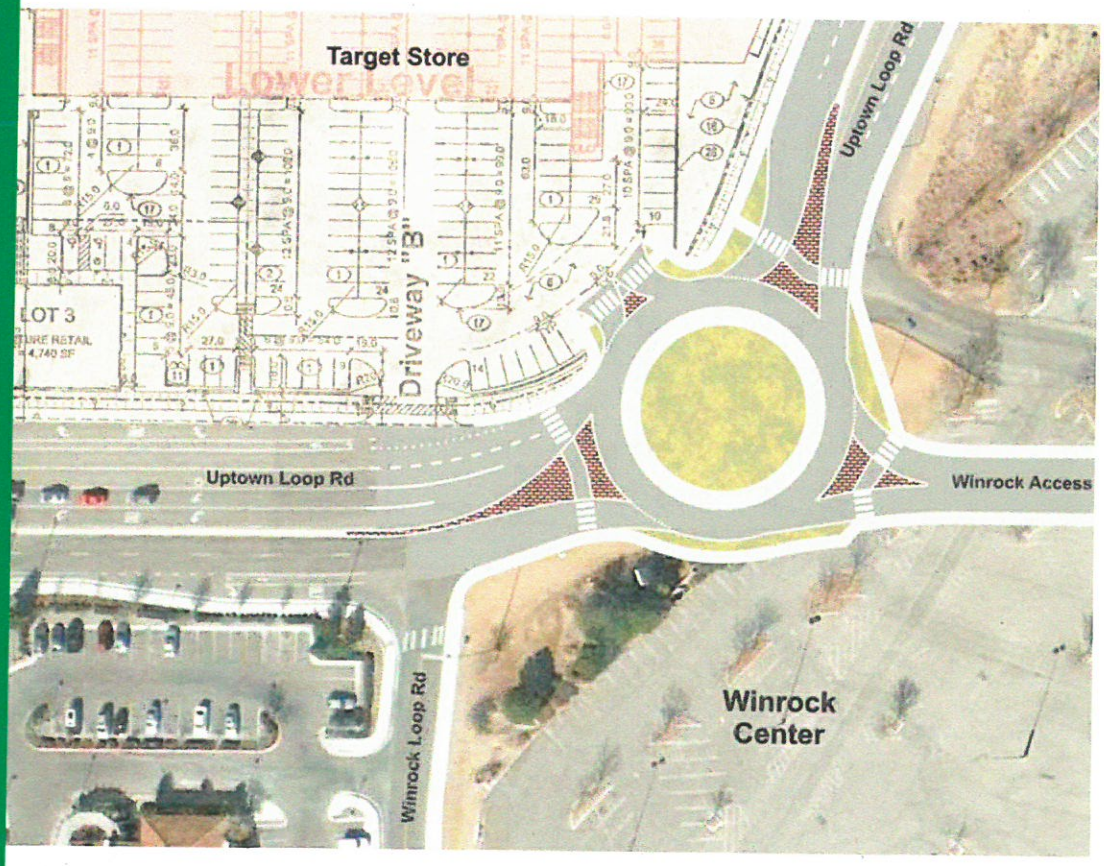
Uptown Loop Rd Corridor

Louisiana Blvd to Indian School Rd

Traffic Operations Assessment



January 11, 2012

Traffic Operations Assessment

Uptown Loop Rd Corridor

Louisiana Blvd to Indian School Rd

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TABLE OF CONTENTS

Tables

Appendices

Appendix A	Vicinity Maps and Site Drawing
Appendix B	Traffic Volume Summary Sheets
Appendix C	Trip Generation, Distribution, and Assignments
Appendix D	Baseline Level of Service Analyses
Appendix E	Build Level of Service Analyses
Appendix F	Queue Worksheets

Acronyms

AASHTO	American Association of State Highway and Transportation Officials
AADT	Annual Average Daily Traffic
AAWDT	Annual Average Weekday Traffic
g/C	Green time per signal Cycle length
HCM	Highway Capacity Manual
HTG	Harwick Transportation Group
ITE	Institute of Transportation Engineers
LOS	Level of Service
MRCOG	Mid-Region Council of Governments
mph	Miles per Hour
MTP	Metropolitan Transportation Plan (current document for year 2030)
MUTCD	Manual on Uniform Traffic Control Devices
NMDOT	New Mexico Department of Transportation
pcphpl	Passenger cars per hour per lane
PHF	Peak Hour Factor
v/c	Volume to Capacity ratio
vpd	Vehicles per Day
vph	Vehicles per Hour

1.0 INTRODUCTION

This traffic operations assessment of the Uptown Loop Rd corridor from Louisiana Blvd to Indian School Rd has been prepared for the Winrock Center development. Winrock Center, a major shopping area in Albuquerque, currently has a low lease rate; however, plans are underway to revitalize the center. This assessment calculates trip generation, distribution and assignment for the non-leased portions of the center to evaluate traffic operations at intersections along Uptown Loop Rd. In addition, Target Corporation has prepared development plans for the land parcel north and west of Uptown Loop Rd, and this evaluation considers the impacts from each of these developments on the corridors operations. The Traffic Impact Study (TIS) for the Target Development has been completed and will be referenced throughout this document. Where the Target TIS information is used; that report will be credited by placing [Target] following the information.

This report focuses on the traffic operations along Uptown Loop Rd. As part of the revitalization effort, the developers of Winrock Center desire to use a modern roundabout for traffic control at the primary access from Uptown Loop Rd. Given that the Target store will be across the street, it reasons that the roundabout could serve as a full access driveway for each development. An operational assessment of a roundabout is included herein.

Currently, all driveway accesses along Uptown Loop Rd provide partial access. The delivery access to Target is the only access currently proposed to provide full access without modification to the median along Uptown Loop Rd. The delivery access will have very limited traffic volumes and will not connect to the primary Target parking area; therefore, it is not evaluated herein. The construction of a roundabout will provide full access to both the Winrock Center and Target developments, improving circulation to each development.

2.0 TRAFFIC ANALYSIS METHODOLOGY

The *Highway Capacity Manual* (HCM 2000) defines operational measures of effectiveness for all types of roadways and junctions in terms of qualitative levels of service (LOS). This study is concerned with levels of service for both signalized and unsignalized intersections, and the barometer for each intersection type is measured in terms of average vehicle delay. Signalized intersections consider the average control delay for each approaching vehicle. Control delay is the sum of the deceleration, queue, stop, and acceleration delay, computed for each approach movement. The signalized intersection level of service criteria and a brief definition are contained in Table 1.

Table 1
Signalized Intersection Levels of Service

Level of Service	Average Control Delay per Vehicle	Definition
A	≤ 10.0 sec	Very low delay - Free flow
B	10.1 sec to 20.0 sec	Minimal stops, good progression
C	20.1 sec to 35.0 sec	Moderate number of stops
D	35.1 sec to 55.0 sec	Significant stops, some cycle failures
E	55.1 sec to 80.0 sec	High delay, approaching capacity
F	> 80.0 sec	Approach over saturation, excessive delay

The signalized intersection analyses were calculated using Synchro 7.0. This software calculates the level of service for each approach, and may provide optimization for each individual movement. It also provides excellent analyses for signal progression, where required. Synchro 7.0 can produce reports in either Synchro format or *Highway Capacity Manual* (HCM) format. Synchro's standard operational analyses for signalized intersections deviates slightly from the *Highway Capacity Manual* methodology, however, only for very congested intersections do the results diverge. Synchro can calculate both algorithms; and for this project the Synchro signalized level of service worksheets were used.

Unsignalized intersections also utilize control delay; however, its definition differs because of the type of traffic control. Stop controlled intersections may be two-way stop controlled, all-way stop controlled, or roundabouts (yield controlled). Each unsignalized intersection considered herein was two-way stop control, meaning that main street through-movements are not considered in the analyses because they should experience no intersection related delay. Unsignalized intersection levels of service are a function of the side street approaches and main street turn levels of service. For this reason, an overall intersection level of service is not calculated such as it is for signalized intersections, and the intersection level of service is typically considered that level of service experienced by the poorest approach LOS. Table 2 contains brief definitions of unsignalized intersection LOS and the control delay values.

Table 2
Unsignalized Intersection Levels of Service

Level of Service	Average Control Delay per Vehicle	Definition
A	≤ 10.0 sec	Little or no delay
B	10.1 sec to 15.0 sec	Short traffic delays
C	15.1 sec to 25.0 sec	Average traffic delays
D	25.1 sec to 35.0 sec	Long traffic delays
E	35.1 sec to 50.0 sec	Very long traffic delays, approaching capacity
F	> 50.0 sec	Over capacity, excessive delay

The unsignalized intersection analyses were evaluated using Synchro 7.0. While this program is primarily a signalized intersection tool, it also performs unsignalized intersection analyses that are consistent with the *Highway Capacity Manual* methodology and the output results are identical to those produced by the McTrans Highway Capacity Software.

Urban areas typically assign an overall level of service (LOS) D as the desirable base condition for signalized intersections. LOS E or LOS F may be acceptable for certain low volume approaches or movements, especially where a higher level of service may significantly degrade a major movement or where the default is LOS E based upon the intersection cycle length or low approach volumes. LOS D is also the desired approach level of service for urban unsignalized intersections; however, lower service levels may be acceptable for very low volume approaches.

This assessment also includes operational analyses for a modern roundabout, and the RODEL software was used for that analysis. RODEL is based on the premise that geometric design elements affect roundabout capacity performance and can be used to effect subtle design changes. Using this software, the analyst and designer may estimate design values required to insure that final geometric design values are based on a review of the project site conditions.

The 50th percentile confidence level (CL) was used in the RODEL capacity analysis to represent the most probable capacity of the roundabout, and to be consistent with confidence levels inherent in typical signalized and unsignalized capacity analysis methodologies. Average delay is calculated at the 50th percentile CL, and is consistent with signalized and unsignalized average control delay values. Note that the LOS criteria reported for roundabouts are for unsignalized conditions and Table 2 above represents the LOS delay thresholds.

Capacity analysis was also performed for the 85th percentile confidence level to determine if the forecasted level of service and average delay is predicted to be in the sensitive area of the delay curve. The 85th percentile confidence level analysis is a sensitivity check for excessive delay on any of the approaches where minor changes in traffic flow and capacity may occur. When comparing the two percentile predictions, a sharp rise in delay on any approach leg

indicates that the design of an entry is approaching a higher v/c ratio and instability of queues and delay is possible. This provides information to the designer to check if a subtle geometric design refinement will provide a lower v/c ratio on a specific approach and consequently prolong the life of the intersection. A design with an acceptable level of service at 85th percentile confidence level is desired, though not required to be consistent with the HCM2000 unsignalized capacity methodology.

A series of assumptions must be made for all level of service analyses. For this study, the following analysis assumptions were made, and they apply to existing and forecast analyses:

- Lane Width - Measured in Field (nominally 12 feet)
- Truck Percentage – Measured in Field, or assumed 3% minimum
- Existing Peak Hour Factors - Measured in field, applied by approach average
- Forecast Peak Hour Factors - Same as existing or based upon the following:

< 200 vph per approach	0.75
200 to 499 vph per approach	0.80
500 to 1000 vph per approach	0.85

- Saturation Flow Rate - 1900 pcphpl
- Roadway Grades - All analyses assume flat grades
- Change Intervals - 4 seconds amber, 2 second all red
- Cycle Lengths - Existing cycles, maximum 110 sec. AM and 120 sec. PM.
- Signalized Operations - Actuated-Uncoordinated is assumed for Uptown Loop Rd
- Arrival Type – Progressed on the arterial roadways
- Right-turn-on-Red – Estimated by Synchro
- Conflicting Pedestrians - Minimal
- Area Type - Non CBD

3.0 TRAFFIC DATA

Traffic volumes during the Am and PM peak periods were collected from two sources – Terry O. Brown and HTG. The Target TIS had data collected in March 2011 for the intersections of Louisiana Blvd-Uptown Loop Rd and Indian School Rd-Uptown Loop Rd. HTG collected turning movements for the Uptown Loop Rd intersections with Winrock Loop Rd and the primary Winrock access in December 2011. Because the HTG counts occurred during the holiday season (Thanksgiving to January 1), the turning movements to/from Uptown Loop Rd to Louisiana Blvd were also counted to determine if a seasonal correction factor should be developed. The AM peak hour was found to be consistent between the two counts; however, the PM peak hour required a seasonal adjustment.

A seasonal adjustment factor was developed for the PM peak hour based upon Uptown Loop Rd approach counts at Louisiana Blvd and Indian School Rd. The intersection approach counts were summed for each major intersection, and compared with the westbound departure counts from Winrock Loop Rd and northbound departure counts from the Winrock access. The comparison counts were as follows:

Approach to:	December	March	Delta%
Indian School Rd	298	180	62.3%
Louisiana Blvd	142	89	61.5%

The data above indicates that the December count resulted in 62% more traffic on the evaluated approaches; therefore, a 0.62 factor was applied to the Uptown Loop Rd intersections with Winrock Loop Rd and the Winrock access to normalize the data. Table 3 contains and raw and adjusted turning movement at those intersections.

Table 3
PM Peak Hour Raw and Adjusted Turning Movement Volumes

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
Raw Volumes												
Uptown Lp Rd-Winrock Lp		192	40	104	142				61			
Uptown Lp Rd-Winrock Acc				49		142		156	90		199	
Adjusted Volumes												
Uptown Lp Rd-Winrock Lp		119	25	64	88				358			
Uptown Lp Rd-Winrock Acc				30		88		97	56		123	

It should be noted that a few clarifications are required for the Uptown Loop Rd data collection. Uptown Loop Rd is oriented east-west at Louisiana Blvd and north-south at Indian School Rd. Uptown Loop Rd for data collection was oriented east-west at Winrock Loop Rd and was oriented north-south at the Winrock access. The Winrock access at Uptown Loop Rd

is a right-in, right-our intersection. A median opening is located approximately 160' north of the access, and numerous vehicles were observed making a U-turn at this opening after turning right out of the Winrock access. These vehicles were collected as left turns from the site access, though no direct left-turn was possible.

Table 4 contains the adjusted Baseline turning movement volumes for the four (4) study area intersections. No Build trips are included.

Table 4
Baseline AM and PM Peak Hour Turning Movement Volumes

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
AM Peak Hour												
Uptown Lp Rd-Louisiana Bl	20	5	132	42	4	2	284	1186	53	2	989	39
Uptown Lp Rd-Winrock Lp		53	11	55	43				10			
Uptown Lp Rd-Winrock Acc				3		4		60	5		95	
Uptown Lp Rd-Indian Schl Rd	64	232	2	99	501	66	8	10	38	24	5	23
PM Peak Hour												
Uptown Lp Rd-Louisiana Bl	31	16	270	83	3	3	135	1677	132	19	1596	28
Uptown Lp Rd-Winrock Lp		119	25	64	88				38			
Uptown Lp Rd-Winrock Acc				30		88		97	56		123	
Uptown Lp Rd-Indian Schl Rd	164	621	35	86	511	55	55	40	85	126	35	90

The raw traffic volume data may be found in Appendix B.

4.0 TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

4.1 TRIP GENERATION

Project trips were generated using the Institute of Transportation Engineers (ITE) Trip Generation, 8th Edition, and the trip generation data are summarized in Table 6. The existing trips from Winrock Center are included in the traffic volume counts collected. Trip generation was performed only for the currently unleased area (523,880 SF of 964,899 SF – 54.3%), as well as a proposed new theater. It was felt that generating trips for the entire center and only considering the percentage that is currently unleased yields the most accurate results. Two land uses were used for the Winrock trip generation, #820 Shopping Center and #445 Movie Theater. Note that the movie theater trip generation is for a Friday, not weekday; therefore, the overall trip generation for that land use should be considered conservative. Table 5 contains the Winrock Center trip generation. Trip generation for the Target development may be found in the Target TIS. The data worksheets are contained in Appendix C.

Table 5
Trip Generation - Proposed Land Use

LU Code	Development	SF/Screen	Daily	AM In	AM Out	PM In	PM Out
820	Shopping Center (All of Winrock)	964,899	29638	358	229	1423	1482
820	**Unleased Portion of Winrock (54.3%)**	523,880	16092	194	124	773	805
445	Multiplex Movie Theater	16	4680			221	147
	New Primary Trips		***20772***	***194***	***124***	***994***	***952***

Pass-by trips are a portion of all retail developments. Given that Uptown Loop Rd acts as an extension of the site driveways to the surrounding roadway network, no pass-by trip reduction was applied to the intersection volumes. The new primary trips were used for the study's trip assignment.

4.2 TRIP DISTRIBUTION

The trip distribution from the site was generated using the Mid-Region Council of Governments (MRCOG) 2030 model year databank. Winrock Center is considered semi-regional, with the traffic-shed line approximately at the mid-point separating the Uptown area and Cottonwood Mall. The trip distribution area was determined based upon all data analysis subzones (DASZ) that fall within the Albuquerque Metropolitan Planning Area (AMPA) east of the . An origin-destination (O-D) assignment was made between the site DASZ, #7695, and the other DASZs within the distribution area. A series of O-D subareas were developed, to ascertain the attractiveness of origins (O's) and destinations (D's), to and from the site DASZ (see drawing in Appendix C), based upon logical routing. Table 6 contains subarea routing descriptions to the site and O-D percentages for trips entering and exiting DASZ #7695 for the

buildout year. Appendix D contains a drawing and summary table of the distribution subarea boundaries.

Table 6
Trip Distribution Routing Percentages

No.	Description	Percent
1	Indian School Rd from the West	5.84%
2	Indian School Rd form the East	15.13%
3	Louisiana Blvd from the South	12.49%
4	Louisiana Blvd from the North	12.30%
5	Pennsylvania Ave from the South	3.69%
6	Pennsylvania Ave from the North	8.06%
7	Constitution Ave form the East	1.81%
8	America's Pkwy from the West	0.59%
9	I-40 from the East	12.50%
10	I-40 from the West	27.60%

The Winrock Center trips were assigned based upon the route distribution in Table 6.

4.3 TRIP ASSIGNMENT

The routing percentages in Table 6 are the percentages of Winrock Center traffic anticipated along each route. Not each of these routes supply trips to the Uptown loop Rd, and because Winrock Center has one direct access from Louisiana Blvd, two accesses from Uptown Loop Rd, two accesses from Indian School Rd, and two from Pennsylvania Ave, not all of the Winrock Center trips would be assigned to the two accesses evaluated herein. The following assumptions were made for the trip assignment:

1. 50% of the from Louisiana South and I-40 (eastbound and westbound) enter Winrock Center from the direct right-in, right-out access south of Uptown Loop Rd. The remaining 50% use Uptown Loop Rd.
2. No trips from Constitution Ave or Pennsylvania Ave South use Uptown Loop Rd.
3. 33% of the trips from Pennsylvania Ave North and Indian School Rd East turn left at Uptown Loop Rd and enter Winrock Center using the primary Winrock access. The remaining 67% will enter Winrock Center via other access locations along Indian School Rd and Pennsylvania Ave.
4. 100% of the trips from Indian School West enter the site via a right turn at Uptown Loop Rd and use the primary Winrock access.
5. 100% of the trips from Louisiana Blvd North turn left at Uptown Lop Rd and use the primary Winrock access.
6. 100% of the I-40 westbound trips use the direct I-40 access ramp from Winrock Center and do not exit via Uptown Loop Rd.

7. Based upon the assumptions listed above, 52.7% of the entering and 46.4% of the exiting traffic utilize Uptown Loop Rd.

The trip assignment is listed below in Table 7. All peak hour site trips are distributed and assigned to the four study area intersections.

Table 7
Winrock Site Trip Assignment

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
AM Peak Hour												
Uptown Lp Rd-Louisiana Bl		5		31	1	7			51	20		
Uptown Lp Rd-Winrock Lp		50	26	3	38				11			
Uptown Lp Rd-Winrock Acc				29		17	9	2	50	21	5	
Uptown Lp Rd-Indian Schl Rd			8	15			7	2	10		4	
PM Peak Hour												
Uptown Lp Rd-Louisiana Bl		25		238	6	50			261	102		
Uptown Lp Rd-Winrock Lp		257	132	25	294				85			
Uptown Lp Rd-Winrock Acc				224		133	70	15	257	110	26	
Uptown Lp Rd-Indian Schl Rd			39	77			56	19	74		20	

The unsignalized full-access intersection (Driveway C) proposed to serve the Target development delivery vehicles is not included in the analyses; therefore is not included in the site trip assignment. (The previous PM peak hour forecast 8 trips for that access. [Target]) The current Target TIS forecast includes more trips for Driveway C [Target], however, the Driveway C and Driveway B volumes were combined for the roundabout intersection and are included herein. The previous 8 trips are assumed to remain at Driveway C.

Table 8
Target Site Trip Assignment *

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
AM Peak Hour												
Uptown Lp Rd-Louisiana Bl	4	3		46	4	0		92	13		2	
Uptown Lp Rd-Winrock Lp		3		19	50							
Uptown Lp Rd-Winrock Acc	1		68				17	3			1	4
Uptown Lp Rd-Indian Schl Rd	0	9	2	3	12				1			
PM Peak Hour												
Uptown Lp Rd-Louisiana Bl	11	8		195	19	1		252	35		8	
Uptown Lp Rd-Winrock Lp		3		78	215							
Uptown Lp Rd-Winrock Acc	4		289				46	3			4	10
Uptown Lp Rd-Indian Schl Rd	1	38	8	9	34				4		1	

* Compiled from the Target TIS.

5.0 TRAFFIC OPERATIONS ANALYSES

Traffic analyses were performed for the 2012 Baseline and Build scenarios. The 2011 counts are considered the 2012 Baseline (no build) condition to be consistent with the Target TIS. The two signalized intersections are each coordinated with the Louisiana Blvd-Indian School Rd intersection, thus these intersections are evaluated as actuated-coordinated intersections for these analyses. The Baseline level of service worksheets may be found in Appendix D and the Build worksheets in Appendix E.

Level of service analyses assess the traffic operations at an intersection in terms of vehicle throughput, however, they do not adequately assess the impacts associated with the physical dimensions of turn lanes and the blocking of accesses or upstream intersections by queued vehicles. Queuing analyses were performed for each of the movements at signalized intersections and queue lengths were determined for the 95th percentile value. The queue analyses utilize the Poisson negative exponential random arrival distribution, summed to the 95% levels.

Left-turn lanes are the primary queue concern because they typically have the shortest green time at intersections. The storage length design value for all left-turn lanes is the 95th percentile queue. For these analyses, where a left turn movement operates with less than 15% of the signal cycle's green time (represented by the g/C ratio), the analysis assumes that all vehicles arrive at that left-turn approach with a red indication. In reality, there is frequently a percentage of vehicles that arrive on the green indication and proceed through the left turn without stop delay. If the left turn being analyzed has greater than 15% of the signal cycle green time, the potential for arrival on green increases, and an adjustment for half of that green time is provided in the analysis, reducing the design queue length. This queue adjustment is calculated following generation of the 95th percentile queue length, Q95, utilizing the equation

$$Q_{LT} = Q_{95} * [1.00-(^{g}/_{C})/2]$$

Where Q_{LT} is the left-turn design queue length,
Q_{95} is the base 95th percentile queue length, and
g/C is the green time percentage per cycle for the movement greater than 0.15.

Right-turn lanes have less restrictive green times than left-turn lanes because of right-turns-on-red, allowing vehicles to turn during numerous cycle phases. Standard right-turn queues are calculated to determine the 95th percentile queue length, Q95, for designing a right turn lane length. The right-turn queues were analyzed for the 95th percentile value, and were adjusted similarly to left turns using the equation

$$Q_{RT} = Q_{95} * [1.00-(^{g}/_{C})/2]$$

Where Q_{RT} is the right-turn design queue length,
Q_{95} is the base 95th percentile queue length, and
g/C is the green time percentage per cycle for the movement.

Through movement queues are calculated where there is concern that the through movement may block either a left- or right-turn lane, or an upstream access or side street. This is calculated for through and through-right movements. The 95th percentile queue is calculated, with an adjustment for arrival on red, using the following equation:

$$Q_{Th} = Q_{95} * [1.00-(g/C)]$$

Where Q_{Th} is the through movement design queue length,
Q_{95} is the base 95th percentile queue length, and
g/C is the green time percentage per cycle for the movement.

Unsignalized intersections with 2-way stop control were assessed for queue length using the methodology described in the Highway Capacity Manual, Chapter 17. The analysis uses HCM Equation 17-37, with the methodology described on pages 17-22 through 17-24. The Synchro program utilizes this equation to generate 95th percentile queue lengths for each unsignalized approach, and these results have been included with the level of service results. All design queue lengths are rounded to the nearest 25' and are in units of feet. (Twenty-five feet is the industry standard for average vehicle queue lengths, and reference to this may be found in ITE Transportation and Land Development, 2nd Ed.)

Roundabout queuing is determined by the RODEL program. The program yields both average and maximum queue lengths, corresponding to the 50th percentile and approximately 95th percentile values.

All signalized intersection queue worksheets may be found in Appendix F.

5.1 2012 BASELINE SCENARIO

Traffic analyses were performed for the 2012 Baseline AM and PM peak hour conditions for comparison with the 2012 Build conditions. This evaluation uses the existing roadway geometry and volumes found in Table 4. As stated in Section 2, all analyses were conducted using Synchro 7.0 and the results produced using the Highway Capacity Manual methodology. Table 9 contains the signalized intersection measures of effectiveness (MOEs) including the level of service [LOS], average control delay by approach [Delay], the approach volume to capacity (v/c) ratio [Ave v/c], and the design queue for each approach. The existing storage lane lengths are in parenthesis, with dual left-turn lanes designated with a -D. The 2012 Baseline scenario signalized analyses evaluated the signals as actuated-coordinated with 110 second AM and 120 second PM cycle lengths. The 2012 Baseline level of service worksheets may be found in Appendix D.

Table 9
Baseline - Signalized Intersection Measures of Effectiveness

Intersection/Approach		AM Peak Hour (110 sec.)				PM Peak Hour (120 sec.)			
		LOS	Delay (sec)	Ave v/c	Design Queue	LOS	Delay (sec)	Ave v/c	Design Queue
Uptown Loop @ Louisiana		*B*	*19 s*	*0.35*		*C*	*28 s*	*0.57*	
(75')	EB LT	D	48 s	0.19	50'	D	44 s	0.14	75'
	EB Th	D	41 s	0.01	25'	C	32 s	0.02	25'
(75')	EB RT	C	26 s	0.19	175'	C	28 s	0.54	300'
(225'-D)	WB LT	E	69 s	0.21	50'	D	52 s	0.43	75'
	WB Th	D	40 s	0.01	25'	C	33 s	0.01	25'
(225')	WB RT	C	27 s	0.00	25'	C	27 s	0.00	25'
(200'-D)	NB LT	D	44 s	0.59	175'	D	52 s	0.44	100'
	NB Th-RT	B	10 s	0.36	125'	C	24 s	0.64	200'
(175'-D)	SB LT	D	52 s	0.02	25'	E	56 s	0.14	25'
	SB Th-RT	B	18 s	0.37	150'	C	28 s	0.64	225'
Uptown Loop @ Indian School		*B*	*19 s*	*0.27*		*C*	*27 s*	*0.41*	
(175')	EB LT	B	14 s	0.17	75'	B	17 s	0.42	200'
	EB Th	B	19 s	0.17	100'	C	27 s	0.49	225'
(125')	EB RT	B	14 s	0.00	25'	B	15 s	0.02	75'
(375')	WB LT	B	10 s	0.17	125'	B	16s	0.23	125'
	WB Th-RT	B	19 s	0.40	175'	C	27 s	0.44	200'
(100')	NB LT	C	26 s	0.03	25'	D	36 s	0.16	100'
	NB Th-RT	C	24 s	0.03	50'	D	45 s	0.11	100'
(150')	SB LT	C	27 s	0.07	50'	C	26 s	0.35	175'
	SB Th	C	31 s	0.01	25'	C	32 s	0.05	50'
(150')	SB -RT	C	22 s	0.02	50'	C	21 s	0.08	125'

Overall signalized operations were adequate at each signalized intersection for the Baseline condition. The westbound left-turn and the southbound left-turn at the Louisiana Blvd-Uptown Loop Rd intersection were identified as operating at LOS E during the AM and PM peak hours respectively. The operations are a function of the moderately long cycle lengths and short green times for the protected only movements. Based upon the low average v/c ratios and short design queues, this operation is not a concern. Field observation corroborates a moderately long delay for the movements; however, no cycle failures were observed with a maximum queue of 3 vehicles (two-lanes) for the westbound left-turn lane. (It should be noted that intersection observation occurred during the holiday season, thus queues exceeding the design level are not unusual.)

Design queue lengths were also examined, and the only queue of concern at the Louisiana Blvd-Uptown Loop Rd intersection was the eastbound right-turn. This was identified as significantly exceeding the existing storage length. This is not considered a concern because

the through volumes are under 50 vehicles per hour during each peak hour and the through design queue is 25'. The Indian School Rd-Uptown Loop Rd intersection is projected to have two left-turn design queues exceeding existing storage lengths during the PM peak hour. Each storage lane is projected to exceed the existing storage length by 25' (one vehicle); therefore, these queue deficiencies are not considered significant. It is likely that the storage lane taper will accommodate at least one additional vehicle.

Table 10 contains the MOEs for the unsignalized intersections within the study area. These intersections had the critical approaches assessed for level of service [LOS], average control delay [Delay], and the estimated 95th percentile queue length [Queue]. The approaches reflect the existing condition for the Uptown Loop Rd corridor.

Table 10
Baseline - Unsignalized Intersection Levels of Service

Intersection	AM Peak			PM Peak		
	LOS	Delay	Queue	LOS	Delay	Queue
Uptown Lp Rd @ Winrock Loop						
Westbound Left Turn	A	8	25'	A	8s	25'
Northbound Approach	A	9	25'	A	9s	25'
Uptown Lp Rd @ Winrock Access						
Westbound Right Turn	A	9	25'	A	10s	25'

S – seconds

No deficiencies were identified for the existing unsignalized intersections.

5.2 2012 Build Scenario

Traffic analyses were performed for the 2012 Build AM and PM peak hours. The Build condition assumes that the Target site is built-out as described in the Target TIS and the Winrock revitalization has occurred. The volumes associated with the build out of the sites are found in Tables 7 and 8 in Section 4.3, and are added to the existing volumes from Table 4. As stated in Section 2, all signalized intersection analyses were conducted using Synchro 7.0 and the results produced using the Highway Capacity Manual methodology. Table 11 contains the signalized intersection measures of effectiveness (MOEs) including the level of service [LOS], average control delay by approach [Delay], the approach volume to capacity (v/c) ratio [Ave v/c], and the design queue for each approach. The existing storage lane lengths are in parenthesis, with dual left-turn lanes designated with a -D. The 2012 Build scenario signalized analyses evaluated the signals as actuated-coordinated with 110 second AM and 120 second PM cycle lengths. The 2012 Build level of service worksheets may be found in Appendix E.

Table 11
Build - Signalized Intersection Measures of Effectiveness

Intersection/Approach		AM Peak Hour (110 sec.)				PM Peak Hour (120 sec.)			
		LOS	Delay (sec)	Ave v/c	Design Queue	LOS	Delay (sec)	Ave v/c	Design Queue
Uptown Loop @ Louisiana		*C*	*23 s*	*0.43*		*D*	*43 s*	*0.89*	
(75')	EB LT	E	55 s	0.40	50'	E	58 s	0.50	100'
	EB Th	D	40 s	0.03	25'	D	41 s	0.10	50'
(75')	EB RT	C	25 s	0.22	175'	D	45 s	0.75	300'
(225'-D)	WB LT	D	47 s	0.37	100'	E	58 s	0.87	275'
	WB Th	C	34 s	0.01	25'	C	28 s	0.03	50'
(225')	WB RT	C	27 s	0.01	25'	C	21 s	0.05	100'
(200'-D)	NB LT	D	44 s	0.59	175'	D	55 s	0.52	100'
	NB Th-RT	B	16 s	0.47	175'	D	45 s	0.97	225'
(175'-D)	SB LT	D	50 s	0.13	25'	E	62 s	0.65	100'
	SB Th-RT	C	22 s	0.41	150'	C	32 s	0.69	250'
Uptown Loop @ Indian School		*B*	*19 s*	*0.28*		*C*	*28 s*	*0.48*	
(175')	EB LT	B	16 s	0.17	100'	B	20 s	0.41	200'
	EB Th	C	21 s	0.18	100'	C	32 s	0.58	250'
(125')	EB RT	B	14 s	0.01	50'	B	17 s	0.06	125'
(375')	WB LT	A	10 s	0.19	125'	B	17 s	0.40	200'
	WB Th-RT	B	18 s	0.40	175'	C	24 s	0.44	200'
(100')	NB LT	C	29 s	0.05	50'	C	34 s	0.33	175'
	NB Th-RT	C	33 s	0.04	50'	D	41 s	0.18	125'
(150')	SB LT	C	29 s	0.08	50'	C	29 s	0.44	175'
	SB Th	C	33 s	0.01	25'	D	37 s	0.09	50'
(150')	SB -RT	C	25 s	0.02	50'	C	25 s	0.08	125'

Table 11 indicates that these developments will result in minor impacts at the Uptown Loop Rd-Indian School Rd intersection. Average delay increases will be minimal, and only the northbound left-turn lane will result in an additional queue deficiency. It may be prudent to consider extending the northbound left-turn lane to minimize queuing into the northbound through lane, though through movements are forecast to be infrequent (less than 60 vph).

Operations at the Louisiana Blvd-Uptown Loop Rd intersection will degrade significantly for the Build condition. The AM peak hour will experience moderate degradation via an average delay increase of approximately 4 seconds per vehicle. The PM peak hour will experience an increased average delay of approximately 15 seconds per vehicle, an increase of 54%. A number of left-turn movements will degrade to LOS E, with the westbound left turn the only movement of significance because of a projected PM peak hour volume of 516 vph. In conjunction with the westbound level of service degradation is the significant increase in required queue storage, from 75' to 275'. The 275' storage requirement indicates that the

design queue will extend beyond the existing left-turn access to Winrock Loop Rd. It may be problematic to retain the left-in access to Winrock Loop Rd once the redevelopment occurs. The final identified concern is the northbound through lane which will operate with a v/c ratio of 0.97 during the PM peak hour at build out. When v/c ratios exceed 0.95, the frequency of cycle failures increases, and the Build condition is projected to increase the v/c ratio from 0.64 to 0.97. Observation of existing conditions indicates that the PM peak period experiences northbound queue blocking of the Louisiana Blvd-Uptown Loop Rd intersection from the Louisiana Blvd-Indian School Rd intersection, potentially reducing the impacts from cycle failures. This condition should be monitored to see if alternative signal timing is required so that the I-40/Louisiana Blvd interchange is not affected by recurring cycle failures.

Table 12 contains the MOEs for the unsignalized intersection within the study area. Note that this analysis assumes that the westbound left turn may remain at the Uptown Loop Rd-Winrock Loop Rd intersection, which is unlikely based upon the signalized intersection analysis. The intersection had the critical approaches assessed for level of service [LOS], average control delay [Delay], and the estimated 95th percentile queue length [Queue]. The approaches reflect the existing condition for the Uptown Loop Rd corridor.

Table 12
Build - Unsignalized Intersection Levels of Service

Intersection	AM Peak			PM Peak		
	LOS	Delay	Queue	LOS	Delay	Queue
Uptown Lp Rd @ Winrock Loop						
Westbound Left Turn	A	8 s	25'	A	10 s	25'
Northbound Approach	A	9 s	25'	B	11 s	25

S – seconds

No deficiencies were identified for this unsignalized intersection.

A roundabout will be formed from the primary Winrock access and the Target right-in, right-out access to Uptown Loop Rd. The roundabout will provide full access to each approach leg, and operations were evaluated using the RODEL roundabout analysis software. The roundabout forecast volumes are contained in Table 13, and they have been adjusted using peak hour factors. RODEL does not include a peak hour factor; therefore it has been calculated into the base data in Table 13.

Table 13
Uptown Loop Rd-Winrock Access Roundabout Volumes

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
AM Peak Hour	1	13	91	43	13	28	35	87	73	28	135	5
PM Peak Hour	5	38	361	299	35	260	136	135	368	138	191	13

Note: The northbound left turn volume includes 12 AM and 88 PM U-turns.

The layout of the intersection will be a single lane roundabout based upon the projected volumes. The two lane approaches on Uptown Loop Rd will require reduction to a single lane approaching the intersection. Table 14 contains the levels of service and average delay for both the 50th and 85th percentile operations.

Table 14
Build - Roundabout Intersection Levels of Service

Peak Hour		Intersection		Average Delay by Approach							
				Uptown NB		Winrock WB		Uptown SB		Target EB	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
AM	50%	A	3 s	A (0)	4 s	A (0)	3 s	A (0)	4 s	A (0)	4 s
	85%	A	4 s	A (0)	4 s	A (0)	4 s	A (0)	4 s	A (0)	4 s
PM	50%	A	7 s	A (1)	7 s	A (1)	7 s	A (1)	5 s	A (1)	8 s
	85%	B	12 s	B (2)	11 s	B (2)	12 s	A (1)	8 s	B (2)	14 s

A (1) - Level of Service and (average queue length).

The results of the roundabout analysis indicate that excellent operations are anticipated for a single lane roundabout. The average operations are projected to be LOS A assuming proper design. The 85th percentile confidence level yields LOS A during the AM peak and LOS B in the PM peak, indicating that poorer operations are anticipated 15% of the time. A schematic of the proposed roundabout may be found in Exhibit 1.

6.0 FINDINGS AND RECOMMENDATIONS

6.1 FINDINGS AND CONSIDERATIONS

The findings of this report are that the Uptown Loop Rd corridor should not be adversely impacted by the development of the Target store and revitalization of Winrock Center. Uptown Loop Rd currently has extremely low volumes for a 4-lane roadway, operating at approximately 8% of capacity with a daily volume of 2,600 vehicles per day (vpd) per the MRCOG 2010 Traffic Flow Map. The additional development trips will consume some of this available capacity.

Each of the intersections within the corridor was examined, with acceptable operations resulting at each of the intersections. This includes a single-lane roundabout that would serve both Winrock Center and the proposed Target site. The primary deficiency noted occurred at the Louisiana Blvd-Uptown Loop Rd intersection during the PM peak hour where a number of LOS E approach level of service were noted. This is an acceptable level of service for an urban area; therefore, no mitigation is required or recommended for the capacity deficiency.

The westbound approach on Uptown Loop Rd at Louisiana Blvd has a dual left-turn lane, and this lane is anticipated to increase from an existing design queue length of 75' to a design queue length of 275'. The existing dual left-turn lane has approximately 225' of storage; therefore an additional 50' is required. The additional storage is problematic because of the existing left-turn lane from Uptown Loop Rd to Winrock Loop Rd, located approximately 250' east of Louisiana Blvd. This creates a conflict between the left-turn lane at Louisiana Blvd and the left-turn to Winrock Loop Rd. In addition, the location of the roundabout to serve both Winrock Center and Target would conflict with the required storage for the left turn to Winrock Loop Rd.

Closure of the left-turn lane from westbound Uptown Loop Rd to Winrock Loop Rd should be considered. This would require that traffic be rerouted into Winrock Center to access Winrock Loop Rd at the proposed roundabout. Based upon existing volumes, that would be 55 AM and 64 PM vehicles, approximately one per minute. This should not have a measurable impact upon roundabout operations.

The concern with closure of the left-turn lane to Winrock Loop Rd is not the additional traffic in the roundabout; it is the limitation of access to the I-40 Westbound on-ramp in the southwest corner of the Winrock Center property. It is estimated that approximately half of the existing left-turns from Uptown Loop Rd to Winrock Loop Rd are destined for the I-40 on-ramp, and closure would require that those motorists travel through Winrock Center or access the interstate via the Louisiana Blvd on-ramp. Accessing the freeway from Louisiana Blvd would require additional westbound left-turns at the Uptown Loop Rd-Louisiana Blvd intersection, and an evaluation of adding 32 (50%) PM peak hour left-turns to the forecast 516 left turns was

conducted. (Note that the AM peak hour has no operational issues, therefore, additional left turns will not adversely affect operations.) The evaluation indicated that additional PM peak hour traffic will have no measurable impact on intersection operations, and will not require additional queue storage. The closure of the left-turn lane from Uptown Loop Rd to Winrock Loop Rd will not result in operational consequences.

6.2 RECOMMENDATIONS

The following traffic engineering considerations are recommended:

1. Design and construct a single lane roundabout for the access to Winrock Center and the Target store. The following geometric parameters were used in the evaluation, and should be incorporated into the design. Given that roundabout design is a dynamic process between analysis and plan layout, the actual geometric parameters should be reevaluated as design proceeds to ensure that operations are not compromised. The general design considerations are:

a.	Roundabout Inscribed Diameter	150'
b.	Circulating Roadway Width	15' to 18'
c.	Design Entry Speed	18 mph
d.	Entry Width	14'
e.	Flare Length	100'
f.	Half (approach) Width	12'
g.	Entry Radius	65'
h.	Entry Angle	30°

   The above parameters should be incorporated into the initial design effort, and modified as required. It is noted that the driveway to the Target store will be much shorter than the other legs, and will have to be designed to accommodate their site plan. It is also recommended that the roundabout be designed to accommodate future widening to a two-lane roundabout. It is anticipated that if Winrock Center develops beyond the existing building footprint, additional capacity may be required at the roundabout.

   The roundabout should be striped and signed per the current MUTCD and FHWA *Roundabout Design Guide, 2nd Edition.*

2. Remove the westbound left-turn access from Uptown Loop Rd to Winrock Loop Rd by extending the roundabout splitter island to the existing raised median. Extend the westbound left-turn lane striping at the Uptown Loop Rd-Louisiana Blvd intersection to at least 300' from the stop bar.

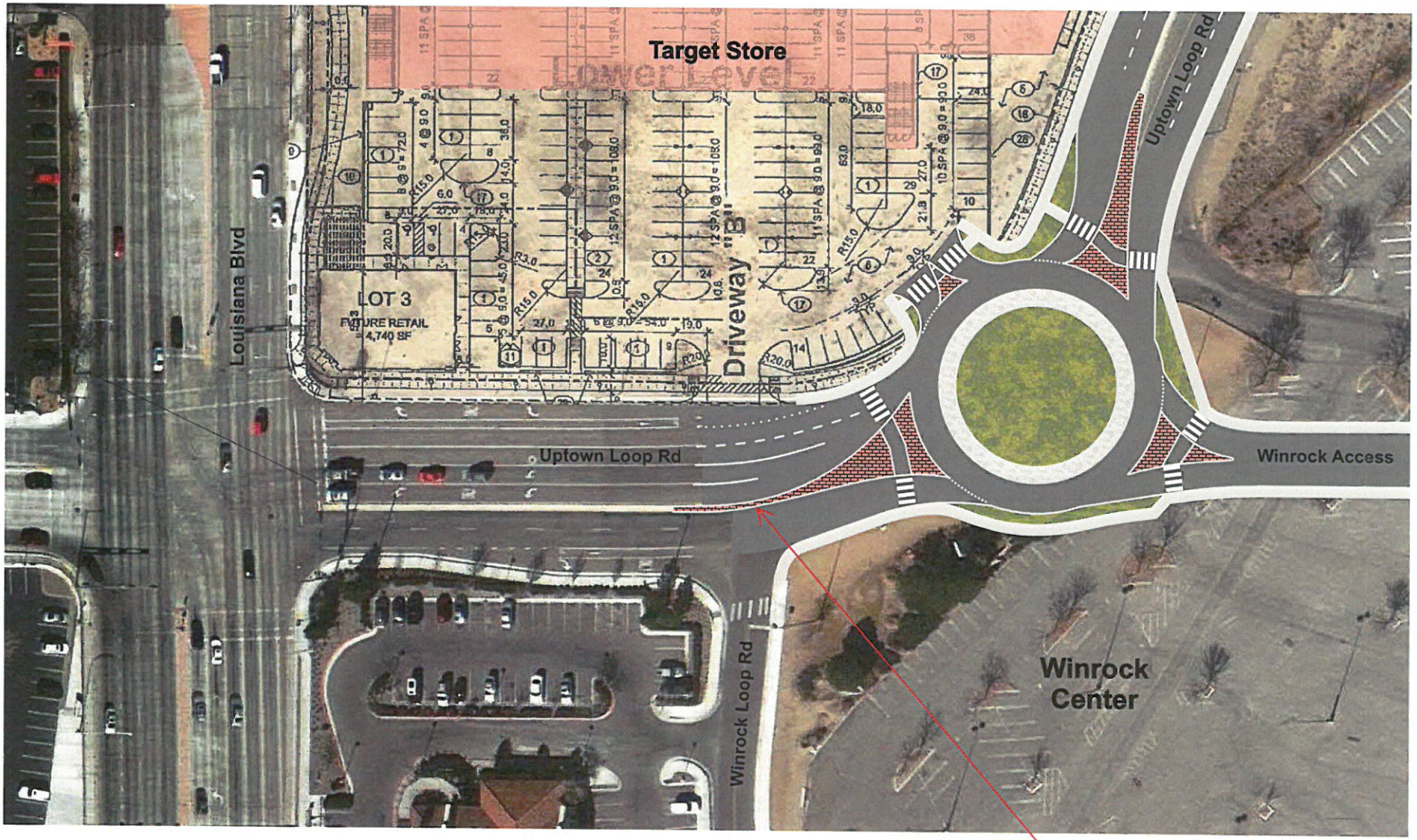


Exhibit 1

Conceptual Roundabout

This is an issue for the NMDOT and the FHWA - No direct access to the I-40 Winrock On Ramp from the Loop Road

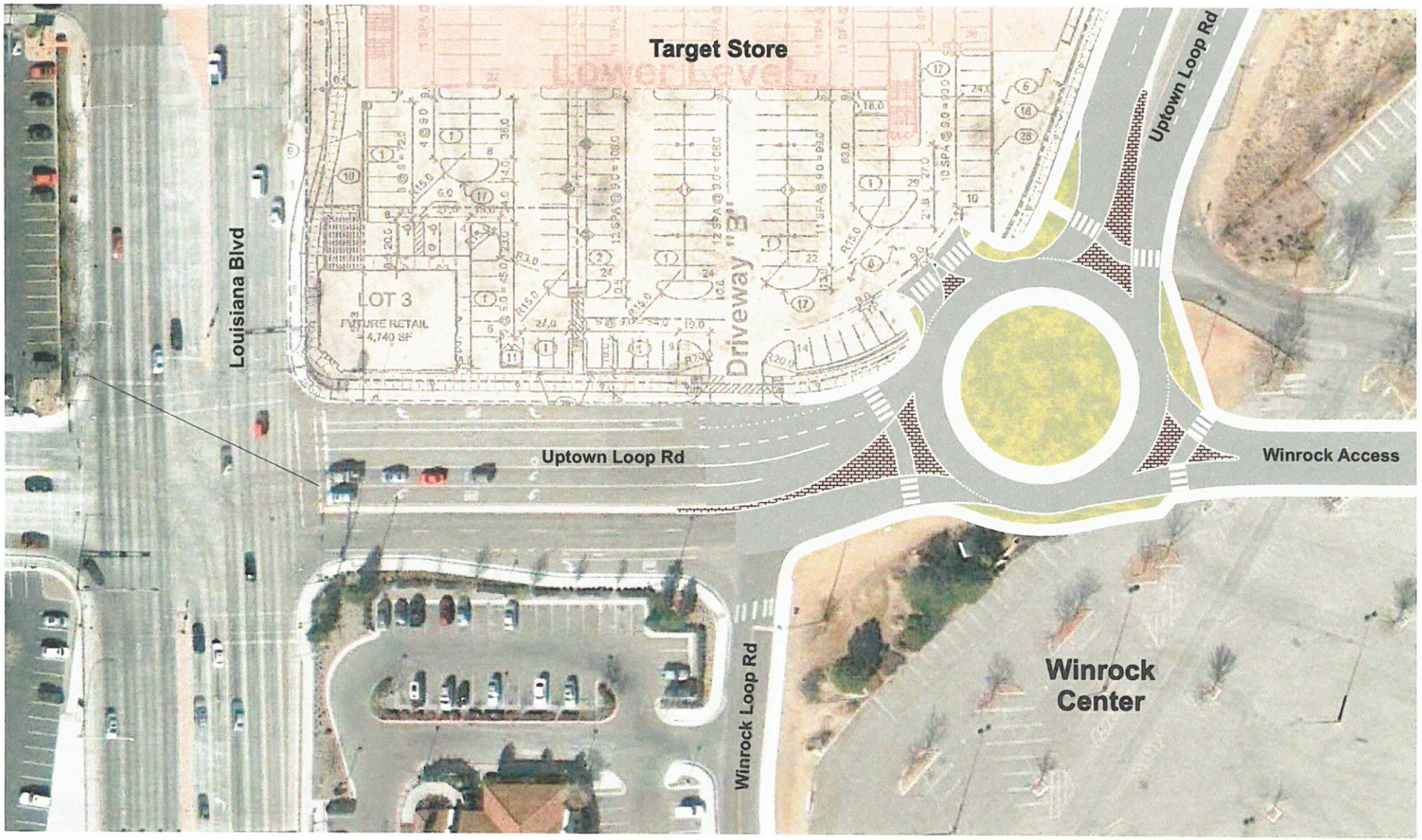


Exhibit 1

Conceptual Roundabout

Exhibit 2

Uptown Loop Rd Corridor with Roundabout

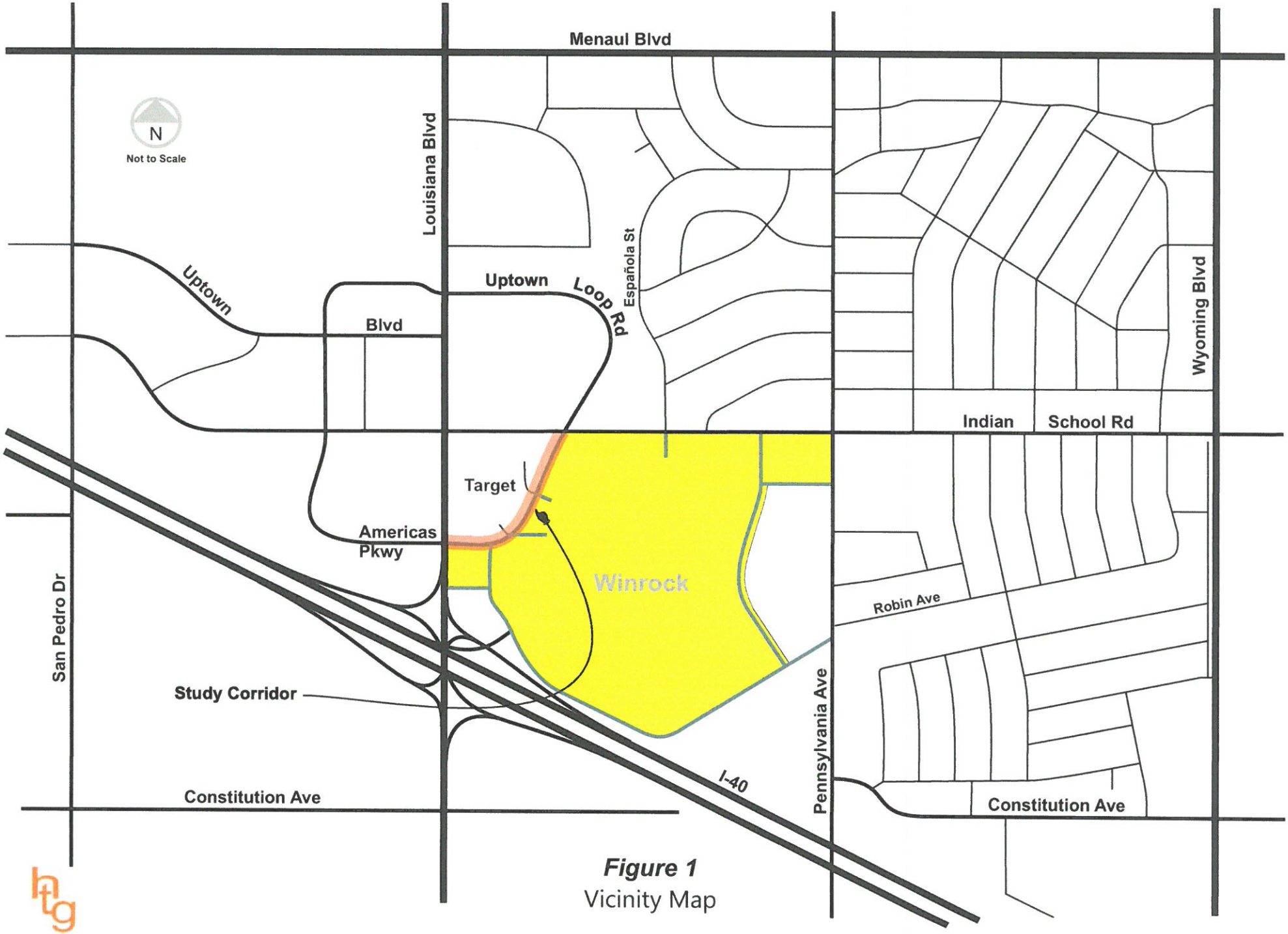
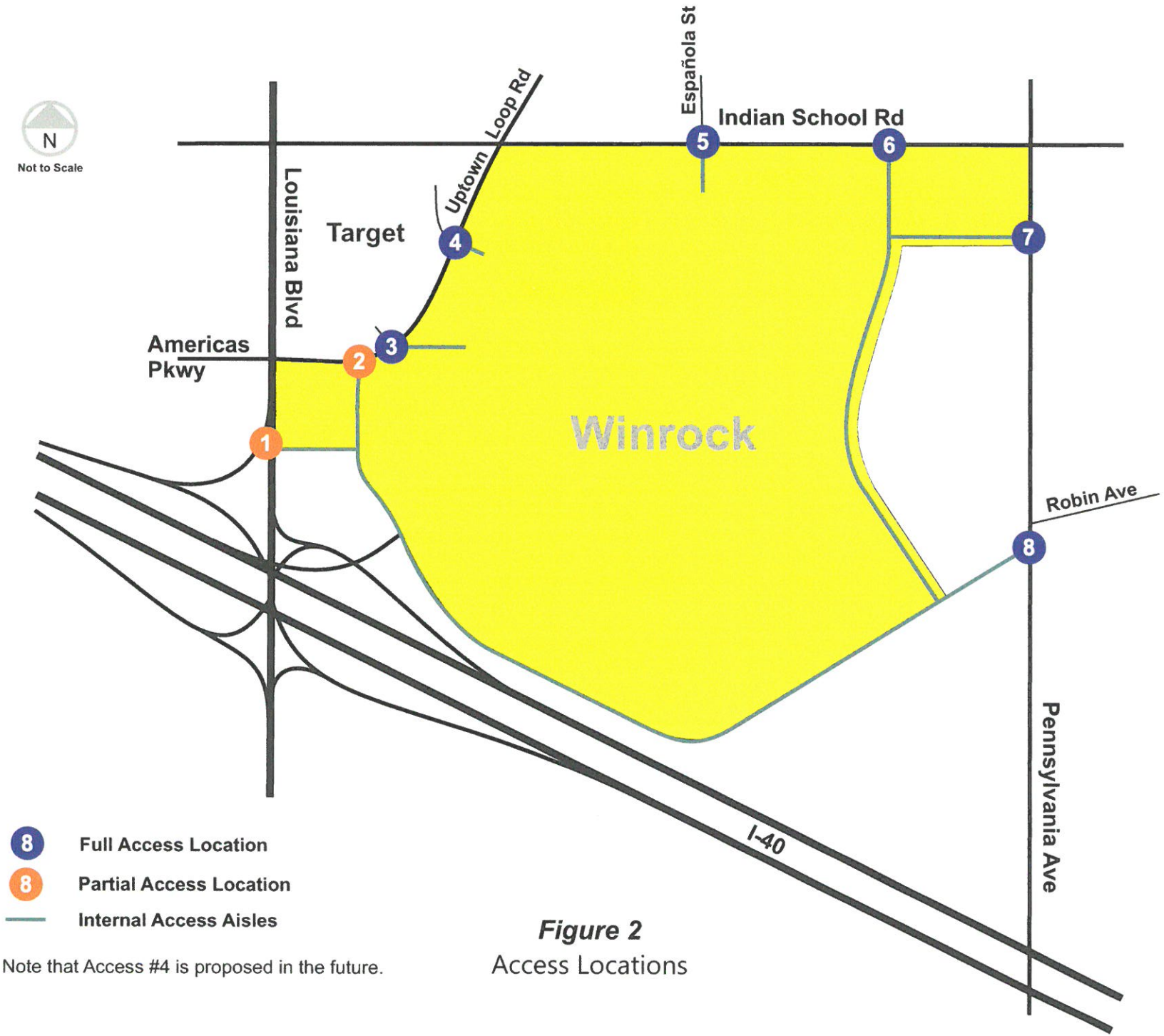
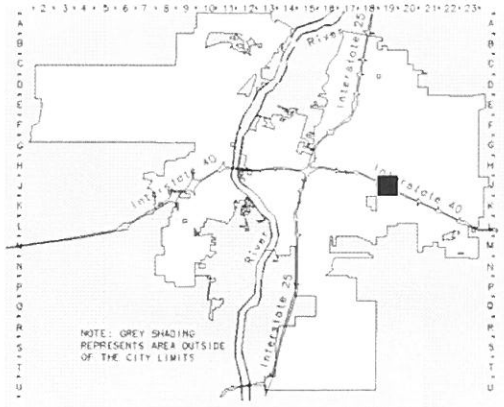


Figure 1
Vicinity Map



Note that Access #4 is proposed in the future.

Figure 2
Access Locations



GRAPHIC SCALE IN FEET

250 0 750 1000

Zone Atlas Page

J-19-Z

Map Amended through November 01, 2003

Albuquerque Geographic Information System
PLANNING DEPARTMENT

Uptown Loop Rd Corridor - Existing Raw Volumes

AM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	20	5	132	157	42	4	2	48	284	1186	53	1523	2	989	39	1030	**2758**
Uptown Lp-Winrock Lp		53	11	64	55	43		98			10	10				0	**172**
Uptown Lp-Winrock Acc				0	3		4	7		60	5	65		95		95	**167**
Indian School-Uptown Lp	64	232	2	298	99	501	66	666	8	10	38	56	24	5	23	52	**1072**

PM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	31	16	270	317	83	3	3	89	135	1677	132	1944	19	1596	28	1643	**3993**
Uptown Lp-Winrock Lp		192	40	232	104	142		246			61	61				0	**539**
Uptown Lp-Winrock Acc				0	49		142	191		156	90	246		199		199	**636**
Indian School-Uptown Lp	164	621	35	820	86	511	55	652	55	40	85	180	126	35	90	251	**1903**

Loisiana and Indian School Intersections counted in March 2011.
Winrock access locations counted in December 2011 with school in session.

Seasonal Adjustment	Dec Count	Mar Count	Δ%		
Indian School NB Approach	298	180	62.3%	Adjustment Factor	62.0%
Louisiana WB Approach	142	89	61.5%		

The seasonal adjustment only applies to the PM peak hour. The AM peak variation is less than 5%.

Uptown Loop Rd Corridor - Seasonally Adjusted Volumes

AM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	20	5	132	157	42	4	2	48	284	1186	53	1523	2	989	39	1030	**2758**
Uptown Lp-Winrock Lp		53	11	64	55	43		98			10	10				0	**172**
Uptown Lp-Winrock Acc				0	3		4	7		60	5	65		95		95	**167**
Indian School-Uptown Lp	64	232	2	298	99	501	66	666	8	10	38	56	24	5	23	52	**1072**

PM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	31	16	270	317	83	3	3	89	135	1677	132	1944	19	1596	28	1643	**3993**
Uptown Lp-Winrock Lp		119	25	144	64	88		152			38	38				0	**334**
Uptown Lp-Winrock Acc				0	30		88	118		97	56	153		123		123	**394**
Indian School-Uptown Lp	164	621	35	820	86	511	55	652	55	40	85	180	126	35	90	251	**1903**

Uptown Loop Rd Corridor Trip Assignment

AM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	24	13	132	169	119	9	9	137	284	1278	117	1679	22	991	39	1052	**3037**
Uptown Lp-Winrock Lp	0	106	37	143	71	131	0	202	0	0	21	21	0	0	0	0	**366**
Uptown Lp-Winrock Acc	1	10	68	79	32	10	21	63	26	65	55	146	21	101	4	126	**414**
Indian School-Uptown Lp	64	241	12	317	117	513	66	696	15	12	49	76	24	9	23	56	**1145**

PM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	42	49	270	361	516	28	54	598	135	1929	428	2492	121	1604	28	1753	**5204**
Uptown Lp-Winrock Lp	0	379	157	536	167	597	0	764	0	0	123	123	0	0	0	0	**1423**
Uptown Lp-Winrock Acc	4	30	289	323	254	30	221	505	116	115	313	544	110	153	10	273	**1645**
Indian School-Uptown Lp	165	659	82	906	172	545	55	772	111	59	163	333	126	56	90	272	**2283**

Additional Trips were added between Winrock and Target - 10 AM and 30 PM in each direction.

Roundabout Volumes - Peak Hour Adjusted

AM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Peak Hour Factor	0.75	0.75	0.75		0.75	0.75	0.75		0.75	0.75	0.75		0.75	0.75	0.75		
Uptown Lp-Winrock Acc	1	13	91	105	43	13	28	84	35	87	73	195	28	135	5	168	**552**

AM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Peak Hour Factor	0.80	0.80	0.80		0.85	0.85	0.85		0.85	0.85	0.85		0.80	0.80	0.80		**0**
Uptown Lp-Winrock Lp	5	38	361	404	299	35	260	594	136	135	368	639	138	191	13	342	**1979**

Harwick Transportation Group, Inc.
1440 Camino Cerrito SE
Albuquerque, NM 87123
505-228-9776

Counter: NH

File Name : WinrockLp-Uptown
Site Code : 01217111
Start Date : 12/15/2011
Page No : 1

Groups Printed- Cars - Trucks - Buses

	Uptown Loop Rd Eastbound				Uptown Loop Rd Westbound				Winrock Loop Rd Northbound				Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	5	0	5	13	7	0	20	0	0	1	1	0	0	0	0	26
07:15 AM	0	4	0	4	7	20	0	27	0	0	4	4	0	0	0	0	35
07:30 AM	0	6	3	9	15	10	0	25	0	0	0	0	0	0	0	0	34
07:45 AM	0	14	2	16	16	15	0	31	0	0	4	4	0	0	0	0	51
Total	0	29	5	34	51	52	0	103	0	0	9	9	0	0	0	0	146
08:00 AM	0	18	1	19	14	8	0	22	0	0	3	3	0	0	0	0	44
08:15 AM	0	15	5	20	10	10	0	20	0	0	3	3	0	0	0	0	43
08:30 AM	0	18	2	20	7	13	0	20	0	0	1	1	0	0	0	0	41
08:45 AM	0	10	3	13	14	8	0	22	0	0	3	3	0	0	0	0	38
Total	0	61	11	72	45	39	0	84	0	0	10	10	0	0	0	0	166
*** BREAK ***																	
04:00 PM	0	44	8	52	28	28	0	56	0	0	8	8	0	0	1	1	117
04:15 PM	0	43	12	55	28	30	0	58	0	0	13	13	0	0	0	0	126
04:30 PM	0	30	11	41	28	37	0	65	0	0	15	15	0	0	0	0	121
04:45 PM	0	53	7	60	22	32	0	54	0	0	14	14	0	0	0	0	128
Total	0	170	38	208	106	127	0	233	0	0	50	50	0	0	1	1	492
05:00 PM	0	51	9	60	29	33	0	62	0	0	18	18	0	0	0	0	140
05:15 PM	0	58	13	71	25	40	0	65	0	0	14	14	0	0	0	0	150
05:30 PM	0	57	10	67	33	21	1	55	1	0	10	11	0	0	0	0	133
05:45 PM	0	54	13	67	35	35	0	70	1	0	10	11	0	0	0	0	148
Total	0	220	45	265	122	129	1	252	2	0	52	54	0	0	0	0	571
Grand Total	0	480	99	579	324	347	1	672	2	0	121	123	0	0	1	1	1375
Apprch %	0	82.9	17.1		48.2	51.6	0.1		1.6	0	98.4		0	0	100		
Total %	0	34.9	7.2	42.1	23.6	25.2	0.1	48.9	0.1	0	8.8	8.9	0	0	0.1	0.1	
Cars	0	465	97	562	324	343	1	668	2	0	119	121	0	0	1	1	1352
% Cars	0	96.9	98	97.1	100	98.8	100	99.4	100	0	98.3	98.4	0	0	100	100	98.3
Trucks	0	0	2	2	0	3	0	3	0	0	1	1	0	0	0	0	6
% Trucks	0	0	2	0.3	0	0.9	0	0.4	0	0	0.8	0.8	0	0	0	0	0.4
Buses	0	15	0	15	0	1	0	1	0	0	1	1	0	0	0	0	17
% Buses	0	3.1	0	2.6	0	0.3	0	0.1	0	0	0.8	0.8	0	0	0	0	1.2

Harwick Transportation Group, Inc.
1440 Camino Cerrito SE
Albuquerque, NM 87123
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Counter: NH

File Name : WinrockLp-Uptown
Site Code : 01217111
Start Date : 12/15/2011
Page No : 2

	Uptown Loop Rd Eastbound				Uptown Loop Rd Westbound				Winrock Loop Rd Northbound				Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 7:00:00 AM to 11:45:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 7:45:00 AM																	
7:45:00 AM	0	14	2	16	16	15	0	31	0	0	4	4	0	0	0	0	51
8:00:00 AM	0	18	1	19	14	8	0	22	0	0	3	3	0	0	0	0	44
8:15:00 AM	0	15	5	20	10	10	0	20	0	0	3	3	0	0	0	0	43
8:30:00 AM	0	18	2	20	7	13	0	20	0	0	1	1	0	0	0	0	41
Total Volume	0	65	10	75	47	46	0	93	0	0	11	11	0	0	0	0	179
% App. Total	0	86.7	13.3		50.5	49.5	0		0	0	100		0	0	0		
PHF	.000	.903	.500	.938	.734	.767	.000	.750	.000	.000	.688	.688	.000	.000	.000	.000	.877
Cars	0	62	8	70	47	44	0	91	0	0	11	11	0	0	0	0	172
% Cars	0	95.4	80.0	93.3	100	95.7	0	97.8	0	0	100	100	0	0	0	0	96.1
Trucks	0	0	2	2	0	2	0	2	0	0	0	0	0	0	0	0	4
% Trucks	0	0	20.0	2.7	0	4.3	0	2.2	0	0	0	0	0	0	0	0	2.2
Buses	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
% Buses	0	4.6	0	4.0	0	0	0	0	0	0	0	0	0	0	0	0	1.7
Peak Hour Analysis From 12:00:00 PM to 5:45:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 5:00:00 PM																	
5:00:00 PM	0	51	9	60	29	33	0	62	0	0	18	18	0	0	0	0	140
5:15:00 PM	0	58	13	71	25	40	0	65	0	0	14	14	0	0	0	0	150
5:30:00 PM	0	57	10	67	33	21	1	55	1	0	10	11	0	0	0	0	133
5:45:00 PM	0	54	13	67	35	35	0	70	1	0	10	11	0	0	0	0	148
Total Volume	0	220	45	265	122	129	1	252	2	0	52	54	0	0	0	0	571
% App. Total	0	83	17		48.4	51.2	0.4		3.7	0	96.3		0	0	0		
PHF	.000	.948	.865	.933	.871	.806	.250	.900	.500	.000	.722	.750	.000	.000	.000	.000	.952
Cars	0	215	45	260	122	128	1	251	2	0	51	53	0	0	0	0	564
% Cars	0	97.7	100	98.1	100	99.2	100	99.6	100	0	98.1	98.1	0	0	0	0	98.8
Trucks	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
% Trucks	0	0	0	0	0	0.8	0	0.4	0	0	1.9	1.9	0	0	0	0	0.4
Buses	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
% Buses	0	2.3	0	1.9	0	0	0	0	0	0	0	0	0	0	0	0	0.9

Harwick Transportation Group, Inc.

1440 Camino Cerrito SE
Albuquerque, NM 87123
505-228-9776

Counter: RC

File Name : Uptown-WinrockAcc
Site Code : 12152011
Start Date : 12/15/2011
Page No : 1

Groups Printed- Cars - Trucks - Buses

	Eastbound				Winrock Access Westbound				Uptown Loop Rd Northbound				Uptown Loop Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	1	0	1	2	0	7	0	7	0	22	0	22	31
07:15 AM	0	0	0	0	3	0	4	7	0	7	2	9	0	23	0	23	39
07:30 AM	0	0	0	0	0	0	0	0	0	7	0	7	0	26	0	26	33
07:45 AM	0	0	0	0	1	0	1	2	0	16	2	18	0	33	0	33	53
Total	0	0	0	0	5	0	6	11	0	37	4	41	0	104	0	104	156
08:00 AM	0	0	0	0	1	0	2	3	0	22	1	23	0	16	0	16	42
08:15 AM	0	0	0	0	1	0	1	2	0	15	2	17	0	20	0	20	39
08:30 AM	0	0	0	0	3	0	4	7	0	16	3	19	0	16	0	16	42
08:45 AM	0	0	0	0	0	0	0	0	0	14	0	14	0	22	0	22	36
Total	0	0	0	0	5	0	7	12	0	67	6	73	0	74	0	74	159
*** BREAK ***																	
04:00 PM	0	0	0	0	17	0	34	51	0	34	22	56	0	39	0	39	146
04:15 PM	0	0	0	0	18	0	35	53	0	34	22	56	0	38	0	38	147
04:30 PM	0	0	0	0	16	0	50	66	0	29	16	45	0	53	0	53	164
04:45 PM	0	0	0	0	13	0	32	45	0	43	24	67	0	44	0	44	156
Total	0	0	0	0	64	0	151	215	0	140	84	224	0	174	0	174	613
05:00 PM	0	0	0	0	9	0	26	35	0	42	23	65	0	51	0	51	151
05:15 PM	0	0	0	0	11	0	34	45	0	42	27	69	0	51	0	51	165
05:30 PM	0	0	0	0	6	0	23	29	0	38	28	66	1	51	0	52	147
05:45 PM	0	0	0	0	11	0	31	42	0	47	16	63	0	52	0	52	157
Total	0	0	0	0	37	0	114	151	0	169	94	263	1	205	0	206	620
Grand Total	0	0	0	0	111	0	278	389	0	413	188	601	1	557	0	558	1548
Apprch %	0	0	0		28.5	0	71.5		0	68.7	31.3		0.2	99.8	0		
Total %	0	0	0	0	7.2	0	18	25.1	0	26.7	12.1	38.8	0.1	36	0	36	
Cars	0	0	0	0	111	0	278	389	0	396	188	584	1	553	0	554	1527
% Cars	0	0	0	0	100	0	100	100	0	95.9	100	97.2	100	99.3	0	99.3	98.6
Trucks	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	3
% Trucks	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0	0.4	0	0.4	0.2
Buses	0	0	0	0	0	0	0	0	0	16	0	16	0	2	0	2	18
% Buses	0	0	0	0	0	0	0	0	0	3.9	0	2.7	0	0.4	0	0.4	1.2

Harwick Transportation Group, Inc.
1440 Camino Cerrito SE
Albuquerque, NM 87123
505-228-9776

Counter: RC

File Name : Uptown-WinrockAcc
Site Code : 12152011
Start Date : 12/15/2011

	Eastbound				Winrock Access Westbound				Uptown Loop Rd Northbound				Uptown Loop Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 7:00:00 AM to 11:45:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 7:45:00 AM																	
7:45:00 AM	0	0	0	0	1	0	1	2	0	16	2	18	0	33	0	33	53
8:00:00 AM	0	0	0	0	1	0	2	3	0	22	1	23	0	16	0	16	42
8:15:00 AM	0	0	0	0	1	0	1	2	0	15	2	17	0	20	0	20	39
8:30:00 AM	0	0	0	0	3	0	4	7	0	16	3	19	0	16	0	16	42
Total Volume	0	0	0	0	6	0	8	14	0	69	8	77	0	85	0	85	176
% App. Total	0	0	0		42.9	0	57.1		0	89.6	10.4		0	100	0		
PHF	.000	.000	.000	.000	.500	.000	.500	.500	.000	.784	.667	.837	.000	.644	.000	.644	.830
Cars	0	0	0	0	6	0	8	14	0	66	8	74	0	84	0	84	172
% Cars	0	0	0	0	100	0	100	100	0	95.7	100	96.1	0	98.8	0	98.8	97.7
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1.2	0	1.2	0.6
Buses	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
% Buses	0	0	0	0	0	0	0	0	0	4.3	0	3.9	0	0	0	0	1.7
Peak Hour Analysis From 12:00:00 PM to 5:45:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 4:30:00 PM																	
4:30:00 PM	0	0	0	0	16	0	50	66	0	29	16	45	0	53	0	53	164
4:45:00 PM	0	0	0	0	13	0	32	45	0	43	24	67	0	44	0	44	156
5:00:00 PM	0	0	0	0	9	0	26	35	0	42	23	65	0	51	0	51	151
5:15:00 PM	0	0	0	0	11	0	34	45	0	42	27	69	0	51	0	51	165
Total Volume	0	0	0	0	49	0	142	191	0	156	90	246	0	199	0	199	636
% App. Total	0	0	0		25.7	0	74.3		0	63.4	36.6		0	100	0		
PHF	.000	.000	.000	.000	.766	.000	.710	.723	.000	.907	.833	.891	.000	.939	.000	.939	.964
Cars	0	0	0	0	49	0	142	191	0	151	90	241	0	199	0	199	631
% Cars	0	0	0	0	100	0	100	100	0	96.8	100	98.0	0	100	0	100	99.2
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0	5
% Buses	0	0	0	0	0	0	0	0	0	3.2	0	2.0	0	0	0	0	0.8

Traffic Count Data Sheet

Year Counts Taken: **2011**

E-W Street **Indian School Rd**
N-S Street: **Uptown Loop**

Speed Limit (Indian School Rd)= **35** MPH
Speed Limit (Uptown Loop)= **35** MPH
Date of Count: **3/23/11**

Begin Time	End Time	Eastbound (Indian School Rd)			Westbound (Indian School Rd)			Northbound (Uptown Loop)			Southbound (Uptown Loop)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	~~5~~	~~35~~	~~0~~	~~12~~	~~59~~	~~5~~	~~1~~	~~1~~	~~4~~	~~53~~	~~3~~	~~5~~
7:15 AM	7:30 AM	~~5~~	~~32~~	~~0~~	~~22~~	~~111~~	~~4~~	~~8~~	~~0~~	~~1~~	~~7~~	~~3~~	~~3~~
7:30 AM	7:45 AM	~~7~~	~~33~~	~~0~~	~~18~~	~~131~~	~~6~~	~~10~~	~~3~~	~~2~~	~~6~~	~~0~~	~~2~~
7:45 AM	8:00 AM	**11**	**54**	**1**	**28**	**144**	**12**	**1**	**1**	**9**	**10**	**1**	**5**
8:00 AM	8:15 AM	**11**	**69**	**1**	**34**	**136**	**31**	**2**	**7**	**10**	**4**	**1**	**7**
8:15 AM	8:30 AM	**16**	**57**	**0**	**19**	**118**	**14**	**4**	**1**	**9**	**7**	**1**	**8**
8:30 AM	8:45 AM	**26**	**52**	**0**	**18**	**103**	**9**	**1**	**1**	**10**	**3**	**2**	**3**
8:45 AM	9:00 AM	~~27~~	~~54~~	~~0~~	~~17~~	~~84~~	~~9~~	~~7~~	~~3~~	~~5~~	~~11~~	~~1~~	~~17~~
AM Peak Hour Volumes		**64**	**232**	**2**	**99**	**501**	**66**	**8**	**10**	**38**	**24**	**5**	**23**
% of Total Traffic		6.0%	21.6%	0.2%	9.2%	46.7%	6.2%	0.7%	0.9%	3.5%	2.2%	0.5%	2.1%
% Directional			27.8%			62.1%			5.2%			4.9%	
AM Peak Hour Factor			*0.92*			*0.83*			*0.74*			*0.81*	

Begin Time	End Time	Eastbound (Indian School Rd)			Westbound (Indian School Rd)			Northbound (Uptown Loop)			Southbound (Uptown Loop)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	~~29~~	~~105~~	~~7~~	~~13~~	~~110~~	~~8~~	~~12~~	~~10~~	~~23~~	~~34~~	~~9~~	~~27~~
4:15 PM	4:30 PM	~~35~~	~~144~~	~~9~~	~~24~~	~~127~~	~~12~~	~~10~~	~~8~~	~~22~~	~~28~~	~~7~~	~~38~~
4:30 PM	4:45 PM	**42**	**134**	**10**	**14**	**121**	**17**	**8**	**8**	**30**	**31**	**8**	**16**
4:45 PM	5:00 PM	**47**	**131**	**10**	**22**	**127**	**18**	**12**	**8**	**16**	**28**	**7**	**23**
5:00 PM	5:15 PM	**28**	**188**	**5**	**33**	**141**	**9**	**25**	**15**	**15**	**40**	**10**	**34**
5:15 PM	5:30 PM	**47**	**168**	**10**	**17**	**122**	**11**	**10**	**9**	**24**	**27**	**10**	**17**
5:30 PM	5:45 PM	~~33~~	~~109~~	~~10~~	~~12~~	~~126~~	~~9~~	~~9~~	~~16~~	~~22~~	~~37~~	~~7~~	~~23~~
5:45 PM	6:00 PM	~~27~~	~~92~~	~~9~~	~~19~~	~~69~~	~~3~~	~~5~~	~~8~~	~~6~~	~~23~~	~~6~~	~~13~~
PM Peak Hour Volumes		**164**	**621**	**35**	**86**	**511**	**55**	**55**	**40**	**85**	**126**	**35**	**90**
% of Total Traffic		8.6%	32.6%	1.8%	4.5%	26.9%	2.9%	2.9%	2.1%	4.5%	6.6%	1.8%	4.7%
% Directional			43.1%			34.3%			9.5%			13.2%	
PM Peak Hour Factor			*0.91*			*0.89*			*0.82*			*0.75*	

Traffic Count Data Sheet

Year Counts Taken: **2011**

E-W Street **America's Pkwy**
N-S Street: **Louisiana Blvd**

Speed Limit (America's Pkwy)= **25** MPH
Speed Limit (Louisiana Blvd)= **35** MPH
Date of Count: **3/23/11**

Begin Time	End Time	Eastbound (America's Pkwy)			Westbound (America's Pkwy)			Northbound (Louisiana Blvd)			Southbound (Louisiana Blvd)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	~~3~~	~~1~~	~~22~~	~~6~~	~~1~~	~~0~~	~~37~~	~~199~~	~~7~~	~~0~~	~~129~~	~~2~~
7:15 AM	7:30 AM	~~3~~	~~1~~	~~20~~	~~7~~	~~0~~	~~0~~	~~39~~	~~259~~	~~10~~	~~2~~	~~210~~	~~2~~
7:30 AM	7:45 AM	**3**	**0**	**35**	**9**	**1**	**0**	**60**	**250**	**10**	**0**	**272**	**5**
7:45 AM	8:00 AM	**5**	**2**	**39**	**11**	**1**	**0**	**66**	**320**	**10**	**0**	**279**	**7**
8:00 AM	8:15 AM	**6**	**1**	**33**	**11**	**1**	**0**	**95**	**327**	**20**	**1**	**214**	**23**
8:15 AM	8:30 AM	**6**	**2**	**25**	**11**	**1**	**0**	**63**	**289**	**13**	**1**	**224**	**4**
8:30 AM	8:45 AM	~~1~~	~~0~~	~~21~~	~~8~~	~~1~~	~~0~~	~~54~~	~~269~~	~~15~~	~~0~~	~~230~~	~~2~~
8:45 AM	9:00 AM	~~7~~	~~0~~	~~20~~	~~10~~	~~0~~	~~0~~	~~56~~	~~340~~	~~8~~	~~10~~	~~197~~	~~2~~
AM Peak Hour Volumes		**20**	**5**	**132**	**42**	**4**	**0**	**284**	**1186**	**53**	**2**	**989**	**39**
% of Total Traffic		0.7%	0.2%	4.8%	1.5%	0.1%	0.0%	10.3%	43.0%	1.9%	0.1%	35.9%	1.4%
% Directional			5.7%			1.7%			55.3%			37.4%	
AM Peak Hour Factor			*0.85*			*0.96*			*0.86*			*0.90*	

Begin Time	End Time	Eastbound (America's Pkwy)			Westbound (America's Pkwy)			Northbound (Louisiana Blvd)			Southbound (Louisiana Blvd)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	~~11~~	~~5~~	~~63~~	~~23~~	~~3~~	~~0~~	~~39~~	~~444~~	~~25~~	~~9~~	~~420~~	~~5~~
4:15 PM	4:30 PM	~~9~~	~~5~~	~~33~~	~~17~~	~~1~~	~~0~~	~~37~~	~~423~~	~~29~~	~~5~~	~~371~~	~~5~~
4:30 PM	4:45 PM	**9**	**4**	**56**	**21**	**1**	**0**	**25**	**416**	**35**	**6**	**430**	**6**
4:45 PM	5:00 PM	**2**	**6**	**61**	**13**	**1**	**0**	**39**	**428**	**26**	**4**	**337**	**8**
5:00 PM	5:15 PM	**11**	**2**	**90**	**32**	**0**	**1**	**32**	**379**	**33**	**6**	**432**	**3**
5:15 PM	5:30 PM	**9**	**4**	**63**	**17**	**1**	**2**	**39**	**454**	**38**	**3**	**397**	**11**
5:30 PM	5:45 PM	~~6~~	~~4~~	~~47~~	~~24~~	~~2~~	~~1~~	~~43~~	~~418~~	~~36~~	~~6~~	~~374~~	~~7~~
5:45 PM	6:00 PM	~~9~~	~~4~~	~~50~~	~~8~~	~~2~~	~~2~~	~~38~~	~~345~~	~~25~~	~~7~~	~~392~~	~~8~~
PM Peak Hour Volumes		**31**	**16**	**270**	**83**	**3**	**3**	**135**	**1677**	**132**	**19**	**1596**	**28**
% of Total Traffic		0.8%	0.4%	6.8%	2.1%	0.1%	0.1%	3.4%	42.0%	3.3%	0.5%	40.0%	0.7%
% Directional			7.9%			2.2%			48.7%			41.1%	
PM Peak Hour Factor			*0.77*			*0.67*			*0.92*			*0.93*	

Trip Generation

Land Use	Units	No	ITE LU	Daily	Daily In	Daily Out	AM In	AM Out	PM In	PM Out
Existing Shopping Center	SF	441019	820	17817	8909	8909	226	144	842	877
Proposed Shopping Center	SF	523880	820	19927	9964	9964	249	160	946	984
Subtotal				37744	18872	18872	475	304	1788	1861
Winrock Center (Total SF)	SF	964899	820	29638	14819	14819	358	229	1423	1482
Existing as % of whole		45.7%		13546	6773	6773	164	105	650	677
Proposed as % of whole		54.3%		16092	8046	8046	194	124	773	805
Movie Theater	Screen	16	445	4680	2340	2340			221	147
Additional Winrock Trips				**20772**	**10386**	**10386**	**194**	**124**	**994**	**952**
Sum (Winrock in two parts)				42424	21212	21212	475	304	2009	2008
Sum (Winrock in one part)				34318	17159	17159	358	229	1644	1629

Trip Generation Worksheet

Land Use:	**Shopping Center**	**820**

Trip Generation Units:	1000	SF GLA
Project Units:	964.9	

Trip Generation Equations:

Average Vehicle Trip End on a Weekday

Ln(T) = 0.65 Ln(X) + 5.83

Enter	50%
Exit	50%

Average Vehicle Trip End on a Weekday, AM Peak Hour of Adj. Street Traffic

One Hour Between 7 and 9 AM

Ln(T) = 0.59 Ln(X) + 2.32

Enter	61%
Exit	39%

Average Vehicle Trip End on a Weekday, PM Peak Hour of Adj. Street Traffic

One Hour Between 4 and 6 PM

Ln(T) = 0.67 Ln(X) + 3.37

Enter	49%
Exit	51%

Daily Trips		**29638**
	Enter	14819
	Exit	14819
AM Peak Trips		**587**
	Enter	358
	Exit	229
PM Peak Trips		**2905**
	Enter	1423
	Exit	1482

Trip Generation Worksheet

Land Use: **Multiplex Movie Theater** **445**

Trip Generation Units: 1 Screens

Project Units: 16

Trip Generation Equations:

Average Vehicle Trip End on a Weekday

T = 292.5 (X)

Enter 50%

Exit 50%

Average Vehicle Trip End on a Weekday, AM Peak Hour

PM Peak Hour of Adjacent St Traffic, 4 to 6 PM (Friday only)

T = 23.02 (X)

Enter 60%

Exit 40%

Daily Trips		**4680**
	Enter	
	Exit	
AM Peak Trips		**N/A**
	Enter	
	Exit	
PM Peak Trips		**368**
	Enter	221
	Exit	147

Trip Generation Worksheet

Land Use:	**Shopping Center**	**820**

Trip Generation Units:	1000	SF GLA
Project Units:	441.02	

Trip Generation Equations:

Average Vehicle Trip End on a Weekday

Ln(T) = 0.65 Ln(X) + 5.83

Enter	50%
Exit	50%

Average Vehicle Trip End on a Weekday, AM Peak Hour of Adj. Street Traffic

One Hour Between 7 and 9 AM

Ln(T) = 0.59 Ln(X) + 2.32

Enter	61%
Exit	39%

Average Vehicle Trip End on a Weekday, PM Peak Hour of Adj. Street Traffic

One Hour Between 4 and 6 PM

Ln(T) = 0.67 Ln(X) + 3.37

Enter	49%
Exit	51%

Daily Trips		**17817**
	Enter	8909
	Exit	8908
AM Peak Trips		**370**
	Enter	226
	Exit	144
PM Peak Trips		**1719**
	Enter	842
	Exit	877

Trip Generation Worksheet

Land Use:	**Shopping Center**	**820**
Trip Generation Units:	1000	SF GLA
Project Units:	523.88	

Trip Generation Equations:

Average Vehicle Trip End on a Weekday
Ln(T) = 0.65 Ln(X) + 5.83

Enter	50%
Exit	50%

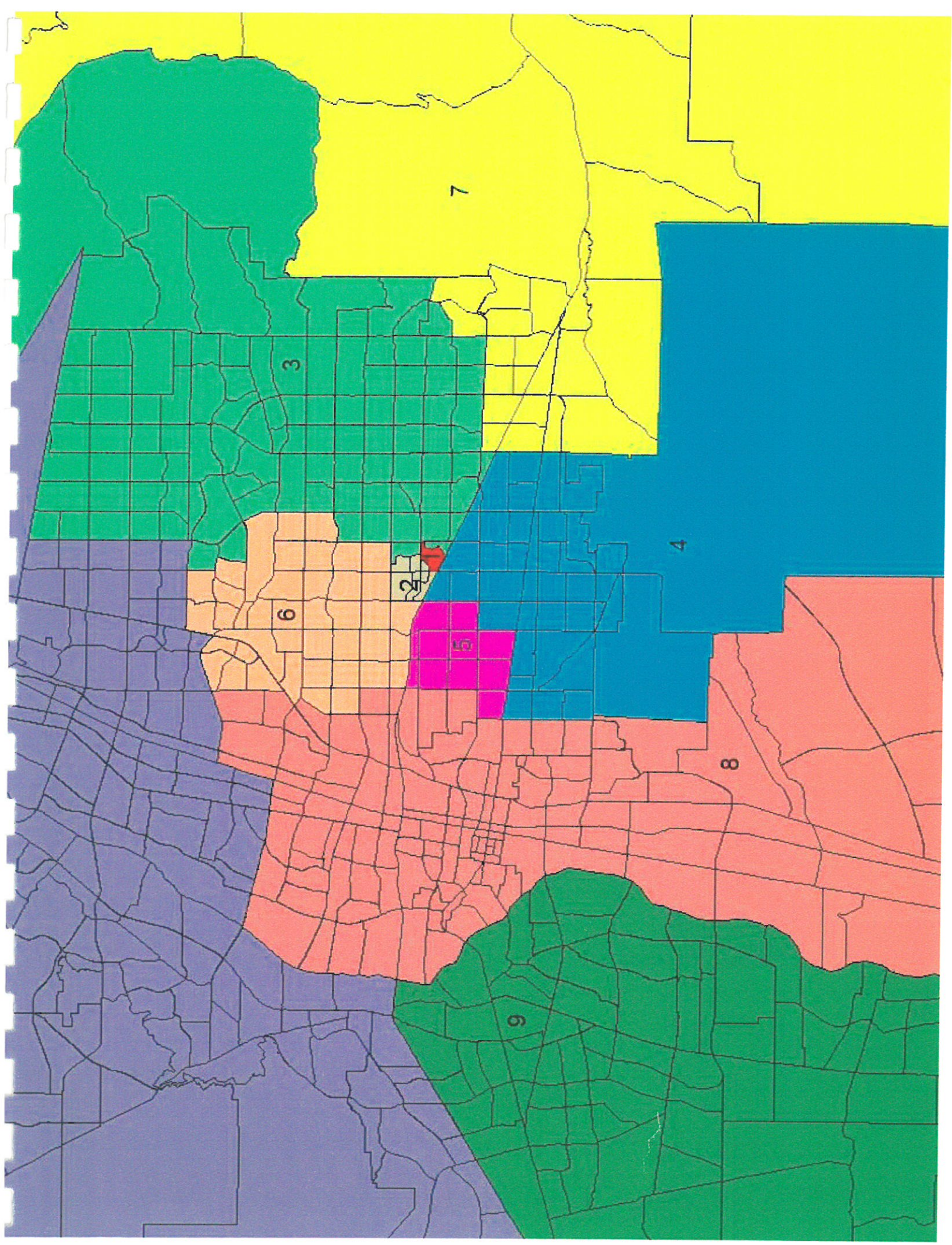
Average Vehicle Trip End on a Weekday, AM Peak Hour of Adj. Street Traffic
One Hour Between 7 and 9 AM
Ln(T) = 0.59 Ln(X) + 2.32

Enter	61%
Exit	39%

Average Vehicle Trip End on a Weekday, PM Peak Hour of Adj. Street Traffic
One Hour Between 4 and 6 PM
Ln(T) = 0.67 Ln(X) + 3.37

Enter	49%
Exit	51%

Daily Trips	**19927**
Enter	9964
Exit	9963
AM Peak Trips	**409**
Enter	249
Exit	160
PM Peak Trips	**1930**
Enter	946
Exit	984


7
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Semi-Regional Subarea Summary

	1	2	3	4	5	6	7	8	9	SUM
Population	139	1780	127795	51120	12158	42404	104157	117291	130441	**587285**
Population %	*0.0%*	*0.3%*	*21.8%*	*8.7%*	*2.1%*	*7.2%*	*17.7%*	*20.0%*	*22.2%*	***100%***
Employment	1622	9660	38956	50718	6775	42105	26095	143759	33956	**353646**
Employment %	*0.5%*	*2.7%*	*11.0%*	*14.3%*	*1.9%*	*11.9%*	*7.4%*	*40.7%*	*9.6%*	***100%***
From:										
AM Pk O's	1081	0	0	0	0	0	0	0	0	**1081**
Off Pk O's	5640	0	0	0	0	0	0	0	0	**5640**
PM Pk O's	2537	0	0	0	0	0	0	0	0	**2537**
Daily O's	9257	0	0	0	0	0	0	0	0	**9257**
%'s	100%	0%	0%	0%	0%	0%	0%	0%	0%	
AM Pk D's	0	62	191	131	27	124	77	243	47	**902**
Off Pk D's	0	272	1175	668	137	574	587	1032	264	**4709**
PM Pk D's	0	106	563	288	60	243	298	413	130	**2101**
Daily D's	0	440	1929	1086	224	941	962	1688	441	**7712**
%'s	**0.0%**	**5.7%**	**25.0%**	**14.1%**	**2.9%**	**12.2%**	**12.5%**	**21.9%**	**5.7%**	
To:										
AM Pk O's	0	68	395	185	41	169	203	282	97	**1440**
Off Pk O's	0	271	1125	658	135	567	559	1029	253	**4596**
PM Pk O's	0	101	409	242	48	206	200	377	91	**1675**
Daily O's	0	440	1929	1086	224	941	962	1688	441	**7712**
%'s	**0.0%**	**5.7%**	**25.0%**	**14.1%**	**2.9%**	**12.2%**	**12.5%**	**21.9%**	**5.7%**	
AM Pk D's	1764	0	0	0	0	0	0	0	0	**1764**
Off Pk D's	5492	0	0	0	0	0	0	0	0	**5492**
PM Pk D's	2001	0	0	0	0	0	0	0	0	**2001**
Daily D's	9256	0	0	0	0	0	0	0	0	**9256**
%'s	100%	0%	0%	0%	0%	0%	0%	0%	0%	

Subareas:		Via:
1	Winrock - Site	
2	Uptown	Louisiana, Indian School, Americas Pkwy
3	NE Heights	Indian School, Constitution, Pennsylvania
4	SE Heights - East	Louisiana NB
5	SE Heights- West	San Pedro-Indian School
6	NE Heights - North	Louisiana, Indian School
7	I-40 East	I-40 Westbound
8	I-40 Central West - and I-25 Coridor	I-40 Eastbound, I-25
9	I-40 West	I-40, West of Rio Grande

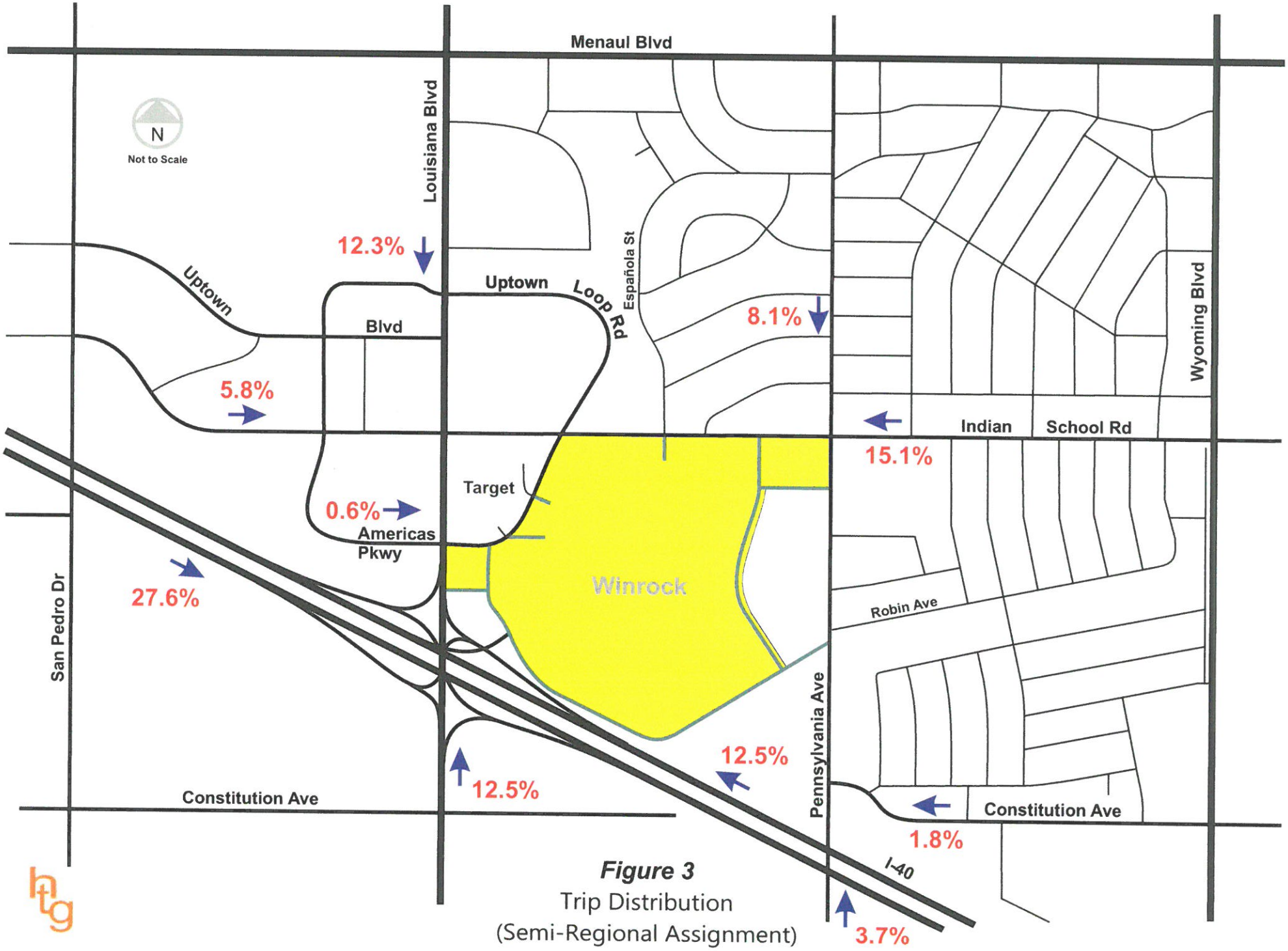


Figure 3
Trip Distribution
(Semi-Regional Assignment)

Winrock Center Trip Assignment

AM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	0	5	0	5	31	1	7	39	0	0	51	51	20	0	0	20	**115**
Uptown Lp-Winrock Lp	0	50	26	76	3	38	0	41	0	0	11	11	0	0	0	0	**128**
Uptown Lp-Winrock Acc	0	**10**	0	10	29	**10**	17	56	9	2	50	61	21	5	0	26	**153**
Indian School-Uptown Lp	0	0	8	8	15	0	0	15	7	2	10	19	0	4	0	4	**46**

PM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	0	25	0	25	238	6	50	294	0	0	261	261	102	0	0	102	**682**
Uptown Lp-Winrock Lp	0	257	132	389	25	294	0	319	0	0	85	85	0	0	0	0	**793**
Uptown Lp-Winrock Acc	0	**30**	0	30	224	**30**	133	387	70	15	257	342	110	26	0	136	**895**
Indian School-Uptown Lp	0	0	39	39	77	0	0	77	56	19	74	149	0	20	0	20	**285**

Target Development Trip Assignment

AM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	4	3	0	7	46	4	0	50	0	92	13	105	0	2	0	2	**164**
Uptown Lp-Winrock Lp		3		3	19	50		69				0				0	**72**
Uptown Lp-Winrock Acc	1		68	69				0	17	3		20		1	4	5	**94**
Indian School-Uptown Lp	0	9	2	11	3	12	0	15	0	0	1	1	0	0	0	0	**27**

PM Peak	Eastbound				Westbound				Northbound				Southbound				
Intersection	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	LT	TH	RT	Sum	Sum
Louisiana-Uptown Lp	11	8	0	19	195	19	1	215	0	252	35	287	0	8	0	8	**529**
Uptown Lp-Winrock Lp		3		3	78	215		293				0				0	**296**
Uptown Lp-Winrock Acc	4		289	293				0	46	3		49		4	10	14	**356**
Indian School-Uptown Lp	1	38	8	47	9	34	0	43	0	0	4	4	0	1	0	1	**95**

Red, bold values are estimates foir through traffic between Winrock and Target, based upon engineering judgement.

Access Routes by Subarea	Volume	Percent	Trip % by Area
from Uptown - 2			***5.7%***
Indian School Rd - Eastbound	11,200	28%	1.6%
Louisiana Blvd - Southbound	24,500	62%	3.5%
Americas Pkwy - Eastbound	4,100	10%	0.6%
from Northeast - 3			***25.0%***
Pennsylvania Ave - Southbound	8,100	32%	8.1%
Constitution Ave (50%)*	1,820	7%	1.8%
Indian School Rd - Westbound	15,200	61%	15.1%
from South - 4			***14.1%***
Pennsylvania Ave - Northbound	8,500	26%	3.7%
Louisiana Blvd - Northbound	24,000	74%	10.4%
from Nearwest - 5			***2.9%***
Indian School Rd - Eastbound	9,500	28%	0.8%
Louisiana Blvd - Northbound	24,000	72%	2.1%
from North - 6			***12.2%***
Indian School Rd - Eastbound	9,500	28%	3.4%
Louisiana Blvd - Southbound	24,500	72%	8.8%
from East - 7			***12.5%***
I-40 Westbound	113,300	100%	12.5%
from West - 8			***21.9%***
I-40 Eastbound	139,500	100%	21.9%
from West - 9			***5.7%***
I-40 Eastbound	139,500	100%	5.7%

All volumes are from the 2010 MRCOG AMPA Flow Map.
Trip % by Area based upon 2030 MRCOG Trip Tables, initial assignment
* Constitution Ave contributes only 20% of link traffic to Winrock Center

Access Route to Winrock	Distribution Subareas	Sum %	AM Peak Hour		PM Peak Hour	
			Entering Trips	Exiting Trips	Entering Trips	Exiting Trips
Indian School Rd - Eastbound	2, 5, 6	5.84%	11	7	58	56
Indian School Rd - Westbound	3	15.13%	29	19	150	144
Louisiana Blvd - Northbound	4, 5	12.49%	24	15	124	119
Louisiana Blvd - Southbound	2, 6	12.30%	24	15	122	117
Pennsylvania Ave - Northbound	4	3.69%	7	5	37	35
Pennsylvania Ave - Southbound	3	8.06%	16	10	80	77
Constitution Ave	3	1.81%	4	2	18	17
Americas Pkwy - Eastbound	2	0.59%	1	1	6	6
I-40 Westbound	7	12.50%	24	16	124	119
I-40 Eastbound	8, 9	27.60%	54	34	274	263
		100.0%	194	124	993	953

AM Peak Hour Trips

Entering	**194**
Exiting	**124**

PM Peak Hour Trips

Entering	**994**
Exiting	**952**

Winrock Westside Access Points	AM Peak		PM Peak	
	Enter	Exit	Enter	Exit
Louisiana-Winrock SW Entrance	0.263	*0.050*	0.263	*0.050*
Louisiana-Uptown Loop	0.391	0.309	0.391	0.309
Uptown Loop-Winrock Loop	0.158	0.089	0.158	0.089
Uptown Loop - Winrock Access	0.369	0.376	0.369	0.376
Indian School-Uptown Loop	0.136	0.156	0.136	0.156
Uptown Lp-Indian School Through Traffic		0.02		

Winrock Westside Access Points	AM Peak		PM Peak	
	Enter	Exit	Enter	Exit
Louisiana-Winrock SW Entrance	0.26	*0.05*	0.26	*0.05*
Louisiana-Uptown Loop	0.39	0.31	0.39	0.31
Uptown Loop-Winrock Loop	0.16	0.09	0.16	0.09
Uptown Loop - Winrock Access	0.37	0.38	0.37	0.38
Indian School-Uptown Loop	0.14	0.16	0.14	0.16

Distribution	Eastbound			Westbound			Northbound			Southbound		
Intersection	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Louisiana-Uptown Lp		**0.03**		0.25	0.01	0.05			**0.26**	**0.10**		
Uptown Lp-Winrock Lp		**0.26**	**0.13**	**0.03**	0.31				0.09			
Uptown Lp-Winrock Acc [1 2 3]				0.24		0.14	0.07	0.02	**0.26**	**0.11**	**0.03**	
Indian School-Uptown Lp			**0.04**	**0.08**			0.06	*0.02*	0.08		***0.02***	

Bold values are entering trips.

Italicized value based upon engineering judgement for circulation to/from ABQ Uptown, percentage subtracted from Louisiana SB.

1 - WB LT are U-turns to exit at Louisiana-Uptown Lp

2 - NB RT are 1/3 Indian School EB and Pennsylvania NB, and Indian School to the west

AM Assignment	Eastbound			Westbound			Northbound			Southbound		
Intersection	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Louisiana-Uptown Lp		**5**		31	1	7			**51**	**20**		
Uptown Lp-Winrock Lp		**50**	**26**	**3**	38				11			
Uptown Lp-Winrock Acc				29		17	9	2	**50**	**21**	**5**	
Indian School-Uptown Lp			**8**	**15**			7	2	10		**4**	
AM Trips	194	124										

PM Assignment	Eastbound			Westbound			Northbound			Southbound		
Intersection	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Louisiana-Uptown Lp		**25**		238	6	50			**261**	**102**		
Uptown Lp-Winrock Lp		**257**	**132**	**25**	294				85			
Uptown Lp-Winrock Acc				224		133	70	15	**257**	**110**	**26**	
Indian School-Uptown Lp			**39**	**77**			56	19	74		**20**	
PM Trips	994	952										

AM and PM trips are based upon the existing vacant SF in Winrock Center, plus the additional development proposed.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	5	132	42	4	2	284	1186	53	2	989	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.86		0.97	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	6305		3400	6310	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	6305		3400	6310	
Peak-hour factor, PHF	0.85	0.85	0.85	0.96	0.96	0.96	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	24	6	155	44	4	2	330	1379	62	2	1099	43
RTOR Reduction (vph)	0	0	55	0	0	2	0	4	0	0	4	0
Lane Group Flow (vph)	24	6	100	44	4	0	330	1437	0	2	1138	0
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot			Prot		
Protected Phases	7	4	4 5	3	8	8 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.9	13.1	35.3	4.8	12.0	19.2	16.2	66.9		1.2	51.9	
Effective Green, g (s)	7.9	15.1	37.3	6.8	14.0	21.2	18.2	68.9		3.2	53.9	
Actuated g/C Ratio	0.07	0.14	0.34	0.06	0.13	0.19	0.17	0.63		0.03	0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	126	481	532	210	446	302	563	3949		99	3092	
v/s Ratio Prot	c0.01	0.00	c0.06	0.01	0.00	0.00	c0.10	c0.23		0.00	0.18	
v/s Ratio Perm												
v/c Ratio	0.19	0.01	0.19	0.21	0.01	0.00	0.59	0.36		0.02	0.37	
Uniform Delay, d1	48.0	41.0	25.7	49.0	41.9	35.9	42.4	9.9		51.9	17.5	
Progression Factor	1.00	1.00	1.00	1.40	0.96	0.74	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.0	0.2	0.5	0.0	0.0	1.6	0.3		0.1	0.3	
Delay (s)	48.8	41.0	25.8	69.3	40.1	26.6	44.0	10.2		52.0	17.8	
Level of Service	D	D	C	E	D	C	D	B		D	B	
Approach Delay (s)		29.3			65.2			16.5			17.9	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	232	2	99	501	66	8	10	38	24	5	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	1752	3443		1752	3086		1752	3505	1568
Flt Permitted	0.36	1.00	1.00	0.54	1.00		0.75	1.00		0.67	1.00	1.00
Satd. Flow (perm)	660	3505	1568	992	3443		1390	3086		1231	3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.81	0.81	0.81
Adj. Flow (vph)	70	252	2	119	604	80	11	13	51	30	6	28
RTOR Reduction (vph)	0	0	1	0	9	0	0	39	0	0	0	18
Lane Group Flow (vph)	70	252	1	119	675	0	11	25	0	30	6	10
Turn Type	pm+pt		pt+ov	pm+pt			pm+pt			pm+pt		pt+ov
Protected Phases	7	4	4 5	3	8		5	2		1	6	6 7
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	51.3	45.2	53.6	63.4	51.3		26.8	24.4		30.4	26.2	38.3
Effective Green, g (s)	55.3	47.2	55.6	65.4	53.3		30.8	26.4		34.4	28.2	40.3
Actuated g/C Ratio	0.50	0.43	0.51	0.59	0.48		0.28	0.24		0.31	0.26	0.37
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	412	1504	793	688	1668		404	741		414	899	574
v/s Ratio Prot	0.01	0.07	0.00	c0.02	c0.20		0.00	0.01		c0.00	0.00	0.01
v/s Ratio Perm	0.07			0.08			0.01			c0.02		
v/c Ratio	0.17	0.17	0.00	0.17	0.40		0.03	0.03		0.07	0.01	0.02
Uniform Delay, d1	14.2	19.3	13.5	9.8	18.2		28.7	32.0		26.4	30.5	22.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.90	0.73		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.0	0.5	0.7		0.0	0.1		0.1	0.0	0.0
Delay (s)	14.4	19.4	13.5	10.4	18.9		25.9	23.5		26.5	30.5	22.2
Level of Service	B	B	B	B	B		C	C		C	C	C
Approach Delay (s)		18.3			17.6			23.8			25.0	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	16	270	83	3	3	135	1677	132	19	1596	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.86		0.97	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	6276		3400	6329	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	6276		3400	6329	
Peak-hour factor, PHF	0.77	0.77	0.77	0.85	0.85	0.85	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	40	21	351	98	4	4	147	1823	143	20	1716	30
RTOR Reduction (vph)	0	0	11	0	0	3	0	10	0	0	2	0
Lane Group Flow (vph)	40	21	340	98	4	1	147	1956	0	20	1744	0
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot			Prot		
Protected Phases	7	4	4 5	3	8	8 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	16.9	30.5	46.4	6.0	19.6	28.8	9.9	56.3		3.2	49.6	
Effective Green, g (s)	18.9	32.5	48.4	8.0	21.6	30.8	11.9	58.3		5.2	51.6	
Actuated g/C Ratio	0.16	0.27	0.40	0.07	0.18	0.26	0.10	0.49		0.04	0.43	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	276	949	632	227	631	402	337	3049		147	2721	
v/s Ratio Prot	0.02	0.01	c0.22	c0.03	0.00	0.00	0.04	c0.31		0.01	0.28	
v/s Ratio Perm												
v/c Ratio	0.14	0.02	0.54	0.43	0.01	0.00	0.44	0.64		0.14	0.64	
Uniform Delay, d1	43.6	32.1	27.3	53.8	40.4	33.2	50.9	23.0		55.2	26.9	
Progression Factor	1.00	1.00	1.00	0.94	0.83	0.80	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.0	0.9	1.3	0.0	0.0	0.9	1.0		0.4	1.2	
Delay (s)	43.8	32.1	28.2	51.8	33.4	26.7	51.8	24.1		55.7	28.1	
Level of Service	D	C	C	D	C	C	D	C		E	C	
Approach Delay (s)		29.9			50.2			26.0			28.4	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	621	35	86	511	55	55	40	85	126	35	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	1752	3454		1752	3147		1752	3505	1568
Flt Permitted	0.32	1.00	1.00	0.27	1.00		0.72	1.00		0.56	1.00	1.00
Satd. Flow (perm)	586	3505	1568	500	3454		1337	3147		1030	3505	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.89	0.89	0.89	0.82	0.82	0.82	0.75	0.75	0.75
Adj. Flow (vph)	180	682	38	97	574	62	67	49	104	168	47	120
RTOR Reduction (vph)	0	0	19	0	6	0	0	82	0	0	0	70
Lane Group Flow (vph)	180	682	19	97	630	0	67	71	0	168	47	50
Turn Type	pm+pt		pt+ov	pm+pt			pm+pt			pm+pt		pt+ov
Protected Phases	7	4	4 5	3	8		5	2		1	6	6 7
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	57.5	46.0	58.3	60.1	47.3		30.2	23.9		43.2	30.9	48.4
Effective Green, g (s)	61.5	48.0	60.3	64.1	49.3		34.2	25.9		45.2	32.9	50.4
Actuated g/C Ratio	0.51	0.40	0.50	0.53	0.41		0.29	0.22		0.38	0.27	0.42
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	432	1402	788	421	1419		410	679		480	961	659
v/s Ratio Prot	c0.05	c0.19	0.01	0.03	0.18		0.01	0.02		c0.04	0.01	0.03
v/s Ratio Perm	0.17			0.09			0.04			c0.09		
v/c Ratio	0.42	0.49	0.02	0.23	0.44		0.16	0.11		0.35	0.05	0.08
Uniform Delay, d1	16.5	26.8	15.0	14.9	25.5		31.9	37.8		25.9	32.0	20.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.17	1.29		1.00	1.00	1.00
Incremental Delay, d2	0.7	0.3	0.0	1.3	1.0		0.2	0.3		0.4	0.1	0.0
Delay (s)	17.2	27.1	15.0	16.2	26.5		37.6	48.9		26.3	32.1	20.9
Level of Service	B	C	B	B	C		D	D		C	C	C
Approach Delay (s)		24.6			25.1			45.4			25.2	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	7	60	5	0	98
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	9	80	7	0	131
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			595			665
pX, platoon unblocked						
vC, conflicting volume	149	43			87	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	149	43			87	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	826	1014			1500	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	9	53	33	65	65
Volume Left	0	0	0	0	0
Volume Right	9	0	7	0	0
cSH	1014	1700	1700	1700	1700
Volume to Capacity	0.01	0.03	0.02	0.04	0.04
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	8.6	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	8.6	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	53	11	55	43	0	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.75	0.75	0.69	0.69
Hourly flow rate (vph)	56	12	73	57	0	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	317			943		
pX, platoon unblocked						
vC, conflicting volume			68		232	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			68		232	28
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		100	99
cM capacity (veh/h)			1524		698	1037

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	28	28	12	73	29	29	14
Volume Left	0	0	0	73	0	0	0
Volume Right	0	0	12	0	0	0	14
cSH	1700	1700	1700	1524	1700	1700	1037
Volume to Capacity	0.02	0.02	0.01	0.05	0.02	0.02	0.01
Queue Length 95th (ft)	0	0	0	4	0	0	1
Control Delay (s)	0.0	0.0	0.0	7.5	0.0	0.0	8.5
Lane LOS				A			A
Approach Delay (s)	0.0			4.2			8.5
Approach LOS							A

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	118	97	56	0	153
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	139	121	70	0	191
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			595			665
pX, platoon unblocked						
vC, conflicting volume	252	96			191	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	252	96			191	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	85			100	
cM capacity (veh/h)	712	939			1372	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	139	81	110	96	96
Volume Left	0	0	0	0	0
Volume Right	139	0	70	0	0
cSH	939	1700	1700	1700	1700
Volume to Capacity	0.15	0.05	0.06	0.06	0.06
Queue Length 95th (ft)	13	0	0	0	0
Control Delay (s)	9.5	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.5	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	18.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	119	25	64	88	0	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.90	0.90	0.75	0.75
Hourly flow rate (vph)	128	27	71	98	0	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	317			943		
pX, platoon unblocked						
vC, conflicting volume			155		319	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			155		319	64
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		100	95
cM capacity (veh/h)			1416		614	984

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	64	64	27	71	49	49	51
Volume Left	0	0	0	71	0	0	0
Volume Right	0	0	27	0	0	0	51
cSH	1700	1700	1700	1416	1700	1700	984
Volume to Capacity	0.04	0.04	0.02	0.05	0.03	0.03	0.05
Queue Length 95th (ft)	0	0	0	4	0	0	4
Control Delay (s)	0.0	0.0	0.0	7.7	0.0	0.0	8.9
Lane LOS				A			A
Approach Delay (s)	0.0			3.2			8.9
Approach LOS							A

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: America's Pkwy & Louisiana Blvd

1/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	13	132	119	9	9	284	1278	117	22	991	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.86		0.97	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	6266		3400	6310	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	6266		3400	6310	
Peak-hour factor, PHF	0.85	0.85	0.85	0.96	0.96	0.96	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	28	15	155	124	9	9	330	1486	136	24	1101	43
RTOR Reduction (vph)	0	0	30	0	0	6	0	11	0	0	4	0
Lane Group Flow (vph)	28	15	125	124	9	3	330	1611	0	24	1140	0
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot			Prot		
Protected Phases	7	4	4 5	3	8	8 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	2.4	14.7	36.9	8.9	21.2	31.2	16.2	58.4		4.0	46.2	
Effective Green, g (s)	4.4	16.7	38.9	10.9	23.2	33.2	18.2	60.4		6.0	48.2	
Actuated g/C Ratio	0.04	0.15	0.35	0.10	0.21	0.30	0.17	0.55		0.05	0.44	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	70	532	555	337	739	473	563	3441		185	2765	
v/s Ratio Prot	0.02	0.00	c0.08	c0.04	0.00	0.00	c0.10	c0.26		0.01	0.18	
v/s Ratio Perm												
v/c Ratio	0.40	0.03	0.22	0.37	0.01	0.01	0.59	0.47		0.13	0.41	
Uniform Delay, d1	51.5	39.7	25.0	46.3	34.3	26.9	42.4	15.1		49.5	21.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	0.0	0.2	0.7	0.0	0.0	1.6	0.5		0.3	0.5	
Delay (s)	55.2	39.8	25.2	47.0	34.3	26.9	44.0	15.5		49.8	21.6	
Level of Service	E	D	C	D	C	C	D	B		D	C	
Approach Delay (s)		30.5			44.9			20.3			22.2	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	241	12	117	513	66	15	12	49	24	9	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	1752	3445		1752	3083		1752	3505	1568
Flt Permitted	0.39	1.00	1.00	0.53	1.00		0.75	1.00		0.70	1.00	1.00
Satd. Flow (perm)	712	3505	1568	969	3445		1384	3083		1294	3505	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.83	0.83	0.83	0.75	0.75	0.75	0.81	0.81	0.81
Adj. Flow (vph)	70	262	13	141	618	80	20	16	65	30	11	28
RTOR Reduction (vph)	0	0	7	0	9	0	0	50	0	0	0	19
Lane Group Flow (vph)	70	262	6	141	689	0	20	31	0	30	11	9
Turn Type	pm+pt		pt+ov	pm+pt			pm+pt			pm+pt		pt+ov
Protected Phases	7	4	4 5	3	8		5	2		1	6	6 7
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	49.2	43.2	52.8	65.6	53.6		26.4	22.8		26.4	22.8	34.8
Effective Green, g (s)	53.2	45.2	54.8	67.6	55.6		30.4	24.8		30.4	24.8	36.8
Actuated g/C Ratio	0.48	0.41	0.50	0.61	0.51		0.28	0.23		0.28	0.23	0.33
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	420	1440	781	726	1741		401	695		381	790	525
v/s Ratio Prot	0.01	0.07	0.00	c0.03	c0.20		0.00	0.01		c0.00	0.00	0.01
v/s Ratio Perm	0.07			0.09			0.01			c0.02		
v/c Ratio	0.17	0.18	0.01	0.19	0.40		0.05	0.04		0.08	0.01	0.02
Uniform Delay, d1	15.3	20.6	13.9	9.0	16.8		29.1	33.3		29.3	33.1	24.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.0	0.6	0.7		0.1	0.1		0.1	0.0	0.0
Delay (s)	15.5	20.7	13.9	9.6	17.5		29.2	33.4		29.4	33.1	24.5
Level of Service	B	C	B	A	B		C	C		C	C	C
Approach Delay (s)		19.4			16.2			32.6			28.0	
Approach LOS		B			B			C			C	

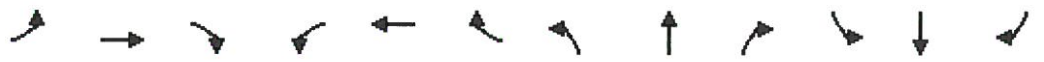
Intersection Summary			
HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	49	270	516	28	54	135	1929	428	121	1604	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.86		0.97	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	6173		3400	6329	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	6173		3400	6329	
Peak-hour factor, PHF	0.77	0.77	0.77	0.85	0.85	0.85	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	55	64	351	607	33	64	147	2097	465	130	1725	30
RTOR Reduction (vph)	0	0	6	0	0	33	0	34	0	0	2	0
Lane Group Flow (vph)	55	64	345	607	33	31	147	2528	0	130	1753	0
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot			Prot		
Protected Phases	7	4	4 5	3	8	8 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.6	19.5	33.4	22.6	36.5	47.6	7.9	48.8		5.1	46.0	
Effective Green, g (s)	7.6	21.5	35.4	24.6	38.5	49.6	9.9	50.8		7.1	48.0	
Actuated g/C Ratio	0.06	0.18	0.29	0.21	0.32	0.41	0.08	0.42		0.06	0.40	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	111	628	463	697	1125	648	281	2613		201	2532	
v/s Ratio Prot	0.03	0.02	c0.22	c0.18	0.01	0.02	0.04	c0.41		0.04	0.28	
v/s Ratio Perm												
v/c Ratio	0.50	0.10	0.75	0.87	0.03	0.05	0.52	0.97		0.65	0.69	
Uniform Delay, d1	54.3	41.2	38.2	46.2	27.9	21.1	52.8	33.8		55.2	29.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.5	0.1	6.4	11.5	0.0	0.0	1.8	11.5		7.0	1.6	
Delay (s)	57.8	41.2	44.7	57.7	27.9	21.1	54.5	45.3		62.2	31.5	
Level of Service	E	D	D	E	C	C	D	D		E	C	
Approach Delay (s)		45.7			53.0			45.8			33.6	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	42.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	165	659	82	172	545	55	111	59	163	126	56	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	1752	3456		1752	3119		1752	3505	1568
Flt Permitted	0.37	1.00	1.00	0.21	1.00		0.71	1.00		0.40	1.00	1.00
Satd. Flow (perm)	682	3505	1568	389	3456		1302	3119		747	3505	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.89	0.89	0.89	0.82	0.82	0.82	0.75	0.75	0.75
Adj. Flow (vph)	181	724	90	193	612	62	135	72	199	168	75	120
RTOR Reduction (vph)	0	0	43	0	6	0	0	161	0	0	0	76
Lane Group Flow (vph)	181	724	47	193	668	0	135	110	0	168	75	45
Turn Type	pm+pt		pt+ov	pm+pt			pm+pt			pm+pt		pt+ov
Protected Phases	7	4	4 5	3	8		5	2		1	6	6 7
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	52.3	41.0	55.8	68.0	50.7		29.9	21.1		38.1	25.2	42.5
Effective Green, g (s)	56.3	43.0	57.8	70.0	52.7		33.9	23.1		42.0	27.2	44.5
Actuated g/C Ratio	0.47	0.36	0.48	0.58	0.44		0.28	0.19		0.35	0.23	0.37
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	439	1256	755	488	1518		408	600		386	794	581
v/s Ratio Prot	0.05	c0.21	0.03	c0.08	0.19		0.03	0.04		c0.05	0.02	0.03
v/s Ratio Perm	0.15			0.15			0.06			c0.10		
v/c Ratio	0.41	0.58	0.06	0.40	0.44		0.33	0.18		0.44	0.09	0.08
Uniform Delay, d1	18.9	31.1	16.6	14.2	23.4		33.5	40.6		28.4	36.7	24.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.6	0.0	2.4	0.9		0.5	0.7		0.8	0.2	0.1
Delay (s)	19.5	31.8	16.7	16.6	24.3		33.9	41.2		29.2	36.9	24.5
Level of Service	B	C	B	B	C		C	D		C	D	C
Approach Delay (s)		28.2			22.6			38.8			29.2	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	28.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑		↱
Volume (veh/h)	106	37	71	131	0	21
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.75	0.75	0.69	0.69
Hourly flow rate (vph)	113	39	95	175	0	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	317					
pX, platoon unblocked						
vC, conflicting volume			152		389	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			152		389	56
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		100	97
cM capacity (veh/h)			1419		545	995

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	56	56	39	95	87	87	30
Volume Left	0	0	0	95	0	0	0
Volume Right	0	0	39	0	0	0	30
cSH	1700	1700	1700	1419	1700	1700	995
Volume to Capacity	0.03	0.03	0.02	0.07	0.05	0.05	0.03
Queue Length 95th (ft)	0	0	0	5	0	0	2
Control Delay (s)	0.0	0.0	0.0	7.7	0.0	0.0	8.7
Lane LOS				A			A
Approach Delay (s)	0.0			2.7			8.7
Approach LOS							A

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	13.9%	ICU Level of Service	A
Analysis Period (min)	15		

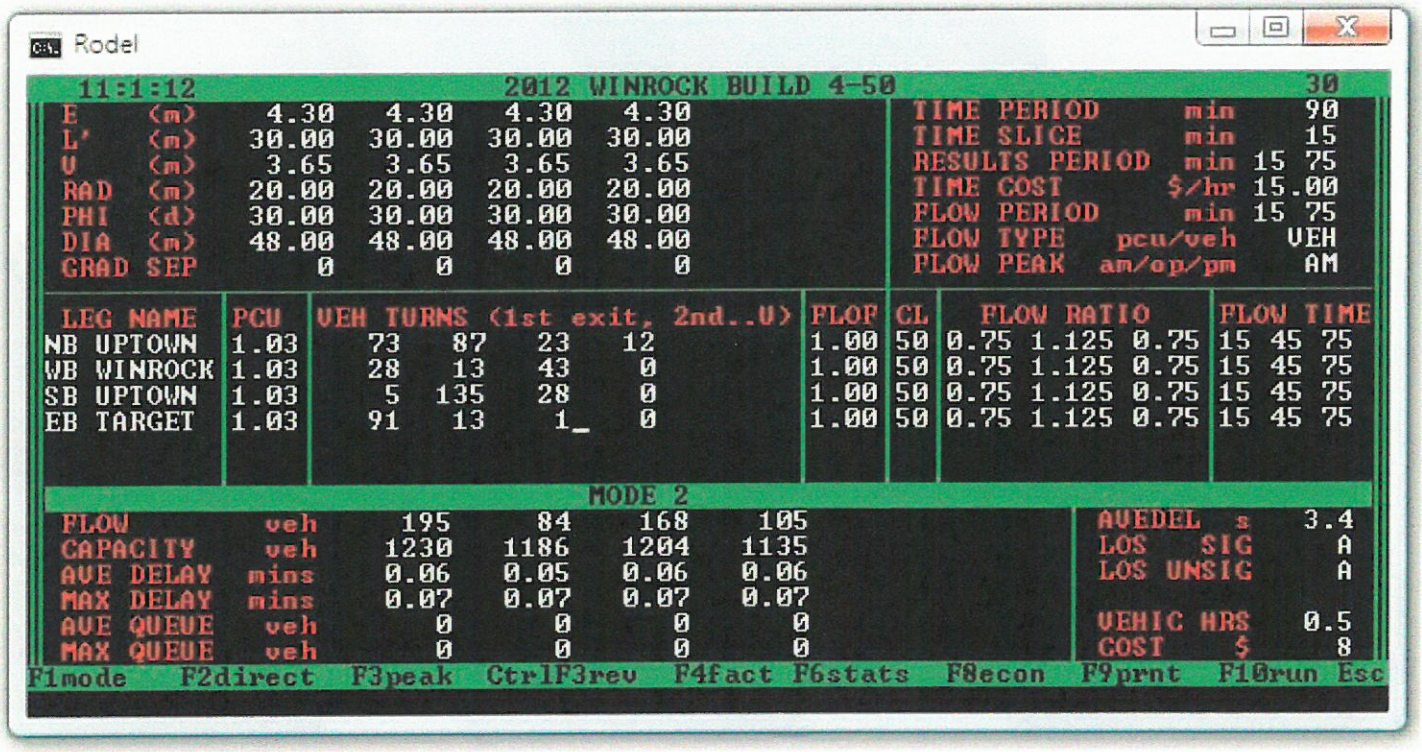
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑		↱
Volume (veh/h)	379	157	167	597	0	123
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.90	0.90	0.75	0.75
Hourly flow rate (vph)	408	169	186	663	0	164
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	317					
pX, platoon unblocked						
vC, conflicting volume			576		1110	204
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			576		1110	204
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			81		100	79
cM capacity (veh/h)			986		164	800

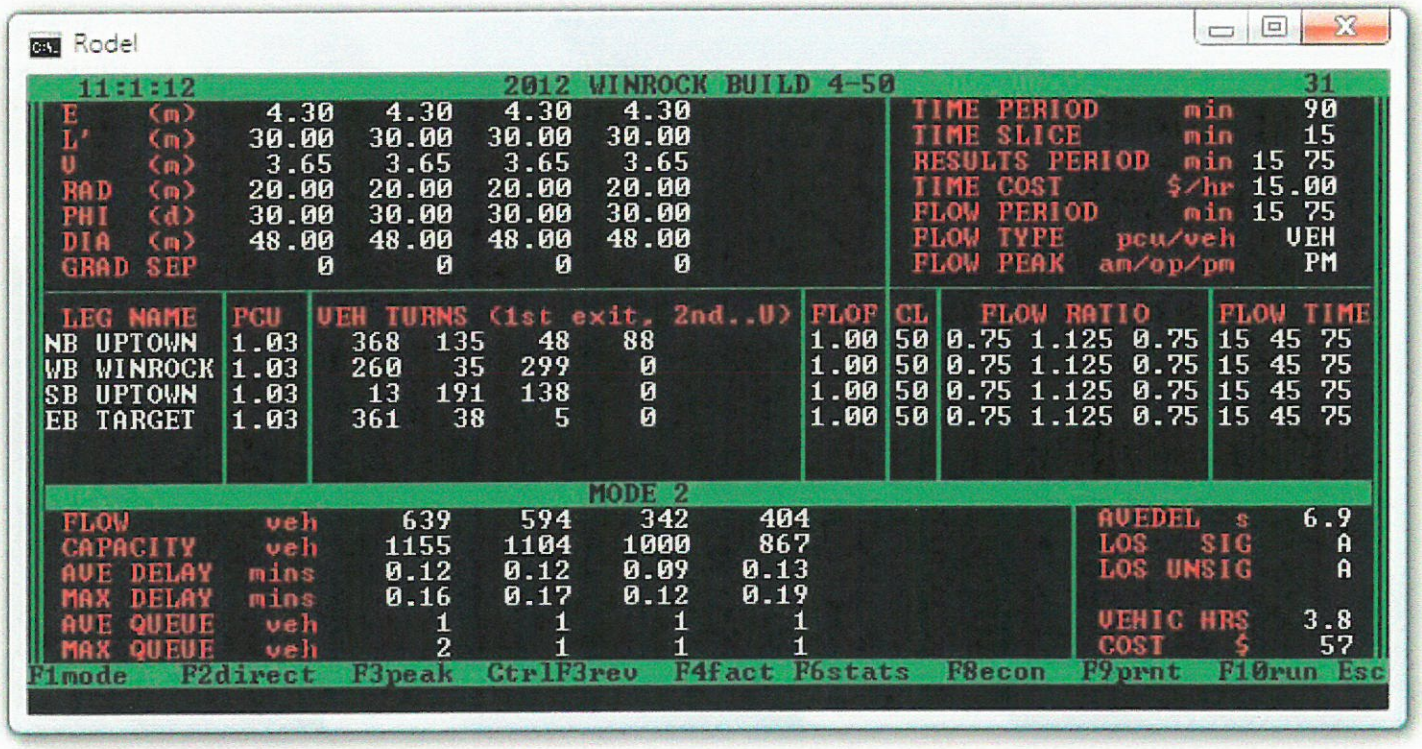
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	204	204	169	186	332	332	164
Volume Left	0	0	0	186	0	0	0
Volume Right	0	0	169	0	0	0	164
cSH	1700	1700	1700	986	1700	1700	800
Volume to Capacity	0.12	0.12	0.10	0.19	0.20	0.20	0.21
Queue Length 95th (ft)	0	0	0	17	0	0	19
Control Delay (s)	0.0	0.0	0.0	9.5	0.0	0.0	10.7
Lane LOS				A			B
Approach Delay (s)	0.0			2.1			10.7
Approach LOS							B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)	15		

Rodel Roundabout Analysis

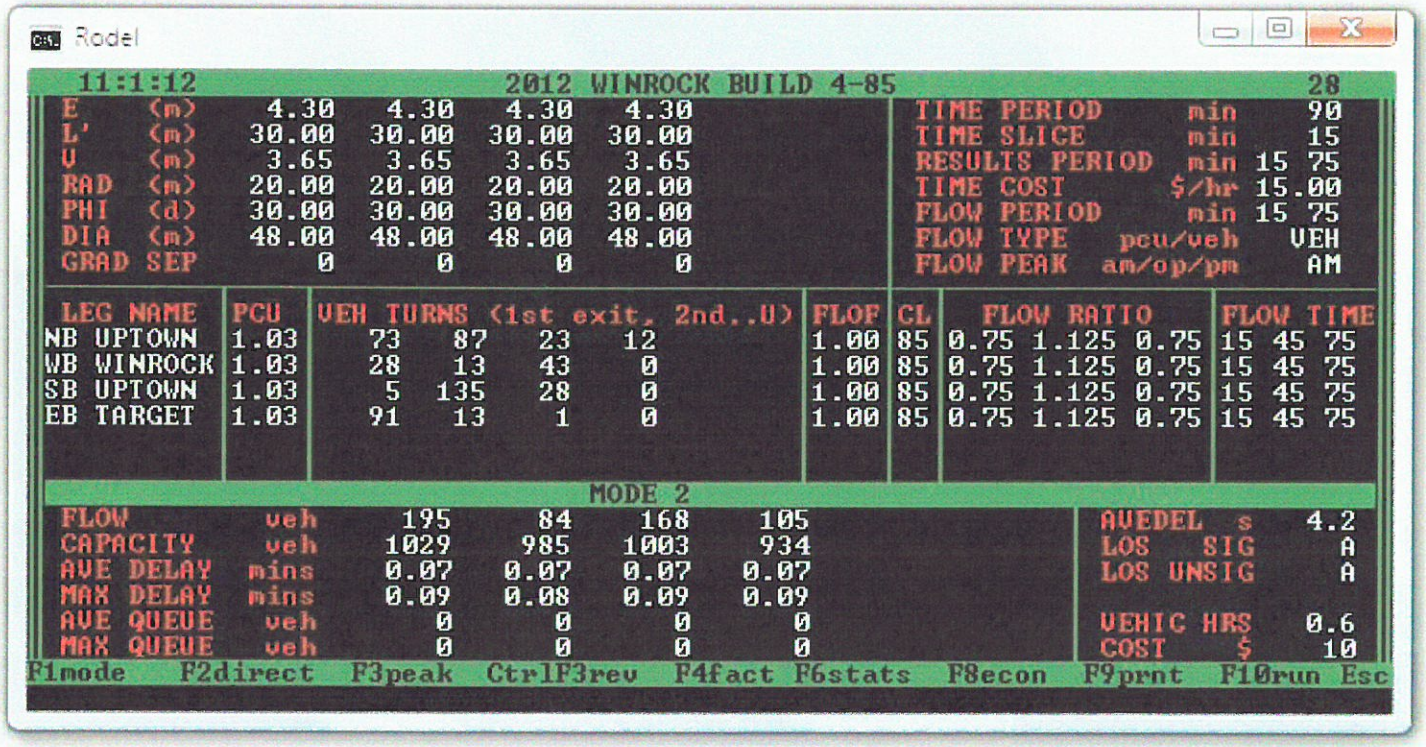
50th Percentile Confidence Level





Rodel Roundabout Analysis

85th Percentile Confidence Level



Rodel

11:1:12 2012 WINROCK BUILD 4-85 28

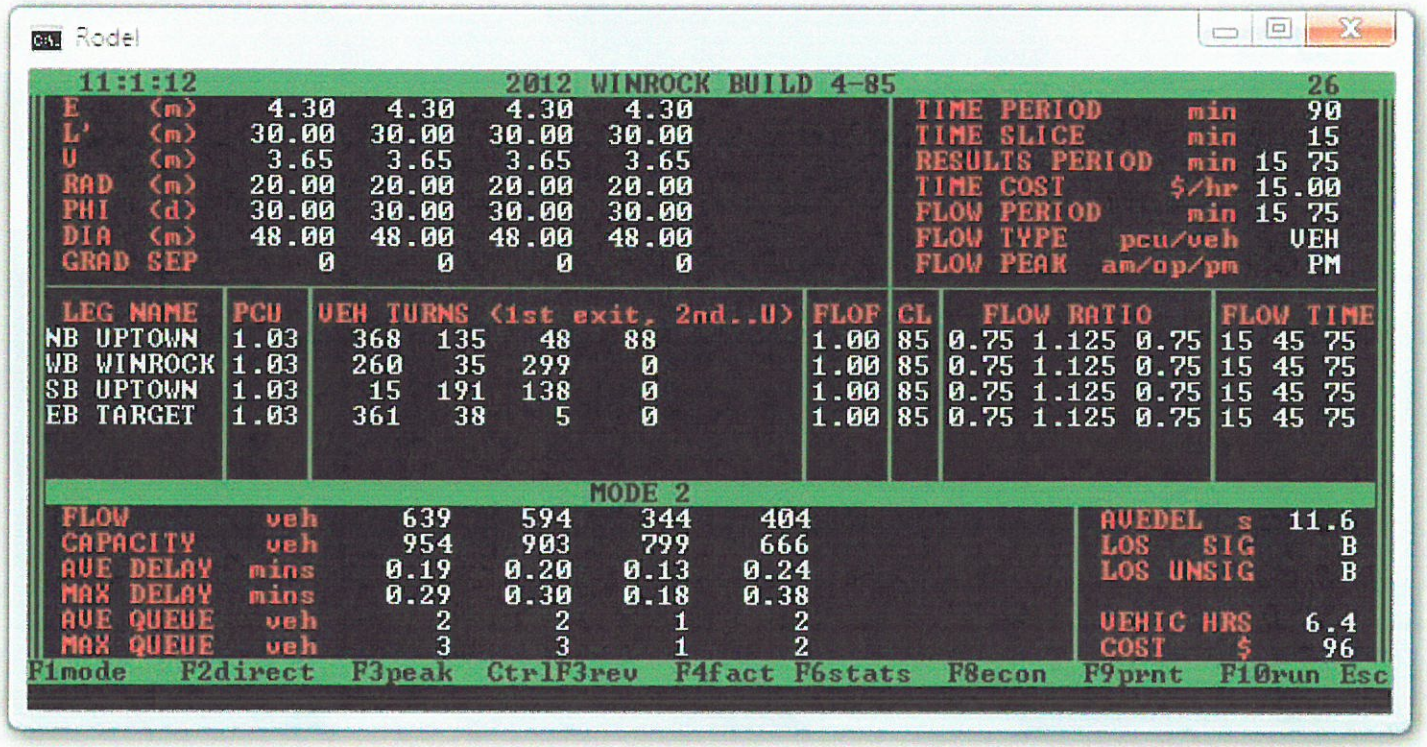
E	(m)	4.30	4.30	4.30	4.30	TIME PERIOD	min		90
L'	(m)	30.00	30.00	30.00	30.00	TIME SLICE	min		15
V	(m)	3.65	3.65	3.65	3.65	RESULTS PERIOD	min	15	75
RAD	(m)	20.00	20.00	20.00	20.00	TIME COST	$/hr	15	.00
PHI	(d)	30.00	30.00	30.00	30.00	FLOW PERIOD	min	15	75
DIA	(m)	48.00	48.00	48.00	48.00	FLOW TYPE	pcu/veh		VEH
GRAD SEP		0	0	0	0	FLOW PEAK	am/op/pm		AM

LEG NAME	PCU	VEH TURNS (1st exit, 2nd..U)				FLOF	CL	FLOW RATIO			FLOW TIME		
NB UPTOWN	1.03	73	87	23	12	1.00	85	0.75	1.125	0.75	15	45	75
WB WINROCK	1.03	28	13	43	0	1.00	85	0.75	1.125	0.75	15	45	75
SB UPTOWN	1.03	5	135	28	0	1.00	85	0.75	1.125	0.75	15	45	75
EB TARGET	1.03	91	13	1	0	1.00	85	0.75	1.125	0.75	15	45	75

MODE 2

FLOW	veh	195	84	168	105	AVEDEL	s	4.2
CAPACITY	veh	1029	985	1003	934	LOS	SIG	A
AVE DELAY	mins	0.07	0.07	0.07	0.07	LOS	UNSIG	A
MAX DELAY	mins	0.09	0.08	0.09	0.09			
AVE QUEUE	veh	0	0	0	0	VEHIC	HRS	0.6
MAX QUEUE	veh	0	0	0	0	COST	$	10

F1mode F2direct F3peak CtrlF3rev F4fact F6stats F8econ F9prnt F10run Esc



Rodel

11:1:12 2012 WINROCK BUILD 4-85 26

E	(m)	4.30	4.30	4.30	4.30	TIME PERIOD	min		90
L'	(m)	30.00	30.00	30.00	30.00	TIME SLICE	min		15
V	(m)	3.65	3.65	3.65	3.65	RESULTS PERIOD	min	15	75
RAD	(m)	20.00	20.00	20.00	20.00	TIME COST	$/hr	15	.00
PHI	(d)	30.00	30.00	30.00	30.00	FLOW PERIOD	min	15	75
DIA	(m)	48.00	48.00	48.00	48.00	FLOW TYPE	pcu/veh		VEH
GRAD SEP		0	0	0	0	FLOW PEAK	am/op/pm		PM

LEG NAME	PCU	VEH TURNS (1st exit, 2nd..U)				FLOF	CL	FLOW RATIO			FLOW TIME		
NB UPTOWN	1.03	368	135	48	88	1.00	85	0.75	1.125	0.75	15	45	75
WB WINROCK	1.03	260	35	299	0	1.00	85	0.75	1.125	0.75	15	45	75
SB UPTOWN	1.03	15	191	138	0	1.00	85	0.75	1.125	0.75	15	45	75
EB TARGET	1.03	361	38	5	0	1.00	85	0.75	1.125	0.75	15	45	75

MODE 2

FLOW	veh	639	594	344	404	AVEDEL	s	11.6
CAPACITY	veh	954	903	799	666	LOS	SIG	B
AVE DELAY	mins	0.19	0.20	0.13	0.24	LOS	UNSIG	B
MAX DELAY	mins	0.29	0.30	0.18	0.38			
AVE QUEUE	veh	2	2	1	2	VEHIC	HRS	6.4
MAX QUEUE	veh	3	3	1	2	COST	$	96

F1mode F2direct F3peak CtrlF3rev F4fact F6stats F8econ F9prnt F10run Esc

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	49	270	548	28	54	135	1929	428	121	1604	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.86		0.97	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	6173		3400	6329	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	6173		3400	6329	
Peak-hour factor, PHF	0.77	0.77	0.77	0.85	0.85	0.85	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	55	64	351	645	33	64	147	2097	465	130	1725	30
RTOR Reduction (vph)	0	0	5	0	0	33	0	34	0	0	2	0
Lane Group Flow (vph)	55	64	346	645	33	31	147	2528	0	130	1753	0
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot			Prot		
Protected Phases	7	4	4 5	3	8	8 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.6	19.5	33.4	23.7	37.6	48.6	7.9	47.8		5.0	44.9	
Effective Green, g (s)	7.6	21.5	35.4	25.7	39.6	50.6	9.9	49.8		7.0	46.9	
Actuated g/C Ratio	0.06	0.18	0.29	0.21	0.33	0.42	0.08	0.41		0.06	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	111	628	463	728	1157	661	281	2562		198	2474	
v/s Ratio Prot	0.03	0.02	c0.22	c0.19	0.01	0.02	0.04	c0.41		0.04	0.28	
v/s Ratio Perm												
v/c Ratio	0.50	0.10	0.75	0.89	0.03	0.05	0.52	0.99		0.66	0.71	
Uniform Delay, d1	54.3	41.2	38.3	45.7	27.2	20.5	52.8	34.8		55.3	30.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.5	0.1	6.5	12.5	0.0	0.0	1.8	14.9		7.6	1.7	
Delay (s)	57.8	41.2	44.7	58.2	27.2	20.5	54.5	49.7		62.9	32.5	
Level of Service	E	D	D	E	C	C	D	D		E	C	
Approach Delay (s)		45.8			53.6			50.0			34.6	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	45.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Loop | AM (Period) | 2012 (Year) | Base (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	20	0.07	110	1	25	32.7	0.6	**2**	**2**			**50**
EB Th	5	0.14	110	2	25	32.7	0.2				**1**	**25**
EB RT	132	0.34	110	1	25	32.7	4.0			**7**		**175**
WB LT	42	0.06	110	2	25	32.7	1.3	**3**	**2**			**50**
WB Th	4	0.13	110	2	25	32.7	0.1				**1**	**25**
WB RT	2	0.19	110	1	25	32.7	0.1			**1**		**25**
NB LT	284	0.17	110	2	25	32.7	8.7	**13**	**7**			**175**
NB Th	1239	0.63	110	4	25	32.7	37.9				**5**	**125**
NB RT			110		25	32.7	0.0					
SB LT	2	0.03	110	2	25	32.7	0.1	**1**	**1**			**25**
SB Th	1028	0.49	110	4	25	32.7	31.4				**6**	**150**
SB RT			110		25	32.7	0.0					

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Indian School-Uptown Loop | AM (Period) | 2012 (Year) | Base (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	64	0.5	110	1	25	32.7	2.0	**3**	**3**			**75**
EB Th	232	0.43	110	2	25	32.7	7.1				**4**	**100**
EB RT	2	0.51	110	1	25	32.7	0.1			**1**		**25**
WB LT	99	0.59	110	1	25	32.7	3.0	**5**	**5**			**125**
WB Th	567	0.48	110	2	25	32.7	17.3				**7**	**175**
WB RT			110		25	32.7	0.0					
NB LT	8	0.28	110	1	25	32.7	0.2	**1**	**1**			**25**
NB Th	48	0.24	110	2	25	32.7	1.5				**2**	**50**
NB RT			110		25	32.7	0.0					
SB LT	24	0.31	110	1	25	32.7	0.7	**2**	**2**			**50**
SB Th	5	0.26	110	2	25	32.7	0.2				**1**	**25**
SB RT	23	0.37	110	1	25	32.7	0.7			**2**		**50**

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Loop | PM (Period) | 2012 (Year) | Base (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	31	0.16	120	1	25	30.0	1.0	3	3			75
EB Th	16	0.27	120	2	25	30.0	0.5				1	25
EB RT	270	0.4	120	1	25	30.0	9.0			12		300
WB LT	83	0.07	120	2	25	30.0	2.8	6	3			75
WB Th	3	0.18	120	2	25	30.0	0.1				1	25
WB RT	3	0.26	120	1	25	30.0	0.1			1		25
NB LT	135	0.1	120	2	25	30.0	4.5	8	4			100
NB Th	1809	0.49	120	4	25	30.0	60.3				8	200
NB RT			120		25	30.0	0.0					
SB LT	19	0.04	120	2	25	30.0	0.6	2	1			25
SB Th	1624	0.43	120	4	25	30.0	54.1				9	225
SB RT			120		25	30.0	0.0					

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Indian School-Uptown Loop | PM (Period) | 2012 (Year) | Base (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	164	0.51	120	1	25	30.0	5.5	**8**	**8**			**200**
EB Th	621	0.4	120	2	25	30.0	20.7				**9**	**225**
EB RT	35	0.5	120	1	25	30.0	1.2			**3**		**75**
WB LT	86	0.53	120	1	25	30.0	2.9	**5**	**5**			**125**
WB Th	566	0.41	120	2	25	30.0	18.9				**8**	**200**
WB RT			120		25	30.0	0.0					
NB LT	55	0.29	120	1	25	30.0	1.8	**4**	**4**			**100**
NB Th	125	0.22	120	2	25	30.0	4.2				**4**	**100**
NB RT			120		25	30.0	0.0					
SB LT	126	0.38	120	1	25	30.0	4.2	**7**	**7**			**175**
SB Th	35	0.27	120	2	25	30.0	1.2				**2**	**50**
SB RT	90	0.42	120	1	25	30.0	3.0			**5**		**125**

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Loop | AM (Period) | 2012 (Year) | Build (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	24	0.04	110	1	25	32.7	0.7	**2**	**2**			**50**
EB Th	13	0.15	110	2	25	32.7	0.4				**1**	**25**
EB RT	132	0.35	110	1	25	32.7	4.0			**7**		**175**
WB LT	119	0.1	110	2	25	32.7	3.6	**7**	**4**			**100**
WB Th	9	0.21	110	2	25	32.7	0.3				**1**	**25**
WB RT	9	0.3	110	1	25	32.7	0.3			**1**		**25**
NB LT	284	0.17	110	2	25	32.7	8.7	**13**	**7**			**175**
NB Th	1395	0.55	110	4	25	32.7	42.6				**7**	**175**
NB RT			110		25	32.7	0.0					
SB LT	22	0.05	110	2	25	32.7	0.7	**2**	**1**			**25**
SB Th	1030	0.44	110	4	25	32.7	31.5				**6**	**150**
SB RT			110		25	32.7	0.0					

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Indian School-Uptown Loop | AM (Period) | 2012 (Year) | Build (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	64	0.48	110	1	25	32.7	2.0	**4**	**4**			**100**
EB Th	241	0.41	110	2	25	32.7	7.4				**4**	**100**
EB RT	12	0.5	110	1	25	32.7	0.4			**2**		**50**
WB LT	117	0.61	110	1	25	32.7	3.6	**5**	**5**			**125**
WB Th	579	0.51	110	2	25	32.7	17.7				**7**	**175**
WB RT			110		25	32.7	0.0					
NB LT	15	0.28	110	1	25	32.7	0.5	**2**	**2**			**50**
NB Th	61	0.23	110	2	25	32.7	1.9				**2**	**50**
NB RT			110		25	32.7	0.0					
SB LT	24	0.28	110	1	25	32.7	0.7	**2**	**2**			**50**
SB Th	9	0.23	110	2	25	32.7	0.3				**1**	**25**
SB RT	23	0.33	110	1	25	32.7	0.7			**2**		**50**

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Loop | PM (Period) | 2012 (Year) | Build (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	42	0.06	120	1	25	30.0	1.4	**4**	**4**			**100**
EB Th	49	0.18	120	2	25	30.0	1.6				**2**	**50**
EB RT	270	0.29	120	1	25	30.0	9.0			**12**		**300**
WB LT	516	0.21	120	2	25	30.0	17.2	**22**	**11**			**275**
WB Th	28	0.32	120	2	25	30.0	0.9				**2**	**50**
WB RT	54	0.41	120	1	25	30.0	1.8			**4**		**100**
NB LT	135	0.08	120	2	25	30.0	4.5	**8**	**4**			**100**
NB Th	2357	0.42	120	4	25	30.0	78.6				**9**	**225**
NB RT			120		25	30.0	0.0					
SB LT	121	0.06	120	2	25	30.0	4.0	**8**	**4**			**100**
SB Th	1632	0.4	120	4	25	30.0	54.4				**10**	**250**
SB RT			120		25	30.0	0.0					

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Indian School-Uptown Loop | PM (Period) | 2012 (Year) | Build (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	165	0.47	120	1	25	30.0	5.5	**8**	**8**			**200**
EB Th	659	0.36	120	2	25	30.0	22.0				**10**	**250**
EB RT	82	0.48	120	1	25	30.0	2.7			**5**		**125**
WB LT	172	0.58	120	1	25	30.0	5.7	**8**	**8**			**200**
WB Th	600	0.44	120	2	25	30.0	20.0				**8**	**200**
WB RT			120		25	30.0	0.0					
NB LT	111	0.28	120	1	25	30.0	3.7	**7**	**7**			**175**
NB Th	222	0.19	120	2	25	30.0	7.4				**5**	**125**
NB RT			120		25	30.0	0.0					
SB LT	126	0.35	120	1	25	30.0	4.2	**7**	**7**			**175**
SB Th	56	0.23	120	2	25	30.0	1.9				**2**	**50**
SB RT	90	0.37	120	1	25	30.0	3.0			**5**		**125**

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Lp + 32 LT | PM (Period) | 2012 (Year) | Build - Mit (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	42	0.06	120	1	25	30.0	1.4	**4**	**4**			**100**
EB Th	49	0.18	120	2	25	30.0	1.6				**2**	**50**
EB RT	270	0.29	120	1	25	30.0	9.0			**12**		**300**
WB LT	548	0.22	120	2	25	30.0	18.3	**24**	**12**			**300**
WB Th	28	0.33	120	2	25	30.0	0.9				**2**	**50**
WB RT	54	0.42	120	1	25	30.0	1.8			**4**		**100**
NB LT	135	0.08	120	2	25	30.0	4.5	**8**	**4**			**100**
NB Th	2357	0.41	120	4	25	30.0	78.6				**10**	**250**
NB RT			120		25	30.0	0.0					
SB LT	121	0.06	120	2	25	30.0	4.0	**8**	**4**			**100**
SB Th	1632	0.39	120	4	25	30.0	54.4				**10**	**250**
SB RT			120		25	30.0	0.0					

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Loop | AM (Period) | 2012 (Year) | Base (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	20	0.07	110	1	25	32.7	0.6	**2**	**2**			**50**
EB Th	5	0.14	110	2	25	32.7	0.2				**1**	**25**
EB RT	132	0.34	110	1	25	32.7	4.0			**7**		**175**
WB LT	42	0.06	110	2	25	32.7	1.3	**3**	**2**			**50**
WB Th	4	0.13	110	2	25	32.7	0.1				**1**	**25**
WB RT	2	0.19	110	1	25	32.7	0.1			**1**		**25**
NB LT	284	0.17	110	2	25	32.7	8.7	**13**	**7**			**175**
NB Th	1239	0.63	110	4	25	32.7	37.9				**5**	**125**
NB RT			110		25	32.7	0.0					
SB LT	2	0.03	110	2	25	32.7	0.1	**1**	**1**			**25**
SB Th	1028	0.49	110	4	25	32.7	31.4				**6**	**150**
SB RT			110		25	32.7	0.0					

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Indian School-Uptown Loop | AM (Period) | 2012 (Year) | Base (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	64	0.5	110	1	25	32.7	2.0	**3**	**3**			**75**
EB Th	232	0.43	110	2	25	32.7	7.1				**4**	**100**
EB RT	2	0.51	110	1	25	32.7	0.1			**1**		**25**
WB LT	99	0.59	110	1	25	32.7	3.0	**5**	**5**			**125**
WB Th	567	0.48	110	2	25	32.7	17.3				**7**	**175**
WB RT			110		25	32.7	0.0					
NB LT	8	0.28	110	1	25	32.7	0.2	**1**	**1**			**25**
NB Th	48	0.24	110	2	25	32.7	1.5				**2**	**50**
NB RT			110		25	32.7	0.0					
SB LT	24	0.31	110	1	25	32.7	0.7	**2**	**2**			**50**
SB Th	5	0.26	110	2	25	32.7	0.2				**1**	**25**
SB RT	23	0.37	110	1	25	32.7	0.7			**2**		**50**

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Loop | PM (Period) | 2012 (Year) | Base (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	31	0.16	120	1	25	30.0	1.0	3	3			75
EB Th	16	0.27	120	2	25	30.0	0.5				1	25
EB RT	270	0.4	120	1	25	30.0	9.0			12		300
WB LT	83	0.07	120	2	25	30.0	2.8	6	3			75
WB Th	3	0.18	120	2	25	30.0	0.1				1	25
WB RT	3	0.26	120	1	25	30.0	0.1			1		25
NB LT	135	0.1	120	2	25	30.0	4.5	8	4			100
NB Th	1809	0.49	120	4	25	30.0	60.3				8	200
NB RT			120		25	30.0	0.0					
SB LT	19	0.04	120	2	25	30.0	0.6	2	1			25
SB Th	1624	0.43	120	4	25	30.0	54.1				9	225
SB RT			120		25	30.0	0.0					

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Indian School-Uptown Loop | PM (Period) | 2012 (Year) | Base (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	164	0.51	120	1	25	30.0	5.5	**8**	**8**			**200**
EB Th	621	0.4	120	2	25	30.0	20.7				**9**	**225**
EB RT	35	0.5	120	1	25	30.0	1.2			**3**		**75**
WB LT	86	0.53	120	1	25	30.0	2.9	**5**	**5**			**125**
WB Th	566	0.41	120	2	25	30.0	18.9				**8**	**200**
WB RT			120		25	30.0	0.0					
NB LT	55	0.29	120	1	25	30.0	1.8	**4**	**4**			**100**
NB Th	125	0.22	120	2	25	30.0	4.2				**4**	**100**
NB RT			120		25	30.0	0.0					
SB LT	126	0.38	120	1	25	30.0	4.2	**7**	**7**			**175**
SB Th	35	0.27	120	2	25	30.0	1.2				**2**	**50**
SB RT	90	0.42	120	1	25	30.0	3.0			**5**		**125**

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Loop | AM (Period) | 2012 (Year) | Build (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	24	0.04	110	1	25	32.7	0.7	**2**	**2**			**50**
EB Th	13	0.15	110	2	25	32.7	0.4				**1**	**25**
EB RT	132	0.35	110	1	25	32.7	4.0			**7**		**175**
WB LT	119	0.1	110	2	25	32.7	3.6	**7**	**4**			**100**
WB Th	9	0.21	110	2	25	32.7	0.3				**1**	**25**
WB RT	9	0.3	110	1	25	32.7	0.3			**1**		**25**
NB LT	284	0.17	110	2	25	32.7	8.7	**13**	**7**			**175**
NB Th	1395	0.55	110	4	25	32.7	42.6				**7**	**175**
NB RT			110		25	32.7	0.0					
SB LT	22	0.05	110	2	25	32.7	0.7	**2**	**1**			**25**
SB Th	1030	0.44	110	4	25	32.7	31.5				**6**	**150**
SB RT			110		25	32.7	0.0					

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Indian School-Uptown Loop | AM (Period) | 2012 (Year) | Build (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	64	0.48	110	1	25	32.7	2.0	**4**	**4**			**100**
EB Th	241	0.41	110	2	25	32.7	7.4				**4**	**100**
EB RT	12	0.5	110	1	25	32.7	0.4			**2**		**50**
WB LT	117	0.61	110	1	25	32.7	3.6	**5**	**5**			**125**
WB Th	579	0.51	110	2	25	32.7	17.7				**7**	**175**
WB RT			110		25	32.7	0.0					
NB LT	15	0.28	110	1	25	32.7	0.5	**2**	**2**			**50**
NB Th	61	0.23	110	2	25	32.7	1.9				**2**	**50**
NB RT			110		25	32.7	0.0					
SB LT	24	0.28	110	1	25	32.7	0.7	**2**	**2**			**50**
SB Th	9	0.23	110	2	25	32.7	0.3				**1**	**25**
SB RT	23	0.33	110	1	25	32.7	0.7			**2**		**50**

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Loop | PM (Period) | 2012 (Year) | Build (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	42	0.06	120	1	25	30.0	1.4	**4**	**4**			**100**
EB Th	49	0.18	120	2	25	30.0	1.6				**2**	**50**
EB RT	270	0.29	120	1	25	30.0	9.0			**12**		**300**
WB LT	516	0.21	120	2	25	30.0	17.2	**22**	**11**			**275**
WB Th	28	0.32	120	2	25	30.0	0.9				**2**	**50**
WB RT	54	0.41	120	1	25	30.0	1.8			**4**		**100**
NB LT	135	0.08	120	2	25	30.0	4.5	**8**	**4**			**100**
NB Th	2357	0.42	120	4	25	30.0	78.6				**9**	**225**
NB RT			120		25	30.0	0.0					
SB LT	121	0.06	120	2	25	30.0	4.0	**8**	**4**			**100**
SB Th	1632	0.4	120	4	25	30.0	54.4				**10**	**250**
SB RT			120		25	30.0	0.0					

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Indian School-Uptown Loop | PM (Period) | 2012 (Year) | Build (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	165	0.47	120	1	25	30.0	5.5	**8**	**8**			**200**
EB Th	659	0.36	120	2	25	30.0	22.0				**10**	**250**
EB RT	82	0.48	120	1	25	30.0	2.7			**5**		**125**
WB LT	172	0.58	120	1	25	30.0	5.7	**8**	**8**			**200**
WB Th	600	0.44	120	2	25	30.0	20.0				**8**	**200**
WB RT			120		25	30.0	0.0					
NB LT	111	0.28	120	1	25	30.0	3.7	**7**	**7**			**175**
NB Th	222	0.19	120	2	25	30.0	7.4				**5**	**125**
NB RT			120		25	30.0	0.0					
SB LT	126	0.35	120	1	25	30.0	4.2	**7**	**7**			**175**
SB Th	56	0.23	120	2	25	30.0	1.9				**2**	**50**
SB RT	90	0.37	120	1	25	30.0	3.0			**5**		**125**

All queues calculated to 95th percentile value assuming random arrival.

Intersection Approach Queue Calculator

Intersection: Louisiana-Uptown Lp + 32 LT | PM (Period) | 2012 (Year) | Build - Mit (Scenario)

Approach	Volume	g/c Ratio	Cycle Length	Lanes	Vehicle Length	Cycle/Hr	Arrival Per Cycle	Single LT	Dual LT	RT Lane	Through	Design Length
EB LT	42	0.06	120	1	25	30.0	1.4	**4**	**4**			**100**
EB Th	49	0.18	120	2	25	30.0	1.6				**2**	**50**
EB RT	270	0.29	120	1	25	30.0	9.0			**12**		**300**
WB LT	548	0.22	120	2	25	30.0	18.3	**24**	**12**			**300**
WB Th	28	0.33	120	2	25	30.0	0.9				**2**	**50**
WB RT	54	0.42	120	1	25	30.0	1.8			**4**		**100**
NB LT	135	0.08	120	2	25	30.0	4.5	**8**	**4**			**100**
NB Th	2357	0.41	120	4	25	30.0	78.6				**10**	**250**
NB RT			120		25	30.0	0.0					
SB LT	121	0.06	120	2	25	30.0	4.0	**8**	**4**			**100**
SB Th	1632	0.39	120	4	25	30.0	54.4				**10**	**250**
SB RT			120		25	30.0	0.0					

All queues calculated to 95th percentile value assuming random arrival.