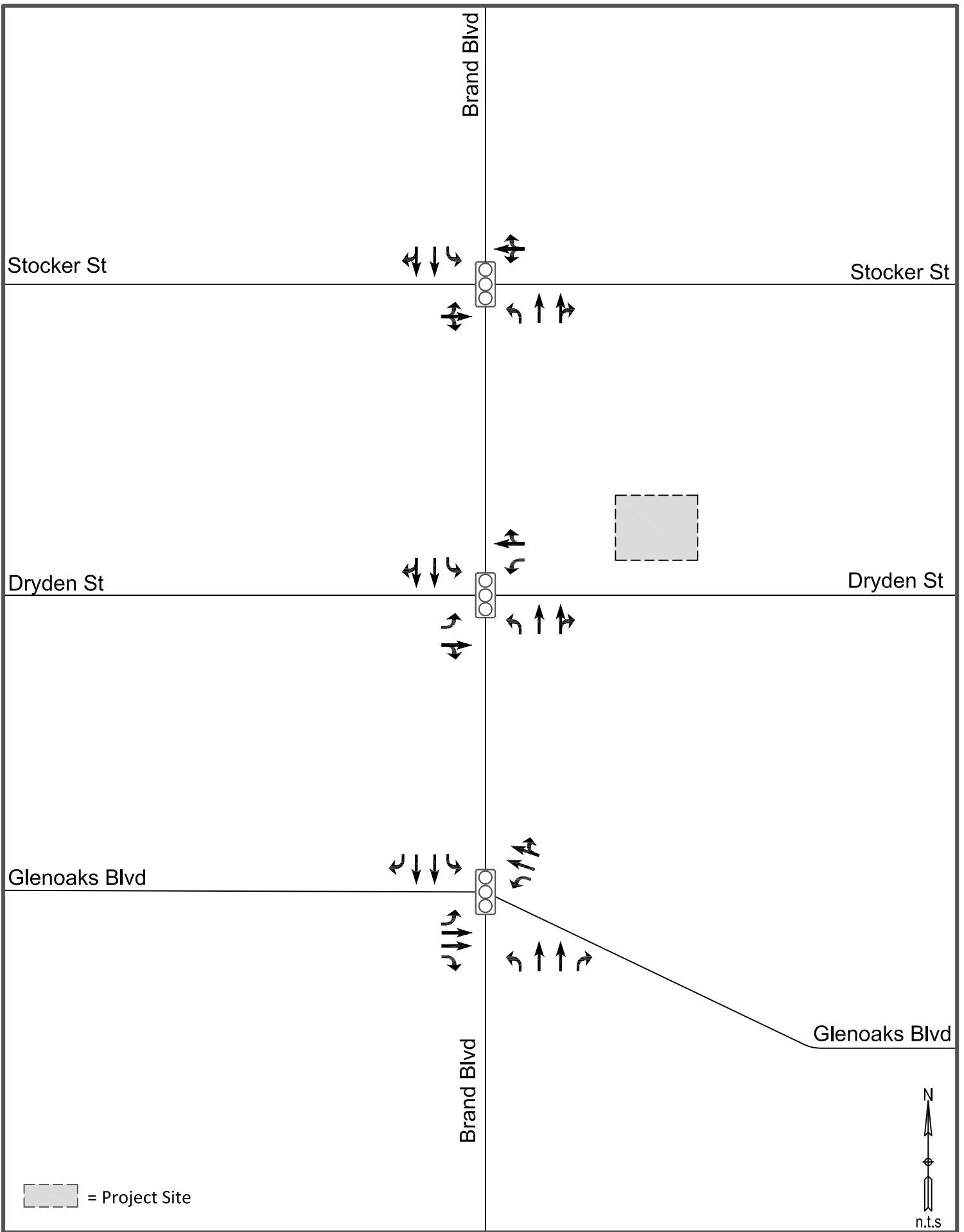
As shown in **Table 1**, the Project will result in the net change of 41 AM trips and 18 PM trips.

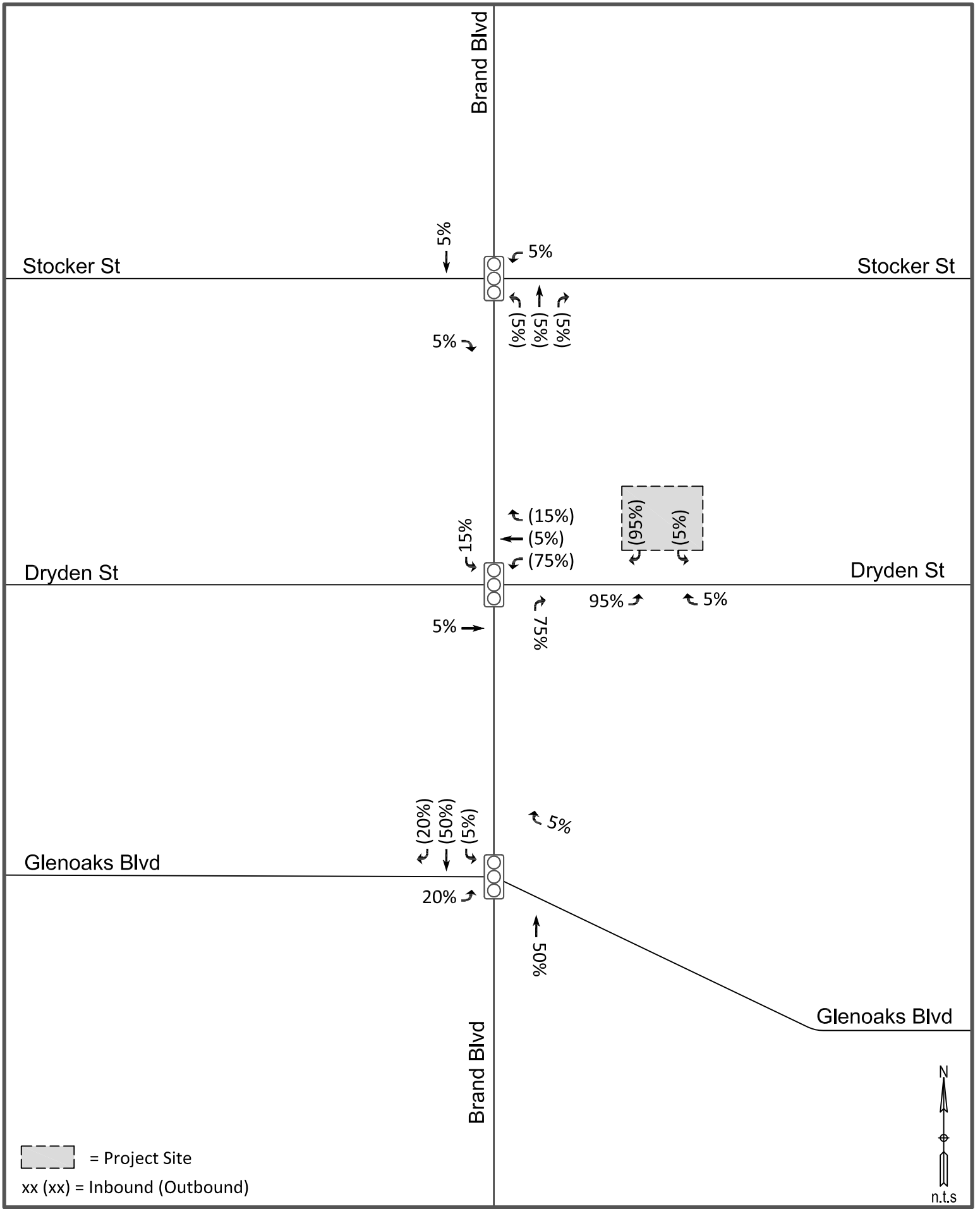
Project Trip Distribution & Assignment

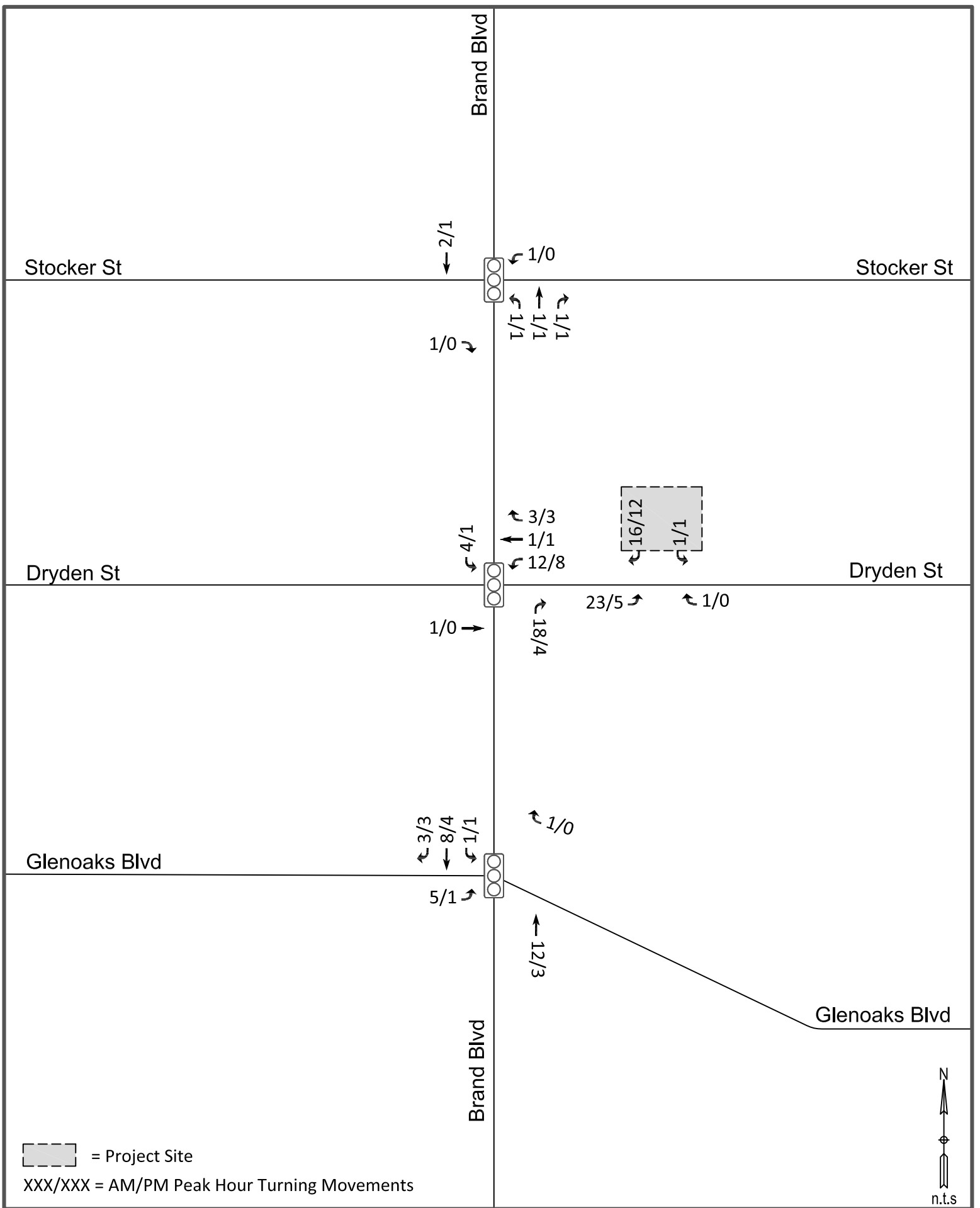
Trip distribution assumptions are used to determine the origin and destination of new vehicle trips associated with the project. The geographic distribution of project trips is based on the functional classifications of streets in the vicinity, the magnitude of traffic volumes, as well as local knowledge of the roadway network. The trip distribution is consistent with market research performed by the developer with regards to their target consumer radius.

Based on the project trip generation shown in **Table 1** and the geographic distribution of project trips, a proposed study area for the traffic analysis was derived. The proposed study area includes 3 intersections in the vicinity of the project site. The location and the number of the intersections to be analyzed was reviewed and approved by the Department of Public Works Traffic and Transportation Division.

Please refer to **Figure 1** for a depiction of the lane configurations for the study intersections and **Figures 2 & 3** for an illustration of the Project's Trip Distribution and Trip Assignments at the study intersections.





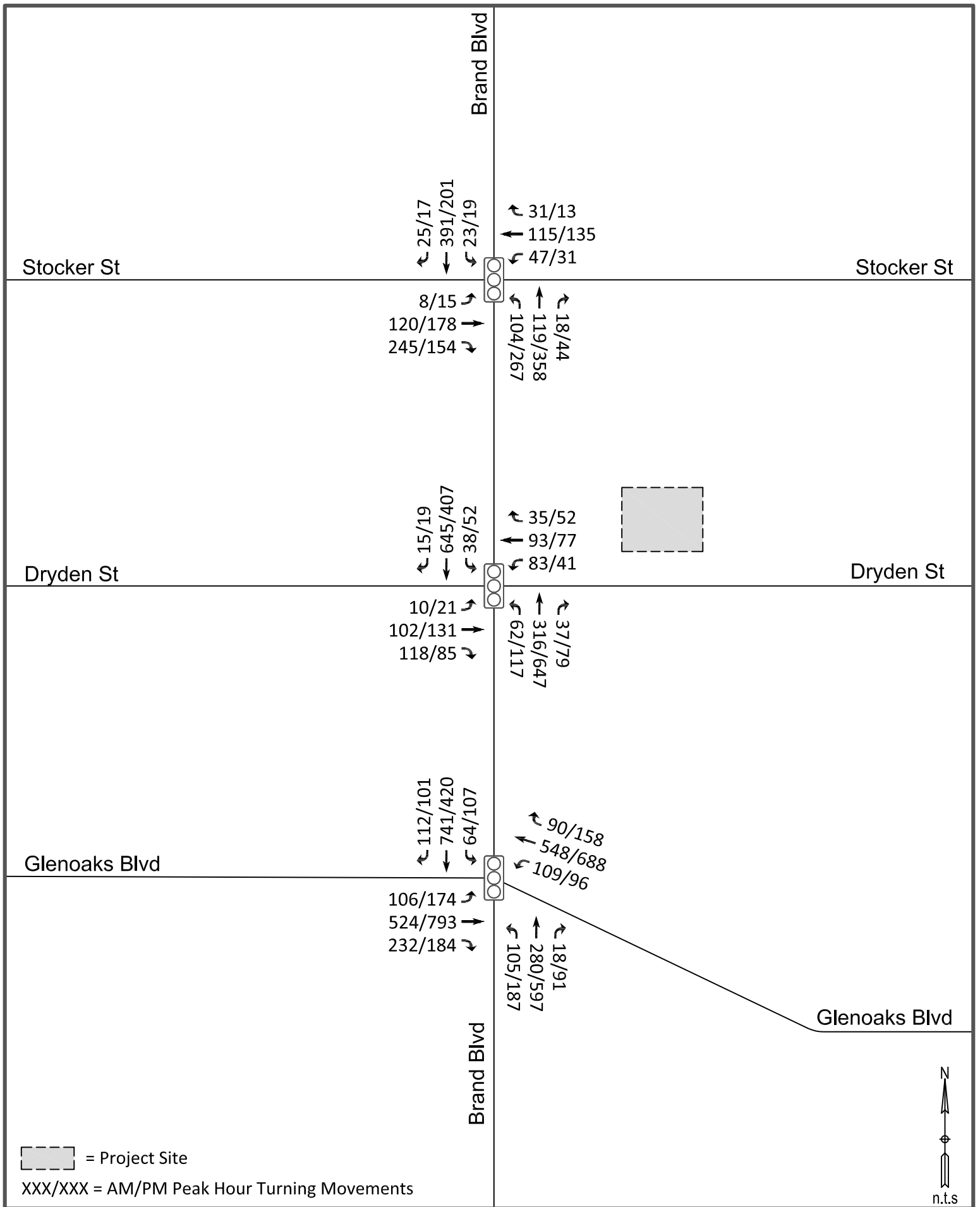


Existing Traffic Volumes

Traffic counts were obtained for vehicular turning movements at the following study intersections:

- (1) Brand Boulevard & Stocker Street
- (2) Brand Boulevard & Dryden Street
- (3) Brand Boulevard & Glenoaks Boulevard

The traffic counts were performed on Tuesday, February 2, 2016 during typical commuter hours (7:30 – 9:30 A.M. & 4:30 -6:30 P.M) to determine peak traffic counts. Please refer to **Appendix B** for the manual traffic counts and **Figure 4** for an illustration of the AM and PM peak hour turning movement counts for the study intersections.



METHOD OF TRAFFIC IMPACT ANALYSIS

For signalized intersections, the City of Glendale uses the Intersection Capacity Utilization (ICU) method to analyze the potential traffic related impacts created by the proposed development. This method relies on the determination of a Level of Service (LOS) at each of the study intersections by first determining their corresponding Volume-to-Capacity (v/c) ratios. The ICU method therefore essentially compares the volume of traffic against the capacity of an intersection. Please refer to **Appendix C** for the ICU calculations for the study intersections.

Level of Service varies from at best LOS A (free flow/excellent) to at worst LOS of F (stop-and-go/failure). A LOS A and F, according to the Highway Capacity Manual, correspond to a v/c ratio less than 0.600 and a v/c greater than 1.001 respectively. Please refer to **Appendix D** for a more detailed description of the various Levels of Services.

The v/c ratios are determined for the study intersection by analyzing both their A.M. and P.M. peak hours for each of the following scenarios:

- (1) Existing Traffic Condition
- (2) Existing Plus Project Traffic Condition

To determine if the project would cause a significant increase in traffic, relative to the existing traffic system, the City of Glendale uses the following thresholds:

TABLE 2: CITY OF GLENDALE LOS THRESHOLDS

City of Glendale Signalized Intersection Impact Threshold Criteria		
Final v/c	Level of Service	Project-Related Increase in v/c
>0.800-.900	D	Equal to or greater than 0.020
>0.900-1.00	E	Equal to or greater than 0.020
>1.000	F	Equal to or greater than 0.020

Essentially, if a signalized intersection operates at a LOS of D or worse and has a project-related increase in its volume-to-capacity ratio of 0.020 or more, then a significant traffic impact would be caused by the project and mitigations may be needed.

Existing Traffic Conditions

Please refer to **Table 3** for a list of the study intersections and their corresponding existing Levels of Services.

TABLE 3: EXISTING CONDITIONS LOS

Study Intersections		Existing Conditions			
		AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
1	Brand Blvd & Stocker St	0.558	A	0.571	A
2	Brand Blvd & Glenoaks Blvd	0.663	B	0.727	C
3	Brand Blvd & Dryden St	0.534	A	0.520	A

Existing Plus Project Traffic Conditions

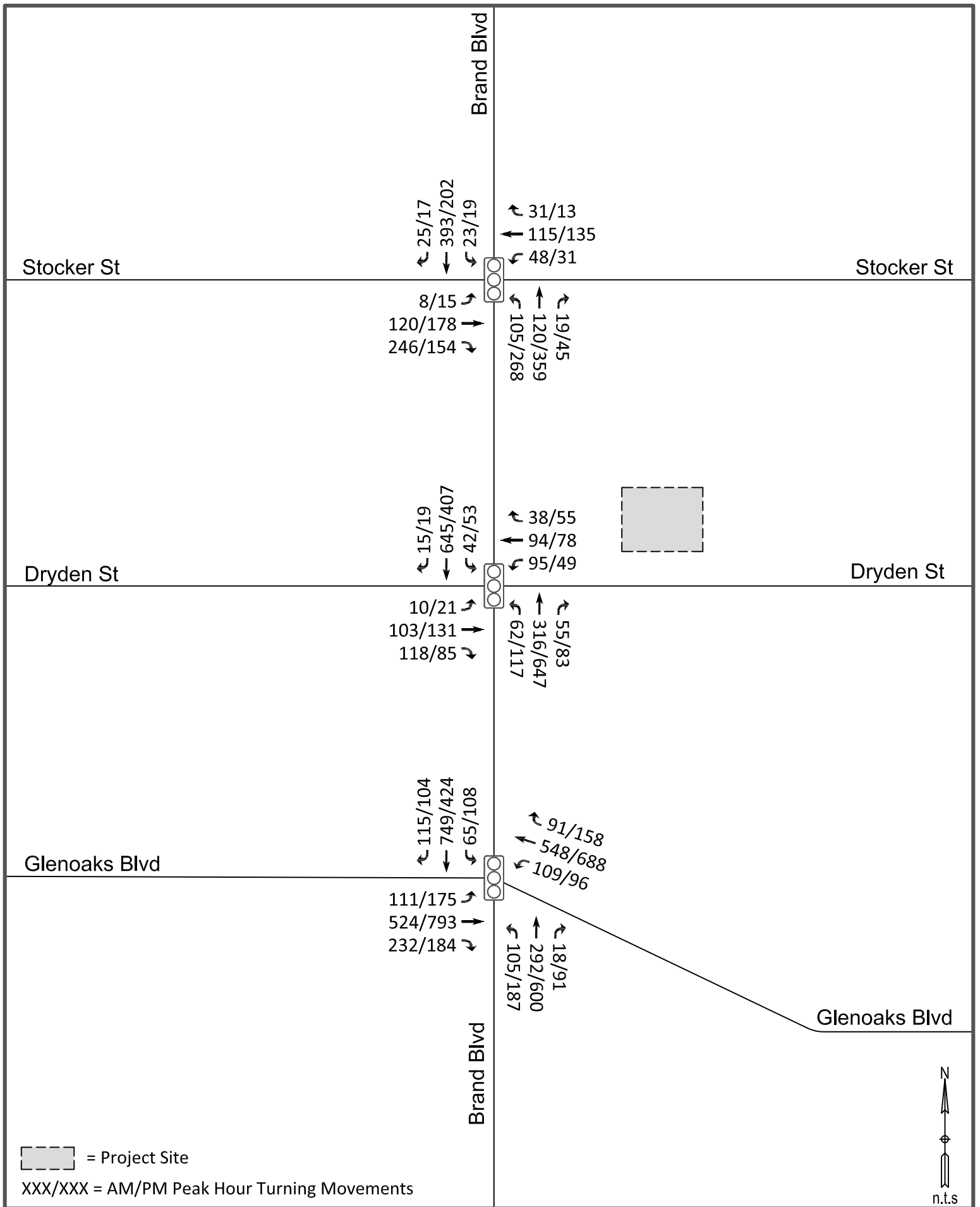
Please refer to **Table 4** for a list of the study intersections and their corresponding Levels of Services for the Existing Plus Project Traffic Conditions scenario.

To determine the Existing Plus Project Traffic Conditions, the project related traffic was added to existing traffic conditions. Please refer to **Figure 5** for an illustration of the Existing Plus Project morning and evening peak hour intersection volumes. Based on the City's significance criteria, the study intersections would not be significantly impacted as a result of the addition of the project traffic.

The anticipated completion date of the Project is in 2017. As shown in **Tables 1 & 3**, the Project generates less than 50 trips in either the AM or the PM peak and the study intersections operate at efficient levels of services. Given the minimal change to operating conditions with the proposed Project, even applying an ambient growth factor of 2% (City assumes 1% per year) to the projected year of completion would not have a significant impact on any of the study intersections.

TABLE 4: EXISTING + PROJECT CONDITIONS LOS

Study Intersections		Existing Conditions				Existing Plus Project Conditions							
		AM Peak Hour		PM Peak Hour		AM Peak Hour				PM Peak Hour			
		V/C	LOS	V/C	LOS	V/C	LOS	Change in v/c	Significant Impact	V/C	LOS	Change in v/c	Significant Impact
1	Brand Blvd & Stocker St	0.558	A	0.571	A	0.560	A	0.002	No	0.572	A	0.001	No
2	Brand Blvd & Glenoaks Blvd	0.663	B	0.727	C	0.669	B	0.006	No	0.729	C	0.002	No
3	Brand Blvd & Dryden St	0.534	A	0.520	A	0.543	A	0.009	No	0.527	A	0.007	No



CONCLUSION

The Traffic Analysis projected the trip generated by the proposed aLoft Hotel Building. To evaluate the possible impacts of the trips projected to be generated by the Project, 3 intersections were analyzed during the AM and PM peak hours. Traffic counts were obtained at the study intersections and the Level of Service (LOS) of these intersections were evaluated under the following scenarios:

- (1) Existing Traffic Condition
- (2) Existing Plus Project Traffic Condition

Based on the City's significance criteria, the study intersections would not be significantly impacted as a result of the addition of the project traffic.

Appendix A: Site Plan

Appendix B: Turning Movement Counts

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Site Code : 00000000

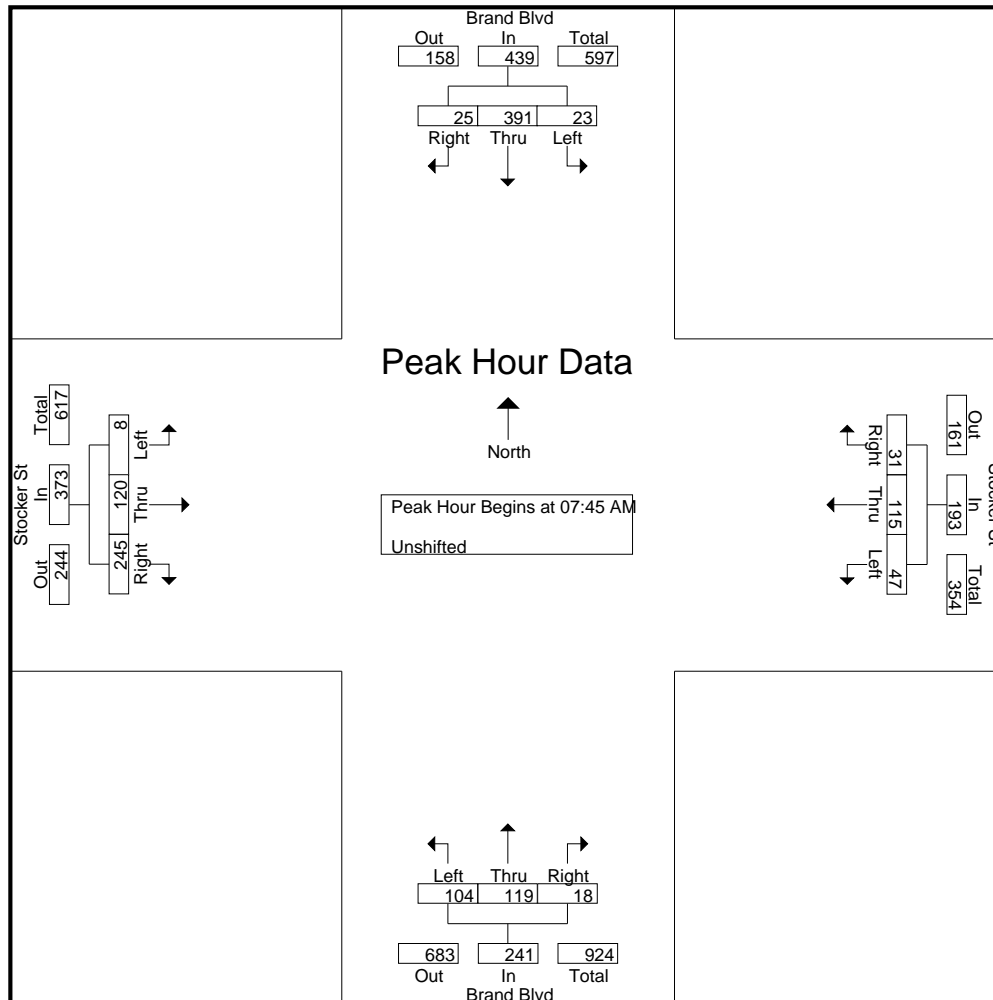
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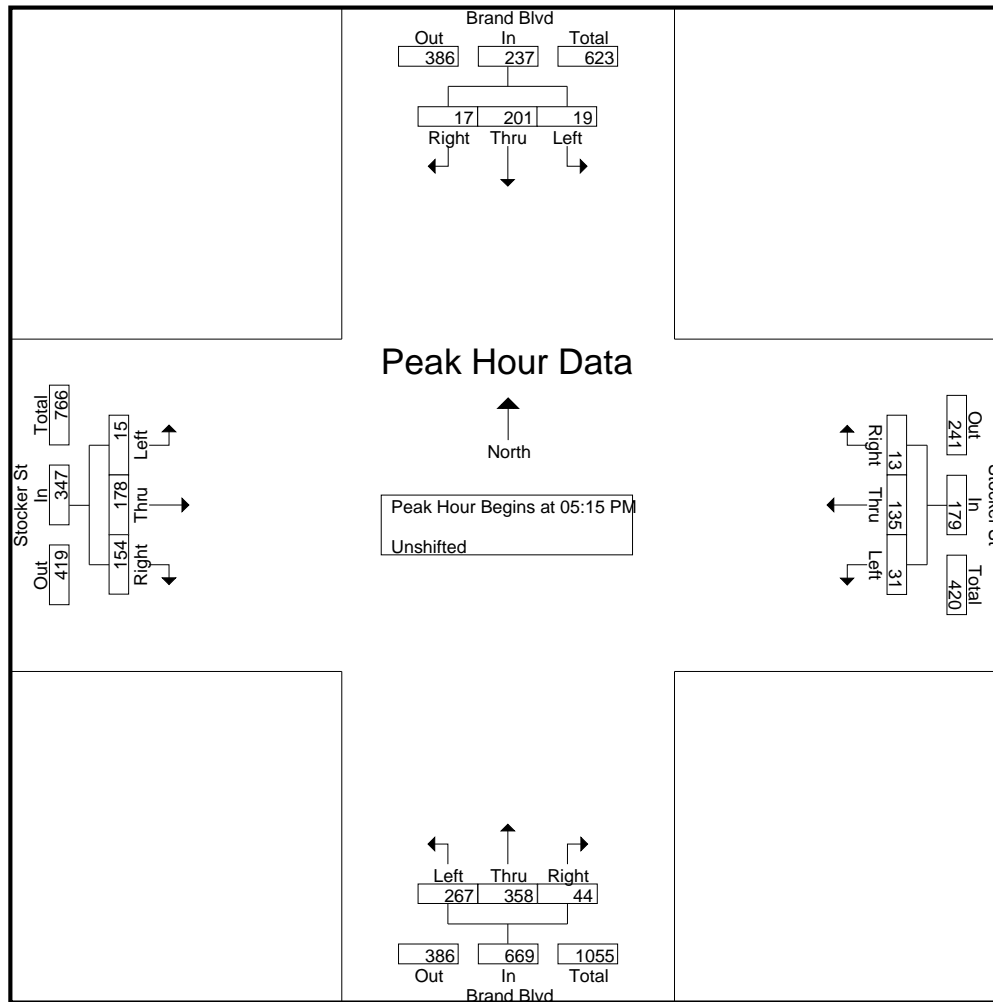
Groups Printed- Unshifted

Start Time	Brand Blvd Southbound			Stocker St Westbound			Brand Blvd Northbound			Stocker St Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	2	77	3	7	30	4	24	17	4	0	19	33	220
07:45 AM	7	102	6	15	47	1	36	27	3	0	35	56	335
Total	9	179	9	22	77	5	60	44	7	0	54	89	555
08:00 AM	5	83	2	13	19	8	15	21	6	5	39	71	287
08:15 AM	5	113	6	9	28	18	25	39	4	3	27	57	334
08:30 AM	6	93	11	10	21	4	28	32	5	0	19	61	290
08:45 AM	1	87	4	9	24	2	23	30	4	2	25	47	258
Total	17	376	23	41	92	32	91	122	19	10	110	236	1169
09:00 AM	1	82	2	10	25	1	37	35	3	1	19	37	253
09:15 AM	4	61	2	9	22	0	24	26	7	2	25	42	224
Total	5	143	4	19	47	1	61	61	10	3	44	79	477
04:30 PM	2	50	3	8	23	5	46	77	16	2	44	31	307
04:45 PM	3	52	5	5	20	9	47	68	12	6	39	46	312
Total	5	102	8	13	43	14	93	145	28	8	83	77	619
05:00 PM	3	39	3	4	25	4	77	74	20	3	46	30	328
05:15 PM	0	46	5	11	42	4	56	92	12	3	43	34	348
05:30 PM	7	47	4	10	36	2	59	92	12	3	40	43	355
05:45 PM	7	50	3	5	22	4	89	96	12	5	55	49	397
Total	17	182	15	30	125	14	281	354	56	14	184	156	1428
06:00 PM	5	58	5	5	35	3	63	78	8	4	40	28	332
06:15 PM	5	41	5	3	24	10	60	86	7	5	40	40	326
Grand Total	63	1081	69	133	443	79	709	890	135	44	555	705	4906
Apprch %	5.2	89.1	5.7	20.3	67.6	12.1	40.9	51.3	7.8	3.4	42.6	54.1	
Total %	1.3	22	1.4	2.7	9	1.6	14.5	18.1	2.8	0.9	11.3	14.4	

Start Time	Brand Blvd Southbound				Stocker St Westbound				Brand Blvd Northbound				Stocker St Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	7	102	6	115	15	47	1	63	36	27	3	66	0	35	56	91	335
08:00 AM	5	83	2	90	13	19	8	40	15	21	6	42	5	39	71	115	287
08:15 AM	5	113	6	124	9	28	18	55	25	39	4	68	3	27	57	87	334
08:30 AM	6	93	11	110	10	21	4	35	28	32	5	65	0	19	61	80	290
Total Volume	23	391	25	439	47	115	31	193	104	119	18	241	8	120	245	373	1246
% App. Total	5.2	89.1	5.7		24.4	59.6	16.1		43.2	49.4	7.5		2.1	32.2	65.7		
PHF	.821	.865	.568	.885	.783	.612	.431	.766	.722	.763	.750	.886	.400	.769	.863	.811	.930



Start Time	Brand Blvd Southbound				Stocker St Westbound				Brand Blvd Northbound				Stocker St Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	46	5	51	11	42	4	57	56	92	12	160	3	43	34	80	348
05:30 PM	7	47	4	58	10	36	2	48	59	92	12	163	3	40	43	86	355
05:45 PM	7	50	3	60	5	22	4	31	89	96	12	197	5	55	49	109	397
06:00 PM	5	58	5	68	5	35	3	43	63	78	8	149	4	40	28	72	332
Total Volume	19	201	17	237	31	135	13	179	267	358	44	669	15	178	154	347	1432
% App. Total	8	84.8	7.2		17.3	75.4	7.3		39.9	53.5	6.6		4.3	51.3	44.4		
PHF	.679	.866	.850	.871	.705	.804	.813	.785	.750	.932	.917	.849	.750	.809	.786	.796	.902



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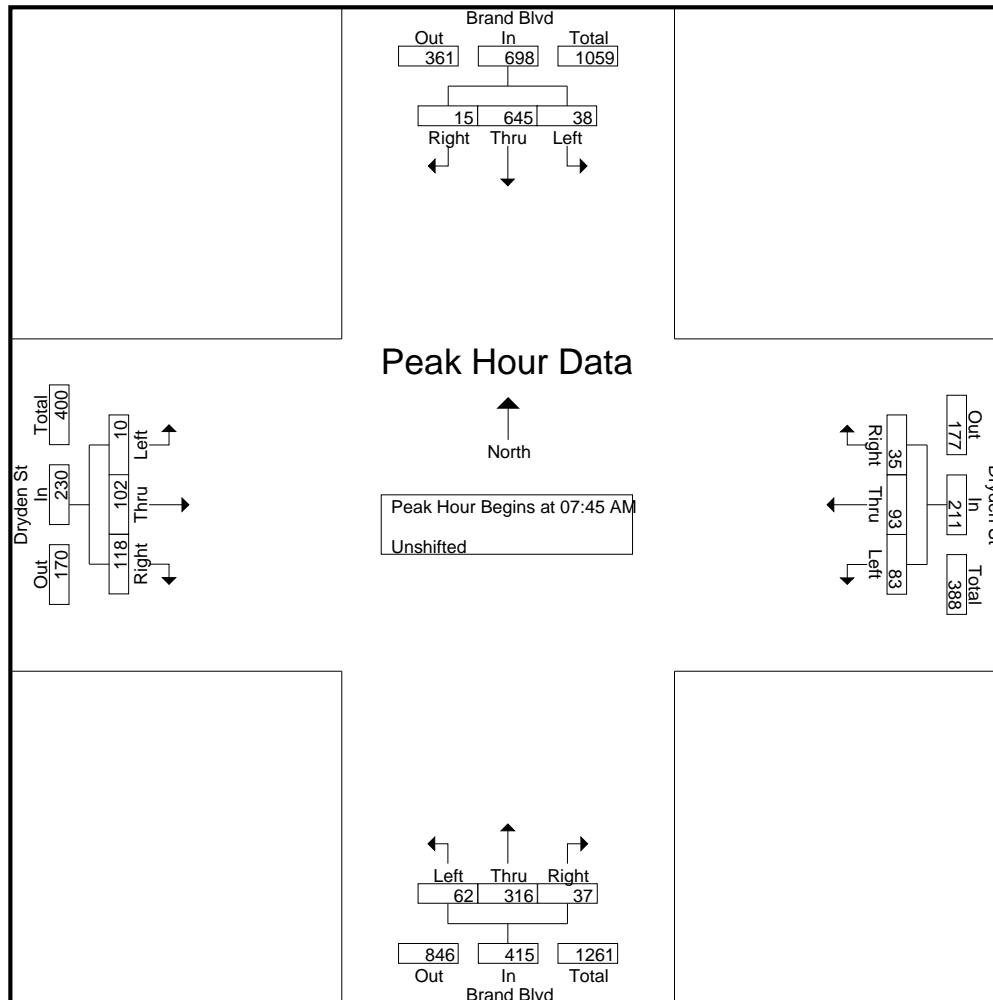
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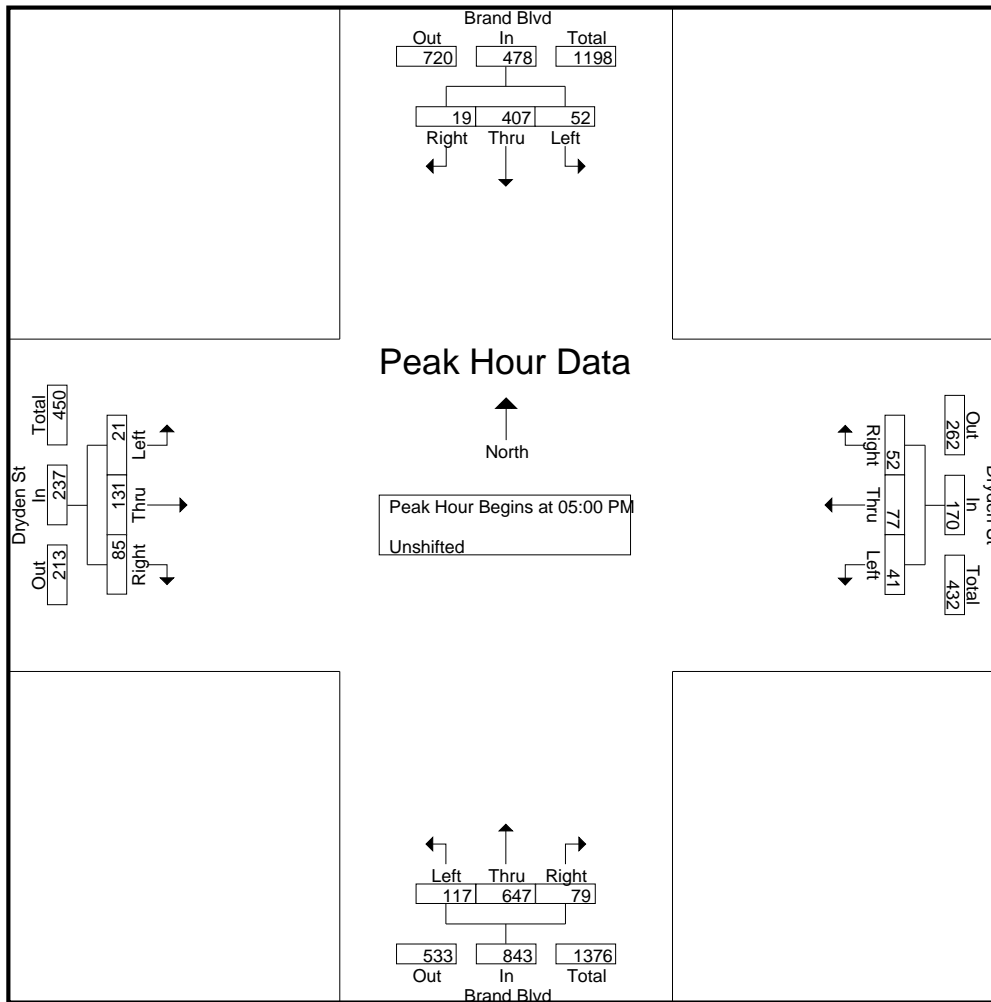
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Start Time	Brand Blvd Southbound			Dryden St Westbound			Brand Blvd Northbound			Dryden St Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	4	130	4	24	27	1	22	56	12	2	21	24	327
07:45 AM	8	155	5	25	39	9	26	88	11	1	42	41	450
Total	12	285	9	49	66	10	48	144	23	3	63	65	777
08:00 AM	11	163	3	14	14	5	18	73	12	3	17	25	358
08:15 AM	10	173	5	23	21	10	10	71	5	2	22	30	382
08:30 AM	9	154	2	21	19	11	8	84	9	4	21	22	364
08:45 AM	13	124	5	30	28	7	12	85	12	6	21	23	366
Total	43	614	15	88	82	33	48	313	38	15	81	100	1470
09:00 AM	7	126	3	20	21	18	11	88	6	2	12	15	329
09:15 AM	1	119	2	17	15	3	8	64	6	5	10	22	272
Total	8	245	5	37	36	21	19	152	12	7	22	37	601
04:30 PM	14	108	3	2	11	8	22	140	22	9	27	17	383
04:45 PM	6	112	4	17	27	6	29	126	25	3	29	9	393
Total	20	220	7	19	38	14	51	266	47	12	56	26	776
05:00 PM	14	97	3	8	30	13	39	161	14	8	30	26	443
05:15 PM	15	105	5	7	17	13	33	159	22	7	29	25	437
05:30 PM	13	106	4	17	11	10	24	152	22	1	42	20	422
05:45 PM	10	99	7	9	19	16	21	175	21	5	30	14	426
Total	52	407	19	41	77	52	117	647	79	21	131	85	1728
06:00 PM	7	97	3	10	18	9	39	148	16	7	26	14	394
06:15 PM	11	75	5	8	14	6	28	156	22	5	32	15	377
Grand Total	153	1943	63	252	331	145	350	1826	237	70	411	342	6123
Apprch %	7.1	90	2.9	34.6	45.5	19.9	14.5	75.7	9.8	8.5	49.9	41.6	
Total %	2.5	31.7	1	4.1	5.4	2.4	5.7	29.8	3.9	1.1	6.7	5.6	

Start Time	Brand Blvd Southbound				Dryden St Westbound				Brand Blvd Northbound				Dryden St Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	8	155	5	168	25	39	9	73	26	88	11	125	1	42	41	84	450
08:00 AM	11	163	3	177	14	14	5	33	18	73	12	103	3	17	25	45	358
08:15 AM	10	173	5	188	23	21	10	54	10	71	5	86	2	22	30	54	382
08:30 AM	9	154	2	165	21	19	11	51	8	84	9	101	4	21	22	47	364
Total Volume	38	645	15	698	83	93	35	211	62	316	37	415	10	102	118	230	1554
% App. Total	5.4	92.4	2.1		39.3	44.1	16.6		14.9	76.1	8.9		4.3	44.3	51.3		
PHF	.864	.932	.750	.928	.830	.596	.795	.723	.596	.898	.771	.830	.625	.607	.720	.685	.863



Start Time	Brand Blvd Southbound				Dryden St Westbound				Brand Blvd Northbound				Dryden St Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	14	97	3	114	8	30	13	51	39	161	14	214	8	30	26	64	443
05:15 PM	15	105	5	125	7	17	13	37	33	159	22	214	7	29	25	61	437
05:30 PM	13	106	4	123	17	11	10	38	24	152	22	198	1	42	20	63	422
05:45 PM	10	99	7	116	9	19	16	44	21	175	21	217	5	30	14	49	426
Total Volume	52	407	19	478	41	77	52	170	117	647	79	843	21	131	85	237	1728
% App. Total	10.9	85.1	4		24.1	45.3	30.6		13.9	76.7	9.4		8.9	55.3	35.9		
PHF	.867	.960	.679	.956	.603	.642	.813	.833	.750	.924	.898	.971	.656	.780	.817	.926	.975



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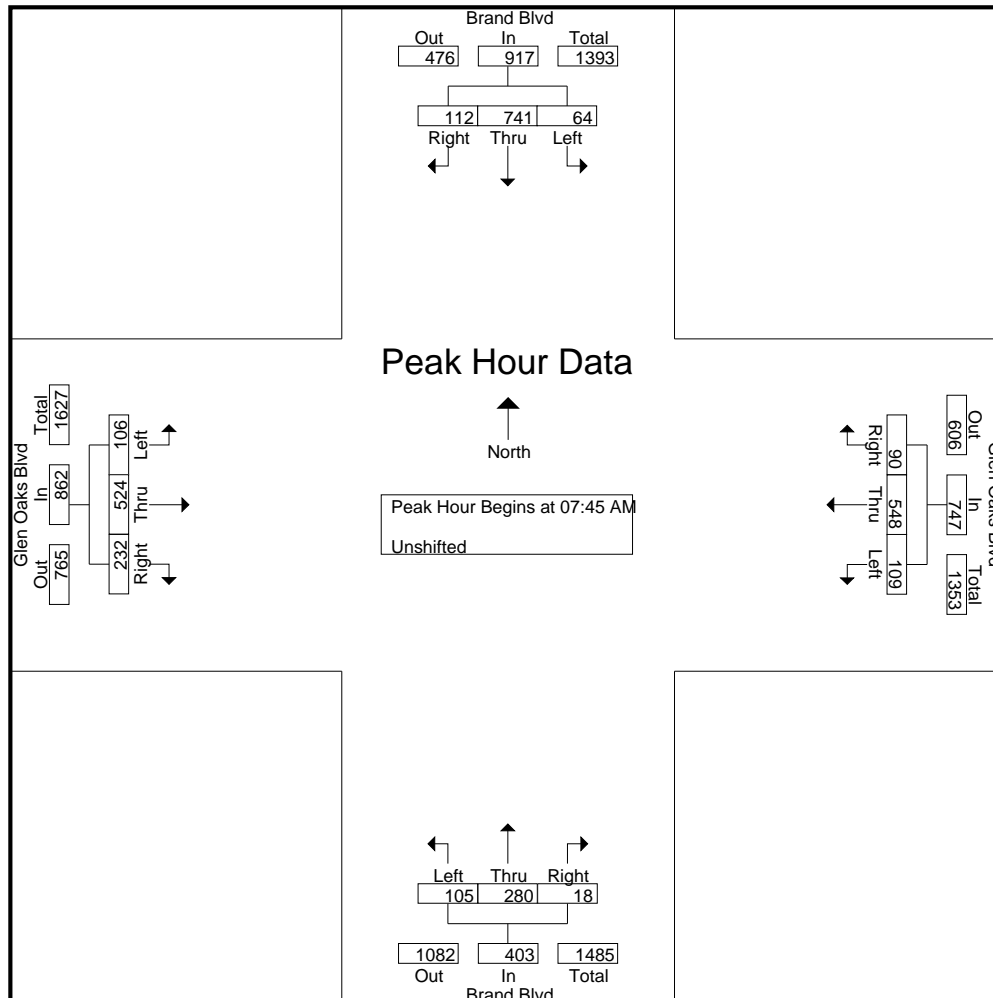
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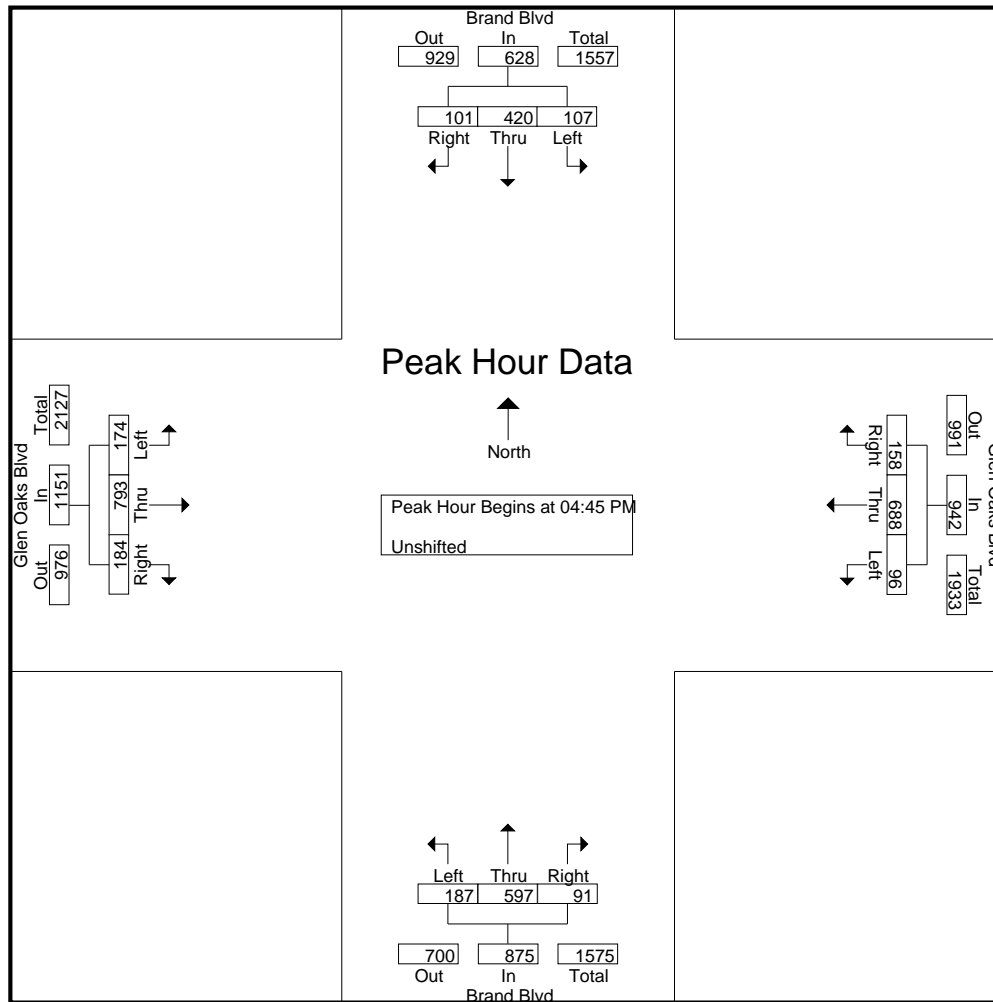
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	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	15	154	31	24	137	20	22	64	4	12	140	50	673
07:45 AM	16	192	34	32	148	15	26	80	5	22	148	50	768
Total	31	346	65	56	285	35	48	144	9	34	288	100	1441
08:00 AM	11	184	25	32	127	24	32	73	4	25	118	74	729
08:15 AM	16	192	19	32	150	27	15	61	5	26	153	59	755
08:30 AM	21	173	34	13	123	24	32	66	4	33	105	49	677
08:45 AM	20	154	36	34	129	32	16	74	3	21	115	45	679
Total	68	703	114	111	529	107	95	274	16	105	491	227	2840
09:00 AM	15	150	40	26	127	24	27	63	7	23	102	40	644
09:15 AM	19	116	18	18	99	6	25	85	6	17	95	38	542
Total	34	266	58	44	226	30	52	148	13	40	197	78	1186
04:30 PM	27	89	27	20	120	17	35	142	20	28	129	38	692
04:45 PM	30	119	25	26	158	37	39	135	19	38	176	42	844
Total	57	208	52	46	278	54	74	277	39	66	305	80	1536
05:00 PM	16	125	26	28	156	41	51	171	19	40	198	45	916
05:15 PM	30	79	18	16	176	46	56	153	22	46	197	44	883
05:30 PM	31	97	32	26	198	34	41	138	31	50	222	53	953
05:45 PM	33	79	30	28	141	40	38	160	11	47	196	37	840
Total	110	380	106	98	671	161	186	622	83	183	813	179	3592
06:00 PM	40	100	22	12	154	34	47	150	9	32	199	47	846
06:15 PM	23	71	24	31	157	23	53	147	12	45	167	50	803
Grand Total	363	2074	441	398	2300	444	555	1762	181	505	2460	761	12244
Apprch %	12.6	72.1	15.3	12.7	73.2	14.1	22.2	70.5	7.2	13.6	66	20.4	
Total %	3	16.9	3.6	3.3	18.8	3.6	4.5	14.4	1.5	4.1	20.1	6.2	

Start Time	Brand Blvd Southbound				Glen Oaks Blvd Westbound				Brand Blvd Northbound				Glen Oaks Blvd Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	16	192	34	242	32	148	15	195	26	80	5	111	22	148	50	220	768
08:00 AM	11	184	25	220	32	127	24	183	32	73	4	109	25	118	74	217	729
08:15 AM	16	192	19	227	32	150	27	209	15	61	5	81	26	153	59	238	755
08:30 AM	21	173	34	228	13	123	24	160	32	66	4	102	33	105	49	187	677
Total Volume	64	741	112	917	109	548	90	747	105	280	18	403	106	524	232	862	2929
% App. Total	7	80.8	12.2		14.6	73.4	12		26.1	69.5	4.5		12.3	60.8	26.9		
PHF	.762	.965	.824	.947	.852	.913	.833	.894	.820	.875	.900	.908	.803	.856	.784	.905	.953



Start Time	Brand Blvd Southbound				Glen Oaks Blvd Westbound				Brand Blvd Northbound				Glen Oaks Blvd Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	30	119	25	174	26	158	37	221	39	135	19	193	38	176	42	256	844
05:00 PM	16	125	26	167	28	156	41	225	51	171	19	241	40	198	45	283	916
05:15 PM	30	79	18	127	16	176	46	238	56	153	22	231	46	197	44	287	883
05:30 PM	31	97	32	160	26	198	34	258	41	138	31	210	50	222	53	325	953
Total Volume	107	420	101	628	96	688	158	942	187	597	91	875	174	793	184	1151	3596
% App. Total	17	66.9	16.1		10.2	73	16.8		21.4	68.2	10.4		15.1	68.9	16		
PHF	.863	.840	.789	.902	.857	.869	.859	.913	.835	.873	.734	.908	.870	.893	.868	.885	.943



Appendix C: LOS Calculations

**Intersection Level Of Service Report
Intersection 1: Brand Blvd & Stocker St**

Control Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutes

Delay (sec / veh): -
Level Of Service: A
Volume to Capacity (v/c): 0.558

Intersection Setup

Name	Brand Blvd			Brand Blvd			Stocker St			Stocker St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Stocker St			Stocker St		
Base Volume Input [veh/h]	104	119	18	23	391	25	8	120	245	47	115	31
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	119	18	23	391	25	8	120	245	47	115	31
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	30	5	6	98	6	2	30	61	12	29	8
Total Analysis Volume [veh/h]	104	119	18	23	391	25	8	120	245	47	115	31
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

Intersection LOS	A
Intersection V/C	0.558

**Intersection Level Of Service Report
Intersection 2: Brand Blvd & Glenoaks Blvd**

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	Brand Blvd			Brand Blvd			Glenoaks Blvd			Glenoaks Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Glenoaks Blvd			Glenoaks Blvd		
Base Volume Input [veh/h]	105	280	18	64	741	112	106	524	232	109	548	90
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	280	18	64	741	112	106	524	232	109	548	90
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	70	5	16	185	28	27	131	58	27	137	23
Total Analysis Volume [veh/h]	105	280	18	64	741	112	106	524	232	109	548	90
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	Lag	-	-

Movement, Approach, & Intersection Results

Intersection LOS	B
Intersection V/C	0.663

**Intersection Level Of Service Report
Intersection 3: Brand Blvd & Dryden St**

Control Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutes

Delay (sec / veh): -
Level Of Service: A
Volume to Capacity (v/c): 0.534

Intersection Setup

Name	Brand Blvd			Brand Blvd			Dryden St			Dryden St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Dryden St			Dryden St		
Base Volume Input [veh/h]	62	316	37	38	645	15	10	102	118	83	93	35
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	316	37	38	645	15	10	102	118	83	93	35
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	79	9	10	161	4	3	26	30	21	23	9
Total Analysis Volume [veh/h]	62	316	37	38	645	15	10	102	118	83	93	35
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

Intersection LOS	A
Intersection V/C	0.534

**Intersection Level Of Service Report
Intersection 1: Brand Blvd & Stocker St**

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.571

Intersection Setup

Name	Brand Blvd			Brand Blvd			Stocker St			Stocker St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Stocker St			Stocker St		
Base Volume Input [veh/h]	267	358	44	19	201	17	15	178	154	31	135	13
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	267	358	44	19	201	17	15	178	154	31	135	13
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	67	90	11	5	50	4	4	45	39	8	34	3
Total Analysis Volume [veh/h]	267	358	44	19	201	17	15	178	154	31	135	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

Intersection LOS	A
Intersection V/C	0.571

**Intersection Level Of Service Report
Intersection 2: Brand Blvd & Glenoaks Blvd**

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.727

Intersection Setup

Name	Brand Blvd			Brand Blvd			Glenoaks Blvd			Glenoaks Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Glenoaks Blvd			Glenoaks Blvd		
Base Volume Input [veh/h]	187	597	91	107	420	101	174	793	184	96	688	158
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	187	597	91	107	420	101	174	793	184	96	688	158
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	47	149	23	27	105	25	44	198	46	24	172	40
Total Analysis Volume [veh/h]	187	597	91	107	420	101	174	793	184	96	688	158
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	Lag	-	-

Movement, Approach, & Intersection Results

Intersection LOS	C
Intersection V/C	0.727

**Intersection Level Of Service Report
Intersection 3: Brand Blvd & Dryden St**

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name	Brand Blvd			Brand Blvd			Dryden			Dryden		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Dryden			Dryden		
Base Volume Input [veh/h]	117	647	79	52	407	19	21	131	85	41	77	52
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	647	79	52	407	19	21	131	85	41	77	52
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	162	20	13	102	5	5	33	21	10	19	13
Total Analysis Volume [veh/h]	117	647	79	52	407	19	21	131	85	41	77	52
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

Intersection LOS	A
Intersection V/C	0.520

Intersection Level Of Service Report
Intersection 1: Brand Blvd & Stocker St

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.560

Intersection Setup

Name	Brand Blvd			Brand Blvd			Stocker St			Stocker St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Stocker St			Stocker St		
Base Volume Input [veh/h]	104	119	18	23	391	25	8	120	245	47	115	31
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	1	0	2	0	0	0	1	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	120	19	23	393	25	8	120	246	48	115	31
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	30	5	6	98	6	2	30	62	12	29	8
Total Analysis Volume [veh/h]	105	120	19	23	393	25	8	120	246	48	115	31
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

Intersection LOS	A
Intersection V/C	0.560

**Intersection Level Of Service Report
Intersection 2: Brand Blvd & Glenoaks Blvd**

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.669

Intersection Setup

Name	Brand Blvd			Brand Blvd			Glenoaks Blvd			Glenoaks Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Glenoaks Blvd			Glenoaks Blvd		
Base Volume Input [veh/h]	105	280	18	64	741	112	106	524	232	109	548	90
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	0	1	8	3	5	0	0	0	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	292	18	65	749	115	111	524	232	109	548	91
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	26	73	5	16	187	29	28	131	58	27	137	23
Total Analysis Volume [veh/h]	105	292	18	65	749	115	111	524	232	109	548	91
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	Lag	-	-

Movement, Approach, & Intersection Results

Intersection LOS	B
Intersection V/C	0.669

**Intersection Level Of Service Report
Intersection 3: Brand Blvd & Dryden St**

Control Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutes

Delay (sec / veh): -
Level Of Service: A
Volume to Capacity (v/c): 0.543

Intersection Setup

Name	Brand Blvd			Brand Blvd			Dryden St			Dryden St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Dryden St			Dryden St		
Base Volume Input [veh/h]	62	316	37	38	645	15	10	102	118	83	93	35
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	18	4	0	0	0	1	0	12	1	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	316	55	42	645	15	10	103	118	95	94	38
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	16	79	14	11	161	4	3	26	30	24	24	10
Total Analysis Volume [veh/h]	62	316	55	42	645	15	10	103	118	95	94	38
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

Intersection LOS	A
Intersection V/C	0.543

Intersection Level Of Service Report
Intersection 1: Brand Blvd & Stocker St

Control Type: Signalized
Analysis Method: ICU 1
Analysis Period: 15 minutes

Delay (sec / veh): -
Level Of Service: A
Volume to Capacity (v/c): 0.572

Intersection Setup

Name	Brand Blvd			Brand Blvd			Stocker St			Stocker St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Stocker St			Stocker St		
Base Volume Input [veh/h]	267	358	44	19	201	17	15	178	154	31	135	13
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	1	0	1	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	359	45	19	202	17	15	178	154	31	135	13
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	67	90	11	5	51	4	4	45	39	8	34	3
Total Analysis Volume [veh/h]	268	359	45	19	202	17	15	178	154	31	135	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

Intersection LOS	A
Intersection V/C	0.572

Intersection Level Of Service Report
Intersection 2: Brand Blvd & Glenoaks Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.729

Intersection Setup

Name	Brand Blvd			Brand Blvd			Glenoaks Blvd			Glenoaks Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Glenoaks Blvd			Glenoaks Blvd		
Base Volume Input [veh/h]	187	597	91	107	420	101	174	793	184	96	688	158
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	1	4	3	1	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	187	600	91	108	424	104	175	793	184	96	688	158
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	47	150	23	27	106	26	44	198	46	24	172	40
Total Analysis Volume [veh/h]	187	600	91	108	424	104	175	793	184	96	688	158
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi	Protec	Permi	Permi
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	Lag	-	-

Movement, Approach, & Intersection Results

Intersection LOS	C
Intersection V/C	0.729

**Intersection Level Of Service Report
Intersection 3: Brand Blvd & Dryden St**

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.527

Intersection Setup

Name	Brand Blvd			Brand Blvd			Dryden			Dryden		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Brand Blvd			Brand Blvd			Dryden			Dryden		
Base Volume Input [veh/h]	117	647	79	52	407	19	21	131	85	41	77	52
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	4	1	0	0	0	0	0	8	1	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	647	83	53	407	19	21	131	85	49	78	55
Peak Hour Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	162	21	13	102	5	5	33	21	12	20	14
Total Analysis Volume [veh/h]	117	647	83	53	407	19	21	131	85	49	78	55
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

Intersection LOS	A
Intersection V/C	0.527

Appendix D: Explanation of LOS Categories

Level of Service (LOS) Descriptions¹

Level of Service	Description	Volume to Capacity (v/c) Ratio
A	Level of Service A occurs when progression is extremely favorable and vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0.600 and below
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of delay.	0.601 to 0.700
C	Level of Service C generally result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level although many still pass through the intersection without stopping.	0.701 to 0.800
D	Level of Service D describes a situation in which the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and/or high traffic volumes as compared to the roadway capacity. Many vehicles are required to stop and the number of vehicle that do not have to stop declines. Individual cycle failures are therefore more noticeable.	0.801 to 0.900
E	Level of Service E is considered to be the limit of acceptable conditions. High delay values generally indicate poor progression, long cycle lengths, and high traffic volumes. Individual cycle failures frequently occur.	0.901 to 1.000
F	Level of Service F is generally considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when traffic arrives at a flow rate that exceeds the capacity of the intersection.	1.001 and above

¹ Source: Highway Capacity Manual Special Report 209, Transportation Research Board, National Research Council Washington D.C., 2000.