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February 16, 2012

Mr. Al Cohen  
Signature Realty Capital Corporation  
2082 Michelson Drive, Suite 212  
Irvine, CA 92612

RE: Westgate at Powers  
Traffic Technical Memorandum  
LSC #124010

Dear Mr. Cohen:

In response to your request, LSC Transportation Consultants, Inc. has completed this traffic analysis for the proposed residential and commercial development to be located west of Troy Hill Road and north of Airport Road in Colorado Springs, Colorado. The site location and boundary are shown on Figure 1. The development would include apartments, office buildings, retail buildings, fast-food restaurants, and a residence-style hotel. The project would include the realignment of Troy Hill Road through the project to the west and the creation of a new street connection to Airport Road aligning with Airport/Airport Creek Point to replace the existing Troy Hill Road intersection. This new connection to Airport Road would become the main access to the project.

## **REPORT CONTENTS**

This report identifies the existing traffic volumes and street network; the proposed street system through the site and potential expansion of the area street network; estimates of background or baseline traffic on the street network; the proposed land uses for the site; the projected trip generation; existing and potential future street connections in the area; the proposed access points; an assignment of the site-generated traffic volumes to the area streets and intersections in the vicinity of the site; an assessment of the site's traffic impacts; and a summary of findings and recommendations.

## **SITE DEVELOPMENT AND LAND USE**

The site is located just west of Troy Hill Road north of Airport Road. Figure 2 shows the site plan. The plan shows the street system including the realignment of Troy Hill Road, the site land uses and the proposed access points. Figure 3 identifies the traffic analysis zones used in this analysis. These zones are used for reference in the trip generation table and in the supporting analysis documents attached to the report. Figure 4 shows the traffic analysis zones used for "background" or non-site

traffic generators to the north of the site. These include the Northcom site most notably, located southwest of Platte Avenue and Powers Boulevard. Northcom was studied previously by LSC. The other large traffic analysis zone includes a large 100+ acres north of the site between Troy Hill Road and Sand Creek.

## **ROADWAY AND TRAFFIC CONDITIONS**

### **Area Roadways**

The area roadway system is shown on Figure 1. The roadways in the vicinity of the site are identified below, followed by a brief description. Figure 5 shows the existing traffic controls and lane geometries for the intersections adjacent to the site. The at-grade intersection of Powers Boulevard/Airport Road is planned to be converted to a grade-separated interchange in the future.

- **Powers Boulevard** (US Highway 24/State Highway 21 in the vicinity of the site) is classified as a six-lane “Designated Freeway” currently extending north from Airport Road to State Highway 83 and south to Mesa Ridge Parkway. The Powers Boulevard/Airport Road intersection is currently a signalized at-grade intersection, but is planned to be a grade-separated interchange in the future. Future plans for Powers Boulevard include an extension north from State Highway 83 to Interstate 25 and south from Mesa Ridge Parkway to Interstate 25. It is LSC’s understanding that the funds may become available to widen Powers Boulevard to six lanes through the Airport Road intersection prior to the interchange construction.
- **Airport Road** is an arterial street extending east from Powers Boulevard to Peterson Air Force Base and west from Powers Boulevard to Union Boulevard. The posted speed limit on Airport Road just west of Powers Boulevard is 45 miles per hour (mph). Just east of the Sand Creek bridge, Airport Road narrows from four lanes with a center median (west of Sand Creek) to two lanes plus left-turn lanes (between Sand Creek and Powers Boulevard). At the intersection with Troy Hill Road, there is a 110-foot eastbound left-turn lane but no westbound right-turn lane. This lane is back-to-back with the left-turn lane at the Airport Road/Airport Creek Point intersection approximately 550 feet to the west. The intersection of Airport Road/Airport Creek Point is currently unsignalized.
- **Troy Hill Road** is a two-lane Industrial/Commercial frontage road/collector street that runs north/south between Platte Avenue and Airport Road just west of Powers Boulevard. The Platte Avenue/Troy Hill Road intersection is a right-in/right-out intersection. The posted speed limit is 25 mph.

### **Potential Future Street Connections**

The new Westgate Boulevard will extend north from Airport Road to a roundabout in the center of the site. The realigned Troy Hill Road will form the east leg of this intersection. Westgate Boulevard

will extend north from the roundabout through the west part of the site to the property line in the short term. The plan would be for this street to extend to the north to serve offsite future development to the north. There are several concepts for creating a street connection between areas east and west of Sand Creek. This analysis assumes an extension of Babcock just south of Platte across the creek to potentially connect to Troy Hill road and the new north/south Westgate Boulevard in some manner. The analysis also assumes that Troy Hill/Platte would remain a right-turn-only intersection.

### **Existing Traffic Conditions**

Figure 5 shows the existing morning and afternoon peak-hour traffic volumes at the Airport Road/Airport Creek Point (2012 volumes) and Airport Road/Troy Hill Road intersections (from 2009). The traffic count reports are attached. The existing lane geometry and traffic controls are also shown.

### **2032 BACKGROUND TRAFFIC**

Background traffic is the traffic estimated to be on Airport Road and the new street system within the site and to the north of the site (including the realigned Troy Hill and Westgate Boulevard) less the Westgate development traffic on the streets. Background traffic includes through traffic on Airport Road, existing and additional future traffic on Airport Creek Point south of Airport, and traffic from Northcom and other land uses to be developed within background traffic analysis zones shown in Figure 4. Figure 6 shows a lower growth scenario. Table 1 summarizes the land use and trip generation assumptions for the area to the north.

As shown in the table, two separate background trip generation estimates have been provided due to the uncertainty of the level of development that may occur in these areas. The estimates are “lower growth” and “higher growth” projections. The higher growth projections have been generated using trip estimates from the LSC report, *Northcom Business Center/Westgate at Powers Sub-area Transportation Analysis*. The lower growth forecasts assume a one-third reduction in Northcom and the adjacent office zone. A less intense mix of uses (and resulting lower trip generation) was used for the parcel to the north plus a 25 percent reduction in developed acreage was also assumed. Fifty percent of the trip generation of the parcel just east of Westgate was also used in the lower growth scenario. Figure 6 shows the resulting lower growth background traffic estimates and Figure 7 shows the higher growth estimates.

### **TRIP GENERATION**

Estimates of the traffic volumes expected to be generated by the site have been made using the nationally published trip generation rates found in *Trip Generation, 8th Edition, 2008* by the Institute of Transportation Engineers (ITE) with additional information supplied by the client. Table 2 shows the results of the trip generation estimates for the land uses within Westgate.

The total site trip generation includes primary/destination vehicle-trips as well as “pass-by” and diverted trips. Pass-by/diverted trips, associated primarily with the fast food land uses and retail buildings, would be generated by motorists who would already be on the adjacent or nearby roadway system regardless of this development, but who would modify the usual travel route to access the site or simply turn into the site while passing by. The motorist would then exit the site and return to the original travel route. For this particular study, which concentrates on analysis of the streets and intersections adjacent to and within the site, no reductions have been specifically called out for pass-by and diverted trips as most of these types of trips would be considered newly added traffic on the streets within the site. The directional distribution of the retail zones takes these types of “non-primary” trips into account.

### **TRIP DISTRIBUTION AND ASSIGNMENT**

The estimated directional distribution of the site-generated traffic volumes on the adjacent streets is an important factor in determining the development’s traffic impacts. Figure 8 shows the external points or “gates” used in the distribution estimate. The figure also shows a general overall distribution of all the site traffic combined. A specific distribution estimate for each land use/zone is attached as an appendix item.

When the distribution percentages and local area trip routing/assignment estimates are applied to the site generation estimates (from Table 2), the site-generated traffic volumes on the Westgate streets, access point intersections, and at the Powers/Powers Creek Point intersection can be determined. Figure 9 shows the forecasted site-generated traffic volumes at buildout of Westgate.

### **2032 TOTAL TRAFFIC VOLUMES**

Figures 10 and 11 show the total volumes or sum of the site-generated traffic volumes (from Figure 9) plus the 2031 background traffic volumes from Figures 6 and 7 for the lower and higher background traffic growth estimates, respectively. Westgate traffic is the same for both scenarios. Separate low- and high-growth traffic estimates have been made for background traffic only, however the result is two separate “total traffic” scenarios.

### **PROJECTED LEVELS OF SERVICE**

The intersections of Troy Hill/Westgate Boulevard, Airport/Westgate Boulevard and the site access point intersections have been analyzed to determine the projected levels of service for the 2031 buildout/total traffic volumes shown in Figures 10 and 11 based on the signalized and unsignalized method of analysis procedures from Synchro and the *Highway Capacity Manual, 2000 Edition* by the Transportation Research Board. Figures 12 and 13 show the key level of service analysis results. The comprehensive and detailed level of service reports are attached.

## **QUEUING ANALYSIS**

Queuing results from Synchro are also shown in Figures 12 and 13 for the key intersection movements within the site. These results can be used to determine the lengths required for left-turn lanes. Of particular interest is the southbound left-turn movement on southbound Westgate Boulevard approaching Airport Road. The projected total traffic queues shown are the longer of the reported morning or afternoon peak-hour queues. Some of the calculated queue lengths are shorter than the length of a vehicle. A minimum left-turn bay length of about 50 to 75 feet should be used, plus a bay taper.

## **TRAFFIC SIGNAL WARRANTS**

The intersection of Westgate and Airport Road will likely meet warrants for signalization as development proceeds within Westgate and to the north. Additional development south of Airport Road served by the Airport/Airport Creek Point would also contribute to the need for a future traffic signal. LSC can assist further as needed by evaluating land development phasing scenarios to estimate when the intersection may be close to meeting warrants.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Area Roadways**

1. This study primarily focuses on the needs of the streets within and adjacent to Westgate, but assumptions regarding the future street system/connections to the north of the site have been made in order to estimate site and background traffic volumes on the site street segments, at site access intersections, and at the intersections of Troy Hill (realigned)/Westgate and Westgate/Airport/Airport Creek Point.

### **Trip Generation**

2. The site trip generation is shown in Table 1. For purposes of estimating background traffic passing through the site, a separate trip generation estimate has been prepared for the parcels located north of the site. These estimates are shown in Table 2.

### **Projected Traffic Volumes**

3. Site-generated and background traffic estimates have been prepared. The site-generated estimates assume buildout of the site. Due to the uncertainty of the intensity of potential future development to the north, separate “higher growth” and “lower growth” estimates have been generated.

### **Projected Levels of Service**

4. Figures 12 and 13 show summaries of key projected intersection levels of service results. Analysis sheets are attached with the complete analysis results.

### **Queuing Analysis**

5. Figures 12 and 13 also shows key projected queue lengths at the intersections studied. The attached SimTraffic analysis sheets also contain all reported queue length estimates. The queuing analysis indicates that for buildout of Westgate plus significant development to the north of the site and resulting background traffic increases on Westgate Boulevard generated, it is likely that dual left-turn lanes southbound at Airport/Westgate would be needed to accommodate the projected queues. A southbound single left-turn lane could likely accommodate the queues estimated for the lower growth scenario.

### **Traffic Signal Warrants**

6. The intersection of Westgate and Airport Road will likely meet warrants for signalization as development proceeds within Westgate and to the north. Additional development south of Airport Road served by the Airport/Airport Creek Point would also contribute to the need for a future traffic signal. LSC can assist further as needed by evaluating land development phasing scenarios to estimate when the intersection may be close to meeting warrants.

### **Recommended Improvements**

7. A westbound right-turn deceleration lane and eastbound left-turn deceleration lane would be needed on Airport Road.
8. The southbound approach with a shared through/right lane and an exclusive left-turn lane should be sufficient in the short term with the development of Westgate and in the future based on the long-term lower grow scenario. This southbound left-turn lane should be built as long as possible (about 450 feet) and would be back-to-back with a short northbound left-turn lane into the Residence hotel parcel.
9. Longer term, assuming the high growth scenario, with the addition of significant background traffic from parcels north of Westgate such as Northcom, the southbound approach may require future widening to the east side to provide dual left-turn lanes southbound. The plan should anticipate the potential need for this future widening of the east side of Westgate. Should the future addition of a second left-turn lane be needed, the northbound lane on Westgate will be shifted east. Minor widening of Airport Creek Point to the east on the south side of Airport Road would also be needed to keep the through lanes aligned within allowable offsets across the intersection.


10. LSC recommends that a "typical" left-turn bay design for the site access points be created and approved by the City. Typically, left-turn bays should be a minimum of 50 to 75 feet in length, plus a bay taper, in order to be functional.
11. A traffic signal would likely need to be installed once warrants are met at the Westgate/Airport intersections. The City may allow individual parcel developments to proceed prior to signalization.

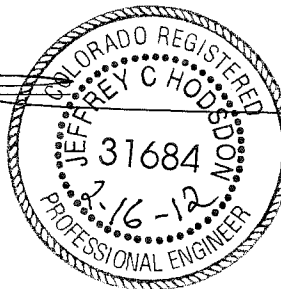
\* \* \* \* \*

We trust that this traffic impact analysis will assist you in gaining approval of the proposed Westgate development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By   
Jeffrey C. Hodsdon, P.E., PTOE  
Principal



JCH:bjwb

Enclosures: Tables 1-2  
Figures 1-13  
Traffic Count Reports  
Level of Service Reports  
Directional Distribution Matrix

**Table 1  
Westgate at Powers  
Trip Generation Estimate**

TAZ <sup>(1)</sup>	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates <sup>(2)</sup>				Total Trips Generated					
				Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour	
					In	Out	In	Out		In	Out	In	Out
2-12	820	Shopping Center	14 KSF(3)	42.94	0.63	0.40	1.80	1.95	601	9	6	25	27
2-3	820	Shopping Center	7.2 KSF	42.94	0.63	0.40	1.80	1.95	309	5	3	13	14
2-2	820	Shopping Center	4.5 KSF	42.94	0.63	0.40	1.80	1.95	193	3	2	8	9
2-5	220	Apartments	600 DU (4)	6.65	0.10	0.41	0.40	0.22	3,990	61	245	242	130
2-13	- - -	Residence Motel/Hotel	48 Occ Rms	6.06	0.17	0.43	0.25	0.23	291	8	21	12	11
2-11	710	General Office Building	102.05 KSF	11.01	1.36	0.19	0.25	1.24	1,124	139	19	26	127
2-4	710	General Office Building	4 KSF	11.01	1.36	0.19	0.25	1.24	44	5	1	1	5
2-2	710	General Office Building	4.75 KSF	11.01	1.36	0.19	0.25	1.24	52	6	1	1	6
2-3	934	Fast-Food Restaurant with Drive-Through Window	1.5 KSF	496.12	25.17	24.18	17.60	16.24	744	38	36	26	24
2-3	934	Fast-Food Restaurant with Drive-Through Window	4.2 KSF	496.12	25.17	24.18	17.60	16.24	2,084	106	102	74	68
2-3	912	Drive-in Bank	4 KSF	148.15	6.92	5.43	12.91	12.91	593	28	22	52	52
<b>Total</b>									<b>10,025</b>	<b>407</b>	<b>456</b>	<b>480</b>	<b>473</b>

Notes:

- (1) TAZ = traffic analysis zone. Refer to Figure 3.  
(2) Source: "Trip Generation, 8th Edition, 2008" by the Institute of Transportation Engineers (ITE)  
(3) KSF = thousand square feet  
(4) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.



<p align="center"><b>Table 2</b>  <b>Background Trip Generation Estimates</b>  <b>Westgate at Powers</b></p>	
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TAZ <sup>(1)</sup>	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates <sup>(2)</sup>					Total Trips Generated				
				Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour	
					In	Out	In	Out		In	Out	In	Out
Higher Growth Scenario													
Northcom Business Center													
1	710	General Office Building	659 KSF <sup>(3)</sup>	8.44	1.11	0.15	0.21	1.02	5,560	730	100	137	671
1	760	Research and Development Center	73 KSF	7.05	0.91	0.19	0.14	0.80	516	66	14	10	59
1	932	High Turnover (Sit-Down) Restaurant	8 KSF	12.72	0.60	0.55	0.67	0.43	102	5	4	5	3
Subtotal								6,178	801	118	153	733	
Other Land Uses Adjacent to and North of the site													
3	820	Shopping Center	65 KSF	42.94	0.63	0.40	1.80	1.95	2,791	41	26	117	127
4	110	General Light Industrial	106.8 Acres	51.80	6.23	1.28	1.60	5.66	5,532	666	136	171	605
5	710	General Office Building	200 KSF	8.44	1.11	0.15	0.21	1.02	1,688	222	30	42	204
Higher Growth Scenario Totals								16,189	1,730	310	482	1,669	
Lower Growth Scenario													
Northcom & TAZ 5 @ 67% of High Growth above								4,139	537	79	103	491	
3	820	Shopping Center @ 50 % of High Growth above							1,396	20	13	58	63
5	710	General Office Building @ 67 % of High Growth above							1,131	149	20	28	137
4	117	General Heavy Industrial	18.75 acres	6.75	1.62	0.36	0.45	1.71	127	30	7	8	32
4	140	Manufacturing	30 acres	38.88	6.92	0.52	4.43	3.92	1,166	208	16	133	118
4	150	Warehousing	15.75 acres	57.23	7.22	2.81	3.04	5.65	901	114	44	48	89
4	110	General Light Industrial <sup>(10)</sup>	15.75 Acres	51.80	6.23	1.28	1.60	5.66	816	98	20	25	89
Subtotal								1,844	242	71	81	328	
acreeage at 75% of above													
Lower Growth Scenario Totals								8,509	948	183	271	1,019	

(1) TAZ = Traffic analysis zone. Refer to Figure 3.

(3) KSF = thousand square feet

Source: LSC Transportation Consultants, Inc.



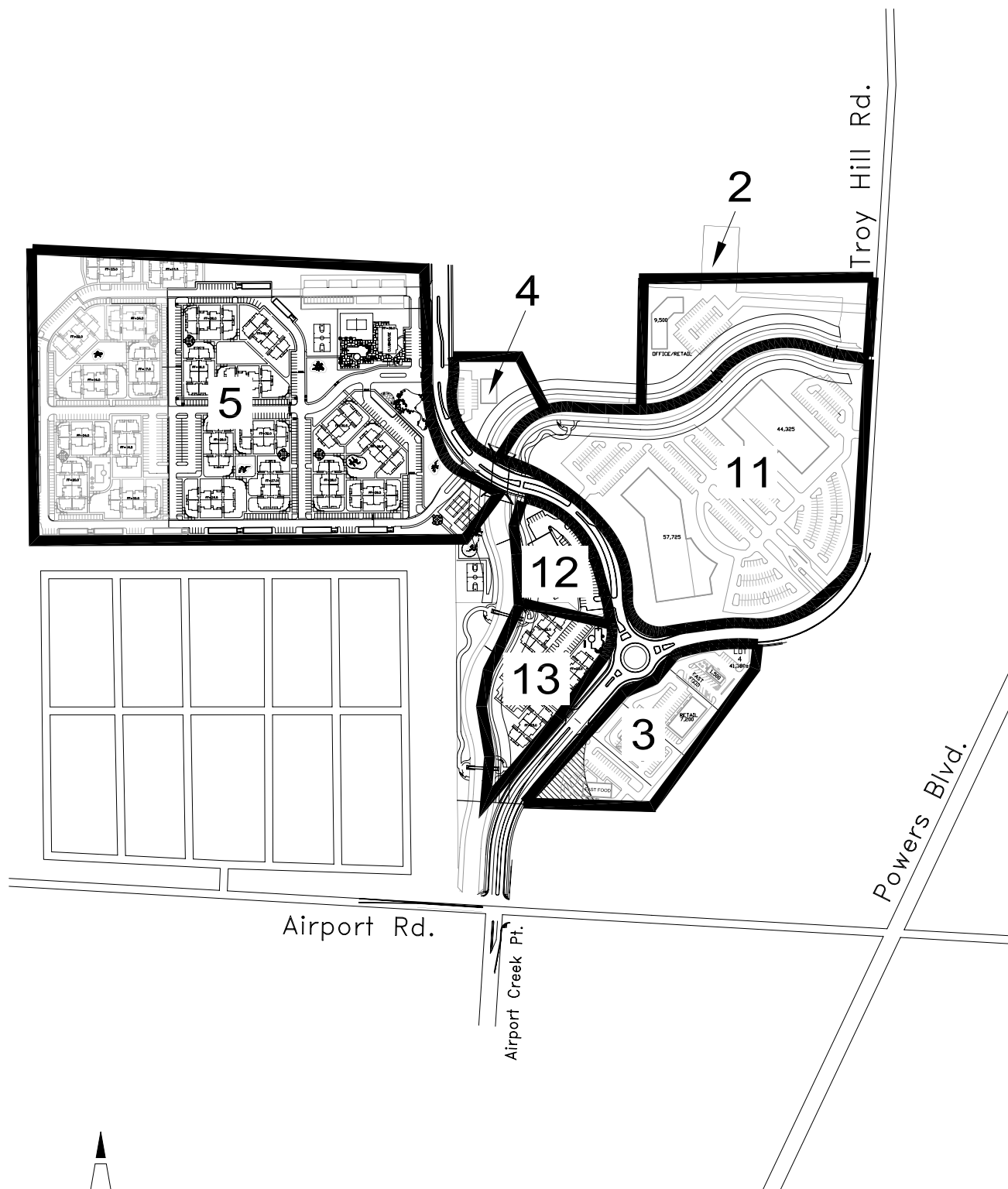
Vicinity Map  
Westgate at Powers

Figure 1  
LSC #124010



Site Plan  
Westgate at Powers Update

Figure 2  
LSC #124010

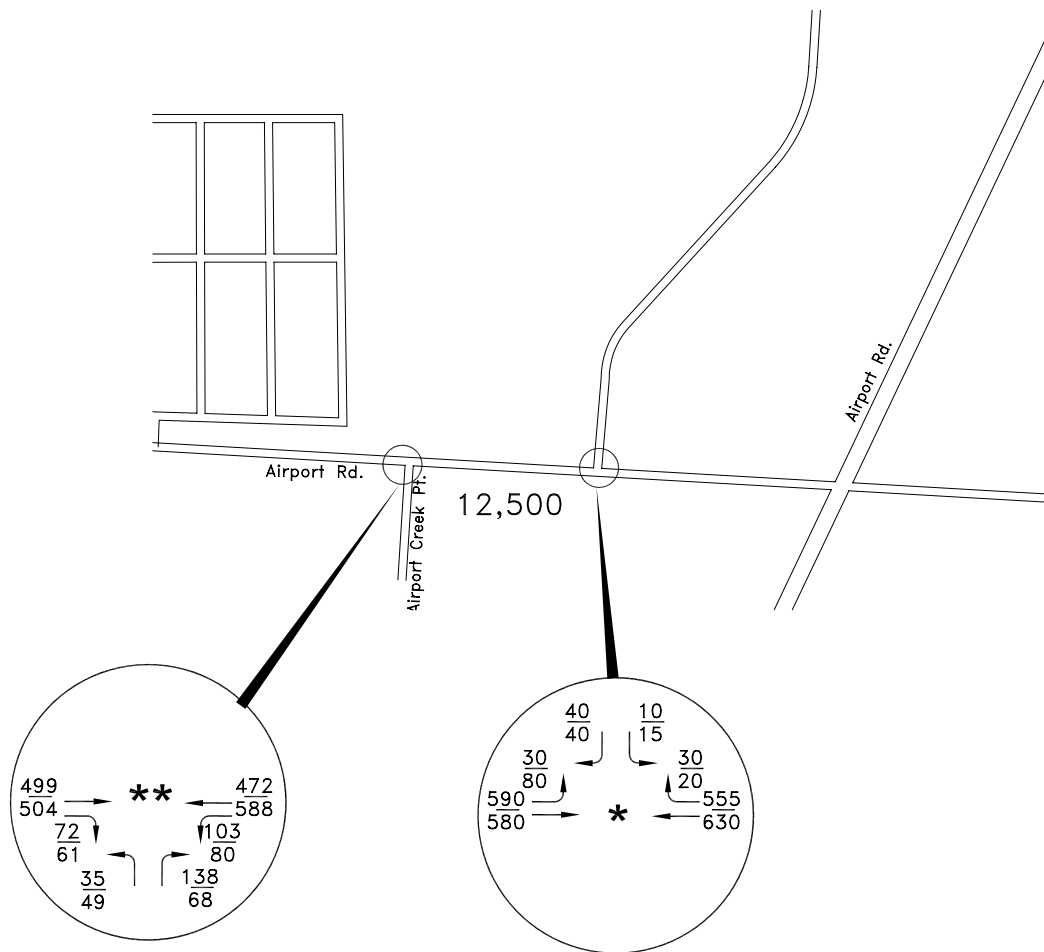


Westgate - Traffic Analysis Zones  
Westgate at Powers Update

Figure 3  
LSC #124010







Legend:

$\frac{xxx}{xxx}$   $\frac{am}{pm}$  - Weekday peak-hour traffic (vehicles per hour)  
 \* Count by LSC 6/08  
 \*\* Count by LSC 1/12

XX,XXX - Average weekday traffic (vehicles per day)

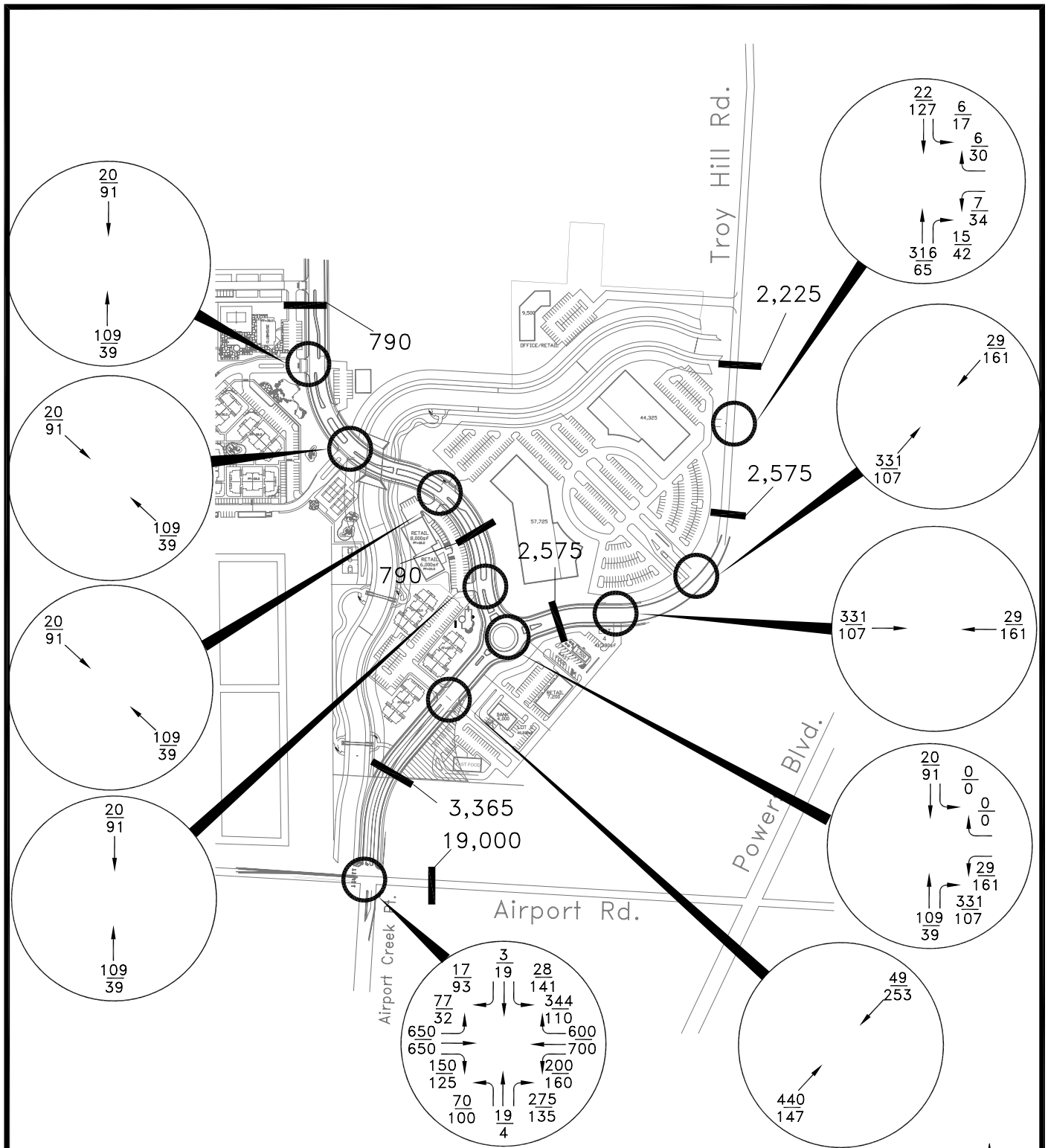


Not to Scale

## Existing Traffic Volumes

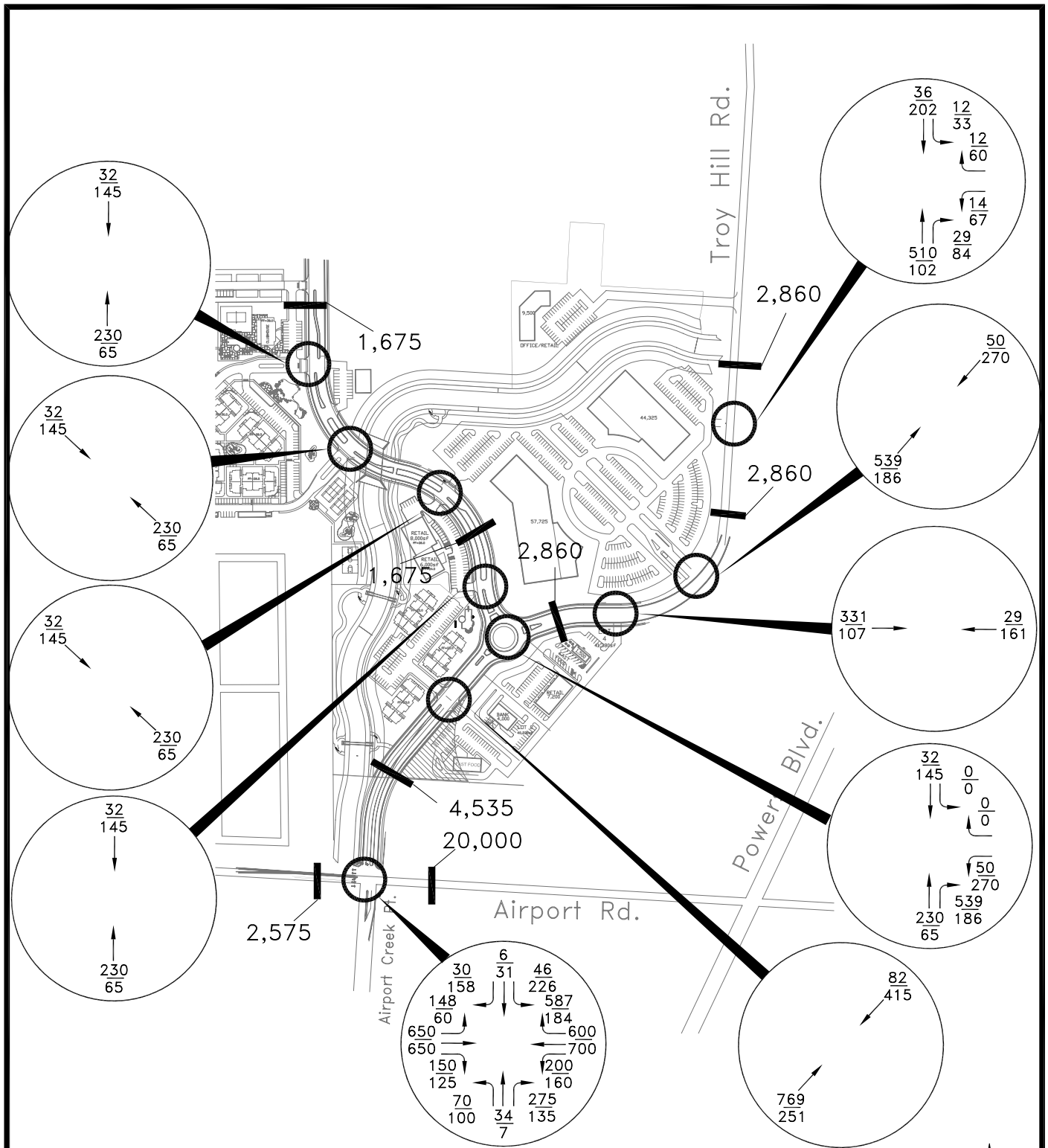
Westgate at Powers Update

Figure 5  
LSC #124010



**Legend:**

xxx am -Weekday peak-hour traffic (vehicles per hour)  
 xxx pm  
 XX,XXX -Average weekday traffic (vehicles per day)



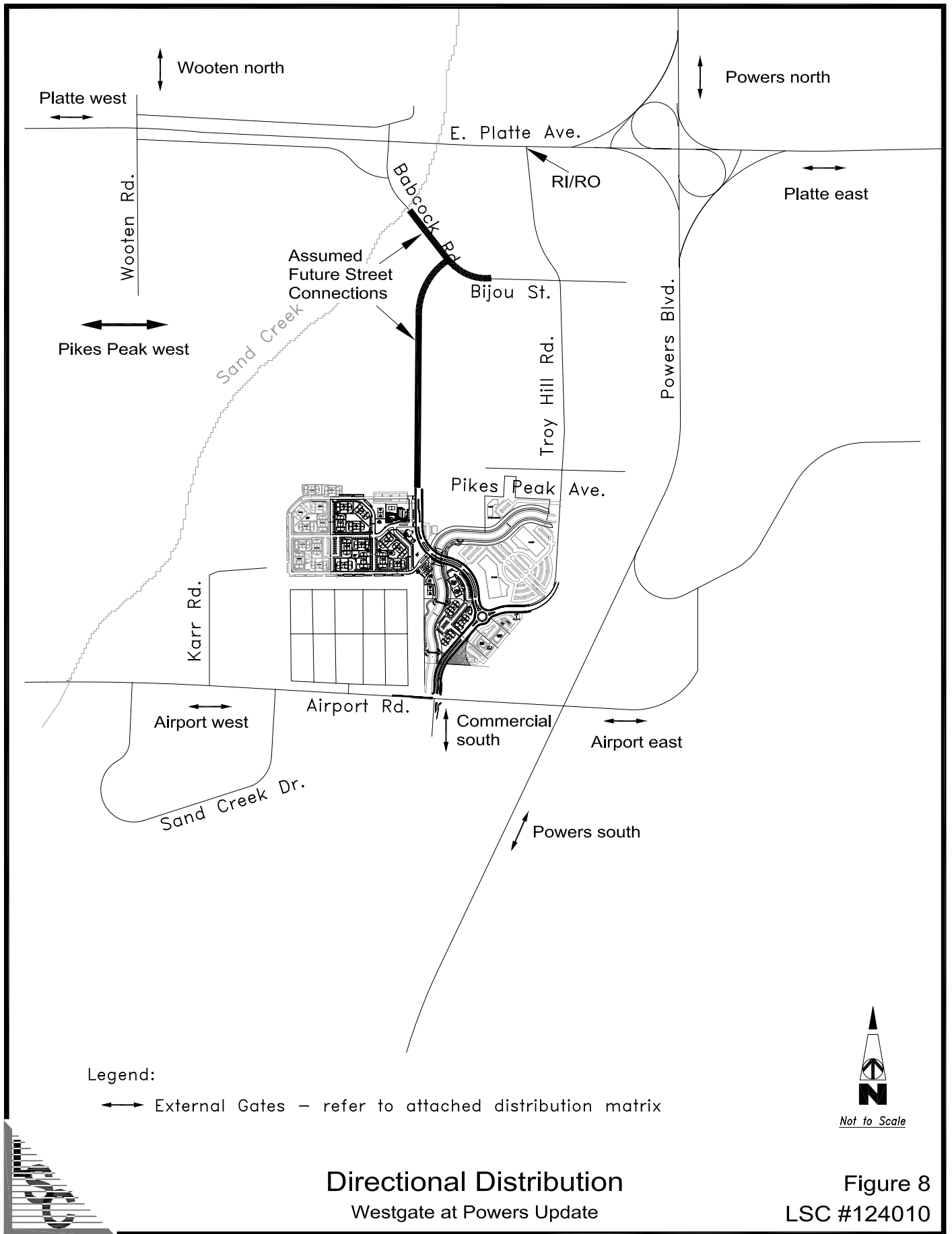
**Legend:**

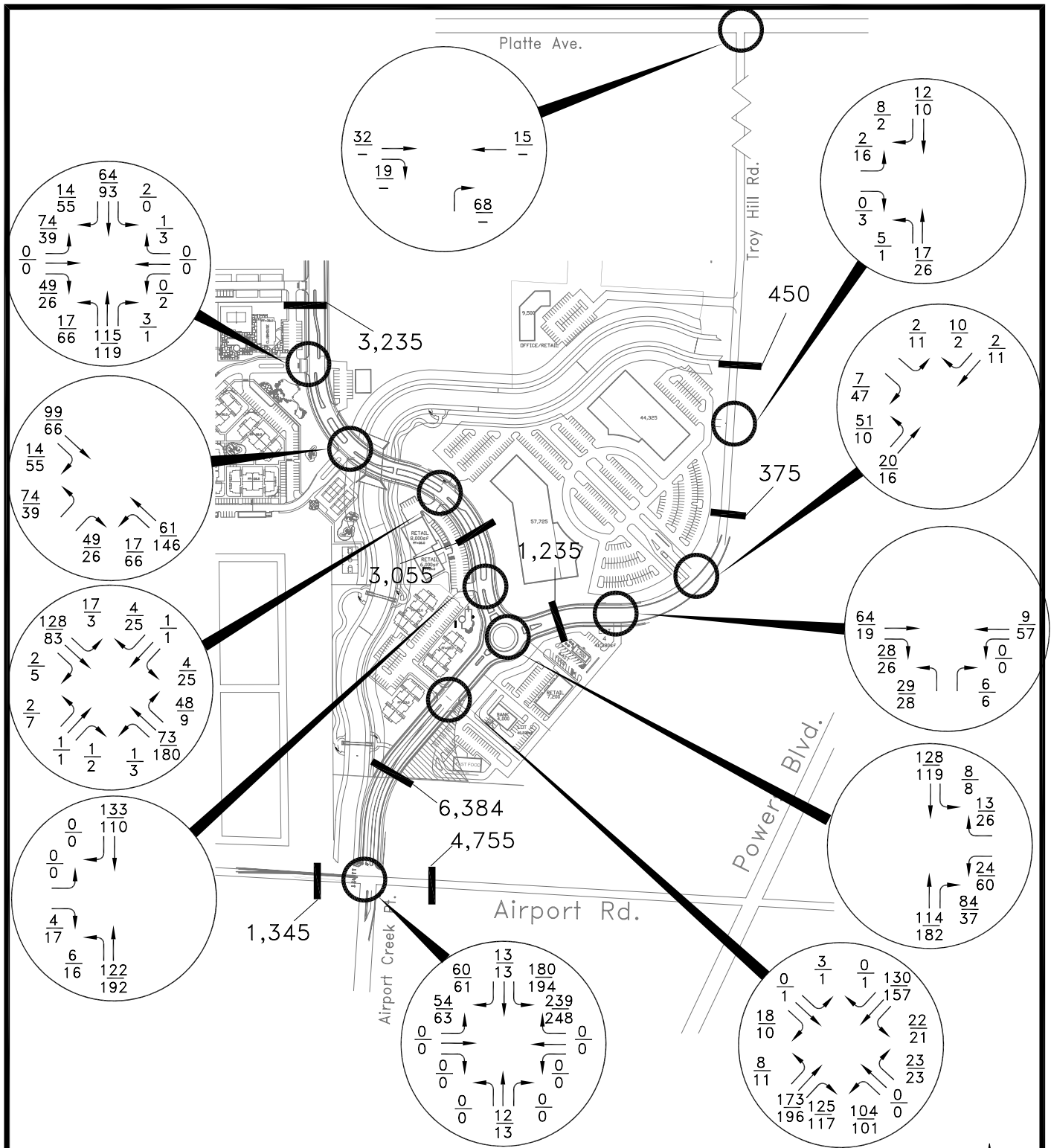
$\frac{xxx}{xxx}$   $\frac{am}{pm}$  -Weekday peak-hour traffic (vehicles per hour)  
 XX,XXX -Average weekday traffic (vehicles per day)



**2031 Higher Growth Background Traffic**  
 Westgate at Powers Update

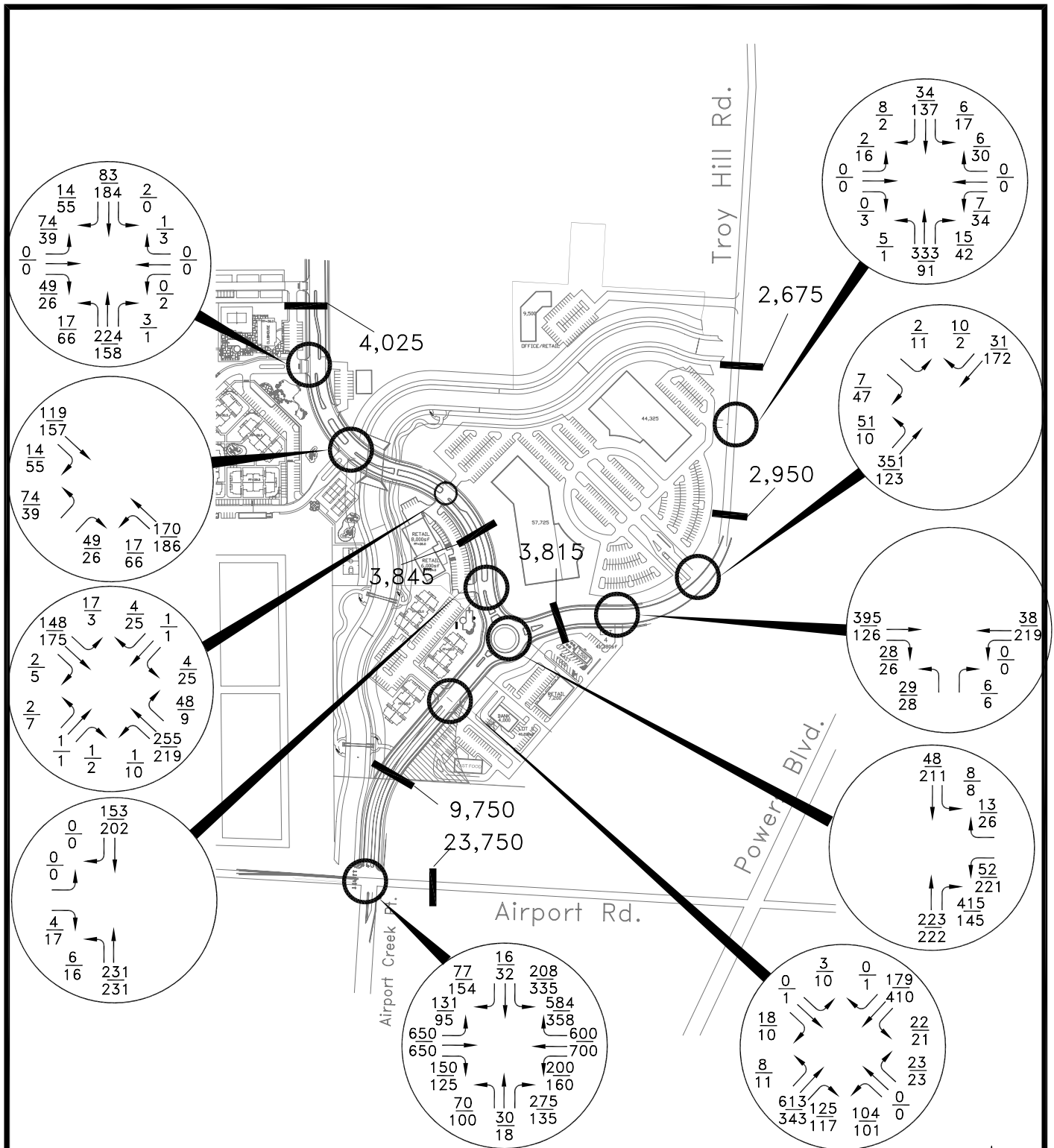


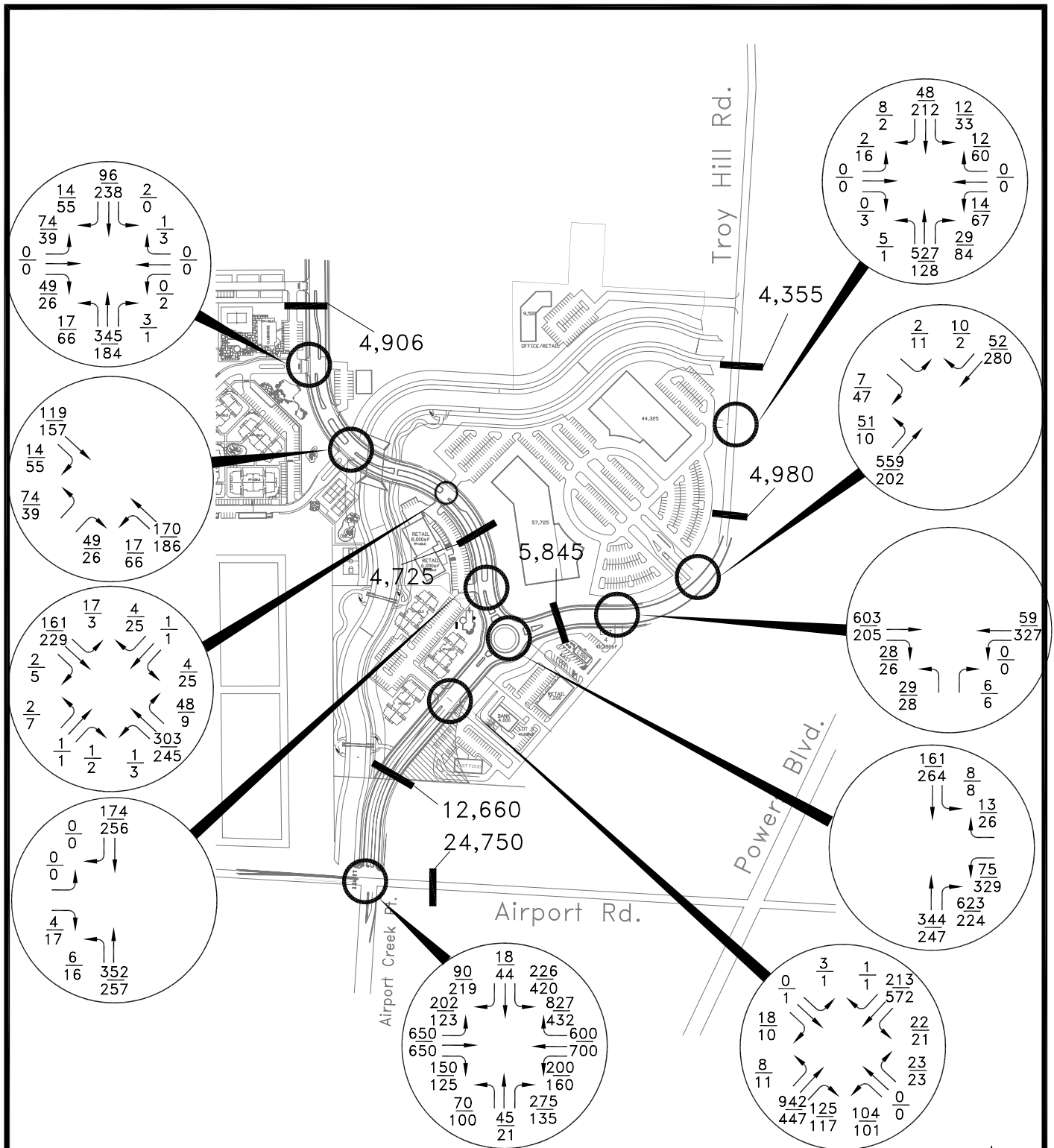


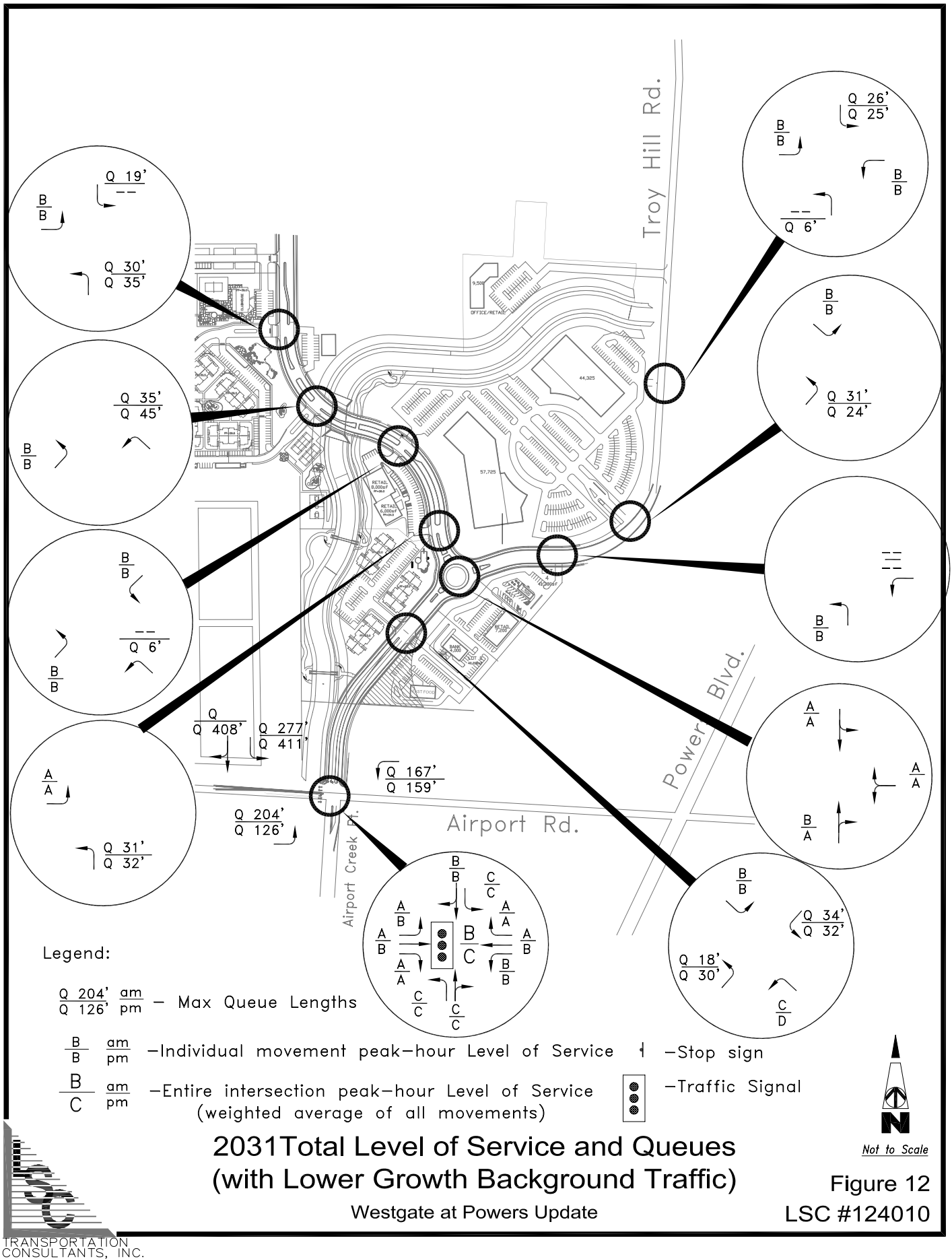


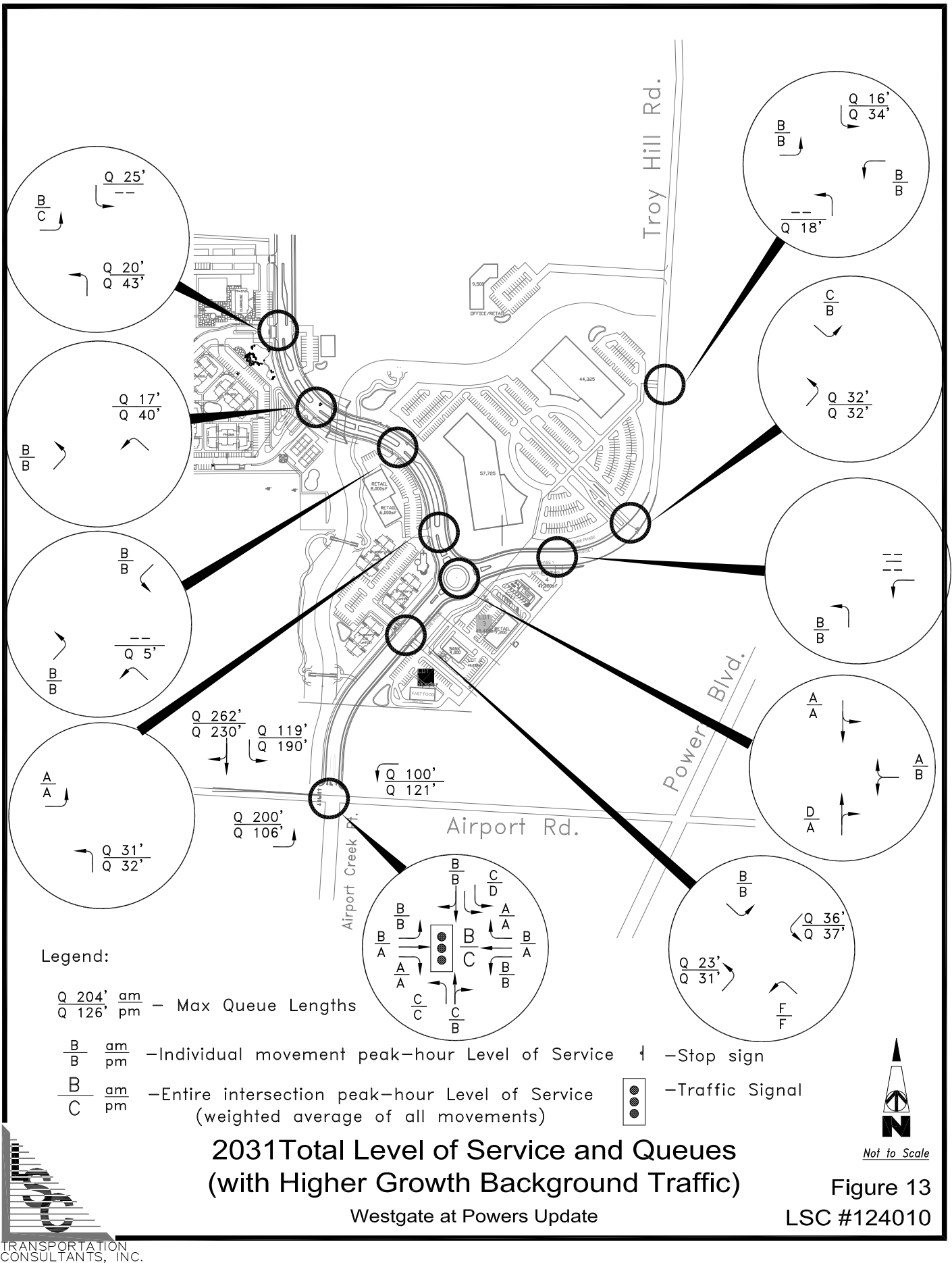
**Long-Term Site-Generated Traffic**  
Westgate at Powers Update

**Figure 9**  
**LSC #124010**









LSC Transportation Consultants, Inc.

516 N. Tejon St.

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(719) 633-2868

LSC Transportation Consultants, Inc.

File Name : Airport Rd-Airport Crk PI pm

Site Code : 00000000

Start Date : 01/04/2012

Page No : 1

Groups Printed- Unshifted

	From North				Airport Rd From East				Airport Creek Pl From South				Airport Rd From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:15 PM	0	0	0	0	0	158	14	0	14	0	13	0	20	131	0	0	350
04:30 PM	0	0	0	0	0	150	16	0	15	0	9	0	13	125	0	0	328
04:45 PM	0	0	0	0	0	154	25	0	20	0	12	0	15	136	0	0	362
Total	0	0	0	0	0	462	55	0	49	0	34	0	48	392	0	0	1040
05:00 PM	0	0	0	0	0	126	25	0	19	0	15	0	13	112	0	0	310
05:15 PM	0	0	0	0	0	144	22	0	20	0	14	0	13	131	0	0	344
05:30 PM	0	0	0	0	0	132	19	0	26	0	18	0	16	123	0	0	334
05:45 PM	0	0	0	0	0	109	17	0	13	0	7	0	11	107	0	0	264
Total	0	0	0	0	0	511	83	0	78	0	54	0	53	473	0	0	1252
06:00 PM	0	0	0	0	0	105	19	0	19	0	14	0	23	93	0	0	273
Grand Total	0	0	0	0	0	1078	157	0	146	0	102	0	124	958	0	0	2565
Apprch %	0.0	0.0	0.0	0.0	0.0	87.3	12.7	0.0	58.9	0.0	41.1	0.0	11.5	88.5	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	42.0	6.1	0.0	5.7	0.0	4.0	0.0	4.8	37.3	0.0	0.0	

LSC Transportation Consultants, Inc.

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Start Date : 01/04/2012

Page No : 2

	From North					Airport Rd From East					Airport Creek Pl From South					Airport Rd From West					
Start Time	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Int. Total
Peak Hour From 04:15 PM to 06:00 PM - Peak 1 of 1																					
Intersecti on	04:15 PM																				
Volume	0	0	0	0	0	0	588	80	0	668	68	0	49	0	117	61	504	0	0	565	1350
Percent	0.0	0.0	0.0	0.0		0.0	88.0	12.0	0.0		58.1	0.0	41.9	0.0		10.8	89.2	0.0	0.0		
04:45 Volume	0	0	0	0	0	0	154	25	0	179	20	0	12	0	32	15	136	0	0	151	362
Peak Factor																					0.932
High Int. Volume	4:00:00 PM					04:45 PM					05:00 PM					04:15 PM					
Peak Factor	0	0	0	0	0	0	154	25	0	179	19	0	15	0	34	20	131	0	0	151	5
						</															



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	From North				Airport Rd From East				Airport Creek PI From South				Airport Rd From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	0	58	16	0	26	0	3	0	8	103	0	0	214
06:45 AM	0	0	0	0	0	96	20	0	19	0	5	0	11	116	0	0	267
Total	0	0	0	0	0	154	36	0	45	0	8	0	19	219	0	0	481
07:00 AM	0	0	0	0	0	86	25	0	38	0	10	0	22	118	0	0	299
07:15 AM	0	0	0	0	0	118	26	0	42	0	8	0	23	133	0	0	350
07:30 AM	0	0	0	0	0	136	31	0	29	0	9	0	12	137	0	0	354
07:45 AM	0	0	0	0	0	132	21	0	29	0	8	0	15	111	0	0	316
Total	0	0	0	0	0	472	103	0	138	0	35	0	72	499	0	0	1319
08:00 AM	0	0	0	0	0	90	24	0	28	0	9	0	9	81	0	0	241
08:15 AM	0	0	0	0	0	101	18	0	23	0	6	0	13	81	0	0	242
Grand Total	0	0	0	0	0	817	181	0	234	0	58	0	113	880	0	0	2283
Apprch %	0.0	0.0	0.0	0.0	0.0	81.9	18.1	0.0	80.1	0.0	19.9	0.0	11.4	88.6	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	35.8	7.9	0.0	10.2	0.0	2.5	0.0	4.9	38.5	0.0	0.0	

LSC Transportation Consultants, Inc.

516 N. Tejon St.  
Colorado Springs, CO  
(719) 633-2868

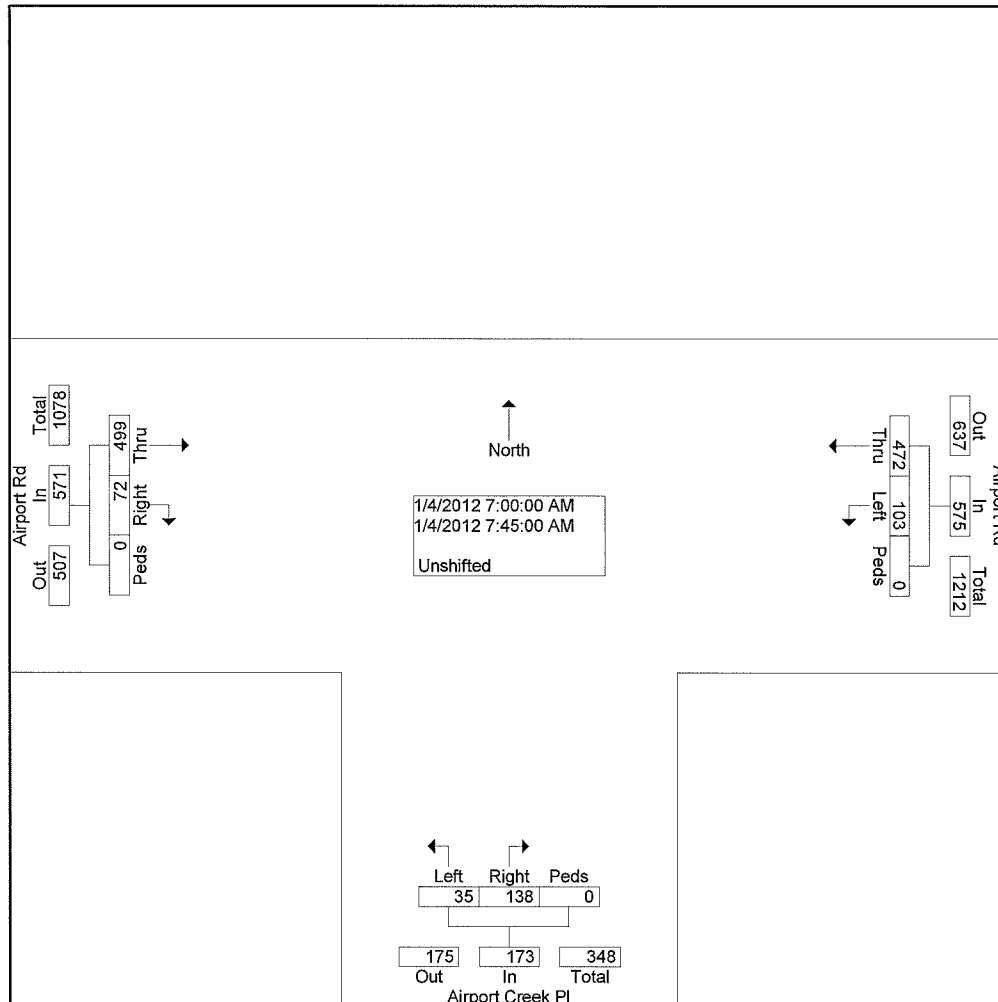
File Name : Airport Rd-Airport Crk PI am

Site Code : 00000000

Start Date : 01/04/2012

Page No : 2

	From North					Airport Rd From East					Airport Creek Pl From South					Airport Rd From West								
Start Time	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Int. Total			
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																								
Intersecti on	07:00 AM																							
Volume	0	0	0	0	0	0	472	103	0	575	138	0	35	0	173	72	499	0	0	571	1319			
Percent	0.0	0.0	0.0	0.0		0.0	82. 1	17. 9	0.0		79. 8	0.0	20. 2	0.0		12. 6	87. 4	0.0	0.0					
07:30 Volume	0	0	0	0	0	0	136	31	0	167	29	0	9	0	38	12	137	0	0	149	354			
Peak Factor																					0.931			
High Int.	6:15:00 AM					07:30 AM					07:15 AM					07:15 AM								
Volume	0	0	0	0	0	0	136	31	0	167	42	0	8	0	50	23	133	0	0	156				
Peak Factor																					0.86 1	0.86 5	0.91 5	



ROUNABOUT REPORT																	
<b>General Information</b>									<b>Site Information</b>								
Analyst	JCH								Intersection	Westgate/Troy Hill							
Agency or Co.	Colorado Springs								E/W Street Name	Troy Hill							
Date Performed	1/27/2012								N/S Street Name								
Time Period	AM Peak								Analysis Year	2032 Lower Growth Scenario							
									Project ID	124010							
Project Description:																	
<b>Volume Adjustment and Site Characteristics</b>																	
	EB				WB				NB				SB				
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
Number of Lanes(N)	0	0	0		0	0	1		0	1	0		0	1	0		
Volume (V), veh/h	0	0	0	0	52	0	13	0	0	223	415	0	0	48	0	0	
Heavy Veh. Adj. ( $f_{HV}$ ), %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Peak Hour Factor (PHF)	0.92	0.92	0.92	1.00	0.92	0.92	0.92	1.00	0.92	0.92	0.92	1.00	0.92	0.92	0.92	1.00	
No. of Pedestrians Crossing Entry	0				0				0				0				
<b>Critical and Follow-Up Headway Adjustment</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Critical Headway (sec)	5.1929	5.1929	5.1929		5.1929	5.1929	5.1929		5.1929	5.1929	5.1929		5.1929	5.1929	5.1929		
Follow-Up Headway (sec)	3.1858	3.1858	3.1858		3.1858	3.1858	3.1858		3.1858	3.1858	3.1858		3.1858	3.1858	3.1858		
<b>Flow Computations</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Circulating Flow ( $V_c$ ), pc/h	110				245				0				57				
Exiting Flow ( $V_{ex}$ ), pc/h	456				0				259				110				
Entry Flow ( $V_e$ ), pc/h		79				71				701				53			
Entry Volume veh/h						70				694				52			
<b>Capacity and v/c Ratios</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Capacity ( $c_{PCE}$ ), pc/h		1012				884				1130				1067			
Capacity (c), veh/h		1002				875				1119				1056			
v/c Ratio (X)						0.08				0.62				0.05			
<b>Delay and Level of Service</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Lane Control Delay (d), s/veh						4.9				11.4				3.8			
Lane LOS						A				B				A			
Lane 95% Queue						0.3				4.5				0.2			
Approach Delay, s/veh					4.88				11.42				3.84				
Approach LOS, s/veh					A				B				A				
Intersection Delay, s/veh	9.98																
Intersection LOS	A																























ROUNABOUT REPORT																	
<b>General Information</b>									<b>Site Information</b>								
Analyst	JCH								Intersection	Westgate/Troy Hill							
Agency or Co.	Colorado Springs								E/W Street Name	Troy Hill							
Date Performed	1/27/2012								N/S Street Name								
Time Period	PM Peak								Analysis Year	2032 Lower Growth Scenario							
									Project ID	124010							
Project Description:																	
<b>Volume Adjustment and Site Characteristics</b>																	
	EB				WB				NB				SB				
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
Number of Lanes(N)	0	0	0		0	0	1		0	1	0		0	1	0		
Volume (V), veh/h	0	0	0	0	221	0	26	0	0	222	145	0	0	8	211	0	
Heavy Veh. Adj. ( $f_{HV}$ ), %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Peak Hour Factor (PHF)	0.92	0.92	0.92	1.00	0.92	0.92	0.92	1.00	0.92	0.92	0.92	1.00	0.92	0.92	0.92	1.00	
No. of Pedestrians Crossing Entry	0				0				0				0				
<b>Critical and Follow-Up Headway Adjustment</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Critical Headway (sec)	5.1929	5.1929	5.1929		5.1929	5.1929	5.1929		5.1929	5.1929	5.1929		5.1929	5.1929	5.1929		
Follow-Up Headway (sec)	3.1858	3.1858	3.1858		3.1858	3.1858	3.1858		3.1858	3.1858	3.1858		3.1858	3.1858	3.1858		
<b>Flow Computations</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Circulating Flow ( $V_c$ ), pc/h	252				244				0				243				
Exiting Flow ( $V_{ex}$ ), pc/h	159				232				273				252				
Entry Flow ( $V_e$ ), pc/h		239				272				403				241			
Entry Volume veh/h						269				399				239			
<b>Capacity and v/c Ratios</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Capacity ( $c_{PCE}$ ), pc/h		878				885				1130				886			
Capacity (c), veh/h		869				876				1119				877			
v/c Ratio (X)						0.31				0.36				0.27			
<b>Delay and Level of Service</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Lane Control Delay (d), s/veh						7.5				6.8				7.0			
Lane LOS						A				A				A			
Lane 95% Queue						1.3				1.6				1.1			
Approach Delay, s/veh					7.46				6.77				6.99				
Approach LOS, s/veh					A				A				A				
Intersection Delay, s/veh	7.03																
Intersection LOS	A																

ROUNABOUT REPORT																	
<b>General Information</b>									<b>Site Information</b>								
Analyst	JCH								Intersection	Westgate/Troy Hill							
Agency or Co.	Colorado Springs								E/W Street Name								
Date Performed	1/27/2012								N/S Street Name								
Time Period	AM Peak								Analysis Year	2032 Higher Growth Scenario							
									Project ID	124010							
Project Description:																	
<b>Volume Adjustment and Site Characteristics</b>																	
	EB				WB				NB				SB				
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
Number of Lanes(N)	0	0	0		0	0	1		0	1	0		0	1	0		
Volume (V), veh/h	0	0	0	0	75	0	13	0	0	344	623	0	8	161	25	0	
Heavy Veh. Adj. ( $f_{HV}$ ), %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
No. of Pedestrians Crossing Entry	0				0				0				0				
<b>Critical and Follow-Up Headway Adjustment</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Critical Headway (sec)	5.1929	5.1929	5.1929		5.1929	5.1929	5.1929		5.1929	5.1929	5.1929		5.1929	5.1929	5.1929		
Follow-Up Headway (sec)	3.1858	3.1858	3.1858		3.1858	3.1858	3.1858		3.1858	3.1858	3.1858		3.1858	3.1858	3.1858		
<b>Flow Computations</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Circulating Flow ( $V_c$ ), pc/h	260				366				9				80				
Exiting Flow ( $V_{ex}$ ), pc/h	671				0				380				251				
Entry Flow ( $V_e$ ), pc/h		178				94				1028				180			
Entry Volume veh/h						93				1018				178			
<b>Capacity and v/c Ratios</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Capacity ( $c_{PCE}$ ), pc/h		871				784				1120				1043			
Capacity (c), veh/h		862				776				1109				1033			
v/c Ratio (X)						0.12				0.92				0.17			
<b>Delay and Level of Service</b>																	
	EB				WB				NB				SB				
	Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		Left	Right	Bypass		
Lane Control Delay (d), s/veh						5.9				30.4				5.1			
Lane LOS						A				D				A			
Lane 95% Queue						0.4				14.7				0.6			
Approach Delay, s/veh					5.87				30.36				5.07				
Approach LOS, s/veh					A				D				A				
Intersection Delay, s/veh	22.67																
Intersection LOS	C																

ROUNABOUT REPORT																	
<b>General Information</b>									<b>Site Information</b>								
Analyst	JCH								Intersection	Westgate/Troy Hill							
Agency or Co.	Colorado Springs								E/W Street Name								
Date Performed	1/27/2012								N/S Street Name								
Time Period	PM Peak								Analysis Year								
									Project ID	124010							
Project Description:																	
<b>Volume Adjustment and Site Characteristics</b>																	
	EB				WB				NB				SB				
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
Number of Lanes(N)	0	0	0		0	0	1		0	1	0		0	1	0		
Volume (V), veh/h	0	0	0	0	329	0	26	0	0	247	224	0	8	264	25	0	
Heavy Veh. Adj. ( $f_{HV}$ ), %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
No. of Pedestrians Crossing Entry	0				0				0				0				
<b>Critical and Follow-Up Headway Adjustment</b>																	
	EB				WB			NB			SB						
	Left	Right	Bypass		Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass				
Critical Headway (sec)	5.1929	5.1929	5.1929		5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929				
Follow-Up Headway (sec)	3.1858	3.1858	3.1858		3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858				
<b>Flow Computations</b>																	
	EB				WB			NB			SB						
	Left	Right	Bypass		Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass				
Circulating Flow ( $V_c$ ), pc/h	640				263			9			350						
Exiting Flow ( $V_{ex}$ ), pc/h	247				0			291			631						
Entry Flow ( $V_e$ ), pc/h		287				378			501			290					
Entry Volume veh/h						374			496			287					
<b>Capacity and v/c Ratios</b>																	
	EB				WB			NB			SB						
	Left	Right	Bypass		Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass				
Capacity ( $c_{PCE}$ ), pc/h		596				869			1120			796					
Capacity (c), veh/h		590				860			1109			788					
v/c Ratio (X)						0.44			0.45			0.36					
<b>Delay and Level of Service</b>																	
	EB				WB			NB			SB						
	Left	Right	Bypass		Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass				
Lane Control Delay (d), s/veh						9.5			8.1			9.0					
Lane LOS						A			A			A					
Lane 95% Queue						2.2			2.4			1.7					
Approach Delay, s/veh					9.55			8.08			8.99						
Approach LOS, s/veh					A			A			A						
Intersection Delay, s/veh	8.82																
Intersection LOS	A																













Lanes, Volumes, Timings  
12: Airport & Westgate Rd

2032 Total Traffic - Lower Growth Scenario  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		200	250		200	120		0	450		0
Storage Lanes	1		1	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.865			0.876	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	1787	1627	0	1787	1648	0
Flt Permitted	0.391			0.365			0.694			0.444		
Satd. Flow (perm)	736	3574	1599	687	3574	1599	1306	1627	0	835	1648	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158			615		256			81	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		992			1216			299			656	
Travel Time (s)		15.0			18.4			6.8			14.9	
Volume (vph)	131	650	150	200	600	584	70	30	275	208	16	77
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	138	684	158	211	632	615	74	32	289	219	17	81
Lane Group Flow (vph)	138	684	158	211	632	615	74	321	0	219	98	0
Turn Type	Perm		Perm	Perm		Perm	pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phases	4	4	4	8	8	8	5	2		1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	17.0	17.0		21.0	21.0	
Total Split (s)	49.0	49.0	49.0	49.0	49.0	49.0	11.0	10.0	0.0	14.0	13.0	0.0
Total Split (%)	67.1%	67.1%	67.1%	67.1%	67.1%	67.1%	15.1%	13.7%	0.0%	19.2%	17.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	45.0	45.0	45.0	45.0	45.0	45.0	13.1	6.2		19.2	11.2	
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.62	0.62	0.18	0.08		0.26	0.15	
v/c Ratio	0.30	0.31	0.15	0.50	0.29	0.50	0.27	0.86		0.63	0.31	
Control Delay	8.8	7.1	1.5	12.9	6.9	2.2	23.2	33.3		31.2	13.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	8.8	7.1	1.5	12.9	6.9	2.2	23.2	33.3		31.2	13.1	
LOS	A	A	A	B	A	A	C	C		C	B	
Approach Delay		6.4			5.8			31.4			25.6	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	26	67	0	47	61	0	25	29		82	7	
Queue Length 95th (ft)	57	94	19	104	86	34	56	#163		#145	48	

Lanes, Volumes, Timings  
12: Airport & Westgate Rd

2032 Total Traffic - Lower Growth Scenario  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)	912			1136			219			576		
Turn Bay Length (ft)	250		200	250		200	120			450		
Base Capacity (vph)	454	2203	1046	423	2203	1222	282	372		350	321	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.30	0.31	0.15	0.50	0.29	0.50	0.26	0.86		0.63	0.31	

Intersection Summary

Area Type: Other

Cycle Length: 73

Actuated Cycle Length: 73

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 11.2

Intersection LOS: B

Intersection Capacity Utilization 72.5%







ICU Level of Service C

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.























Splits and Phases: 12: Airport & Westgate Rd

 ø1	 ø2	 ø4
14 s	10 s	49 s
 ø5	 ø6	 ø8
11 s	13 s	49 s















Lanes, Volumes, Timings  
12: Airport & Westgate Rd

2032 Total Traffic - Lower Growth Scenario  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		200	250		200	120		0	450		0
Storage Lanes	1		1	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.868			0.876	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	1787	1633	0	1787	1648	0
Flt Permitted	0.328			0.353			0.667			0.400		
Satd. Flow (perm)	617	3574	1599	664	3574	1599	1255	1633	0	752	1648	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			377		142			162	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		992			1216			299			656	
Travel Time (s)		15.0			18.4			6.8			14.9	
Volume (vph)	95	650	125	160	700	358	100	18	135	335	32	154
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	100	684	132	168	737	377	105	19	142	353	34	162
Lane Group Flow (vph)	100	684	132	168	737	377	105	161	0	353	196	0
Turn Type	Perm		Perm	Perm		Perm	pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phases	4	4	4	8	8	8	5	2		1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	9.5	17.0		21.0	21.0	
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	9.9	10.0	0.0	18.0	18.1	0.0
Total Split (%)	61.6%	61.6%	61.6%	61.6%	61.6%	61.6%	13.6%	13.7%	0.0%	24.7%	24.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.5	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	41.1	41.1	41.1	41.1	41.1	41.1	12.0	6.1		23.9	16.0	
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.56	0.16	0.08		0.33	0.22	
v/c Ratio	0.29	0.34	0.14	0.45	0.37	0.35	0.42	0.60		0.80	0.40	
Control Delay	11.2	9.2	1.9	14.3	9.5	2.0	24.2	18.9		36.5	9.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	11.2	9.2	1.9	14.3	9.5	2.0	24.2	18.9		36.5	9.9	
LOS	B	A	A	B	A	A	C	B		D	A	
Approach Delay		8.4			7.9			21.0			27.0	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	22	80	0	41	88	0	33	8		132	13	
Queue Length 95th (ft)	51	112	21	91	122	33	68	#73		#227	65	

Lanes, Volumes, Timings  
12: Airport & Westgate Rd

2032 Total Traffic - Lower Growth Scenario  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)	912			1136			219			576		
Turn Bay Length (ft)	250		200	250		200	120			450		
Base Capacity (vph)	348	2011	958	374	2011	1064	250	267		445	488	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.29	0.34	0.14	0.45	0.37	0.35	0.42	0.60		0.79	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 73

Actuated Cycle Length: 73

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 12.7

Intersection LOS: B

Intersection Capacity Utilization 68.0%







ICU Level of Service C

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.
























Queue shown is maximum after two cycles.

Splits and Phases: 12: Airport & Westgate Rd

 ø1	 ø2	 ø4
18 s	10 s	45 s
 ø5	 ø6	 ø8
9.9 s	18.1 s	45 s













Lanes, Volumes, Timings  
12: Airport & Westgate Rd

2032 Total Traffic - Higher Growth Scenario  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		200	250		200	120		0	450		0
Storage Lanes	1		1	1		1	1		0	2		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.871			0.875	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	1787	1639	0	3467	1646	0
Flt Permitted	0.358			0.330			0.684			0.950		
Satd. Flow (perm)	673	3574	1599	621	3574	1599	1287	1639	0	3467	1646	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158			676		272			95	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		992			1216			299			656	
Travel Time (s)		15.0			18.4			6.8			14.9	
Volume (vph)	202	650	150	200	600	827	70	45	275	226	18	90
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	213	684	158	211	632	871	74	47	289	238	19	95
Lane Group Flow (vph)	213	684	158	211	632	871	74	336	0	238	114	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2					
Detector Phases	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.5	22.0	22.0	9.5	22.0	22.0	17.0	17.0		21.0	21.0	
Total Split (s)	11.0	39.0	39.0	11.0	39.0	39.0	10.0	11.0	0.0	12.0	13.0	0.0
Total Split (%)	15.1%	53.4%	53.4%	15.1%	53.4%	53.4%	13.7%	15.1%	0.0%	16.4%	17.8%	0.0%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	42.0	35.0	35.0	42.0	35.0	35.0	13.0	7.0		8.0	11.0	
Actuated g/C Ratio	0.58	0.48	0.48	0.58	0.48	0.48	0.18	0.10		0.11	0.15	
v/c Ratio	0.43	0.40	0.19	0.45	0.37	0.78	0.27	0.83		0.63	0.35	
Control Delay	8.7	13.1	2.6	9.1	12.8	9.3	24.0	27.9		39.0	12.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	8.7	13.1	2.6	9.1	12.8	9.3	24.0	27.9		39.0	12.9	
LOS	A	B	A	A	B	A	C	C		D	B	
Approach Delay		10.7			10.6			27.2			30.6	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	35	98	0	35	90	49	26	28		54	8	
Queue Length 95th (ft)	62	137	28	61	126	202	57	#157		88	51	

Lanes, Volumes, Timings  
12: Airport & Westgate Rd

2032 Total Traffic - Higher Growth Scenario  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)	912			1136			219			576		
Turn Bay Length (ft)	250		200	250		200	120			450		
Base Capacity (vph)	494	1714	849	469	1714	1119	270	403		380	329	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.43	0.40	0.19	0.45	0.37	0.78	0.27	0.83		0.63	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 73

Actuated Cycle Length: 73

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 14.5

Intersection LOS: B

Intersection Capacity Utilization 91.7%









ICU Level of Service F

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.























Queue shown is maximum after two cycles.

Splits and Phases: 12: Airport & Westgate Rd

 ø1	 ø2	 ø3	 ø4
12 s	11 s	11 s	39 s
 ø5	 ø6	 ø7	 ø8
10 s	13 s	11 s	39 s













Lanes, Volumes, Timings  
12: Airport & Westgate Rd

2032 Total Traffic - High Growth Scenario  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		200	250		200	120		0	450		0
Storage Lanes	1		1	1		1	1		0	2		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.870			0.875	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	1787	1637	0	3467	1646	0
Flt Permitted	0.287			0.315			0.571			0.950		
Satd. Flow (perm)	540	3574	1599	593	3574	1599	1074	1637	0	3467	1646	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			455		142			231	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		992			1216			299			656	
Travel Time (s)		15.0			18.4			6.8			14.9	
Volume (vph)	123	650	125	160	700	432	100	21	135	420	44	219
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	129	684	132	168	737	455	105	22	142	442	46	231
Lane Group Flow (vph)	129	684	132	168	737	455	105	164	0	442	277	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2					
Detector Phases	7	4	4	3	8	8	5	2		1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.5	22.0	22.0	9.5	22.0	22.0	9.5	17.0		21.0	21.0	
Total Split (s)	10.0	36.0	36.0	10.0	36.0	36.0	10.0	11.0	0.0	16.0	17.0	0.0
Total Split (%)	13.7%	49.3%	49.3%	13.7%	49.3%	49.3%	13.7%	15.1%	0.0%	21.9%	23.3%	0.0%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	3.5	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	38.2	32.0	32.0	39.0	34.1	34.1	12.8	6.8		12.0	14.8	
Actuated g/C Ratio	0.52	0.44	0.44	0.53	0.47	0.47	0.18	0.09		0.16	0.20	
v/c Ratio	0.33	0.44	0.17	0.40	0.44	0.46	0.43	0.58		0.78	0.54	
Control Delay	9.7	15.3	3.2	10.4	14.8	3.1	24.8	17.5		40.3	10.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	9.7	15.3	3.2	10.4	14.8	3.1	24.8	17.5		40.3	10.9	
LOS	A	B	A	B	B	A	C	B		D	B	
Approach Delay		12.9			10.3			20.4			29.0	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	24	108	0	32	118	0	34	9		100	18	
Queue Length 95th (ft)	47	151	28	59	164	48	69	63		#163	84	

Lanes, Volumes, Timings  
12: Airport & Westgate Rd

2032 Total Traffic - High Growth Scenario  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		912			1136			219			576	
Turn Bay Length (ft)	250		200	250		200	120			450		
Base Capacity (vph)	389	1567	775	419	1671	989	247	285		570	519	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.33	0.44	0.17	0.40	0.44	0.46	0.43	0.58		0.78	0.53	

Intersection Summary

Area Type: Other

Cycle Length: 73

Actuated Cycle Length: 73

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 15.9

Intersection LOS: B

Intersection Capacity Utilization 61.6%









ICU Level of Service B

Analysis Period (min) 15




















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.











Splits and Phases: 12: Airport & Westgate Rd

 ø1	 ø2	 ø3	 ø4
16 s	11 s	10 s	36 s
 ø5	 ø6	 ø7	 ø8
10 s	17 s	10 s	36 s

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 16: North Office Park Access & Troy Hill AM Peak Hour





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	0	0	7	0	6	5	333	15	6	34	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	0	0	7	0	6	5	351	16	6	36	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						6						
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	417	429	40	417	426	358	44			366		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	417	429	40	417	426	358	44			366		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	100			99		
cM capacity (veh/h)	538	514	1031	542	516	686	1564			1192		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	2	14	5	366	6	44						
Volume Left	2	7	5	0	6	0						
Volume Right	0	6	0	16	0	8						
cSH	538	1007	1564	1700	1192	1700						
Volume to Capacity	0.00	0.01	0.00	0.22	0.01	0.03						
Queue Length 95th (ft)	0	1	0	0	0	0						
Control Delay (s)	11.7	11.1	7.3	0.0	8.0	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	11.7	11.1	0.1		1.0							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			35.1%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 18: Troy Hill & Commercial Access - N AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	395	28	0	38	29	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	416	29	0	40	31	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			445		471	431
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			445		471	431
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		94	99
cM capacity (veh/h)			1115		552	625
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	445	0	40	37		
Volume Left	0	0	0	31		
Volume Right	29	0	0	6		
cSH	1700	1700	1700	563		
Volume to Capacity	0.26	0.00	0.02	0.07		
Queue Length 95th (ft)	0	0	0	5		
Control Delay (s)	0.0	0.0	0.0	11.8		
Lane LOS				B		
Approach Delay (s)	0.0	0.0		11.8		
Approach LOS				B		
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			32.5%		ICU Level of Service	A
Analysis Period (min)			15			













HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 20: Hotel Access & Westgate Rd AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	0	18	104	0	23	8	613	125	22	179	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	3	0	19	109	0	24	8	645	132	23	188	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh												
Upstream signal (ft)								656				
pX, platoon unblocked												
vC, conflicting volume	897	1028	188	916	897	645	188			777		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	897	1028	188	916	897	645	188			777		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	98	55	100	95	99			97		
cM capacity (veh/h)	241	226	854	241	270	472	1386			840		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2					
Volume Total	22	134	8	645	132	23	188					
Volume Left	3	109	8	0	0	23	0					
Volume Right	19	24	0	0	132	0	0					
cSH	626	295	1386	1700	1700	840	1700					
Volume to Capacity	0.04	0.45	0.01	0.38	0.08	0.03	0.11					
Queue Length 95th (ft)	3	56	0	0	0	2	0					
Control Delay (s)	11.0	28.4	7.6	0.0	0.0	9.4	0.0					
Lane LOS	B	D	A			A						
Approach Delay (s)	11.0	28.4	0.1			1.0						
Approach LOS	B	D										
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			51.4%		ICU Level of Service				A			
Analysis Period (min)			15									



















# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario

## 21: Apt Access - South & Westgate

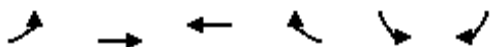
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	74	49	17	170	119	14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	78	52	18	179	125	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	347	133	140			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	347	133	140			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	94	99			
cM capacity (veh/h)	641	917	1443			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	129	18	179	140		
Volume Left	78	18	0	0		
Volume Right	52	0	0	15		
cSH	729	1443	1700	1700		
Volume to Capacity	0.18	0.01	0.11	0.08		
Queue Length 95th (ft)	16	1	0	0		
Control Delay (s)	11.0	7.5	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.0	0.7		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		3.3				
Intersection Capacity Utilization		27.5%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 30: Retail Access - N & Westgate AM Peak Hour




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	1	1	4	1	4	1	255	48	17	148	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	1	1	4	1	4	1	268	51	18	156	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	468	514	157	489	489	294	158			319		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	468	514	157	489	489	294	158			319		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	100			99		
cM capacity (veh/h)	496	457	889	482	472	746	1422			1241		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	9	1	319	18	158						
Volume Left	2	4	1	0	18	0						
Volume Right	1	4	0	51	0	2						
cSH	545	570	1422	1700	1241	1700						
Volume to Capacity	0.01	0.02	0.00	0.19	0.01	0.09						
Queue Length 95th (ft)	1	1	0	0	1	0						
Control Delay (s)	11.7	11.4	7.5	0.0	7.9	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	11.7	11.4	0.0		0.8							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization		26.3%		ICU Level of Service					A			
Analysis Period (min)		15										

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 34: Troy Hill & Office Access S AM Peak Hour













Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	51	351	31	10	2	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	54	369	33	11	2	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	43				515	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43				515	38
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	99
cM capacity (veh/h)	1565				502	1034
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	54	369	43	2	7	
Volume Left	54	0	0	2	0	
Volume Right	0	0	11	0	7	
cSH	1565	1700	1700	502	1034	
Volume to Capacity	0.03	0.22	0.03	0.00	0.01	
Queue Length 95th (ft)	3	0	0	0	1	
Control Delay (s)	7.4	0.0	0.0	12.2	8.5	
Lane LOS	A			B	A	
Approach Delay (s)	0.9		0.0	9.3		
Approach LOS				A		
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			28.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 42: Apt Access - Middle & Westgate AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	74	0	49	0	0	1	17	224	3	2	83	14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	78	0	52	0	0	1	18	236	3	2	87	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	372	374	95	416	379	237	102			239		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	372	374	95	416	379	237	102			239		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	95	100	100	100	99			100		
cM capacity (veh/h)	578	549	962	512	545	802	1490			1328		
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	78	52	1	18	239	2	102					
Volume Left	78	0	0	18	0	2	0					
Volume Right	0	52	1	0	3	0	15					
cSH	578	962	802	1490	1700	1328	1700					
Volume to Capacity	0.13	0.05	0.00	0.01	0.14	0.00	0.06					
Queue Length 95th (ft)	12	4	0	1	0	0	0					
Control Delay (s)	12.2	9.0	9.5	7.4	0.0	7.7	0.0					
Lane LOS	B	A	A	A		A						
Approach Delay (s)	10.9		9.5	0.5		0.2						
Approach LOS	B		A									
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			29.4%			ICU Level of Service				A		
Analysis Period (min)			15									




















HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 56: Retail Access - S & Westgate AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	1	4	6	231	153	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	4	6	243	161	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	417	161	161			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	417	161	161			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	590	884	1418			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	5	6	243	161		
Volume Left	1	6	0	0		
Volume Right	4	0	0	0		
cSH	804	1418	1700	1700		
Volume to Capacity	0.01	0.00	0.14	0.09		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	9.5	7.6	0.0	0.0		
Lane LOS	A	A				
Approach Delay (s)	9.5	0.2		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		22.2%		ICU Level of Service	A	
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario

## 16: North Office Park Access & Troy Hill

PM Peak Hour






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	16	0	3	34	0	30	1	91	42	17	137	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	0	3	36	0	32	1	96	44	18	144	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						6						
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	295	323	145	303	302	118	146			140		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	295	323	145	303	302	118	146			140		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	100	94	100	97	100			99		
cM capacity (veh/h)	629	587	902	640	603	934	1436			1443		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	20	67	1	140	18	146						
Volume Left	17	36	1	0	18	0						
Volume Right	3	32	0	44	0	2						
cSH	660	1205	1436	1700	1443	1700						
Volume to Capacity	0.03	0.06	0.00	0.08	0.01	0.09						
Queue Length 95th (ft)	2	4	0	0	1	0						
Control Delay (s)	10.6	10.0	7.5	0.0	7.5	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	10.6	10.0	0.1		0.8							
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			28.4%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 18: Troy Hill & Commercial Access - N PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱		↰	↱	↰↱	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	126	26	0	219	28	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	133	27	0	231	29	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			160		377	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			160		377	146
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	99
cM capacity (veh/h)			1419		625	901
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	160	0	231	36		
Volume Left	0	0	0	29		
Volume Right	27	0	0	6		
cSH	1700	1700	1700	660		
Volume to Capacity	0.09	0.00	0.14	0.05		
Queue Length 95th (ft)	0	0	0	4		
Control Delay (s)	0.0	0.0	0.0	10.8		
Lane LOS				B		
Approach Delay (s)	0.0	0.0		10.8		
Approach LOS				B		
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			21.5%		ICU Level of Service	A
Analysis Period (min)			15			













HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 20: Hotel Access & Westgate Rd PM Peak Hour



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	0	10	101	0	23	11	343	117	21	410	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	0	11	106	0	24	12	361	123	22	432	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh												
Upstream signal (ft)								656				
pX, platoon unblocked												
vC, conflicting volume	861	984	432	871	861	361	433			484		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	861	984	432	871	861	361	433			484		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	59	100	96	99			98		
cM capacity (veh/h)	260	241	623	261	284	684	1127			1079		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2					
Volume Total	12	131	12	361	123	22	433					
Volume Left	1	106	12	0	0	22	0					
Volume Right	11	24	0	0	123	0	1					
cSH	553	320	1127	1700	1700	1079	1700					
Volume to Capacity	0.02	0.41	0.01	0.21	0.07	0.02	0.25					
Queue Length 95th (ft)	2	48	1	0	0	2	0					
Control Delay (s)	11.6	24.7	8.2	0.0	0.0	8.4	0.0					
Lane LOS	B	C	A			A						
Approach Delay (s)	11.6	24.7	0.2			0.4						
Approach LOS	B	C										
Intersection Summary												
Average Delay			3.3									
Intersection Capacity Utilization			40.6%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario 21: Apt Access - South & Westgate

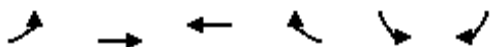
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	39	26	66	186	157	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	41	27	69	196	165	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	529	194	223			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	529	194	223			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	97	95			
cM capacity (veh/h)	484	847	1346			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	68	69	196	223		
Volume Left	41	69	0	0		
Volume Right	27	0	0	58		
cSH	584	1346	1700	1700		
Volume to Capacity	0.12	0.05	0.12	0.13		
Queue Length 95th (ft)	10	4	0	0		
Control Delay (s)	12.0	7.8	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.0	2.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		2.4				
Intersection Capacity Utilization		29.0%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 30: Retail Access - N & Westgate PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	1	2	25	1	25	10	219	9	3	175	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	1	2	26	1	26	11	231	9	3	184	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	472	454	187	449	452	235	189			240		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	472	454	187	449	452	235	189			240		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	95	100	97	99			100		
cM capacity (veh/h)	482	497	855	514	498	804	1384			1327		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	11	54	11	240	3	189						
Volume Left	7	26	11	0	3	0						
Volume Right	2	26	0	9	0	5						
cSH	530	624	1384	1700	1327	1700						
Volume to Capacity	0.02	0.09	0.01	0.14	0.00	0.11						
Queue Length 95th (ft)	2	7	1	0	0	0						
Control Delay (s)	11.9	11.3	7.6	0.0	7.7	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	11.9	11.3	0.3		0.1							
Approach LOS	B	B										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			22.1%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario  
 34: Troy Hill & Office Access S PM Peak Hour






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↱		↰	↱
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	10	123	172	2	11	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	129	181	2	12	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	183				333	182
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	183				333	182
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	94
cM capacity (veh/h)	1392				657	860
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	11	129	183	12	49	
Volume Left	11	0	0	12	0	
Volume Right	0	0	2	0	49	
cSH	1392	1700	1700	657	860	
Volume to Capacity	0.01	0.08	0.11	0.02	0.06	
Queue Length 95th (ft)	1	0	0	1	5	
Control Delay (s)	7.6	0.0	0.0	10.6	9.4	
Lane LOS	A			B	A	
Approach Delay (s)	0.6		0.0	9.7		
Approach LOS				A		
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			19.2%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario

## 42: Apt Access - Middle & Westgate











PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	39	0	26	2	0	3	66	158	1	0	184	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	41	0	27	2	0	3	69	166	1	0	194	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	531	529	223	527	557	167	252			167		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	531	529	223	527	557	167	252			167		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	100	97	100	100	100	95			100		
cM capacity (veh/h)	439	431	817	428	415	877	1314			1410		
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	41	27	5	69	167	0	252					
Volume Left	41	0	2	69	0	0	0					
Volume Right	0	27	3	0	1	0	58					
cSH	439	817	618	1314	1700	1700	1700					
Volume to Capacity	0.09	0.03	0.01	0.05	0.10	0.00	0.15					
Queue Length 95th (ft)	8	3	1	4	0	0	0					
Control Delay (s)	14.1	9.6	10.9	7.9	0.0	0.0	0.0					
Lane LOS	B	A	B	A								
Approach Delay (s)	12.3		10.9	2.3		0.0						
Approach LOS	B		B									
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			31.3%		ICU Level of Service			A				
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Lower Growth Scenario

## 56: Retail Access - S & Westgate




















PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	17	16	231	202	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	18	17	243	213	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	489	213	213			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489	213	213			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	531	827	1358			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	18	17	243	213		
Volume Left	0	17	0	0		
Volume Right	18	0	0	0		
cSH	827	1358	1700	1700		
Volume to Capacity	0.02	0.01	0.14	0.13		
Queue Length 95th (ft)	2	1	0	0		
Control Delay (s)	9.4	7.7	0.0	0.0		
Lane LOS	A	A				
Approach Delay (s)	9.4	0.5		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		23.3%		ICU Level of Service	A	
Analysis Period (min)		15				











# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Higher Growth Scenario

## 16: North Office Park Access & Troy Hill

AM Peak Hour






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	0	0	14	0	12	5	527	29	12	48	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	0	0	15	0	13	5	555	31	13	51	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						6						
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	652	676	55	656	665	570	59			585		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	652	676	55	656	665	570	59			585		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	96	100	98	100			99		
cM capacity (veh/h)	367	369	1012	374	375	521	1545			989		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	2	27	5	585	13	59						
Volume Left	2	15	5	0	13	0						
Volume Right	0	13	0	31	0	8						
cSH	367	694	1545	1700	989	1700						
Volume to Capacity	0.01	0.04	0.00	0.34	0.01	0.03						
Queue Length 95th (ft)	0	3	0	0	1	0						
Control Delay (s)	14.9	13.7	7.3	0.0	8.7	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	14.9	13.7	0.1		1.5							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			46.2%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Higher Growth Scenario  
 18: Troy Hill & Commercial Access - N AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	603	28	0	59	29	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	635	29	0	62	31	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			664		712	649
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			664		712	649
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		92	99
cM capacity (veh/h)			925		399	469
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	664	0	62	37		
Volume Left	0	0	0	31		
Volume Right	29	0	0	6		
cSH	1700	1700	1700	410		
Volume to Capacity	0.39	0.00	0.04	0.09		
Queue Length 95th (ft)	0	0	0	7		
Control Delay (s)	0.0	0.0	0.0	14.7		
Lane LOS				B		
Approach Delay (s)	0.0	0.0		14.7		
Approach LOS				B		
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			43.4%		ICU Level of Service	A
Analysis Period (min)			15			













HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Higher Growth Scenario  
 20: Hotel Access & Westgate Rd AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	0	18	104	0	23	8	942	125	22	213	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	3	0	19	109	0	24	8	992	132	23	224	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh												
Upstream signal (ft)								656				
pX, platoon unblocked	1.00	1.00		1.00	1.00	1.00				1.00		
vC, conflicting volume	1279	1411	224	1298	1279	992	224			1123		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1280	1412	224	1299	1280	992	224			1124		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	98	16	100	92	99			96		
cM capacity (veh/h)	126	131	815	130	158	297	1344			619		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2					
Volume Total	22	134	8	992	132	23	224					
Volume Left	3	109	8	0	0	23	0					
Volume Right	19	24	0	0	132	0	0					
cSH	458	152	1344	1700	1700	619	1700					
Volume to Capacity	0.05	0.88	0.01	0.58	0.08	0.04	0.13					
Queue Length 95th (ft)	4	151	0	0	0	3	0					
Control Delay (s)	13.3	102.2	7.7	0.0	0.0	11.0	0.0					
Lane LOS	B	F	A			B						
Approach Delay (s)	13.3	102.2	0.1			1.0						
Approach LOS	B	F										
Intersection Summary												
Average Delay			9.3									
Intersection Capacity Utilization			68.7%		ICU Level of Service				C			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Higher Growth Scenario

## 21: Apt Access - South & Westgate



















AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	74	49	17	291	131	14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	78	52	18	306	138	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	487	145	153			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	487	145	153			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	94	99			
cM capacity (veh/h)	533	902	1428			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	129	18	306	153		
Volume Left	78	18	0	0		
Volume Right	52	0	0	15		
cSH	636	1428	1700	1700		
Volume to Capacity	0.20	0.01	0.18	0.09		
Queue Length 95th (ft)	19	1	0	0		
Control Delay (s)	12.1	7.6	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.1	0.4		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		2.8				
Intersection Capacity Utilization		29.1%		ICU Level of Service	A	
Analysis Period (min)		15				

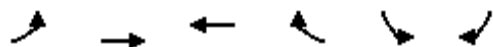
# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Higher Growth Scenario

## 30: Retail Access - N & Westgate

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	1	1	4	1	4	1	303	48	17	161	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	1	1	4	1	4	1	319	51	18	169	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	532	578	171	553	554	344	172			369		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	532	578	171	553	554	344	172			369		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	100			98		
cM capacity (veh/h)	449	420	873	437	434	699	1405			1189		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	9	1	369	18	172						
Volume Left	2	4	1	0	18	0						
Volume Right	1	4	0	51	0	2						
cSH	501	524	1405	1700	1189	1700						
Volume to Capacity	0.01	0.02	0.00	0.22	0.02	0.10						
Queue Length 95th (ft)	1	1	0	0	1	0						
Control Delay (s)	12.2	12.0	7.6	0.0	8.1	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	12.2	12.0	0.0		0.8							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			28.9%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Higher Growth Scenario  
 34: Troy Hill & Office Access S AM Peak Hour






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	51	559	52	10	2	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	54	588	55	11	2	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	65				756	60
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	65				756	60
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				99	99
cM capacity (veh/h)	1537				363	1005
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	54	588	65	2	7	
Volume Left	54	0	0	2	0	
Volume Right	0	0	11	0	7	
cSH	1537	1700	1700	363	1005	
Volume to Capacity	0.03	0.35	0.04	0.01	0.01	
Queue Length 95th (ft)	3	0	0	0	1	
Control Delay (s)	7.4	0.0	0.0	15.0	8.6	
Lane LOS	A			B	A	
Approach Delay (s)	0.6		0.0	10.0		
Approach LOS				B		
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			39.4%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Higher Growth Scenario

## 42: Apt Access - Middle & Westgate











AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	74	0	49	0	0	1	17	345	3	2	96	14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	78	0	52	0	0	1	18	363	3	2	101	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	513	515	108	557	521	365	116			366		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	513	515	108	557	521	365	116			366		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	83	100	95	100	100	100	99			100		
cM capacity (veh/h)	466	457	945	412	454	680	1473			1192		
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	78	52	1	18	366	2	116					
Volume Left	78	0	0	18	0	2	0					
Volume Right	0	52	1	0	3	0	15					
cSH	466	945	680	1473	1700	1192	1700					
Volume to Capacity	0.17	0.05	0.00	0.01	0.22	0.00	0.07					
Queue Length 95th (ft)	15	4	0	1	0	0	0					
Control Delay (s)	14.3	9.0	10.3	7.5	0.0	8.0	0.0					
Lane LOS	B	A	B	A		A						
Approach Delay (s)	12.2		10.3	0.3		0.1						
Approach LOS	B		B									
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			35.8%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis 2032 Total Traffic - Higher Growth Scenario




















## 56: Retail Access - S & Westgate

AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	1	4	6	352	174	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	4	6	371	183	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	566	183	183			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	566	183	183			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	483	859	1392			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	5	6	371	183		
Volume Left	1	6	0	0		
Volume Right	4	0	0	0		
cSH	744	1392	1700	1700		
Volume to Capacity	0.01	0.00	0.22	0.11		
Queue Length 95th (ft)	1	0	0	0		
Control Delay (s)	9.9	7.6	0.0	0.0		
Lane LOS	A	A				
Approach Delay (s)	9.9	0.1		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		28.5%		ICU Level of Service	A	
Analysis Period (min)		15				











# HCM Unsignalized Intersection Capacity Analysis 16: North Office Park Access & Troy Hill

2032 Total Traffic - High Growth Scenario  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	16	0	3	67	0	60	1	128	84	33	212	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	0	3	71	0	63	1	135	88	35	223	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						6						
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	462	519	224	477	476	179	225			223		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	462	519	224	477	476	179	225			223		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	100	86	100	93	100			97		
cM capacity (veh/h)	463	449	815	487	475	864	1343			1346		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	20	134	1	223	35	225						
Volume Left	17	71	1	0	35	0						
Volume Right	3	63	0	88	0	2						
cSH	497	922	1343	1700	1346	1700						
Volume to Capacity	0.04	0.14	0.00	0.13	0.03	0.13						
Queue Length 95th (ft)	3	13	0	0	2	0						
Control Delay (s)	12.5	11.7	7.7	0.0	7.7	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	12.5	11.7	0.0		1.0							
Approach LOS	B	B										
Intersection Summary												
Average Delay			3.3									
Intersection Capacity Utilization			32.9%		ICU Level of Service		A					
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis 18: Troy Hill & Commercial Access - N





















2032 Total Traffic - High Growth Scenario  
PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	205	26	0	327	28	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	216	27	0	344	29	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			243		574	229
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			243		574	229
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		94	99
cM capacity (veh/h)			1323		481	810
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	243	0	344	36		
Volume Left	0	0	0	29		
Volume Right	27	0	0	6		
cSH	1700	1700	1700	518		
Volume to Capacity	0.14	0.00	0.20	0.07		
Queue Length 95th (ft)	0	0	0	6		
Control Delay (s)	0.0	0.0	0.0	12.5		
Lane LOS				B		
Approach Delay (s)	0.0	0.0		12.5		
Approach LOS				B		
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			27.2%		ICU Level of Service	A
Analysis Period (min)			15			













# HCM Unsignalized Intersection Capacity Analysis 20: Hotel Access & Westgate Rd

2032 Total Traffic - High Growth Scenario  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	0	10	101	0	23	11	447	117	21	572	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	0	11	106	0	24	12	471	123	22	602	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh												
Upstream signal (ft)								656				
pX, platoon unblocked												
vC, conflicting volume	1141	1264	603	1151	1141	471	603			594		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1141	1264	603	1151	1141	471	603			594		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	98	36	100	96	99			98		
cM capacity (veh/h)	166	164	499	167	194	593	974			982		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2					
Volume Total	12	131	12	471	123	22	603					
Volume Left	1	106	12	0	0	22	0					
Volume Right	11	24	0	0	123	0	1					
cSH	422	201	974	1700	1700	982	1700					
Volume to Capacity	0.03	0.65	0.01	0.28	0.07	0.02	0.35					
Queue Length 95th (ft)	2	97	1	0	0	2	0					
Control Delay (s)	13.8	51.1	8.7	0.0	0.0	8.7	0.0					
Lane LOS	B	F	A			A						
Approach Delay (s)	13.8	51.1	0.2			0.3						
Approach LOS	B	F										
Intersection Summary												
Average Delay			5.2									
Intersection Capacity Utilization			49.1%		ICU Level of Service				A			
Analysis Period (min)			15									



















# HCM Unsignalized Intersection Capacity Analysis 21: Apt Access - South & Westgate

2032 Total Traffic - High Growth Scenario  
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	39	26	66	211	211	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	41	27	69	222	222	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	612	251	280			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	612	251	280			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	97	95			
cM capacity (veh/h)	432	788	1283			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	68	69	222	280		
Volume Left	41	69	0	0		
Volume Right	27	0	0	58		
cSH	527	1283	1700	1700		
Volume to Capacity	0.13	0.05	0.13	0.16		
Queue Length 95th (ft)	11	4	0	0		
Control Delay (s)	12.8	8.0	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.8	1.9		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		2.2				
Intersection Capacity Utilization		31.9%		ICU Level of Service	A	
Analysis Period (min)		15				

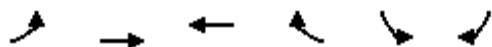
# HCM Unsignalized Intersection Capacity Analysis 30: Retail Access - N & Westgate

2032 Total Traffic - High Growth Scenario  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	1	2	25	1	25	3	245	9	3	229	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	1	2	26	1	26	3	258	9	3	241	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	541	524	244	519	522	263	246			267		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	541	524	244	519	522	263	246			267		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	94	100	97	100			100		
cM capacity (veh/h)	434	456	795	464	457	776	1320			1296		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	11	54	3	267	3	246						
Volume Left	7	26	3	0	3	0						
Volume Right	2	26	0	9	0	5						
cSH	480	577	1320	1700	1296	1700						
Volume to Capacity	0.02	0.09	0.00	0.16	0.00	0.14						
Queue Length 95th (ft)	2	8	0	0	0	0						
Control Delay (s)	12.7	11.9	7.7	0.0	7.8	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	12.7	11.9	0.1		0.1							
Approach LOS	B	B										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization		23.4%			ICU Level of Service		A					
Analysis Period (min)		15										

# HCM Unsignalized Intersection Capacity Analysis 34: Troy Hill & Office Access S




















2032 Total Traffic - High Growth Scenario  
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↰		↰	↰
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	10	202	280	2	11	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	213	295	2	12	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	297				529	296
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	297				529	296
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	93
cM capacity (veh/h)	1264				506	744
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	11	213	297	12	49	
Volume Left	11	0	0	12	0	
Volume Right	0	0	2	0	49	
cSH	1264	1700	1700	506	744	
Volume to Capacity	0.01	0.13	0.17	0.02	0.07	
Queue Length 95th (ft)	1	0	0	2	5	
Control Delay (s)	7.9	0.0	0.0	12.3	10.2	
Lane LOS	A			B	B	
Approach Delay (s)	0.4		0.0	10.6		
Approach LOS				B		
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization		24.9%		ICU Level of Service		A
Analysis Period (min)			15			











# HCM Unsignalized Intersection Capacity Analysis 42: Apt Access - Middle & Westgate

2032 Total Traffic - High Growth Scenario  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	39	0	26	2	0	3	66	184	1	0	238	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	41	0	27	2	0	3	69	194	1	0	251	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	615	613	279	611	642	194	308			195		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	615	613	279	611	642	194	308			195		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	100	96	99	100	100	94			100		
cM capacity (veh/h)	385	385	759	375	371	847	1252			1378		
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	41	27	5	69	195	0	308					
Volume Left	41	0	2	69	0	0	0					
Volume Right	0	27	3	0	1	0	58					
cSH	385	759	563	1252	1700	1700	1700					
Volume to Capacity	0.11	0.04	0.01	0.06	0.11	0.00	0.18					
Queue Length 95th (ft)	9	3	1	4	0	0	0					
Control Delay (s)	15.5	9.9	11.5	8.0	0.0	0.0	0.0					
Lane LOS	C	A	B	A								
Approach Delay (s)	13.3		11.5	2.1		0.0						
Approach LOS	B		B									
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			34.2%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
56: Retail Access - S & Westgate

2032 Total Traffic - High Growth Scenario  
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	1	17	16	257	256	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	18	17	271	269	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	574	269	269			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	574	269	269			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	474	769	1294			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	19	17	271	269		
Volume Left	1	17	0	0		
Volume Right	18	0	0	0		
cSH	744	1294	1700	1700		
Volume to Capacity	0.03	0.01	0.16	0.16		
Queue Length 95th (ft)	2	1	0	0		
Control Delay (s)	10.0	7.8	0.0	0.0		
Lane LOS	A	A				
Approach Delay (s)	10.0	0.5		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		23.5%		ICU Level of Service	A	
Analysis Period (min)		15				

## 12: Airport &amp; Westgate Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	64.9	9.4	8.1	95.1	75.3	76.3	47.6	64.6	35.0	49.2	34.3	8.3

## 12: Airport &amp; Westgate Rd Performance by movement

Movement	All
Delay / Veh (s)	49.7

## 16: North Office Park Access &amp; Troy Hill Performance by movement

Movement	EBL	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	4.9	6.8	7.5	6.3	0.6	0.4	7.2	0.2	0.1	0.9

## 18: Troy Hill &amp; Commercial Access - N Performance by movement

Movement	EBT	EBR	WBT	NBL	NBR	All
Delay / Veh (s)	0.4	0.2	0.1	5.2	4.2	0.7

## 19: Troy Hill &amp; Westgate Rd Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	2.9	0.9	2.9	4.1	2.9	2.2	3.4	3.3

## 20: Hotel Access &amp; Westgate Rd Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	13.2	8.0	27.3	14.4	3.5	1.8	1.2	6.1	0.3	4.5

## 21: Apt Access - South &amp; Westgate Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	6.2	3.7	2.0	0.4	0.4	0.2	1.8

## 30: Retail Access - N &amp; Westgate Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBT	SBR	All
Delay / Veh (s)	2.3	2.3	2.6		0.5	0.1	0.2	0.0	0.4

## 34: Troy Hill &amp; Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Delay / Veh (s)	2.1	0.4	0.2	0.2	5.4	2.5	0.7

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42: Apt Access - Middle & Westgate Performance by movement

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Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	6.0	2.9		2.5	0.5	0.3	7.0	0.3	0.1	1.8

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56: Retail Access - S & Westgate Performance by movement

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Movement	EBR	NBL	NBT	SBT	All
Delay / Veh (s)	2.8	2.5	0.1	1.1	0.6

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Total Network Performance

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Delay / Veh (s)	43.8
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## Intersection: 12: Airport &amp; Westgate Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	204	195	174	52	167	145	130	80	145	254	277	93
Average Queue (ft)	96	76	57	25	83	58	49	50	63	143	123	32
95th Queue (ft)	191	155	120	46	145	114	101	74	139	270	217	68
Link Distance (ft)		958	958			1181	1181			240		568
Upstream Blk Time (%)										10		
Queuing Penalty (veh)										0		
Storage Bay Dist (ft)	250			200	250			200	120		450	
Storage Blk Time (%)	1								1	22		
Queuing Penalty (veh)	4								4	16		

## Intersection: 16: North Office Park Access &amp; Troy Hill

Movement	EB	WB	WB	SB
Directions Served	LR	LT	R	L
Maximum Queue (ft)	31	32	32	26
Average Queue (ft)	3	7	6	2
95th Queue (ft)	16	27	26	13
Link Distance (ft)	266	287		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			150	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 18: Troy Hill &amp; Commercial Access - N

Movement	NB
Directions Served	LR
Maximum Queue (ft)	57
Average Queue (ft)	21
95th Queue (ft)	47
Link Distance (ft)	112
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

## Intersection: 19: Troy Hill &amp; Westgate Rd

Movement	WB	NB	NB	SB
Directions Served	ULR	UT	UTR	ULT
Maximum Queue (ft)	31	34	45	36
Average Queue (ft)	7	3	6	7
95th Queue (ft)	29	19	27	28
Link Distance (ft)	270	165	165	95
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 20: Hotel Access &amp; Westgate Rd

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LR	LT	R	L	T	L
Maximum Queue (ft)	60	132	67	18	4	34
Average Queue (ft)	18	60	22	1	0	11
95th Queue (ft)	49	117	60	12	0	31
Link Distance (ft)	296	151			568	
Upstream Blk Time (%)		2				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			50	75		100
Storage Blk Time (%)		21	0			
Queuing Penalty (veh)		5	0			

## Intersection: 21: Apt Access - South &amp; Westgate

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	79	35
Average Queue (ft)	36	2
95th Queue (ft)	60	17
Link Distance (ft)	407	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		60
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

## Intersection: 30: Retail Access - N &amp; Westgate

Movement	EB	WB
Directions Served	LR	LR
Maximum Queue (ft)	30	31
Average Queue (ft)	2	3
95th Queue (ft)	16	18
Link Distance (ft)	370	208
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 34: Troy Hill &amp;

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	31	31	32
Average Queue (ft)	3	3	10
95th Queue (ft)	19	16	33
Link Distance (ft)		273	273
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	45		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

## Intersection: 42: Apt Access - Middle &amp; Westgate

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LR	L	L
Maximum Queue (ft)	58	56	19	30	19
Average Queue (ft)	32	27	0	2	1
95th Queue (ft)	50	49	7	14	9
Link Distance (ft)	408	408	282		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				50	50
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				0	0

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Intersection: 56: Retail Access - S & Westgate

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Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	31	31
Average Queue (ft)	4	2
95th Queue (ft)	21	13
Link Distance (ft)	362	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		40
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

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Network Summary

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Network wide Queuing Penalty: 30

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## 12: Airport &amp; Westgate Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	32.5	8.9	7.8	33.2	14.4	12.4	38.0	50.7	15.9	52.6	30.3	12.2

## 12: Airport &amp; Westgate Rd Performance by movement

Movement	All
Delay / Veh (s)	20.0

## 16: North Office Park Access &amp; Troy Hill Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	5.1	3.2	5.3	7.8		0.4	0.1	6.3	0.4	0.3	2.0

## 18: Troy Hill &amp; Commercial Access - N Performance by movement

Movement	EBT	EBR	WBT	NBL	NBR	All
Delay / Veh (s)	0.2	0.1	0.3	4.0	2.4	0.5

## 19: Troy Hill &amp; Westgate Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	3.4	3.2	4.0	2.5	2.7	3.7	3.5

## 20: Hotel Access &amp; Westgate Rd Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)		6.6	15.0	9.5	3.6	1.3	1.0	4.4	0.6	0.5	2.6

## 21: Apt Access - South &amp; Westgate Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	7.2	4.1	2.8	0.5	0.7	0.2	1.5

## 30: Retail Access - N &amp; Westgate Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBT	SBR	All
Delay / Veh (s)	7.1	3.0	3.1	2.4	0.2	0.1	0.4	0.1	0.6

## 34: Troy Hill &amp; Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Delay / Veh (s)	2.2	0.1	0.3	0.5	4.9	3.2	1.0

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42: Apt Access - Middle & Westgate Performance by movement

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Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBT	SBR	All
Delay / Veh (s)	6.6	3.2	5.6	3.3	2.9	0.5	0.4	0.7	0.3	1.4

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56: Retail Access - S & Westgate Performance by movement

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Movement	EBR	NBL	NBT	SBT	All
Delay / Veh (s)	3.9	2.0	0.2	1.2	0.8

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Total Network Performance

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Delay / Veh (s)	19.8
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## Intersection: 12: Airport &amp; Westgate Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	126	144	142	52	159	164	153	61	134	202	411	408
Average Queue (ft)	51	68	57	26	70	80	67	36	59	64	202	81
95th Queue (ft)	94	122	108	48	128	135	121	52	116	152	361	238
Link Distance (ft)		958	958			1181	1181			240		568
Upstream Blk Time (%)										0		
Queuing Penalty (veh)										0		
Storage Bay Dist (ft)	250			200	250			200	120		450	
Storage Blk Time (%)					0		0		1	3	0	0
Queuing Penalty (veh)					0		0		1	3	1	0

## Intersection: 16: North Office Park Access &amp; Troy Hill

Movement	EB	WB	WB	NB	SB
Directions Served	LR	LT	R	L	L
Maximum Queue (ft)	40	53	51	6	25
Average Queue (ft)	15	23	20	0	2
95th Queue (ft)	40	49	48	5	12
Link Distance (ft)	266	287			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			150	100	100
Storage Blk Time (%)					
Queuing Penalty (veh)					

## Intersection: 18: Troy Hill &amp; Commercial Access - N

Movement	NB
Directions Served	LR
Maximum Queue (ft)	46
Average Queue (ft)	19
95th Queue (ft)	44
Link Distance (ft)	112
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

## Intersection: 19: Troy Hill &amp; Westgate Rd

Movement	WB	NB	NB	SB
Directions Served	ULR	UT	UTR	ULT
Maximum Queue (ft)	66	11	28	53
Average Queue (ft)	27	1	3	19
95th Queue (ft)	55	8	16	48
Link Distance (ft)	270	165	165	95
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 20: Hotel Access &amp; Westgate Rd

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LR	LT	R	L	R	L
Maximum Queue (ft)	40	97	64	30	12	32
Average Queue (ft)	9	47	22	5	0	7
95th Queue (ft)	32	83	56	22	5	27
Link Distance (ft)	296	151				
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			50	75	100	100
Storage Blk Time (%)		10	0			
Queuing Penalty (veh)		2	0			

## Intersection: 21: Apt Access - South &amp; Westgate

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	63	45
Average Queue (ft)	29	14
95th Queue (ft)	51	40
Link Distance (ft)	407	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		60
Storage Blk Time (%)		0
Queuing Penalty (veh)		0



## Intersection: 30: Retail Access - N &amp; Westgate

Movement	EB	WB	NB
Directions Served	LR	LR	L
Maximum Queue (ft)	35	40	6
Average Queue (ft)	8	18	0
95th Queue (ft)	29	44	5
Link Distance (ft)	370	208	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 34: Troy Hill &amp;

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	24	32	53
Average Queue (ft)	1	10	30
95th Queue (ft)	9	34	50
Link Distance (ft)		273	273
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	45		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

## Intersection: 42: Apt Access - Middle &amp; Westgate

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LR	L	TR
Maximum Queue (ft)	54	50	31	35	6
Average Queue (ft)	26	17	3	12	0
95th Queue (ft)	52	44	19	33	4
Link Distance (ft)	408	408	282		264
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				50	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

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Intersection: 56: Retail Access - S & Westgate

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Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	32	32
Average Queue (ft)	12	3
95th Queue (ft)	36	18
Link Distance (ft)	362	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		40
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

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Network Summary

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Network wide Queuing Penalty: 8

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12: Airport & Westgate Rd Performance by movement

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	35.2	13.6	9.2	648.7	619.7	623.6	49.3	74.9	43.9	45.8	30.2	7.8

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12: Airport & Westgate Rd Performance by movement

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Movement	All
Delay / Veh (s)	283.0

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16: North Office Park Access & Troy Hill Performance by movement

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Movement	EBL	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	8.6	7.7	9.2	6.3	0.9	0.7	7.3	0.2	0.1	1.3

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18: Troy Hill & Commercial Access - N Performance by movement

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Movement	EBT	EBR	WBT	NBL	NBR	All
Delay / Veh (s)	0.4	0.2	0.1	5.9	4.3	0.7

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19: Troy Hill & Westgate Rd Performance by movement

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	3.0	2.8	4.4	3.0	2.3	3.5	3.4

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20: Hotel Access & Westgate Rd Performance by movement

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Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	22.5	7.1	194.2	145.1	3.7	2.2	1.4	14.2	0.4	20.4

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21: Apt Access - South & Westgate Performance by movement

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	7.4	3.9	2.1	0.4	0.4	0.1	1.7

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30: Retail Access - N & Westgate Performance by movement

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Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBT	SBR	All
Delay / Veh (s)	6.0	2.5	2.9		0.4	0.2	0.2	0.0	0.4

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34: Troy Hill & Performance by movement

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Delay / Veh (s)	2.2	0.5	0.1	0.2	5.1	2.6	0.6

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42: Apt Access - Middle & Westgate Performance by movement

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Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	6.4	3.0	2.6	2.2	0.5	0.1	7.7	0.3	0.3	1.6

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56: Retail Access - S & Westgate Performance by movement

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Movement	EBL	EBR	NBL	NBT	SBT	All
Delay / Veh (s)	3.0	4.3	2.9	0.2	1.1	0.6

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Total Network Performance

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Delay / Veh (s)	223.2
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## Intersection: 12: Airport &amp; Westgate Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	L
Maximum Queue (ft)	198	152	150	65	99	129	123	163	145	262	119	126
Average Queue (ft)	89	89	74	29	51	66	62	86	60	163	58	68
95th Queue (ft)	157	141	130	50	85	112	106	135	143	296	104	114
Link Distance (ft)		952	952			1175	1175			240		
Upstream Blk Time (%)										13		
Queuing Penalty (veh)										0		
Storage Bay Dist (ft)	250			200	250			200	120		450	450
Storage Blk Time (%)	0							0	0	31		
Queuing Penalty (veh)	0							0	1	22		

## Intersection: 12: Airport &amp; Westgate Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	97
Average Queue (ft)	35
95th Queue (ft)	73
Link Distance (ft)	568
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

## Intersection: 16: North Office Park Access &amp; Troy Hill

Movement	EB	WB	WB	NB	SB
Directions Served	LR	LT	R	L	L
Maximum Queue (ft)	30	36	32	18	16
Average Queue (ft)	3	12	13	1	2
95th Queue (ft)	16	38	37	8	13
Link Distance (ft)	266	287			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			150	100	100
Storage Blk Time (%)					
Queuing Penalty (veh)					

## Intersection: 18: Troy Hill &amp; Commercial Access - N

<b>Movement</b>	<b>NB</b>
Directions Served	LR
Maximum Queue (ft)	53
Average Queue (ft)	24
95th Queue (ft)	50
Link Distance (ft)	112
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

## Intersection: 19: Troy Hill &amp; Westgate Rd

<b>Movement</b>	<b>WB</b>	<b>NB</b>	<b>NB</b>	<b>SB</b>
Directions Served	ULR	UT	UTR	ULT
Maximum Queue (ft)	42	41	44	40
Average Queue (ft)	10	5	8	9
95th Queue (ft)	34	25	30	33
Link Distance (ft)	270	165	165	95
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 20: Hotel Access &amp; Westgate Rd

<b>Movement</b>	<b>EB</b>	<b>WB</b>	<b>WB</b>	<b>NB</b>	<b>NB</b>	<b>SB</b>
Directions Served	LR	LT	R	L	R	L
Maximum Queue (ft)	39	171	76	23	7	36
Average Queue (ft)	16	114	34	1	1	12
95th Queue (ft)	41	195	89	7	6	34
Link Distance (ft)	290	146				
Upstream Blk Time (%)		37				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			50	75	100	100
Storage Blk Time (%)		67	2			
Queuing Penalty (veh)		16	2			

## Intersection: 21: Apt Access - South &amp; Westgate

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	88	17
Average Queue (ft)	38	1
95th Queue (ft)	64	11
Link Distance (ft)	407	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		60
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 30: Retail Access - N &amp; Westgate

Movement	EB	WB
Directions Served	LR	LR
Maximum Queue (ft)	30	25
Average Queue (ft)	2	3
95th Queue (ft)	14	17
Link Distance (ft)	370	208
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

## Intersection: 34: Troy Hill &amp;

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	32	18	36
Average Queue (ft)	3	2	11
95th Queue (ft)	17	13	36
Link Distance (ft)		273	273
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	45		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

## Intersection: 42: Apt Access - Middle &amp; Westgate

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LR	L	L
Maximum Queue (ft)	65	56	23	20	25
Average Queue (ft)	32	25	1	1	1
95th Queue (ft)	52	48	12	11	9
Link Distance (ft)	408	408	282		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				50	50
Storage Blk Time (%)					0
Queuing Penalty (veh)					0

## Intersection: 56: Retail Access - S &amp; Westgate

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	31	31
Average Queue (ft)	4	2
95th Queue (ft)	21	13
Link Distance (ft)	362	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		40
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

## Network Summary

Network wide Queuing Penalty: 42



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12: Airport & Westgate Rd Performance by movement

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	25.4	14.0	9.0	29.2	21.0	17.3	36.0	41.6	14.2	35.1	34.3	15.9

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12: Airport & Westgate Rd Performance by movement

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Movement	All
Delay / Veh (s)	21.1

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16: North Office Park Access & Troy Hill Performance by movement

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Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	6.0	4.3	6.3	8.3		0.6	0.4	7.3	0.5	0.8	2.4

---

18: Troy Hill & Commercial Access - N Performance by movement

---

Movement	EBT	EBR	WBT	NBL	NBR	All
Delay / Veh (s)	0.3	0.1	0.4	7.3	2.4	0.7

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19: Troy Hill & Westgate Rd Performance by movement

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	4.1	4.0	4.2	2.7	2.9	4.0	3.8

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20: Hotel Access & Westgate Rd Performance by movement

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Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)		8.0	28.3	11.8	6.0	1.5	1.1	5.2	0.8	1.2	3.5

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21: Apt Access - South & Westgate Performance by movement

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	7.6	3.3	2.9	0.5	0.8	0.3	1.4

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30: Retail Access - N & Westgate Performance by movement

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Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBT	SBR	All
Delay / Veh (s)	5.4	2.6	3.0	2.1	0.3	0.1	0.4	0.3	0.6

---

34: Troy Hill & Performance by movement

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Delay / Veh (s)	3.4	0.2	0.4	0.1	7.2	4.1	0.9

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42: Apt Access - Middle & Westgate Performance by movement

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Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBT	SBR	All
Delay / Veh (s)	6.9	3.0	7.0	4.0	3.2	0.6	0.3	0.7	0.4	1.5

---

56: Retail Access - S & Westgate Performance by movement

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Movement	EBL	EBR	NBL	NBT	SBT	All
Delay / Veh (s)	4.1	4.3	2.4	0.3	1.3	0.9

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Total Network Performance

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Delay / Veh (s)	20.9
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## Intersection: 12: Airport &amp; Westgate Rd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	L
Maximum Queue (ft)	106	191	161	64	121	171	160	98	138	165	181	190
Average Queue (ft)	54	99	77	27	58	95	79	52	53	61	98	110
95th Queue (ft)	91	164	136	52	98	155	136	85	102	125	154	172
Link Distance (ft)		952	952			1175	1175			240		
Upstream Blk Time (%)										0		
Queuing Penalty (veh)										0		
Storage Bay Dist (ft)	250			200	250			200	120		450	450
Storage Blk Time (%)			0				0		0	1		
Queuing Penalty (veh)			0				0		0	1		

## Intersection: 12: Airport &amp; Westgate Rd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	230
Average Queue (ft)	89
95th Queue (ft)	177
Link Distance (ft)	568
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

## Intersection: 16: North Office Park Access &amp; Troy Hill

Movement	EB	WB	WB	NB	SB
Directions Served	LR	LT	R	TR	L
Maximum Queue (ft)	40	58	52	4	34
Average Queue (ft)	17	30	28	0	7
95th Queue (ft)	42	53	48	3	26
Link Distance (ft)	266	287		211	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			150		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

## Intersection: 18: Troy Hill &amp; Commercial Access - N

Movement	NB
Directions Served	LR
Maximum Queue (ft)	52
Average Queue (ft)	20
95th Queue (ft)	47
Link Distance (ft)	112
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

## Intersection: 19: Troy Hill &amp; Westgate Rd

Movement	WB	NB	NB	SB
Directions Served	ULR	UT	UTR	ULT
Maximum Queue (ft)	104	29	30	67
Average Queue (ft)	37	3	4	27
95th Queue (ft)	73	18	18	58
Link Distance (ft)	270	165	165	95
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 20: Hotel Access &amp; Westgate Rd

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LR	LT	R	L	R	L
Maximum Queue (ft)	39	140	73	31	14	37
Average Queue (ft)	9	57	24	6	1	10
95th Queue (ft)	33	113	63	25	7	30
Link Distance (ft)	290	146				
Upstream Blk Time (%)		1				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			50	75	100	100
Storage Blk Time (%)		21	0			
Queuing Penalty (veh)		5	0			

## Intersection: 21: Apt Access - South &amp; Westgate

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	59	40	4
Average Queue (ft)	31	15	0
95th Queue (ft)	50	41	0
Link Distance (ft)	407		210
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		60	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

## Intersection: 30: Retail Access - N &amp; Westgate

Movement	EB	WB	NB
Directions Served	LR	LR	L
Maximum Queue (ft)	31	48	5
Average Queue (ft)	7	20	0
95th Queue (ft)	27	45	4
Link Distance (ft)	370	208	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Intersection: 34: Troy Hill &amp;

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	32	36	61
Average Queue (ft)	4	9	31
95th Queue (ft)	21	32	52
Link Distance (ft)		273	273
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	45		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

## Intersection: 42: Apt Access - Middle &amp; Westgate

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LR	L	TR
Maximum Queue (ft)	56	50	31	43	4
Average Queue (ft)	24	21	4	14	0
95th Queue (ft)	50	46	20	37	3
Link Distance (ft)	408	408	282		264
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				50	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

## Intersection: 56: Retail Access - S &amp; Westgate

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	41	32
Average Queue (ft)	14	4
95th Queue (ft)	39	21
Link Distance (ft)	362	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		40
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

## Network Summary

Network wide Queuing Penalty: 8