

98th / Unser Commercial Development
(NE Corner of Vista Oriente St. / Unser Blvd.)

Traffic Impact Study

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Presented to:

City of Albuquerque
Transportation Development Section
&
NM Department of Transportation
District #3

Prepared for:

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98th St. / Unser Commercial / Office Development (Northeast Corner) TRAFFIC IMPACT STUDY

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98th St. / Unser Commercial / Office Development (Northeast Corner) TRAFFIC IMPACT STUDY

STUDY PURPOSE

The study is being conducted in conjunction with a request for approval of a commercial / office development plan such as the one shown in the Appendix (Page A-2) of this report. The purposed of this study is to identify the impact of the Development on the adjacent transportation system, and to make recommendations to mitigate any significant adverse impact on the adjacent transportation system resulting from the implementation of the proposed plan. This report is being prepared to meet the requirements of the City of Albuquerque Transportation Development Section and the New Mexico Department of Transportation (District 3) in association with the development of this proposed commercial / office development located on the northeast corner of 98th St. (Tierra Pintada - Vista Oriente) / Unser Blvd.

STUDY PROCEDURES

A scoping meeting was held on August 9, 2007 with City of Albuquerque Transportation staff (Tony Loyd and Steele Nowak) prior to beginning the study to discuss scope and methodology to be utilized within the report. Specific items included format, intersections to be studied, intersection analysis procedures, existing traffic counts, trip distribution methodology, and implementation and horizon year definition.

The basic procedure followed is described as follows:

- 1) Calculate the generated trips for the proposed development consisting of a commercial development including a 14,820 S.F. Pharmacy w/a Drive-Through Window, a 2,400 S.F. Fast Food Restaurant with drive-thru window, approximately 46,640 S.F. of retail commercial floor space, and approximately 23,100 S.F. of general office space. (See Appendix Pages A-7 thru A-11).
- 2) Calculate trip distribution for the newly generated trips by this development. The Commercial trips will be distributed based on year 2010 population distribution within a two-mile radius of the site. (See Appendix Pages A-12 thru A-17).
- 3) Determine Trip Assignments for the newly generated trips based on the results of the Trip Distribution Analysis and logical routing to and from the site. (See Appendix Pages A-22 thru A-23).
- 4) Acquire recent traffic counts for all signalized intersections to be analyzed in this report. (See Appendix Pages A-88 thru A-95).
- 5) Calculate growth rate for the area utilizing recent traffic volumes (obtained from recent traffic count data) and traffic forecast volumes from the Mid-Region Council of Governments' transportation model (See Appendix Pages A-26 thru A-40).
- 6) Determine 2010 NO BUILD Volumes by growing the existing turning movement counts to the year 2010 utilizing the calculated annual historic growth rate for the area and then adding in trips generated by the proposed Southwest Mesa

Subdivisions, Storm Cloud Development, and the I-40 / Unser Commercial Development. (See Appendix Pages A-24 thru A-44).

- 7) Add in data from Trip Assignments Maps and Tables to the 2010 NO BUILD Volumes to obtain 2010 BUILD Volumes for this project (See Appendix Pages A-24 thru A-44).
- 8) Provide signalized and / or unsignalized intersection analyses (See Appendix Pages A-45 thru A-83) for the following intersections:

INTERSECTION	TYPE CONTROL	NO BUILD	BUILD
1) I-40 N. Ramp / Unser Blvd.	Traffic Signal	2010	2010
2) Ladera Dr. / Unser Blvd.	Traffic Signal	2010	2010
3) Ouray Rd. / Unser Blvd.	Traffic Signal	2010	2010
4) Vista Oriente St. / Unser Blvd.	Traffic Signal	2010	2010
5) Ladera Dr. / Unser Blvd.	Traffic Signal	2010	2010
6) Vista Oriente St. / Driveway "A"	Stop Sign	2010	2010
7) Vista Oriente St. / Driveway "B"	Stop Sign	N/A	2010
8) Driveway "C" / Unser Blvd.	Stop Sign	N/A	2010

GENERAL AREA CHARACTERISTICS

The proposed development plan is located along the east side of Unser Blvd. north of Vista Oriente St. as shown on the Vicinity Map on Page A-1 of the Appendix of this report. The property is bounded on the south by Vista Oriente Dr. (an extension of Tierra Pintada), on the west by Unser Blvd., and on the north by Old Ouray Rd. (vacated). The property north and west of this site is primarily zoned for residential development. The property to the east and south of this site is primarily industrial use. This project is located in the midst of a relatively active development area.

AREA STREET NETWORK

The streets most impacted by this project are Vista Oriente St. - Tierra Pintada Blvd. (old 98th St.), Unser Blvd., Ladera Dr., and Ouray Rd.

Unser Blvd. near Ouray Rd. is classified as a Limited Access Principal Arterial Street on the Long Range Roadway System Plan for the Albuquerque Urban Area. It is a four lane paved urban street with curbs and gutters on both sides of the street and raised medians in the center. The posted speed limit on Unser Blvd. from Ladera Dr. to Ouray Rd. is 45 MPH.

Tierra Pintada Blvd. is classified as a Collector Street on the Long Range Roadway System Plan for the Albuquerque Urban Area. It is generally a four lane paved urban roadway west of Unser Blvd. The posted speed limit on Tierra Pintada Blvd. near Unser Blvd. is 35 MPH.

Ladera Dr. is classified as a Minor Arterial street on the Long Range Roadway System Plan for the Albuquerque Urban Area. Ladera Dr. is generally a four lane urban roadway from Unser Blvd. northeast to Ouray Rd. The posted speed limit on Ladera Dr. in the vicinity of Unser Blvd. is 40 MPH.

Ouray Rd. is classified as a Collector Street on the Long Range Roadway System Plan for the Albuquerque Urban Area. It is generally a two and four lane paved urban roadway from Unser Blvd. east to Ladera Dr. The posted speed limit on Ouray Rd. near Unser Blvd. is 30 MPH.

EXISTING TRAFFIC VOLUMES

2006 Average Weekday Traffic Volumes (AWDT) for major streets in the site plan area are shown on Appendix Page A-5.

Recent AM and PM peak hour turning movement counts for the years 2006 and 2007 were collected for the following intersections:

I-40 N. Ramp / Unser Blvd. - 2007
Ladera Dr. / Unser Blvd. - 2007
Ouray Rd. / Unser Blvd. - 2006
Vista Oriente St. - Tierra Pintada Blvd. / Unser Blvd. - 2007
Ouray Rd. / Unser Blvd. - 2007

The counts are included on Appendix Pages A-88 thru A-95.

EXISTING LEVELS OF SERVICE

The Highway Capacity Manual defines Level of Service (LOS) for signalized intersections in terms of average controlled delay per vehicle as follows:

LOS A	10.0" or less	Most Vehicles do not stop
LOS B	10.1 to 20.0"	Some Vehicles stop
LOS C	20.1 to 35.0"	Significant number of vehicles stop.
LOS D	35.1 to 55.0"	Many vehicles stop.
LOS E	55.1 to 80.0"	Limit of acceptable delay.
LOS F	> 80.0"	Unacceptable delay.

Level of Service D is generally considered acceptable in urban areas and is the desirable base condition for analysis in a traffic study. In addition to consideration of the overall level-of-service of the signalized intersection, the levels-of-service of each individual movement should be considered.

Existing levels-of-service for this project were not calculated since the implementation year (2010) is only two and one-half years away.

EXISTING TRANSIT SERVICE

This area is serviced by the Downtown express bus route (Route 94) on Unser Blvd. which only services the area during the AM and PM Peak Hour periods.

PROPOSED DEVELOPMENT

The subject area of land targeted for this project totals approximately 11.5 acres. Current zoning of the land is SU-1 for IP. The proposed plan on Page A-2 in the Appendix of this study shows the development to be comprised of a 14,820 S.F. Pharmacy with a Drive-Thru Window, a 2,400 S.F. Fast Food Restaurant with a drive-thru window, approximately 46,640 S.F. of retail space, and 23,100 S.F. of general office space. Access to the proposed development will be via two full access driveways on Vista Oriente St. Both driveways are partially constructed. The westernmost of the two driveways on Vista Oriente St. aligns with Vista Oeste Rd., a private roadway in the Ladera Industrial Park development on the south side of Vista Oriente St. Also, the Metropolitan Transportation Board of the Mid-Region Council of Governments approved a right-in only driveway on Unser Blvd. north of Vista Oriente St. for access to this development. The right-in only access driveway is already constructed and is shown on the aerial photograph of the project on Page A-3 in the Appendix of this report.

PREVIOUS RELATED TRAFFIC IMPACT STUDIES

Generated Trips from the proposed Southwest Mesa Subdivisions, Storm Cloud Subdivision, and the I-40 / Unser Commercial Development were all added in to the background volumes for this project so that trips generated by those projects are included in the 2010 AM and PM Peak Hour NO BUILD Volumes utilized in this analysis.

TRIP GENERATION

Projected trips were calculated from data in the Institute of Transportation Engineers Trip Generation report (7th Edition, 2003). Trips for the development were determined based on land uses defined on the Conceptual Site Development Plan on Page A-2 in the Appendix of this report.

The resulting number of trips generated for the proposed development are summarized in the following table:

98th / Unser Commercial Development (NE Corner)

Trip Generation Data

COMMENT	USE (ITE CODE)	24 HR VOL	A. M. PEAK HR.		P. M. PEAK HR.		
	DESCRIPTION	GROSS	ENTER	EXIT	ENTER	EXIT	
	Summary Sheet	Units					
Approved	Walgreen's (Local Data)	14.82	1,853	33	23	122	127
Proposed	Fast Food Restaurant w/ Drive-Thru Window (934)	2.40	1,191	65	62	43	40
Proposed	Shopping Center (820)	46.64	4,136	60	39	182	197
Proposed	General Office Building (710) - Less than 51,000 S.F.	23.10	340	42	6	9	45
	Subtotal Trips Generated		7,520	200	130	356	409

Note that the Walgreen's was approved under a different Traffic Impact Study, but has not yet been constructed. Therefore, it is not generating traffic yet. This study includes the Walgreen's facility even though it has already been approved.

TRIP DISTRIBUTION

Primary and Diverted Linked Trips:

Trips were distributed as follows:

Commercial Land Uses

Commercial Land Use

Primary and diverted linked trips for the commercial land use development were distributed proportionally to the 2010 projected population of Data Analysis Subzones within a three mile radius of the proposed development. Population data for the years 2004 and 2030 were taken from the 2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico supplied by the Mid-Region Council of Governments (MRCOG). Population data from the years 2004 and 2030 was interpolated linearly to obtain 2010 population data to utilize for this analysis. Population Subzones were grouped based on the most likely major street(s) or route(s) to the subject development. The trip distribution worksheets and associated map of data analysis subzones is shown in the Appendix. The commercial Trip Distribution map can be found in the Appendix on Page A-17. Since the office use is a minor traffic generator for this project, the traffic generated by the office use was distributed in the same manner as the commercial trips.

Also, an adjustment was made for the future connection of Tierra Pintada to connect to the west to the Storm Cloud Subdivision. The eastbound left turn movements at Ladera Dr. / Unser Blvd. generated by the Storm Cloud Subdivision were re-assigned to the intersection of Tierra Pintada Blvd. / Unser Blvd.

TRIP ASSIGNMENTS

Trip assignments are made on a percentage basis derived from data established in the trip distribution determination process and logical routing. Those percentages are then applied to the projected trips to determine individual traffic movements. Trip Distribution Maps and Trip Assignments maps are shown in the Appendix on Pages A-22 thru A-23.

BACKGROUND TRAFFIC GROWTH

Background traffic growth rates were considered for each individual approach to an intersection that was targeted for analysis based on data from regional transportation model's AM and PM Peak Hour link volumes. The growth rate was calculated so that the implementation year forecast volumes were consistent with the regional model forecast volumes, except that the volumes from other proposed projects were added into this analysis. Therefore, the actual forecast volumes utilized in this report should be conservatively high in that they exceed the Mid-Region Council of Governments regional forecast AM and PM Peak Hour link volumes by the volumes of trips assigned to each intersection from the proposed projects added in with this study.

If the calculated growth rate in this report resulted in a negative growth rate, then a zero percent growth rate or a generic 3% annual growth rate was utilized.

PROJECTED PEAK HOUR TURNING MOVEMENTS FOR 2010 BUILDOUT

The calculated growth rates were applied to the 2006 and 2007 peak hour traffic counts over a three to four year period to establish the 2010 background traffic volumes. Trips generated by the Southwest Mesa Subdivisions, Storm Cloud Subdivision, and the I-40 / Unser Commercial Development were added into the background traffic volumes to obtain the 2010 AM and PM Peak Hour NO BUILD Volumes. To these volumes, the generated trips based on implementation of the proposed 98th / Unser Commercial Development were added to obtain 2010 BUILD volumes for the intersection analyses. See Appendix Pages A-24 thru A-44 for further information regarding turning movement counts.

INTERSECTION CAPACITY ANALYSIS

Intersection capacity analyses were performed in accordance with the procedures for signalized and unsignalized intersections utilized in the Synchro (Version 7, Build 755) Transportation System analysis software program as required by the New Mexico Department of Transportation. Synchro software deviates from the 2000 Highway Capacity Manual methods in several areas. The results obtained using Synchro software are generally deemed by the State to be close to those based on the 2000 Highway Capacity Manual in most cases.

Capacity analyses were performed for the following traffic conditions.

2010 without development of the subject property (2010 NO BUILD)

2010 with total development as per the Proposed Site Plan (2010 BUILD).

The results of the existing, 2010 NO BUILD and 2010 BUILD capacity analyses are summarized in the following sections - *Results and Discussion of Intersection Capacity Analyses*.

RESULTS OF SIGNALIZED INTERSECTION CAPACITY ANALYSES

IMPLEMENTATION YEAR (2010)

#1 – I-40 N. Ramp / Unser Blvd. - Pages A-45 thru A-49

The results of the 2010 implementation year analysis of the signalized intersection of I-40 N. Ramp / Unser Blvd. are summarized in the following tables:

Existing Geometry (I-40 N. Ramp / Unser Blvd.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB I-40 N. Ramp	N/A	N/A	N/A	N/A	N/A
WB I-40 N. Ramp	1	1	0	0	1*
NB Unser Blvd.	1	0	2	0	0
SB Unser Blvd.	0	0	3	0	1*

I-40 N. Ramp / Unser Blvd.	2010 No Build		2010 BUILD	
	A.M.	P.M.	A.M.	P.M.
Existing Geometry	B – 12.5	B – 17.7	B – 12.2	B – 17.5

D – 39.8 – Bold Italicized LOS indicates that one or more movements are at Level-of-Service “E” or worse.

The signalized analysis of the I-40 North Ramp / Unser Blvd. indicates that the projected 2010 AM and PM Peak Hour NO BUILD and BUILD Conditions will operate at satisfactory levels-of-service under the existing geometry.

The queuing analysis for this intersection are summarized in the following table:

Queueing Analysis Summary Sheet

Project:
Intersection:

98th / Unser Commercial Development
I-40 N. ramp / Unser Blvd

2010											
Approach	Left Turns			Thru Movements			Right Turns				
Eastbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length		
<i>Existing Lane Length</i>	0	0	0	0	0	Cont	0	0	0		
AM NO BUILD Queue	0	0	0	0	0	0	0	0	0		
AM BUILD Queue	0	0	0	0	0	0	0	0	0		
<i>Existing Lane Length</i>	0	0	0	0	0	Cont	0	0	0		
PM NO BUILD Queue	0	0	0	0	0	0	0	0	0		
PM BUILD Queue	0	0	0	0	0	0	0	0	0		
Westbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length		
<i>Existing Lane Length</i>	2	343	1,000	1	3	Cont	1	188	1,200		
AM NO BUILD Queue	2	442	275	1	3	0	1	190	225		
AM BUILD Queue	2	442	275	1	3	0	1	219	250		
<i>Existing Lane Length</i>	2	626	1,000	1	0	Cont	1	771	1,200		
PM NO BUILD Queue	2	816	575	1	0	0	1	827	1,001		
PM BUILD Queue	2	816	575	1	0	0	1	879	1,001		
Northbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length		
<i>Existing Lane Length</i>	1	24	350	2	687	Cont	0	0	0		
AM NO BUILD Queue	1	46	75	2	948	525	0	0	0		
AM BUILD Queue	1	46	75	2	974	525	0	0	0		
<i>Existing Lane Length</i>	1	24	350	2	725	Cont	0	0	0		
PM NO BUILD Queue	1	80	150	2	1,412	1,001	0	0	0		
PM BUILD Queue	1	80	150	2	1,458	1,001	0	0	0		
Southbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length		
<i>Existing Lane Length</i>	0	0	0	3	1,775	Cont	1	68	900		
AM NO BUILD Queue	0	0	0	3	2,246	800	1	76	125		
AM BUILD Queue	0	0	0	3	2,282	825	1	76	125		
<i>Existing Lane Length</i>	0	0	0	3	903	Cont	1	70	900		
PM NO BUILD Queue	0	0	0	3	1,541	725	1	115	200		
PM BUILD Queue	0	0	0	3	1,653	775	1	116	200		

AM **PM**
 Cycle Length: 100 130

NOTE: Queue lengths are in feet.

* - Queue Length of 1,001 indicates that the calculated queue > 1

#2 - Ladera Dr. / Unser Blvd. - Pages A-50 thru A-57

The results of the 2010 implementation year analysis of the signalized intersection of Ladera Dr. / Unser Blvd. are summarized in the following tables:

Existing Geometry (Ladera Dr. / Unser Blvd.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB Ladera Dr.	1	0	1	0	2
WB Ladera Dr.	2	0	0	1	0
NB Unser Blvd.	1	0	2	0	1
SB Unser Blvd.	1	0	1	1	0

Ladera Dr. / Unser Blvd.	2010 No Build		2010 BUILD	
	A.M.	P.M.	A.M.	P.M.
Existing Geometry	<i>D - 46.4</i>	<i>F - 85.1</i>	<i>D - 48.4</i>	<i>F - 117</i>
Exist. Geom. Plus 2 nd WB Thru Lane (City Improvement)				<i>F - 87.7</i>
Mitigated Geometry				<i>D - 45.7</i>

D - 39.8 – Bold Italicized LOS indicates that one or more movements are at Level-of-Service “E” or worse.

Analysis of the signalized intersection of Ladera Dr. / Unser Blvd. demonstrates that the intersection is failing for the projected 2010 PM Peak Hour NO BUILD and BUILD Conditions. Partial mitigation of the excessive delays at the intersection consist of adding a 2nd westbound thru lane on Ladera Dr. The second westbound thru lane on Ladera Dr. is already planned to be constructed in the near future by the City of Albuquerque. However, construction of the new westbound thru lane will not result in an acceptable level-of-service at the intersection. Further improvements will be required at the intersection to effect a level-of-service “D” or better at the intersection. The mitigated geometry for the intersection of Ladera Dr. / Unser Blvd. is summarized in the following table:

Mitigated Geometry (Ladera Dr. / Unser Blvd.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB Ladera Dr.	1	0	1	0	2
WB Ladera Dr.	2	0	1	1	0
NB Unser Blvd.	2	0	2	0	1
SB Unser Blvd.	2	0	2	0	1

In summary, the mitigation measures required at the intersection of Ladera Dr. / Unser Blvd. consist of a second westbound thru lane on Ladera Dr., dual northbound and southbound left turn lanes, and a new southbound right turn lane on Unser Blvd.

The queuing analysis for this intersection are summarized in the following table:

Queueing Analysis Summary Sheet

Project: 98th / Unser Commercial Development
 Intersection: Ladera Dr / Unser Blvd

2010										
Approach		Left Turns			Thru Movements			Right Turns		
Eastbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length	1	175	250	1	251	Cont	2	365	350	
AM NO BUILD Queue	1	178	225	1	368	400	2	557	350	
AM BUILD Queue	1	198	250	1	368	400	2	557	350	
Existing Lane Length	1	140	250	1	182	Cont	2	138	350	
PM NO BUILD Queue	1	155	250	1	272	375	2	322	275	
PM BUILD Queue	1	190	275	1	272	375	2	322	275	
Westbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length	2	317	350	2	105	Cont	0	44	0	
AM NO BUILD Queue	2	524	325	2	156	125	0	53	100	
AM BUILD Queue	2	524	325	2	156	125	0	120	175	
Existing Lane Length	2	281	350	2	264	Cont	0	107	0	
PM NO BUILD Queue	2	591	450	2	399	325	0	128	200	
PM BUILD Queue	2	591	450	2	399	325	0	248	350	
Northbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length	2	48	300	2	429	Cont	1	224	230	
AM NO BUILD Queue	2	133	125	2	584	350	1	372	400	
AM BUILD Queue	2	133	125	2	639	375	1	372	400	
Existing Lane Length	2	288	300	2	860	Cont	1	372	230	
PM NO BUILD Queue	2	572	425	2	1,352	900	1	724	875	
PM BUILD Queue	2	572	425	2	1,450	1,001	1	724	875	
Southbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length	2	45	160	2	906	Cont	1	58	TBD	
AM NO BUILD Queue	2	55	75	2	1,119	600	1	93	125	
AM BUILD Queue	2	99	100	2	1,155	625	1	106	150	
Existing Lane Length	2	94	160	2	547	Cont	1	184	TBD	
PM NO BUILD Queue	2	123	125	2	949	650	1	288	400	
PM BUILD Queue	2	260	225	2	1,062	725	1	329	450	

AM
PM
 Cycle Length: 100 130

NOTE: Queue lengths are in feet.

* - Queue Length of 1,001 indicates that the calculated queue > 1

TBD – To be designed.

The northbound left turn lane should be extended to a total length of 225 feet plus transition. The southbound left turn lane should be extended to a total length of 425 feet plus transition. One of the westbound left turn lanes extends well beyond 350 feet. The excess queues will be contained in that single left turn lane. The northbound right turn lane is a free right turn with an add lane. Therefore, the actual calculated queue is zero.

#3 – Ouray Rd. / Unser Blvd. – Pages A-58 thru A-62

The results of the 2010 implementation year analysis of the signalized intersection of Ouray Rd. / Unser Blvd. are summarized in the following tables:

Existing Geometry (Ouray Rd. / Unser Blvd.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB Ouray Rd.	1	0	1	0	1
WB Ouray Rd.	1	0	1	0	1
NB Unser Blvd.	1	0	2	0	1
SB Unser Blvd.	1	0	2	0	1

Ouray Rd. / Unser Blvd.	2010 No Build		2010 BUILD	
	A.M.	P.M.	A.M.	P.M.
Existing Geometry	A – 9.9	A – 7.0	B – 10.5	A – 7.7

D – 39.8 – Bold Italicized LOS indicates that one or more movements are at Level-of-Service “E” or worse.

The signalized analysis of Ouray Rd. / Unser Blvd. indicates that the projected 2010 AM and PM Peak Hour NO BUILD and BUILD Conditions will operate at satisfactory levels-of-service.

The queuing analysis for this intersection are summarized in the following table:

Queueing Analysis Summary Sheet

Project:
Intersection:

98th / Unser Commercial Development
Ouray Rd / Unser Blvd

2010

Approach				Left Turns			Thru Movements			Right Turns		
Eastbound				# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>				1	45	80	1	18	Cont	1	11	80
AM NO BUILD Queue				1	45	75	1	18	50	1	11	25
AM BUILD Queue				1	45	75	1	18	50	1	13	50
<i>Existing Lane Length</i>				1	23	80	1	12	Cont	1	3	80
PM NO BUILD Queue				1	23	75	1	12	50	1	3	25
PM BUILD Queue				1	23	75	1	12	50	1	6	25
Westbound				# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>				1	166	200	1	10	Cont	1	38	170
AM NO BUILD Queue				1	166	200	1	10	25	1	38	75
AM BUILD Queue				1	179	225	1	10	25	1	38	75
<i>Existing Lane Length</i>				1	68	200	1	18	Cont	1	34	170
PM NO BUILD Queue				1	92	175	1	24	75	1	46	100
PM BUILD Queue				1	115	200	1	24	75	1	46	100
Northbound				# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>				1	9	250	2	1,130	Cont	1	22	225
AM NO BUILD Queue				1	9	25	2	1,135	600	1	22	50
AM BUILD Queue				1	10	25	2	1,149	625	1	30	75
<i>Existing Lane Length</i>				1	21	250	2	1,141	Cont	1	87	225
PM NO BUILD Queue				1	21	50	2	1,141	775	1	87	150
PM BUILD Queue				1	25	75	2	1,186	800	1	113	200
Southbound				# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>				1	37	325	2	883	Cont	1	6	280
AM NO BUILD Queue				1	42	75	2	1,009	550	1	7	25
AM BUILD Queue				1	42	75	2	1,031	575	1	7	25
<i>Existing Lane Length</i>				1	93	325	2	739	Cont	1	34	280
PM NO BUILD Queue				1	107	175	2	847	600	1	39	100
PM BUILD Queue				1	107	175	2	886	625	1	39	100

Cycle Length: AM PM
 100 130

NOTE: Queue lengths are in feet.

* - Queue Length of 1,001 indicates that the calculated queue > 1

#4 – Vista Oriente St. – Tierra Pintada Blvd. / Unser Blvd. - Pages A-63 thru A-67

The results of the 2010 implementation year analysis of the signalized intersection of Vista Oriente St. – Tierra Pintada Blvd. / Unser Blvd. are summarized in the following tables:

Existing Geometry (Vista Oriente St. / Unser Blvd.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB Tierra Pintada Blvd.	1	0	1	0	1
WB Vista Oriente St.	1	0	1	0	1
NB Unser Blvd.	1	0	2	0	1
SB Unser Blvd.	1	0	2	0	1

Vista Oriente St. / Unser Blvd.	2010 No Build		2010 BUILD	
Existing Geometry	A.M.	P.M.	A.M.	P.M.
	B – 11.6	A – 8.6	B – 12.6	C – 26.0

D – 39.8 – Bold Italicized LOS indicates that one or more movements are at Level-of-Service “E” or worse.

The signalized analysis of Vista Oriente St. – Tierra Pintada Blvd. / Unser Blvd. indicates that the projected 2010 AM and PM Peak Hour NO BUILD and BUILD Conditions will operate at satisfactory levels-of-service under the existing geometry.

The queuing analysis for this intersection are summarized in the following table:

Project: 98th / Unser Commercial Development
Intersection: Vista Oriente St / Unser Blvd

	<u>AM</u>	<u>PM</u>	<u>NOTE: Queue lengths are in feet.</u>
Cycle Length:	100	130	* - Queue Length of 1,001 indicates that the calculated queue > 1

15

RESULTS OF UNSIGNALIZED INTERSECTION CAPACITY ANALYSES

IMPLEMENTATION YEAR (2010)

#5 - I-40 S. Ramp / Unser Blvd. - Pages A-69 thru A-72

The results of the analysis of the unsignalized intersection of the I-40 South Ramp / Unser Blvd. are summarized in the following table:

	2010 NO BUILD		2010 BUILD	
	AM	PM	AM	PM
I-40 South Ramp / Unser Blvd.				
Minor Street (I-40 S. Ramp)				
EB Left	F - 247	F - 860	F - 247	F - 970
EB Right	N/A	N/A	N/A	N/A
Major Street (Unser Blvd.)				
NB Left	N/A	N/A	N/A	N/A

NOTE: The eastbound right turn movement occurs with a free right turn ramp with an add lane. There is no northbound left turn movement since the ramp is one-way eastbound. Also, there are no eastbound thru movements at this intersection.

As demonstrated in the previous Traffic Impact Study for the proposed I-40 / Unser Commercial Development, the unsignalized intersection of the I-40 South Ramp / Unser Blvd. is not projected to meet the minimum warrant for a traffic signal based on the 2010 AM and PM Peak Hour forecast volumes. The deficit in the signal warrant analysis was the volume projected on the side street (the I-40 South Ramp). This project adds only one vehicle per hour to the eastbound movement on the South Ramp. Therefore, this analysis also concludes that a signal will not be warranted at the I-40 South Ramp / Unser Blvd.

#6 - Vista Oriente St. / Driveway "A" - Pages A-74 thru A-77

The results of the analysis of the unsignalized intersection of Vista Oriente St. / Driveway "A" are summarized in the following table:

	2010 NO BUILD		2010 BUILD	
			AM	PM
Vista Oriente St. / Driveway "A"				
Minor Street (Vista Oeste)				
NB Left	A - 8.7	A - 9.5	C - 15.2	D - 31.6
NB Thru	N/A	N/A	C - 15.2	D - 31.6
NB Right	N/A	N/A	C - 15.2	D - 31.6
Minor Street (Driveway "A")				
SB Left	N/A	N/A	A - 9.1	C - 16.4
SB Thru	N/A	N/A	A - 9.1	C - 16.4
SB Right	N/A	N/A	A - 9.1	B - 12.0
Major Street (Vista Oriente St.)				
EB Left	N/A	N/A	A - 5.3	A - 8.1
WB Left	A - 1	A - 1	A - 1	A - 1

Driveway "A" is proposed as a full access unsignalized intersection on Vista Oriente St. which aligns with the existing intersection of Vista Oriente St. / Vista Oeste. It is located about 365 feet (centerline to centerline) east of Unser Blvd. The available queuing distance between the stop bar for westbound traffic on Vista Oriente St. at Unser and the eastbound left turn traffic on Vista Oriente at Driveway "A" is approximately 270 feet. The calculated maximum eastbound left turn volume into Driveway "A" during the projected PM Peak Hour is 227 vehicles per hour. The resulting calculated queue requirement (from Synchro) for this movement is 25 feet.

#7 - Vista Oriente St. / Driveway "B" - Pages A-78 thru A-80

The results of the analysis of the unsignalized intersection of Vista Oriente St. / Driveway "B" are summarized in the following table:

	2010 BUILD	
	AM	PM
Vista Oriente St. / Driveway "B"		
Minor Street (Driveway "B")		
SB Left	A - 8.5	A - 9.0
SB Right	A - 8.5	A - 9.0
Major Street (Vista Oriente St.)		
EB Left	A - 5.3	A - 5.3

Driveway "B" is proposed as a full access unsignalized intersection on Vista Oriente St. approximately 150 feet east of Driveway "A" on Vista Oriente St. The calculated maximum eastbound left turn volume into Driveway "B" during the projected PM Peak Hour is 68 vehicles per hour. The resulting calculated queue requirement (from Synchro) for this movement is 25 feet.

#8 - Driveway "C" / Unser Blvd. - Pages A-81 thru A-83

Since Driveway "C" exists as a right-turn-in only driveway off of the major street, then the unsignalized intersection analysis yields zero delay for all movements permitted.

It should be noted that Levels of Service (LOS) for unsignalized intersections cannot be compared directly with Levels of Service for signalized intersections. LOS for unsignalized intersections is based on reserve capacity, which is converted to generalized levels of delay; LOS for signalized intersections is based on actual delay in seconds.

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

<u>Average Delay</u> <u>(secs)</u>	<u>Level-of-Service</u>
≤ 10	A
> 10 and ≤ 15	B
> 15 and ≤ 25	C
> 25 and ≤ 35	D
> 35 and ≤ 50	E
> 50	F

Generally speaking, a Level-of-Service D or better is an acceptable parameter for design purposes.

CONCLUSIONS

This analysis was conducted using the following methodology: Trip Generation was established using the Institute of Transportation Engineers' (ITE's) Trip Generation Manual (7th Edition). Generated Trips were distributed proportionately based on population data within a two-mile radius of the commercial project; annual growth rate of background traffic volumes was established from MRCOG regional transportation model data so as to be consistent with the projected AM and PM Peak Hour link volumes; and the intersection analyses were performed in accordance with methods incorporated by Synchro transportation modeling software. The Traffic Impact Study showed a relatively insignificant increase in traffic congestion for the adjacent transportation network based on 100% buildout of the proposed project.

The intersection of Ladera Dr. / Unser Blvd. showed considerable congestion and delays due to the high volume of background traffic during the 2010 PM Peak Hour NO BUILD and 2010 PM Peak Hour BUILD Conditions. Addition of the traffic from the proposed 98th / Unser Commercial Development is not the cause of level-of-service failures at that intersection. It is important to note that this project constitutes less than a 9% of the projected 2010 PM Peak Hour BUILD volumes at the intersection of Ladera Dr. / Unser Blvd.

In summary, the proposed development of 98th / Unser Commercial Development presents no significant adverse impact to the adjacent transportation system provided that the following recommendations are followed:

RECOMMENDATIONS

FROM IMPLEMENTATION YEAR (2010) ANALYSIS

- All design and construction for this project shall insure that adequate site distances at the proposed access points are maintained.
- Driveways shall be constructed using a minimum of 25-foot radius curb returns or larger if need for truck access.

Mitigation Recommendations:

- **Driveway "C" / Unser Blvd.** – Driveway "C" on Unser Blvd. is an existing approved right-turn-in only unsignalized driveway. No changes are recommended as a result of this study.
- **Vista Oriente St. / Driveway "A"** – Driveway "A" is proposed as a full access unsignalized driveway located approximately 365 feet east of Unser Blvd. (centerline to centerline). Driveway "A" should be constructed to include an eastbound left turn lane on Vista Oriente St. The eastbound left turn lane should be constructed to a length of 125 feet plus transition. The north leg of Driveway "A" should align with Vista Oeste on the south side of Vista Oriente St. The north leg of the intersection should be constructed with two exiting lanes (one for right turns and one for thru / left turns). The right turn lane should be channelized. Design and construction of Driveway "A" should conform to the requirements of the City of Albuquerque's Development Process Manual.
- **Vista Oriente St. / Driveway "B"** – Construct the proposed Driveway "B" on Vista Oriente St. shown on the site plan on Page A-2 in the Appendix of this study as a full access unsignalized tee intersection on the north side of Ouray Rd. Locate the intersection of Driveway "B" approximately 150 feet east of Driveway "A". The driveway should be constructed with at least one exiting lane (for left turns and right turns) and one entering lane in conformance with the requirements of the current City of Albuquerque Development Process Manual and the requirements of the City Engineer.
- **Ladera Dr. / Unser Blvd.** – The City of Albuquerque plans to construct a second westbound thru lane on Ladera Dr. at Unser Blvd. In addition, construction of dual northbound and southbound left turn lanes on Unser Blvd. at Ladera, and construction of a new southbound right turn lane on Unser Blvd. at Ladera will be required to effect an operational level-of-service "D" or better at the intersection of Ladera Dr. / Unser Blvd.

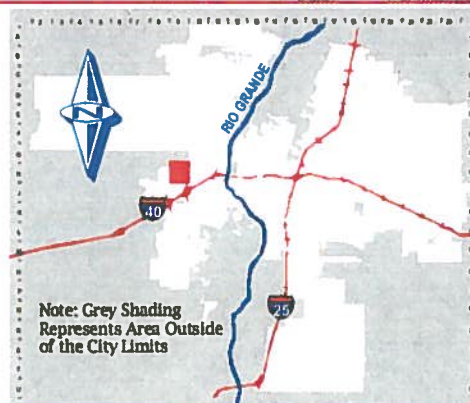
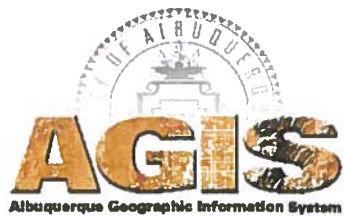
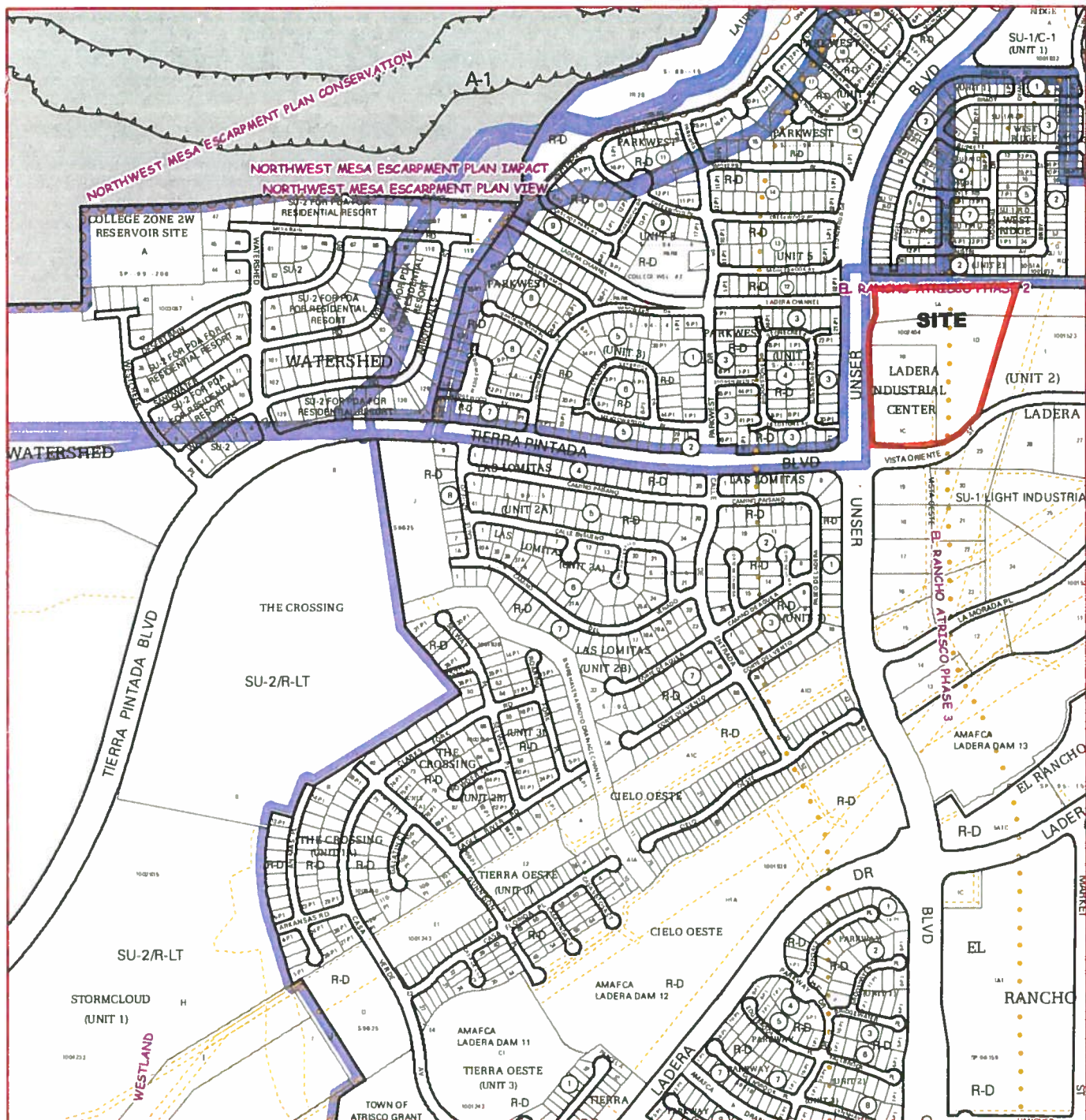
AUXILIARY LANES

- **Ladera Dr. / Unser Blvd.** - The northbound left turn lane on Unser Blvd. at Ladera Dr. should be extended to a total length of 225 feet plus transition. The southbound left turn lane on Unser Blvd. at Ladera Dr. should be extended to a total length of 425 feet plus transition.

Appendix

SITE INFORMATION	
A-1	Vicinity Map
A-2	Conceptual Site Development Plan
A-3	Aerial Photos – Project
A-4	Aerial Photo – Transportation System
A-5	MRCOG's 2006 Traffic Flow Map for the Greater Albuquerque Area
A-6	Long Range Roadway Plan for the Albuquerque Urban Area
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APPENDIX



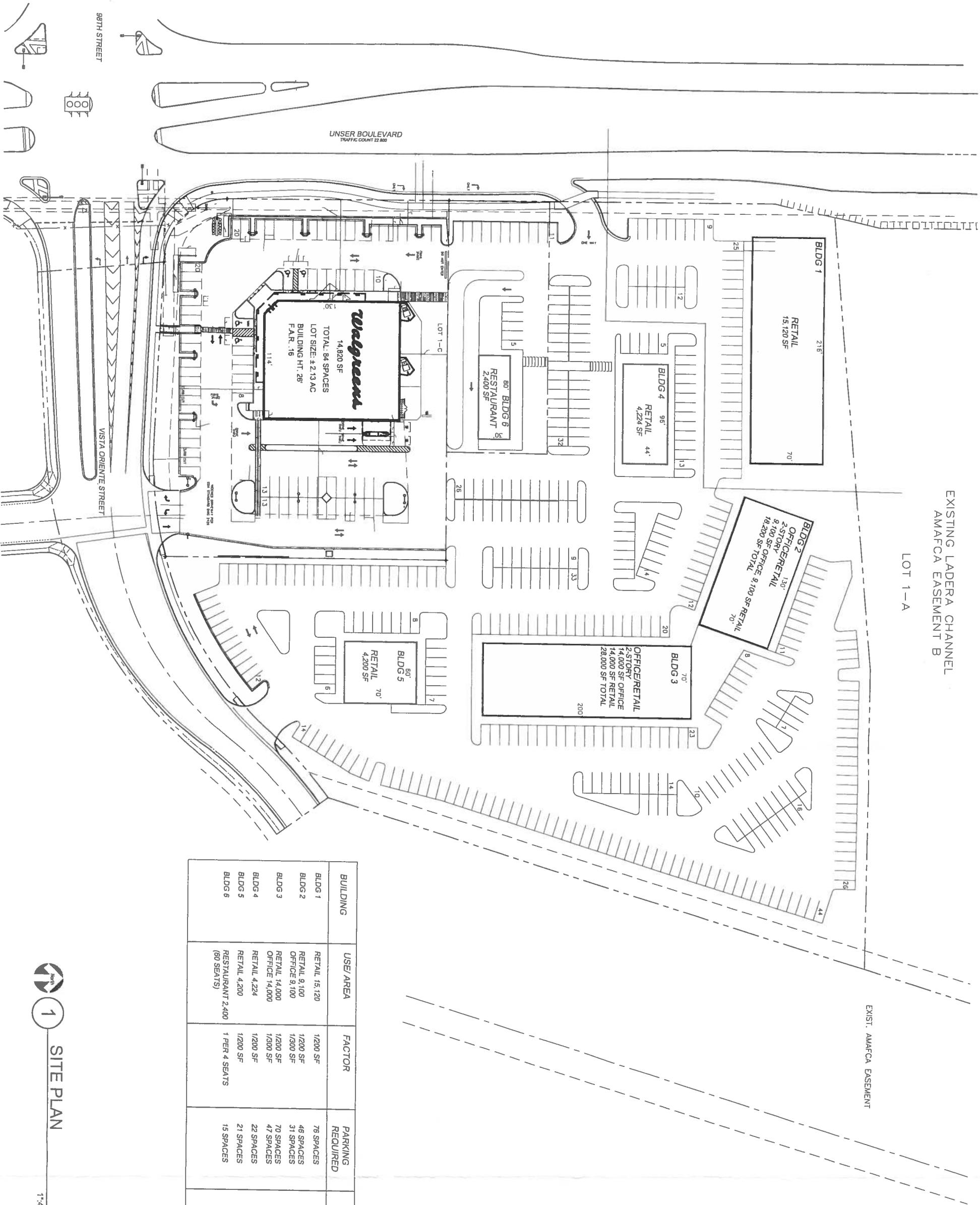
Zone Atlas Page:

H-09-Z

Selected Symbols

- SECTOR PLANS**
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone





BUILDING	USE AREA	FACTOR	PARKING REQUIRED	PARKING PROVIDED
BLDG 1	RETAIL 15,120	1/200 SF	76 SPACES	x SPACES
BLDG 2	RETAIL 8,100 OFFICE 8,100	1/200 SF 1/300 SF	46 SPACES 31 SPACES	
BLDG 3	RETAIL 14,000 OFFICE 14,000	1/200 SF 1/300 SF	70 SPACES 47 SPACES	
BLDG 4	RETAIL 4,224	1/200 SF	22 SPACES	
BLDG 5	RETAIL 4,200	1/200 SF	21 SPACES	
BLDG 6	RESTAURANT 2,400 (60 SEATS)	1 PER 4 SEATS	15 SPACES	

1 SITE PLAN

1"=40'

DATE: 10/07	PROJECT TITLE UNSER & 98 TH STREET		
	Albuquerque, NM		
SCALE: A1.0	PROJECT MANAGER George Rainhart, AIA	JOB NO.	DRAWN BY: NAH
	SHEET TITLE Site Plan		

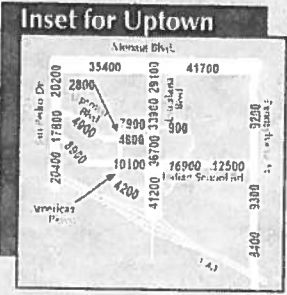
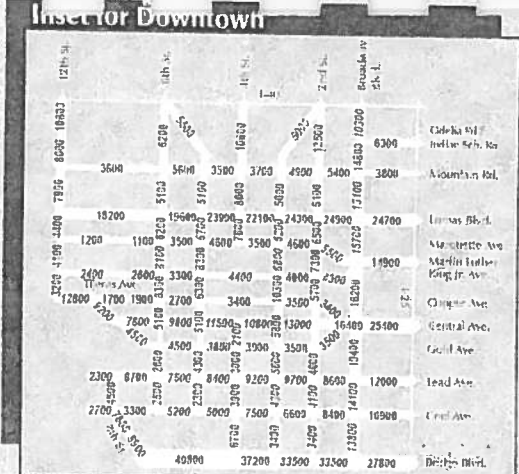
GEORGE RAINHART, ARCHITECT AND ASSOCIATES P.C. 2325 SAN PEDRO NE., SUITE 2-B ALBUQUERQUE, NEW MEXICO 87110 PHONE (505) 884-9110 FAX (505) 837-9877	
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REV	DATE	BY	REVISION
1	6.13.07	JS	WAG BUFFER ADDED

DATE:	12/10/07
SCALE:	A1.0







Average Weekday Traffic Flows

- 0 - 900
- 1000 - 4900
- 5000 - 14900
- 15000 - 24900
- 25000 - 34900
- 35000 - 44900
- 45000 - 54900
- 55000 - 194900

Standard Data 9500 Link Volume is based on traffic count data accepted by the NM Department of Transportation Traffic Monitoring System (TMS), as standard in accordance with the New Mexico State Traffic Monitoring Standards (NMSTMS).

1-Standard Data 9500 Link Volume is based either on traffic count data not in compliance with the NMSTMS or on professional judgement. NMDOT recommends that nonstandard data be used with caution.



Inset for Los Lunas, Valencia County

Los Lunas is approximately 12 miles south of the I-25/NM 47 interchange.

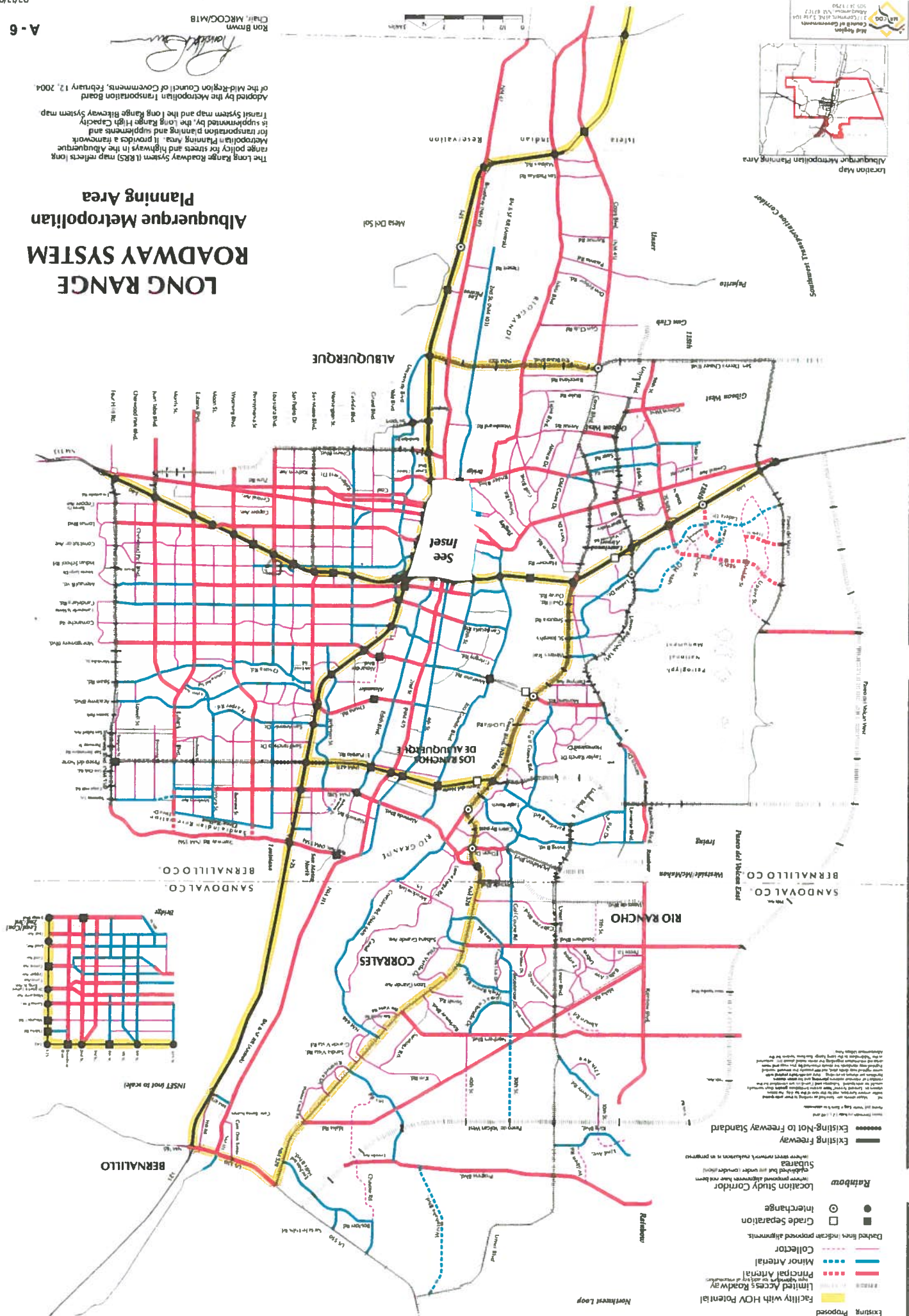


2006 Traffic Flows for the Greater Albuquerque Area

Map prepared by the Mid-Region Council of Governments in cooperation with the New Mexico Department of Transportation, the local governments in the Albuquerque Metropolitan Planning Area, and the U.S. Department of Transportation, Federal Highway Administration.

large policy for streets and highways in the Albuquerque Metropolitan Planning Area. It provides a framework for transportation planning and improvements and is supplemented by the Long Range Light Capacity Transit System map and the Long Range Bicyclist System map adopted by the Metropolitan Transportation Board of the Mid-Region Council of Governments, February 12, 2004.

**LONG RANGE
ROADWAY SYSTEM
Albuquerque Metropolitan
Planning Area**



98th / Unser Commercial Development (NE Corner)
Trip Generation Data

COMMENT	USE (ITE CODE)	DESCRIPTION	24 HR VOL	A. M. PEAK HR.		P. M. PEAK HR.	
			GROSS	ENTER	EXIT	ENTER	EXIT
Summary Sheet							
			Units				
Existing		Walgreen's (Local Data)	14.82	33	23	122	127
Proposed		Fast Food Restaurant w/ Drive-Thru Window (934)	2.40	65	62	43	40
Proposed		Shopping Center (820)	46.64	60	39	182	197
Proposed		General Office Building (710) - Less than 51,000 S.F.	23.10	42	6	9	45
Subtotal Trips Generated			7,520	200	130	356	409

98th / Unser Commercial Development (NE Corner)
Trip Generation Data

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME		A. M. PEAK HOUR		P. M. PEAK HOUR	
	GROSS	ENTER	EXIT	ENTER	EXIT	EXIT
Units						
	14.82	33	23	122	127	
1,000 S.F.						

Walgreen's (Local Data)

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = \begin{matrix} 50\% & \text{Enter,} & 125 (X) + & 0 \\ & & & 50\% \text{ Exit} \end{matrix}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = \begin{matrix} 59\% & \text{Enter,} & 3.79 (X) + & 0 \\ & & & 41\% \text{ Exit} \end{matrix}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$T = \begin{matrix} 49\% & \text{Enter,} & 16.82 (X) + & 0 \\ & & & 51\% \text{ Exit} \end{matrix}$$

Comments:
Existing

Based on ITE Trip Generation Manual - 7th Edition

98th / Unser Commercial Development (NE Corner) **Trip Generation Data**

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME		A.M. PEAK HOUR		P.M. PEAK HOUR	
	GROSS	ENTER	EXIT	ENTER	EXIT	EXIT
Units						
2.40						
1,000 S.F.						
Fast Food Restaurant w/ Drive-Thru Window (934)	1,191	65	62	43	40	

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = \frac{496.12 (X) + 0}{50\% \text{ Enter, } 50\% \text{ Exit}}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = \frac{53.11 (X) + 0}{51\% \text{ Enter, } 49\% \text{ Exit}}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$T = \frac{34.64 (X) + 0}{52\% \text{ Enter, } 48\% \text{ Exit}}$$

Comments:
Proposed

Based on ITE Trip Generation Manual - 7th Edition

98th / Unser Commercial Development (NE Corner) **Trip Generation Data**

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME		A. M. PEAK HOUR		P. M. PEAK HOUR
	GROSS	ENTER	EXIT	ENTER	EXIT
Shopping Center (820)					
	Units				
	46.64	60	39	182	197
	1,000 S.F.				

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$\text{Ln}(T) = \begin{matrix} 0.65 & \text{Ln}(X) + & 5.83 \\ 50\% & \text{Enter,} & 50\% \text{ Exit} \end{matrix}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$\text{Ln}(T) = \begin{matrix} 0.6 & \text{Ln}(X) + & 2.29 \\ 61\% & \text{Enter,} & 39\% \text{ Exit} \end{matrix}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$\text{Ln}(T) = \begin{matrix} 0.66 & \text{Ln}(X) + & 3.403 \\ 48\% & \text{Enter,} & 52\% \text{ Exit} \end{matrix}$$

Comments:
Proposed

Based on ITE Trip Generation Manual - 7th Edition

98th / Unser Commercial Development (NE Corner)
Trip Generation Data

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME	A.M. PEAK HOUR		P.M. PEAK HOUR	
		ENTER	EXIT	ENTER	EXIT
Units					
General Office Building (710) - Less than 51,000 S.F.					
	340	42	6	9	45
23.10					
1,000 S.F.					

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = \frac{14.729 (X) + 0}{50\% \text{ Enter, } 50\% \text{ Exit}}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

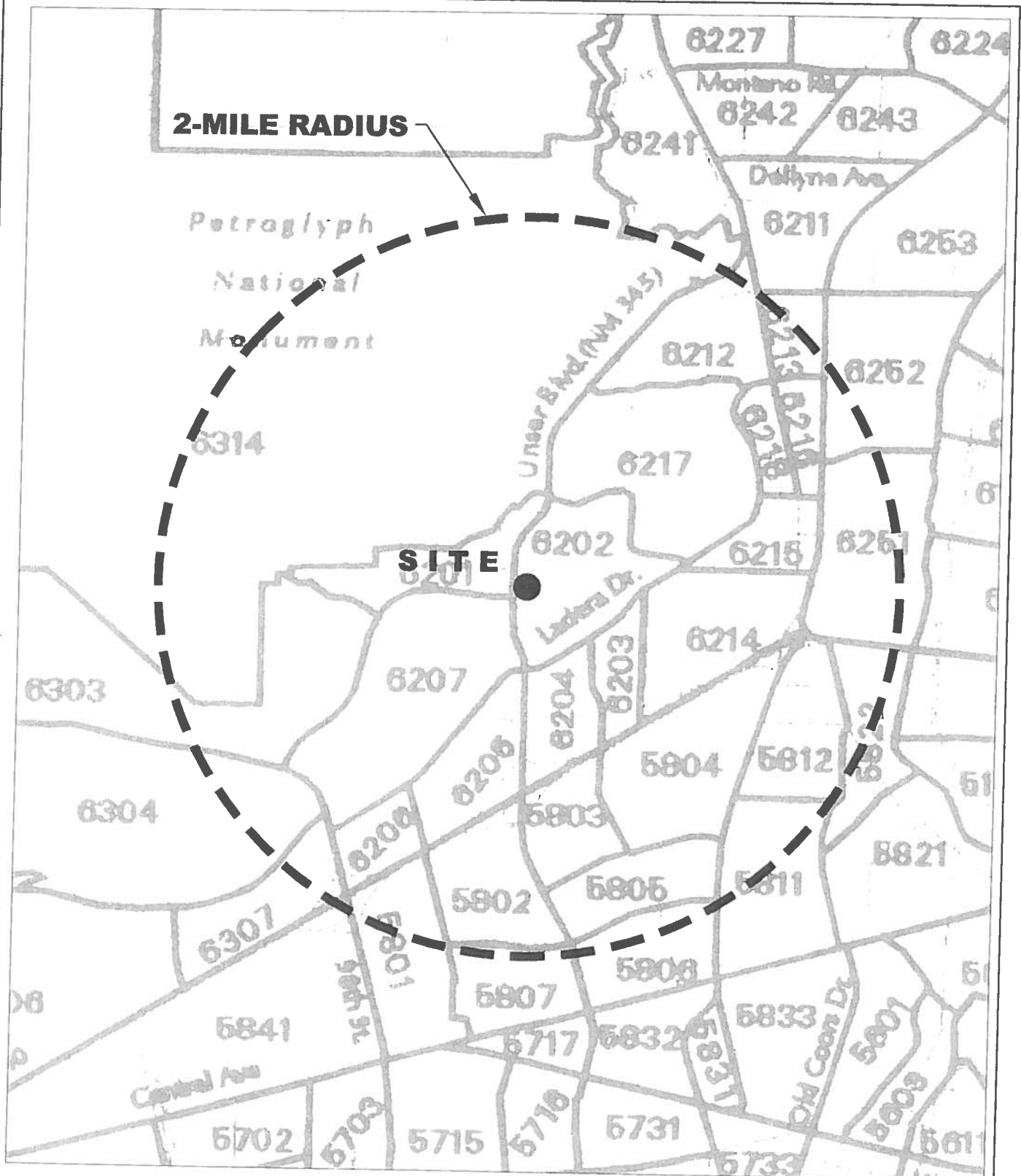
$$T = \frac{2.055 (X) + 0}{88\% \text{ Enter, } 12\% \text{ Exit}}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$T = \frac{2.369 (X) + 0}{17\% \text{ Enter, } 83\% \text{ Exit}}$$

Comments:
Proposed

Based on ITE Trip Generation Manual - 7th Edition



DATA ANALYSIS SUBZONE (DASZ) MAP
98th / Unser Commercial Development

Trip Distribution Table

Project Name (Location)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed Retail Commercial Trips

2004 and 2030 Data Taken from Mid-Region Council of Governments' 2030 Socioeconomic
2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

DASZ #	% Sub Area in Study	2004 Population		2030 Population		Interpolated Population for the Year 2010	Population in Study	Percent Population	(UN)			(OE)			(VE)		
		2004		2030					% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	
Boundary Specified on DASZ Map																	
5801	40%	542	926	631	252			0.86%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
5802	100%	467	432	459	459			1.68%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
5803	100%	0	0	0	0		0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
5804	100%	1983	2412	2,082	2,082		2,082	7.09%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
5805	100%	79	97	83	83		83	0.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
5806	25%	609	635	615	154		154	0.52%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
5807	5%	737	1424	896	45		45	0.16%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
5811	45%	3959	3816	3,926	1,767		1,767	6.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
5812	100%	2322	2177	2,289	2,289		2,289	7.80%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
5822	50%	998	1006	1,000	500		500	1.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6201	100%	1158	1691	1,281	1,281		1,281	4.36%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6202	100%	910	1520	1,051	1,051		1,051	3.68%	0%	0.00%	0	50%	1.79%	526	30%	1.07%	
6203	100%	870	835	882	882		882	2.94%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6204	100%	1209	1357	1,243	1,243		1,243	4.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6205	100%	1331	1312	1,327	1,327		1,327	4.52%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6206	100%	0	854	197	197		197	0.67%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6207	100%	1998	4709	2,624	2,624		2,624	8.94%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6212	95%	1889	2225	1,987	1,869		1,869	6.36%	100%	6.36%	1,869	0	0.00%	0	0%	0.00%	
6213	60%	61	398	139	83		83	0.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6214	100%	3411	3331	3,393	3,393		3,393	11.55%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6215	100%	1769	1673	1,747	1,747		1,747	5.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6216	100%	333	400	348	348		348	1.19%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6217	100%	2742	2653	2,721	2,721		2,721	9.27%	50%	4.63%	1,361	50%	4.63%	1,361	0%	0.00%	
6218	100%	1758	1989	1,811	1,811		1,811	6.17%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6251	25%	1893	1788	1,869	467		467	1.59%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6252	15%	1017	1418	1,110	167		167	0.57%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6303	50%	0	2684	619	310		310	1.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6304	15%	0	4261	983	147		147	0.50%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6307	25%	0	1460	337	84		84	0.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	
6314	40%	2	0	2	1		1	0.00%	100%	0.00%	1	0%	0.00%	0	0%	0.00%	
								100.00%			3,231			1,886		315	
											11.00%			6.42%		1.07%	

Trip Distribution Table

Project Name (Location)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed Retail Commercial Trips

2004 and 2030 Data Taken from Mid-Region Council of Governments' 2030 Socioeconomic
2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

DASZ #	% Sub Area in Study	2004 Population		2030 Population	Interpolated Population for the Year 2010	Population In Study	Percent Population	(LE)			(IE)			(US)		
		2004	2030					% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
Boundary Specified on DASZ Map																
5801	40%	542	926	631	252		0.88%				0	0%	0.00%			
5802	100%	467	432	459	459		1.66%			0	0%	0.00%		80%	0.88%	
5803	100%	0	0	0	0		0.00%			0	0%	0.00%		100%	1.56%	
5804	100%	1983	2412	2,082	2,082		7.09%			0	0%	0.00%		0	0.00%	
5805	100%	79	97	83	83		0.28%			0	50%	3.55%	1,041	50%	3.55%	
5806	25%	609	635	615	154		0.52%			0	0%	0.00%		100%	0.28%	
5807	5%	737	1424	896	45		0.15%			0	0%	0.00%		0	0.52%	
5811	45%	3959	3816	3,926	1,787		6.07%			0	0%	0.00%		154	0.15%	
5812	100%	2322	2177	2,289	2,289		7.80%			0	0%	0.00%		45	6.02%	
5822	50%	998	1006	1,000	500		1.70%			0	100%	7.80%	2,289	0	0.00%	
6201	100%	1158	1691	1,281	1,281		4.36%			0	0	1.70%	500	0	0.00%	
6202	100%	910	1520	1,051	1,051		3.58%			0	0	0.00%		0	0.00%	
6203	100%	870	835	862	862		2.94%			210	0	0.00%		0	0.00%	
6204	100%	1209	1357	1,243	1,243		4.23%			862	0	0.00%		0	0.00%	
6205	100%	1331	1312	1,327	1,327		4.52%			1,243	0	0.00%		0	0.00%	
6206	100%	0	854	187	197		0.87%			0	0	0.00%		0	0.00%	
6207	100%	1998	4709	2,624	2,624		8.94%			0	0	0.00%		0	0.00%	
6212	95%	1889	2225	1,967	1,869		6.36%			0	0	0.00%		0	0.00%	
6213	60%	61	398	139	83		0.28%			0	0	0.00%		0	0.00%	
6214	100%	3411	3331	3,393	3,393		11.56%			83	0	0.00%		0	0.00%	
6215	100%	1789	1673	1,747	1,747		5.95%			3,393	0	0.00%		0	0.00%	
6216	100%	333	400	348	348		1.19%			1,747	0	0.00%		0	0.00%	
6217	100%	2742	2653	2,721	2,721		9.27%			348	0	0.00%		0	0.00%	
6218	100%	1758	1989	1,811	1,811		6.17%			0	0	0.00%		0	0.00%	
6251	25%	1893	1788	1,869	467		1.59%			1,811	0	0.00%		0	0.00%	
6252	15%	1017	1418	1,110	167		0.57%			0	100%	1.59%	467	0	0.00%	
6303	50%	0	2684	619	310		1.06%			167	0	0.00%		0	0.00%	
6304	15%	0	4261	983	147		0.50%			0	0	0.00%		0	0.00%	
6307	25%	0	1460	337	84		0.29%			0	0	0.00%		0	0.00%	
6314	40%	2	0	2	1		0.00%			0	0	0.00%		0	0.00%	
							100.00%				9,864	0	0.00%	0	0%	
											33.59%				4,297	0
															14.63%	3,761
															12.77%	12,776

Project Name (Location)

2004 and 2030 Data Taken from Mid-Region Council of Governments' 2030 Socioeconomic
2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

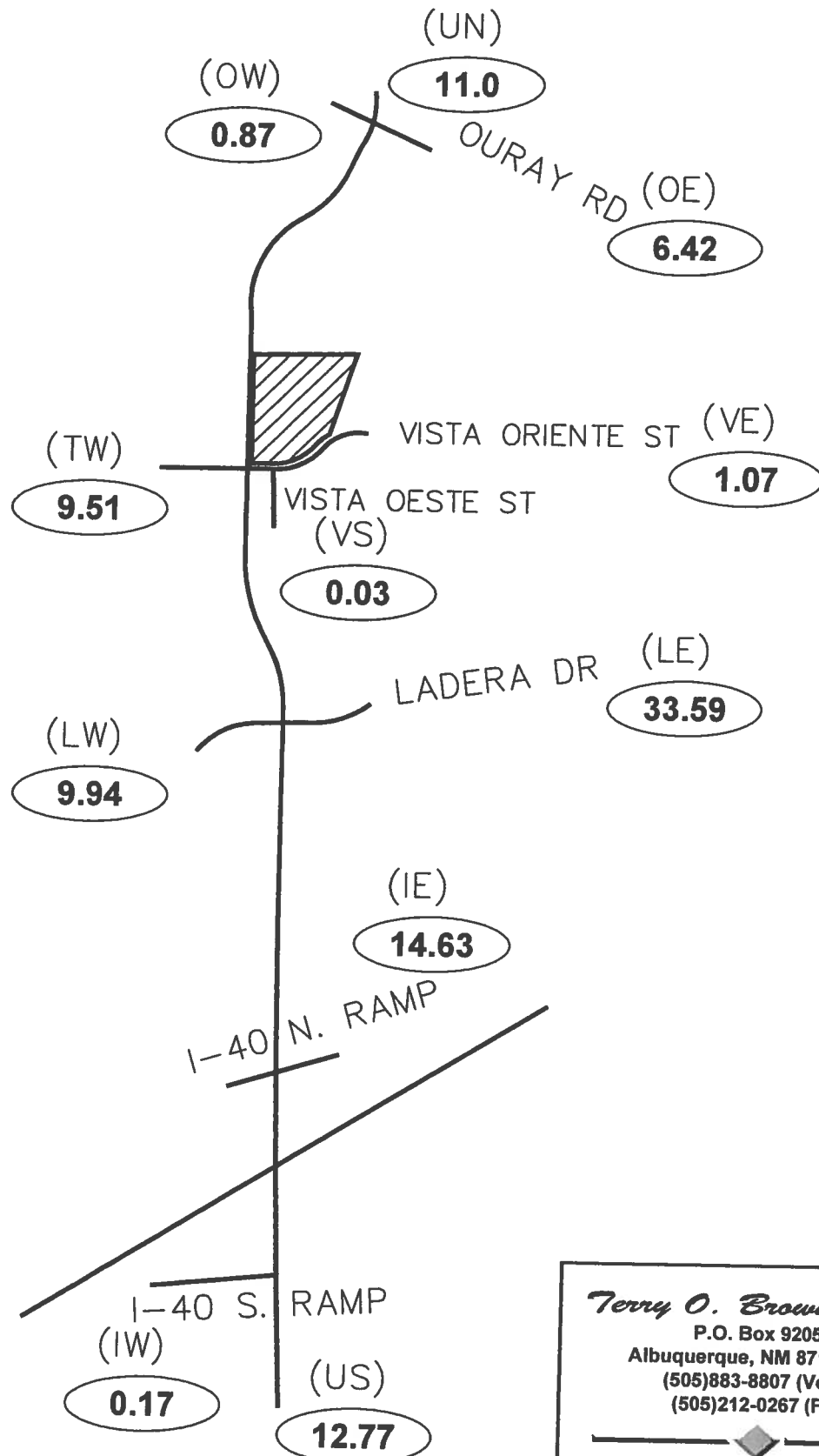
A - 16

98th / User Commercial Development

Trip Distribution Map (%)



NTS



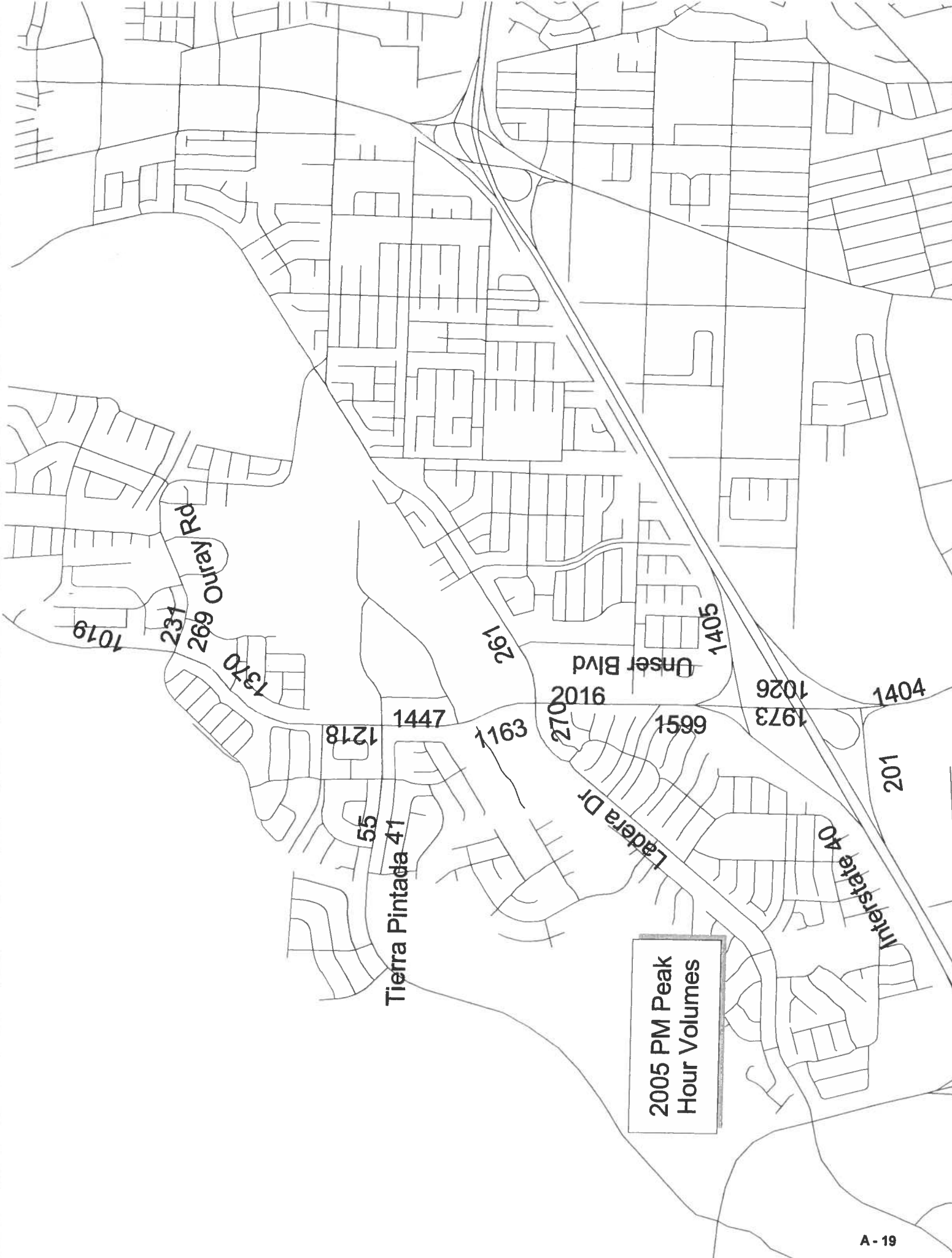
Terry O. Brown, P.E.

P.O. Box 92051

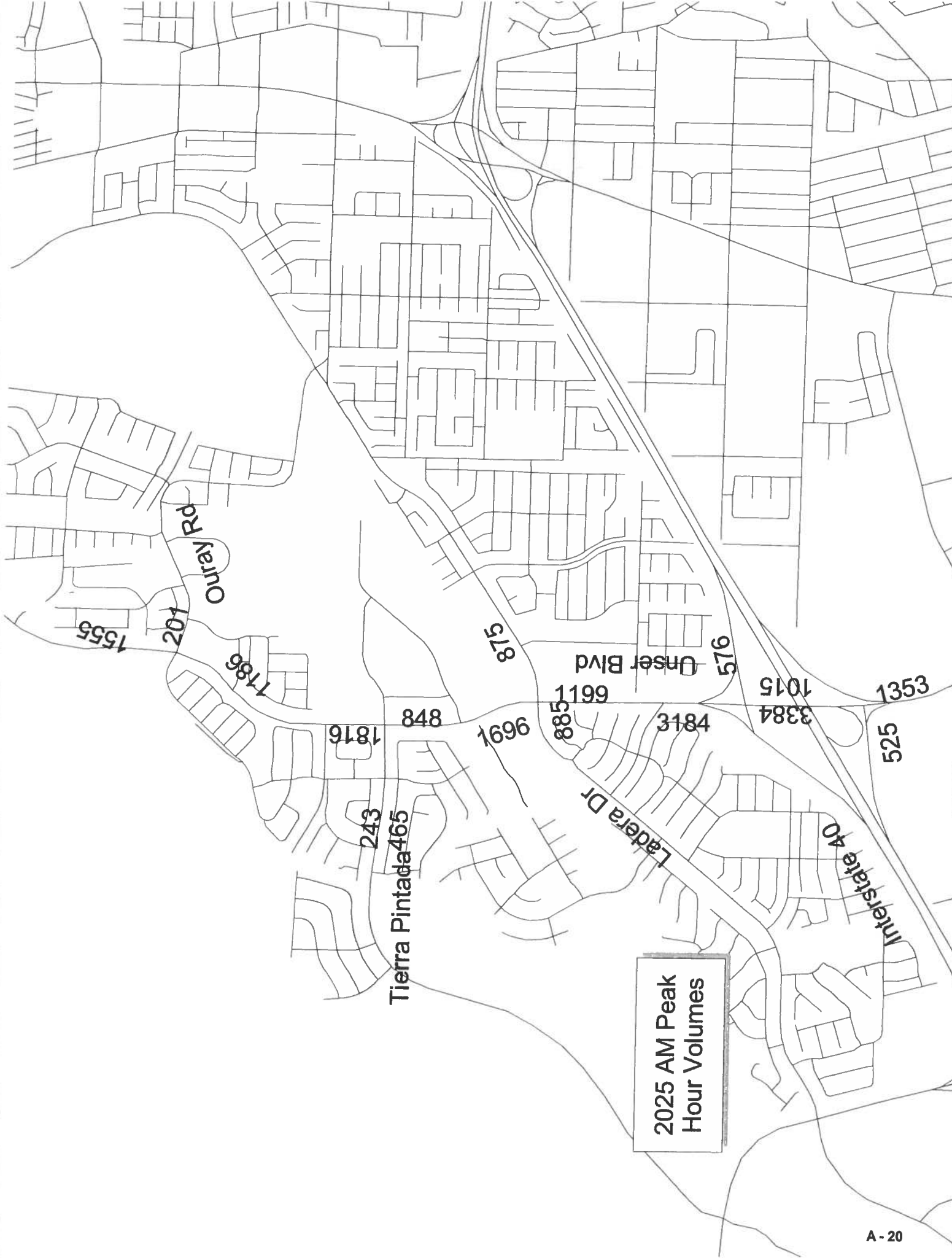
Albuquerque, NM 87199-2051

(505)883-8807 (Voice)

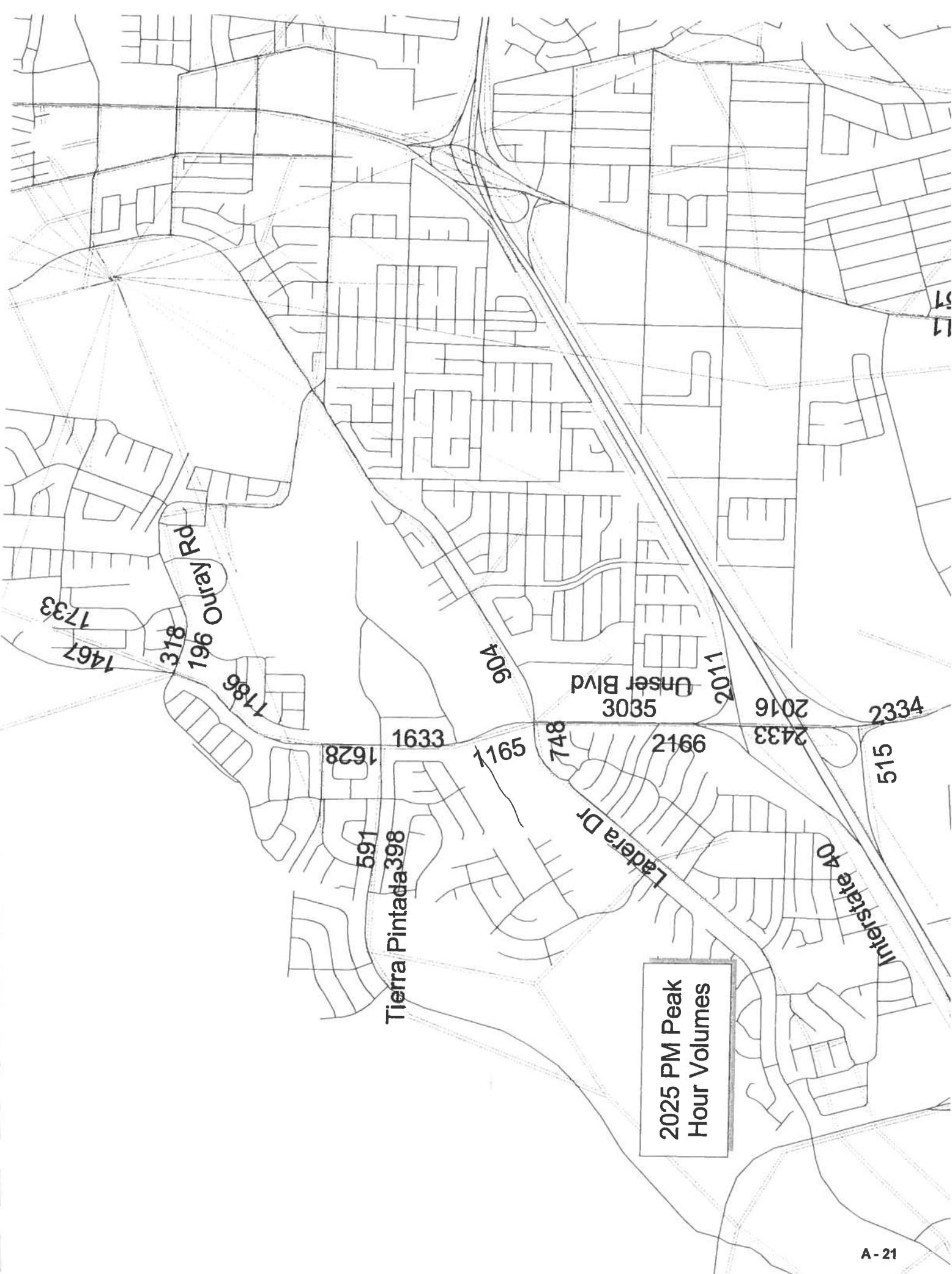
(505)212-0267 (Fax)



2005 PM Peak
Hour Volumes



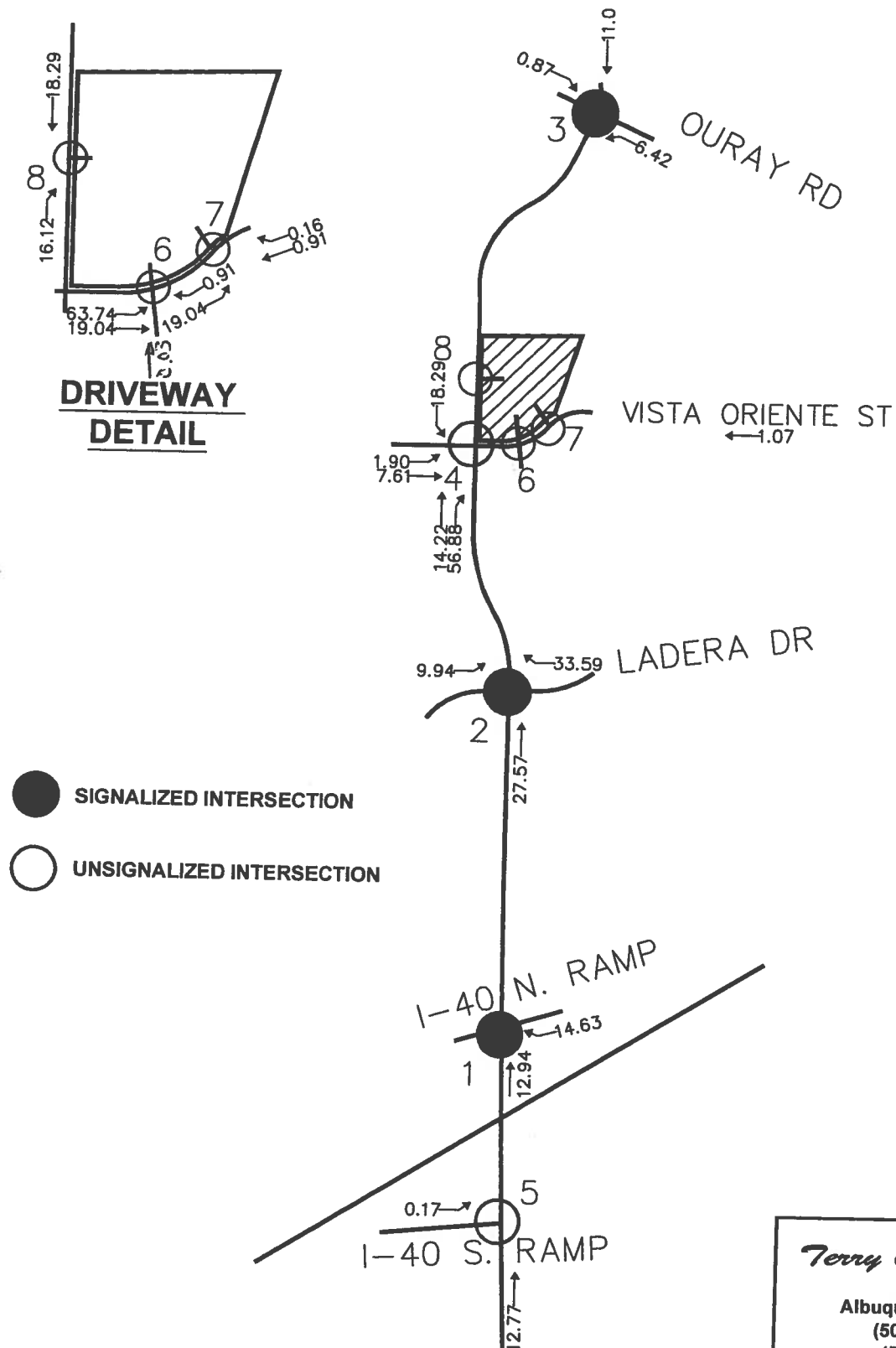
2025 AM Peak
Hour Volumes



2025 PM Peak
Hour Volumes

98th / Unser Commercial Development

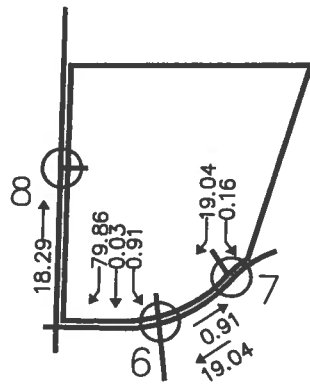
Trip Assignments (% Entering)



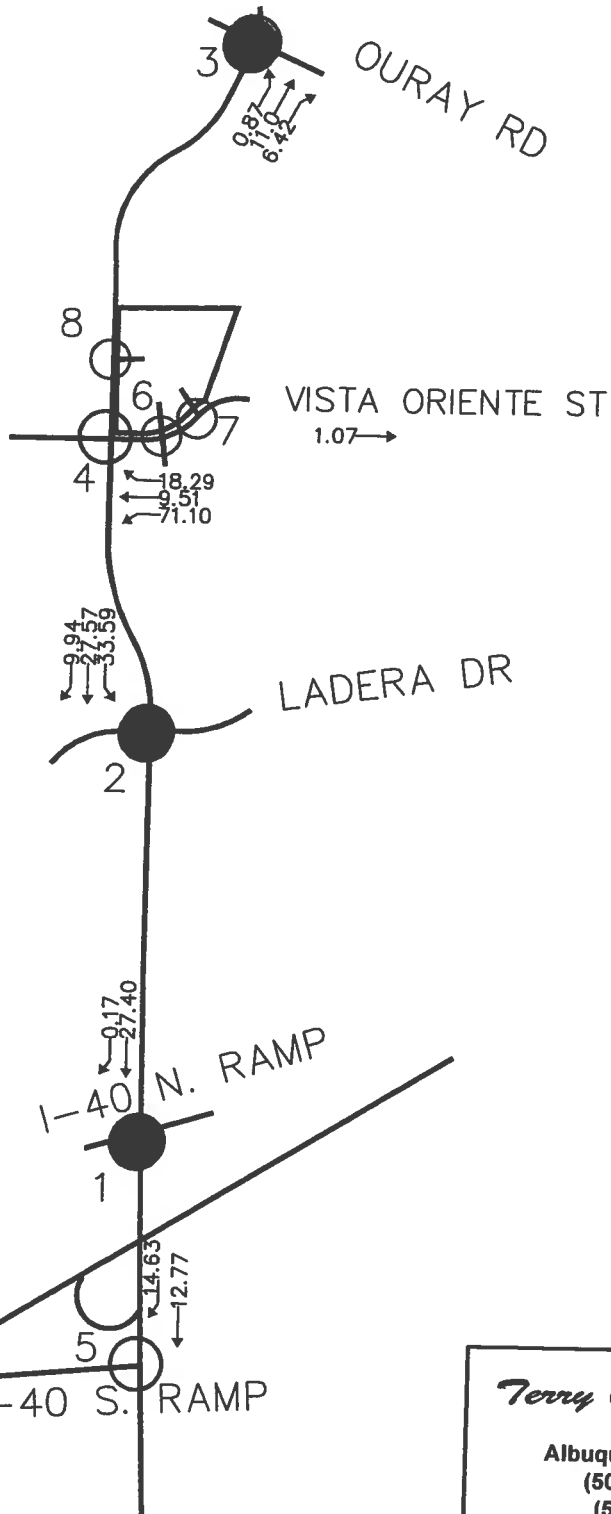
Terry O. Brown, P.E.
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98th / Unser Commercial Development

Trip Assignments (% Exiting)



**DRIVEWAY
DETAIL**



- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION



NTS

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98th / Unser Commercial Development
Projected Turning Movements SUMMARY
PROPOSED DEVELOPMENT (2010) - 100% Development

INTERSECTION: Summary

I-40 N. ramp / Unser Blvd

(1)

3.0% Truck

Existing (2007)

2010 (NO BUILD - A.M.)

2010 (BUILD - A.M.)

0.85			0.91			0.97			0.89			PHF
Eastbound (I-40 N. ramp)			Westbound (I-40 N. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	343	3	188	24	687	0	0	1,775	68	
0	0	0	442	3	190	46	948	0	0	2,246	76	
0	0	0	442	3	219	46	974	0	0	2,282	76	

Existing (2007)

2010 (NO BUILD - P.M.)

2010 (BUILD - P.M.)

0.85			0.94			0.87			0.92			PHF
Eastbound (I-40 N. ramp)			Westbound (I-40 N. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	626	0	771	24	725	0	0	903	70	
0	0	0	816	0	827	80	1,412	0	0	1,541	115	
0	0	0	816	0	879	80	1,458	0	0	1,653	116	

Ladera Dr / Unser Blvd

(2)

3.0% Truck

Existing (2007)

2010 (NO BUILD - A.M.)

2010 (BUILD - A.M.)

0.87			0.79			0.85			0.89			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
175	251	365	317	105	44	48	429	224	45	906	58	
178	368	557	524	156	53	133	584	372	55	1,119	93	
198	368	557	524	156	120	133	639	372	99	1,155	106	

Existing (2007)

2010 (NO BUILD - P.M.)

2010 (BUILD - P.M.)

0.93			0.93			0.95			0.96			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
140	182	138	281	264	107	288	860	372	94	547	184	
155	272	322	591	399	128	572	1,352	724	123	949	288	
190	272	322	591	399	248	572	1,450	724	260	1,062	329	

Ouray Rd / Unser Blvd

(3)

4.3% Truck

Existing (2007)

2010 (NO BUILD - A.M.)

2010 (BUILD - A.M.)

0.93			0.75			0.86			0.98			PHF
Eastbound (Ouray Rd)			Westbound (Ouray Rd)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
45	18	11	166	10	38	9	1,131	22	38	915	6	
45	18	11	166	10	38	9	1,135	22	42	1,009	7	
45	18	13	179	10	38	10	1,149	30	42	1,031	7	

Existing (2007)

2010 (NO BUILD - P.M.)

2010 (BUILD - P.M.)

0.75			0.91			0.91			0.91			PHF
Eastbound (Ouray Rd)			Westbound (Ouray Rd)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
23	12	3	74	20	37	21	1,141	87	96	766	35	
23	12	3	92	24	46	21	1,141	87	107	847	39	
23	12	6	115	24	46	25	1,186	113	107	886	39	

Vista Oriente St / Unser Blvd

(4)

3.0% Truck

Existing (2007)

2010 (NO BUILD - A.M.)

2010 (BUILD - A.M.)

0.81			0.75			0.97			0.94			PHF
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
34	3	195	14	0	4	28	631	15	10	783	21	
127	4	228	14	0	4	29	658	16	12	944	25	
131	19	228	106	12	28	29	686	130	49	944	25	

Existing (2007)

2010 (NO BUILD - P.M.)

2010 (BUILD - P.M.)

0.90			0.75			0.94			0.88			PHF
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
31	2	68	65	1	24	179	840	22	28	770	47	
100	3	101	65	1	24	196	920	24	32	889	54	
107	30	101	356	40	99	196	971	226	97	889	54	

98th / Unser Commercial Development
 Projected Turning Movements SUMMARY
PROPOSED DEVELOPMENT (2010) - 100% Development

INTERSECTION: Summary

I-40 S. ramp / Unser Blvd

(5)

3.0% Truck
 Existing (2007)
 2010 (NO BUILD - A.M.)
 2010 (BUILD - A.M.)

0.75			0.85			0.80			0.88			PHF
Eastbound (I-40 S. ramp)			Westbound (I-40 S. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
31	0	9	0	0	0	0	535	580	4	821	740	
94	0	54	0	0	0	0	787	671	5	1,331	883	
94	0	54	0	0	0	0	813	671	5	1,348	883	

Existing (2007)
 2010 (NO BUILD - P.M.)
 2010 (BUILD - P.M.)

0.90			0.85			0.92			0.97			PHF
Eastbound (I-40 S. ramp)			Westbound (I-40 S. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
69	0	21	0	0	0	0	641	364	0	1,162	308	
123	0	87	0	0	0	0	1,316	591	0	1,885	342	
124	0	87	0	0	0	0	1,361	591	0	1,937	342	

Vista Oriente St / Driveway 'A'

(6)

3.0% Truck
 Existing (2007)
 2010 (NO BUILD - A.M.)
 2010 (BUILD - A.M.)

0.75			0.75			0.85			0.85			PHF
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	14	14	0	9	0	9	0	0	0	0	0	
0	14	14	0	9	0	9	0	0	0	0	0	
127	52	14	0	34	2	9	0	0	1	0	104	

Existing (2007)
 2010 (NO BUILD - P.M.)
 2010 (BUILD - P.M.)

0.75			0.75			0.85			0.85			PHF
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	26	26	0	45	0	45	0	0	0	0	0	
0	26	26	0	45	0	45	0	0	0	0	0	
227	94	26	0	123	3	45	0	0	4	0	327	

Vista Oriente St / Driveway 'B'

(7)

3.0% Truck
 Existing (2007)
 2010 (NO BUILD - A.M.)
 2010 (BUILD - A.M.)

0.75			0.75			0.85			0.85			PHF
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'B')			Southbound (Driveway 'B')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	14	0	0	9	0	0	0	0	0	0	0	
0	14	0	0	9	0	0	0	0	0	0	0	
38	15	0	0	11	0	0	0	0	0	0	25	

Existing (2007)
 2010 (NO BUILD - P.M.)
 2010 (BUILD - P.M.)

0.75			0.75			0.85			0.85			PHF
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'B')			Southbound (Driveway 'B')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	26	0	0	45	0	0	0	0	0	0	0	
0	26	0	0	45	0	0	0	0	0	0	0	
68	30	0	0	48	1	0	0	0	1	0	78	

Driveway 'C' / Unser Blvd

(8)

3.0% Truck
 Existing (2007)
 2010 (NO BUILD - A.M.)
 2010 (BUILD - A.M.)

0.85			0.85			0.94			0.94			PHF
Eastbound (Driveway 'C')			Westbound (Driveway 'C')			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	669	0	0	814	0	
0	0	0	0	0	0	0	806	0	0	981	0	
0	0	0	0	0	0	0	830	32	0	1,018	0	

Existing (2007)
 2010 (NO BUILD - P.M.)
 2010 (BUILD - P.M.)

0.85			0.85			0.88			0.88			PHF
Eastbound (Driveway 'C')			Westbound (Driveway 'C')			Northbound (Unser Blvd)			Southbound (Unser Blvd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	895	0	0	845	0	
0	0	0	0	0	0	0	1,033	0	0	976	0	
0	0	0	0	0	0	0	1,108	57	0	1,041	0	

98th / Unser Commercial Development
Projected Turning Movements Worksheet
I-40 N. ramp / Unser Blvd

INTERSECTION:

E-W Street: I-40 N. ramp

(1)

N-S Street: Unser Blvd

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

	0.00%			0.44%			2.38%			4.04%		
	Eastbound (I-40 N. ramp)			Westbound (I-40 N. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	343	3	188	24	687	0	0	1,775	68
Background Traffic Growth	0	0	0	4	0	2	2	49	0	0	215	8
Subtotal	0	0	0	347	3	190	26	736	0	0	1,990	76
I-40 / Unser Development	0	0	0	28	0	0	20	186	0	0	246	0
Southwest Mesa Subdivisions	0	0	0	67	0	0	0	26	0	0	10	0
Subtotal (NO BUILD - A.M.)	0	0	0	442	3	190	46	948	0	0	2,246	76
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	14.63%	0.00%	12.94%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	27.40%	0.17%
Total Trips Generated	0	0	0	0	0	29	0	26	0	0	36	0
Total AM Peak Hour BUILD Volumes	0	0	0	442	3	219	46	974	0	0	2,282	76

	0.00%			2.44%			9.40%			6.81%		
	Eastbound (I-40 N. ramp)			Westbound (I-40 N. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	626	0	771	24	725	0	0	903	70
Background Traffic Growth	0	0	0	46	0	56	7	204	0	0	185	14
Subtotal	0	0	0	672	0	827	31	929	0	0	1,088	84
I-40 / Unser Development	0	0	0	51	0	0	49	445	0	0	447	0
Southwest Mesa Subdivisions	0	0	0	93	0	0	0	38	0	0	6	31
Subtotal (NO BUILD - P.M.)	0	0	0	816	0	827	80	1,412	0	0	1,541	115
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	14.63%	0.00%	12.94%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	27.40%	0.17%
Total Trips Generated	0	0	0	0	0	52	0	46	0	0	112	1
Total PM Peak Hour BUILD Volumes	0	0	0	816	0	879	80	1,458	0	0	1,653	116

Number of Commercial Trips Generated

Entering	200	130	A.M.	100% Commercial Development
Exiting	356	409	P.M.	

	Eastbound (I-40 N. ramp)			Westbound (I-40 N. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	0	0	0	343	3	188	24	687	0	0	1,775	68
2007 PM Peak Hr. Volumes	0	0	0	626	0	771	24	725	0	0	903	70

MRCOG Forecast Volumes Worksheet**Based on 2007 Traffic Count**

2007 AM Link Volume	0	534	711	1,843
2007 PM Link Volume	0	1,397	749	973

Based on MRCOG Model (2025 Data Set)

2005 AM Link Volume	0	494	392	2230
2005 PM Link Volume	0	1405	1026	1599
2025 AM Link Volume	0	576	1015	3184
2025 PM Link Volume	0	2011	2016	2166

Growth Rate to Apply to Existing Counts to Match 2025 Forecasts

2006-2025 AM Growth Rates

#DIV/0!

0.44%

2.38%

4.04%

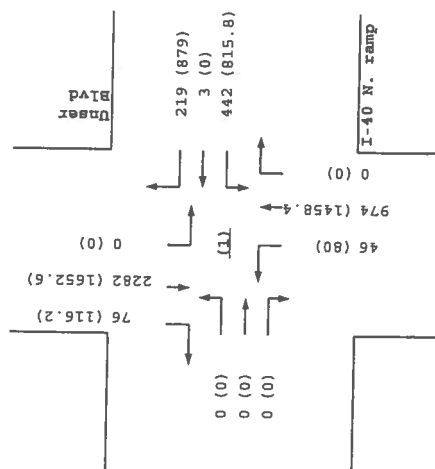
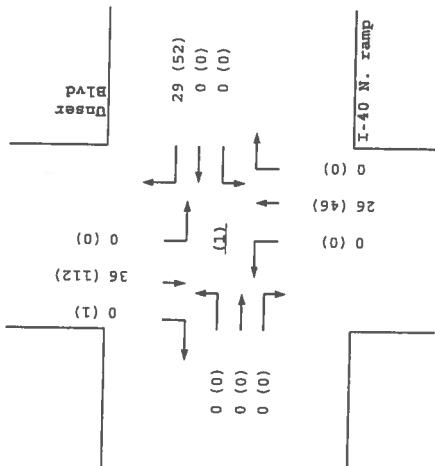
2006-2025 PM Growth Rates

#DIV/0!

2.44%

9.40%

6.81%

2010
BUILD

I-40 N. ramp / Unser Blvd

98th / Unser Commercial Development
Projected Turning Movements Worksheet
Ladera Dr / Unser Blvd

INTERSECTION:

E-W Street: Ladera Dr

(2)

N-S Street: Unser Blvd

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

Existing Volumes
 Background Traffic Growth

Subtotal

I-40 / Unser Development

Ladera Business Park

Storm Cloud Dev. w/ others

Subtotal (NO BUILD - A.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Total AM Peak Hour BUILD Volumes

0.66%			4.88%			3.95%			3.78%		
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
175	251	365	317	105	44	48	429	224	45	906	58
3	5	7	46	15	6	6	51	27	5	103	7
178	256	372	363	120	50	54	480	251	50	1,009	65
0	0	43	161	0	0	32	32	121	0	42	0
0	0	0	0	0	3	0	28	0	5	47	0
0	112	142	0	36	0	47	44	0	0	21	28
178	368	557	524	156	53	133	584	372	55	1,119	93
9.94%	0.00%	0.00%	0.00%	0.00%	33.59%	0.00%	27.57%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.59%	27.57%	9.94%
20	0	0	0	0	67	0	55	0	44	36	13
198	368	557	524	156	120	133	639	372	99	1,155	106

Existing Volumes
 Background Traffic Growth

Subtotal

I-40 / Unser Development

Ladera Business Park

Storm Cloud Dev. w/ others

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Total PM Peak Hour BUILD Volumes

3.48%			2.15%			5.54%			2.29%		
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
140	182	138	281	264	107	288	860	372	94	547	184
15	19	14	18	17	7	48	143	62	6	38	13
155	201	152	299	281	114	336	1,003	434	100	585	197
0	0	78	292	0	0	77	77	290	0	77	0
0	0	0	0	0	14	0	123	0	23	204	0
0	71	92	0	118	0	159	149	0	0	83	91
155	272	322	591	399	128	572	1,352	724	123	949	288
9.94%	0.00%	0.00%	0.00%	0.00%	33.59%	0.00%	27.57%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.59%	27.57%	9.94%
35	0	0	0	0	120	0	98	0	137	113	41
190	272	322	591	399	248	572	1,450	724	260	1,062	329

Number of Commercial Trips Generated

Entering Exiting

200 130

356 409

A.M.

P.M.

100% Commercial Development

2007 AM Peak Hr. Volumes

2007 PM Peak Hr. Volumes

Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
175	251	365	317	105	44	48	429	224	45	906	58
140	182	138	281	264	107	288	860	372	94	547	184

MRCOG Forecast Volumes Worksheet**Based on 2007 Traffic Count**

2007 AM Link Volume

791

466

701

1,009

2007 PM Link Volume

460

652

1,520

825

Based on MRCOG Model (2025 Data Set)

2005 AM Link Volume

299

355

530

1,526

2005 PM Link Volume

270

261

2,016

1,163

2025 AM Link Volume

885

875

1,199

1,696

2025 PM Link Volume

748

904

3,035

1,165

Growth Rate to Apply to Existing Counts to Match 2025 Forecasts

2006-2025 AM Growth Rates

0.66%

4.88%

3.95%

3.78%

2006-2025 PM Growth Rates

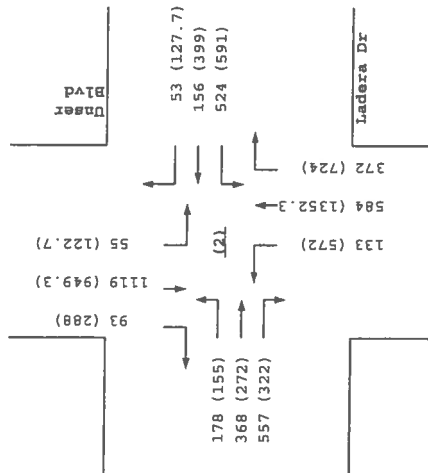
3.48%

2.15%

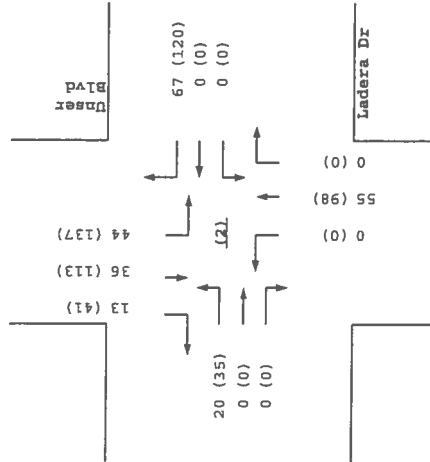
5.54%

2.29%

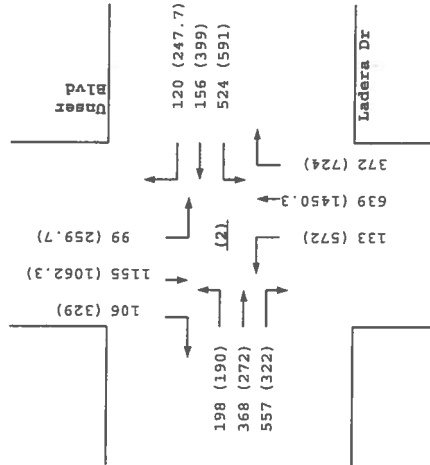
2010
NO BUILD



Trips



2010
BUILD



Ladera Dr / Unser Blvd

98th / Unser Commercial Development
Projected Turning Movements Worksheet
Ouray Rd / Unser Blvd

INTERSECTION:

E-W Street: **Ouray Rd**
 N-S Street: **Unser Blvd**

(3)

Year of Existing Counts
 Implementation Year

2006
 2010

Growth Rates

	0.00%			0.00%			0.11%			3.58%		
	Eastbound (Ouray Rd)			Westbound (Ouray Rd)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	45	18	11	166	10	38	9	1,130	22	37	883	6
Background Traffic Growth	0	0	0	0	0	0	0	5	0	5	126	1
Subtotal (NO BUILD - A.M.)	45	18	11	166	10	38	9	1,135	22	42	1,009	7
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.87%	6.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.87%	11.00%	6.42%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	2	13	0	0	1	14	8	0	22	0
Total AM Peak Hour BUILD Volumes	45	18	13	179	10	38	10	1,149	30	42	1,031	7

	0.00%			8.68%			0.00%			3.65%		
	Eastbound (Ouray Rd)			Westbound (Ouray Rd)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	23	12	3	68	18	34	21	1,141	87	93	739	34
Background Traffic Growth	0	0	0	24	6	12	0	0	0	14	108	5
Subtotal (NO BUILD - P.M.)	23	12	3	92	24	46	21	1,141	87	107	847	39
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.87%	6.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	11.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.87%	11.00%	6.42%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	3	23	0	0	4	45	26	0	39	0
Total PM Peak Hour BUILD Volumes	23	12	6	115	24	46	25	1,186	113	107	886	39

Number of Commercial Trips Generated

Entering	200	130	A.M.	100% Commercial Development
Exiting	356	409	P.M.	

	Eastbound (Ouray Rd)			Westbound (Ouray Rd)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
2007 AM Peak Hr. Volumes	45	18	11	166	10	38	9	1,131	22	38	915	6
2007 PM Peak Hr. Volumes	23	12	3	74	20	37	21	1,141	87	96	766	35

MRCOG Forecast Volumes Worksheet**Based on 2006 Traffic Count**

2006 AM Link Volume	74	214	1,161	926
2006 PM Link Volume	38	120	1,249	866

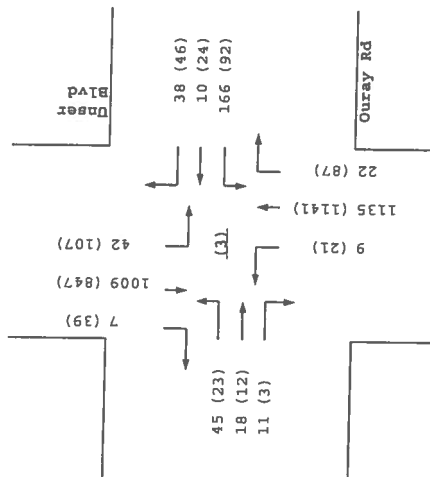
Based on MRCOG Model (2025 Data Set)

2005 AM Link Volume	0	293	415	1144
2005 PM Link Volume	0	231	1370	1019
2025 AM Link Volume	0	201	1186	1555
2025 PM Link Volume	0	318	1186	1467

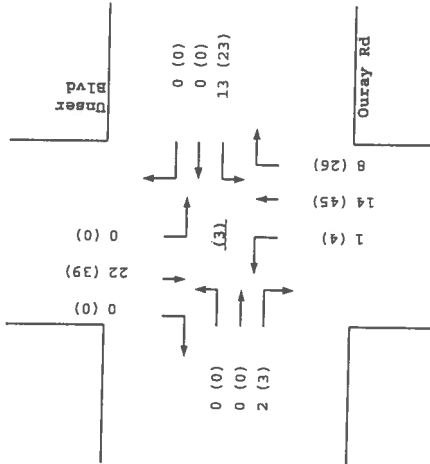
Growth Rate to Apply to Existing Counts to Match 2025 Forecasts

2006-2025 AM Growth Rates	-5.26%	-0.32%	0.11%	3.58%
2006-2025 PM Growth Rates	-5.26%	8.68%	-0.27%	3.65%

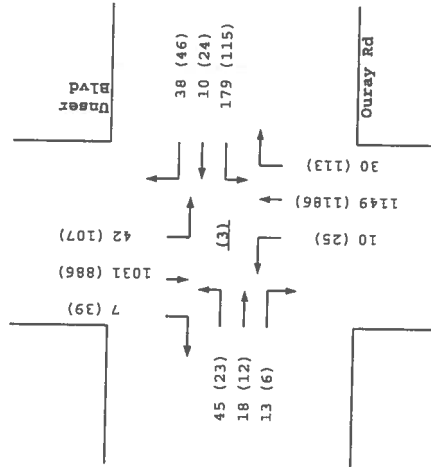
2010
NO BUILD



Trips



2010
BUILD



Ouray Rd / Unser Blvd

98th / Unser Commercial Development
Projected Turning Movements Worksheet
Vista Oriente St / Unser Blvd

INTERSECTION :

E-W Street: Vista Oriente St (4)

N-S Street: Unser Blvd

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

	5.58%			0.00%			1.43%			6.84%		
	Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	34	3	195	14	0	4	28	631	15	10	783	21
Background Traffic Growth	6	1	33	0	0	0	1	27	1	2	161	4
Subtotal	40	4	228	14	0	4	29	658	16	12	944	25
Storm Cloud	87	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	127	4	228	14	0	4	29	658	16	12	944	25
Percent Commercial Trips Generated(Entering)	1.90%	7.61%	0.00%	0.00%	0.00%	0.00%	0.00%	14.22%	56.88%	18.29%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	71.10%	9.51%	18.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	4	15	0	92	12	24	0	28	114	37	0	0
Total AM Peak Hour BUILD Volumes	131	19	228	106	12	28	29	686	130	49	944	25

	16.34%			0.00%			3.16%			5.15%		
	Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	31	2	68	65	1	24	179	840	22	28	770	47
Background Traffic Growth	15	1	33	0	0	0	17	80	2	4	119	7
Subtotal	46	3	101	65	1	24	196	920	24	32	889	54
Storm Cloud	54	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	100	3	101	65	1	24	196	920	24	32	889	54
Percent Commercial Trips Generated(Entering)	1.90%	7.61%	0.00%	0.00%	0.00%	0.00%	0.00%	14.22%	56.88%	18.29%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	71.10%	9.51%	18.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	7	27	0	291	39	75	0	51	202	65	0	0
Total PM Peak Hour BUILD Volumes	107	30	101	356	40	99	196	971	226	97	889	54

Number of Commercial Trips Generated

Entering	Exiting		
200	130	A.M.	100% Commercial Development
356	409	P.M.	

	Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	34	3	195	14	0	4	28	631	15	10	783	21
2007 PM Peak Hr. Volumes	31	2	68	65	1	24	179	840	22	28	770	47

MRCOG Forecast Volumes Worksheet**Based on 2007 Traffic Count**

2007 AM Link Volume	232	18	674	814
2007 PM Link Volume	101	90	1,041	845

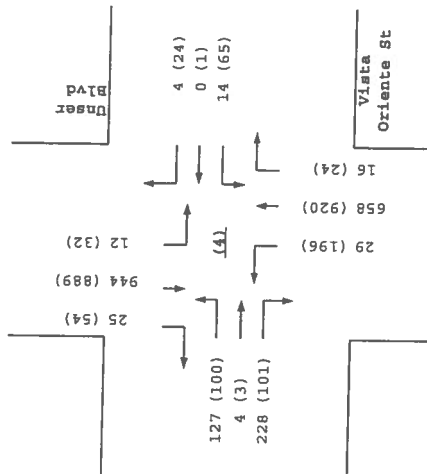
Based on MRCOG Model (2025 Data Set)

2005 AM Link Volume	46	0	368	1545
2005 PM Link Volume	41	0	1447	1218
2025 AM Link Volume	465	0	848	1816
2025 PM Link Volume	398	0	1633	1628

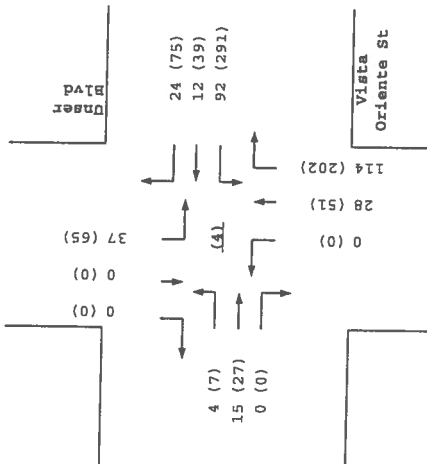
Growth Rate to Apply to Existing Counts to Match 2025 Forecasts

2006-2025 AM Growth Rates	5.58%	-5.56%	1.43%	6.84%
2006-2025 PM Growth Rates	16.34%	-5.56%	3.16%	5.15%

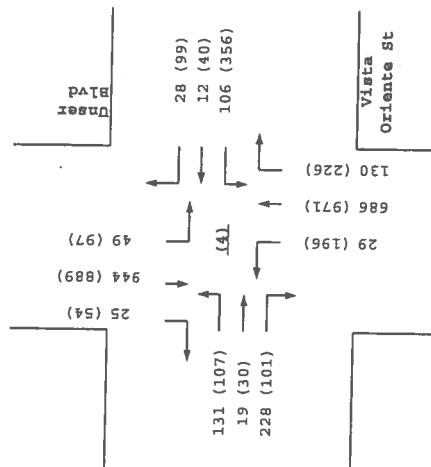
2010
NO BUILD



Trips



2010
BUILD



Vista Oriente St / Unser Blvd

98th / Unser Commercial Development
Projected Turning Movements Worksheet
I-40 S. ramp / Unser Blvd

INTERSECTION:

E-W Street: I-40 S. ramp

(5)

N-S Street: Unser Blvd

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

Existing Volumes

Background Traffic Growth

Subtotal

I-40 / Unser Development

Southwest Mesa Subdivisions

Subtotal (NO BUILD - A.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Total AM Peak Hour BUILD Volumes

67.36%			0.00%			1.19%			6.46%		
Eastbound (I-40 S. ramp)			Westbound (I-40 S. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
31	0	9	0	0	0	0	535	580	4	821	740
63	0	18	0	0	0	0	19	21	1	159	143
94	0	27	0	0	0	0	554	601	5	980	883
0	0	27	0	0	0	0	207	21	0	274	0
0	0	0	0	0	0	0	26	49	0	77	0
94	0	54	0	0	0	0	787	671	5	1,331	883
0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.77%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.77%	0.00%
0	0	0	0	0	0	0	26	0	0	17	0
94	0	54	0	0	0	0	813	671	5	1,348	883

Existing Volumes

Background Traffic Growth

Subtotal

I-40 / Unser Development

Southwest Mesa Subdivisions

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Total PM Peak Hour BUILD Volumes

26.23%			0.00%			7.35%			3.64%		
Eastbound (I-40 S. ramp)			Westbound (I-40 S. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
69	0	21	0	0	0	0	641	364	0	1,162	308
54	0	17	0	0	0	0	141	80	0	127	34
123	0	38	0	0	0	0	782	444	0	1,289	342
0	0	49	0	0	0	0	496	51	0	498	0
0	0	0	0	0	0	0	38	96	0	96	0
123	0	87	0	0	0	0	1,316	591	0	1,885	342
0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.77%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.77%	0.00%
1	0	0	0	0	0	0	45	0	0	52	0
124	0	87	0	0	0	0	1,361	591	0	1,937	342

Number of Commercial Trips Generated

Entering Exiting

200

130

A.M.

100% Commercial Development

356

409

P.M.

2007 AM Peak Hr. Volumes

2007 PM Peak Hr. Volumes

Eastbound (I-40 S. ramp)			Westbound (I-40 S. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
31	0	9	0	0	0	0	535	580	4	821	740
69	0	21	0	0	0	0	641	364	0	1,162	308

MRCOG Forecast Volumes Worksheet**Based on 2007 Traffic Count**

2007 AM Link Volume

40

0

1,115

1,565

2007 PM Link Volume

90

0

1,005

1,470

Based on MRCOG Model (2025 Data Set)

2005 AM Link Volume

26

0

1226

1108

2005 PM Link Volume

201

0

1404

1973

2025 AM Link Volume

525

0

1353

3384

2025 PM Link Volume

515

0

2334

2433

Growth Rate to Apply to Existing Counts to Match 2025 Forecasts

2006-2025 AM Growth Rates

67.36%

#DIV/0!

1.19%

6.46%

2006-2025 PM Growth Rates

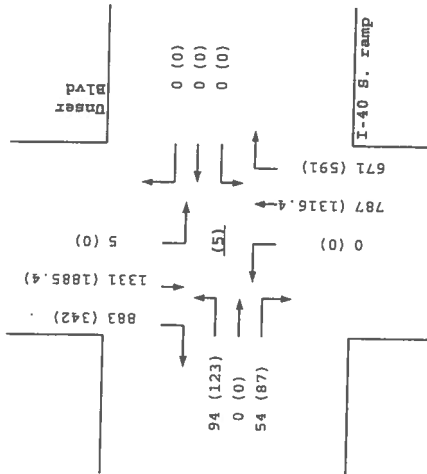
26.23%

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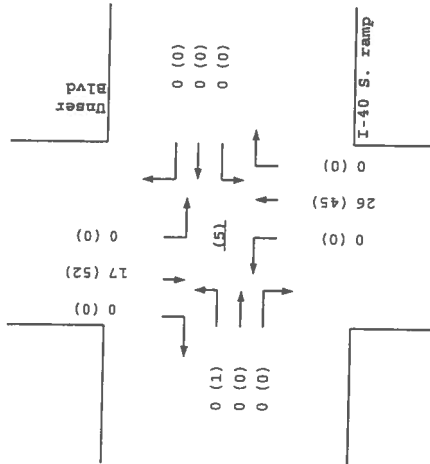
7.35%

3.64%

2010
NO BUILD

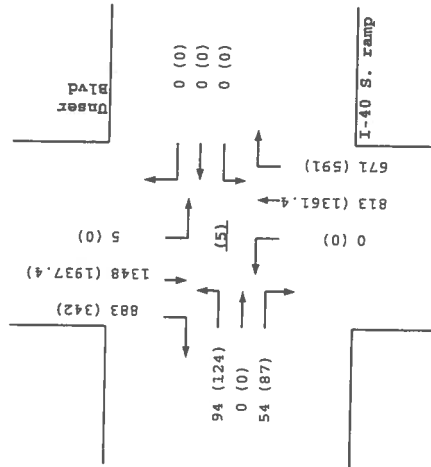


Trips



I-40 S. ramp / Unser Blvd

2010
BUILD



98th / Unser Commercial Development
Projected Turning Movements Worksheet
Vista Oriente St / Driveway 'A'

INTERSECTION:

E-W Street: **Vista Oriente St** (6)
 N-S Street: **Driveway 'A'**

Year of Existing Counts: 2007
 Implementation Year: 2010

Growth Rates

0.00%			0.00%			0.00%			0.00%		
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	14	14	0	9	0	9	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	14	14	0	9	0	9	0	0	0	0	0
63.74%	19.04%	0.00%	0.00%	0.00%	0.91%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	19.04%	0.00%	0.00%	0.00%	0.00%	0.91%	0.03%	79.86%
127	38	0	0	25	2	0	0	0	1	0	104
Total AM Peak Hour BUILD Volumes	127	52	14	0	34	2	9	0	0	1	0

0.00%			0.00%			0.00%			0.00%		
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	26	26	0	45	0	45	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	26	26	0	45	0	45	0	0	0	0	0
63.74%	19.04%	0.00%	0.00%	0.00%	0.91%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	19.04%	0.00%	0.00%	0.00%	0.00%	0.91%	0.03%	79.86%
227	68	0	0	78	3	0	0	0	4	0	327
Total PM Peak Hour BUILD Volumes	227	94	26	0	123	3	45	0	0	4	0

Number of Commercial Trips Generated

Entering	Exiting		
200	130	A.M.	100% Commercial Development
356	409	P.M.	

	Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
2007 AM Peak Hr. Volumes	0	14	14	0	9	0	9	0	0	0	0	0
2007 PM Peak Hr. Volumes	0	26	26	0	45	0	45	0	0	0	0	0

MRCOG Forecast Volumes Worksheet**Based on 2007 Traffic Count**

2007 AM Link Volume	28	9	9	0
2007 PM Link Volume	52	45	45	0

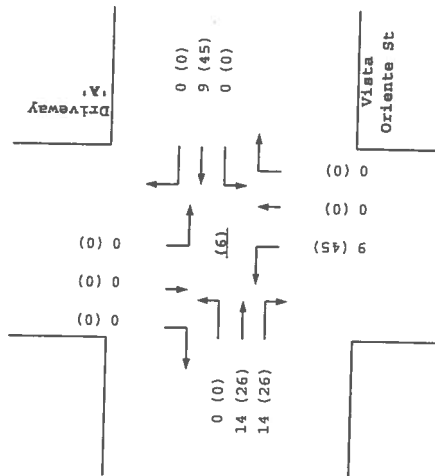
Based on MRCOG Model (2025 Data Set)

2005 AM Link Volume	370	327	1248	1049
2005 PM Link Volume	313	1024	1058	1246
2025 AM Link Volume	1468	848	1609	777
2025 PM Link Volume	923	1753	1389	1534

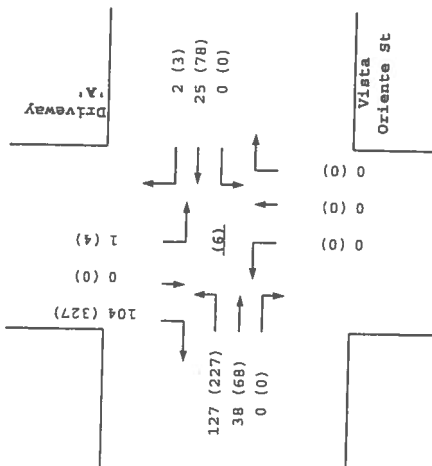
Growth Rate to Apply to Existing Counts to Match 2025 Forecasts

2006-2025 AM Growth Rates	285.71%	517.90%	987.65%	#DIV/0!
2006-2025 PM Growth Rates	93.06%	210.86%	165.93%	#DIV/0!

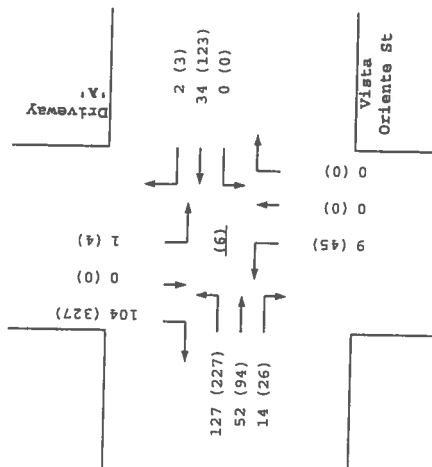
2010
NO BUILD



Trips



2010
BUILD



Vista Oriente St / Driveway 'A'

98th / Unser Commercial Development
Projected Turning Movements Worksheet
Vista Oriente St / Driveway 'B'

INTERSECTION:E-W Street: **Vista Oriente St**

(7)

N-S Street: **Driveway 'B'**

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - A.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Total AM Peak Hour BUILD Volumes

0.00%			0.00%			0.00%			0.00%		
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'B')			Southbound (Driveway 'B')		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	14	0	0	9	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	14	0	0	9	0	0	0	0	0	0	0
19.04%	0.00%	0.00%	0.00%	0.91%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.19%	0.00%	19.04%
38	1	0	0	2	0	0	0	0	0	0	25
38	15	0	0	11	0	0	0	0	0	0	25

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Total PM Peak Hour BUILD Volumes

0.00%			0.00%			0.00%			0.00%		
Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'B')			Southbound (Driveway 'B')		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	26	0	0	45	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	26	0	0	45	0	0	0	0	0	0	0
19.04%	0.00%	0.00%	0.00%	0.91%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.19%	0.00%	19.04%
68	4	0	0	3	1	0	0	0	1	0	78
68	30	0	0	48	1	0	0	0	1	0	78

Number of Commercial Trips Generated

Entering Exiting

200 130 A.M.
356 409 P.M.

100% Commercial Development

2007 AM Peak Hr. Volumes

2007 PM Peak Hr. Volumes

Eastbound (Vista Oriente St)			Westbound (Vista Oriente St)			Northbound (Driveway 'B')			Southbound (Driveway 'B')		
0	14	0	0	9	0	0	0	0	0	0	0
0	26	0	0	45	0	0	0	0	0	0	0

MRCOG Forecast Volumes Worksheet**Based on 2007 Traffic Count**

2007 AM Link Volume

14

9

0

0

2007 PM Link Volume

26

45

0

0

Based on MRCOG Model (2025 Data Set)

2005 AM Link Volume

370

327

1248

1049

2005 PM Link Volume

313

1024

1058

1246

2025 AM Link Volume

1468

848

1609

777

2025 PM Link Volume

923

1753

1389

1534

Growth Rate to Apply to Existing Counts to Match 2025 Forecasts

2006-2025 AM Growth Rates

576.98%

517.90%

#DIV/0!

#DIV/0!

2006-2025 PM Growth Rates

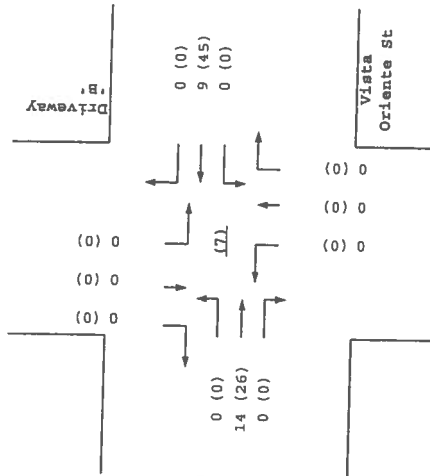
191.67%

210.86%

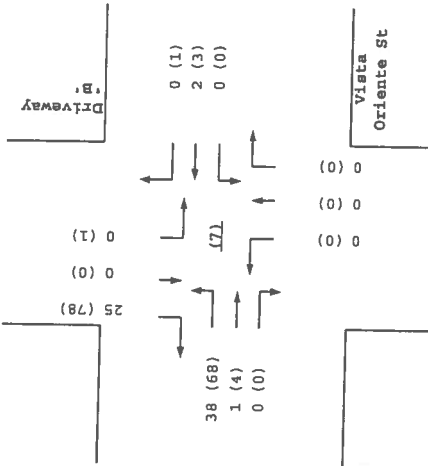
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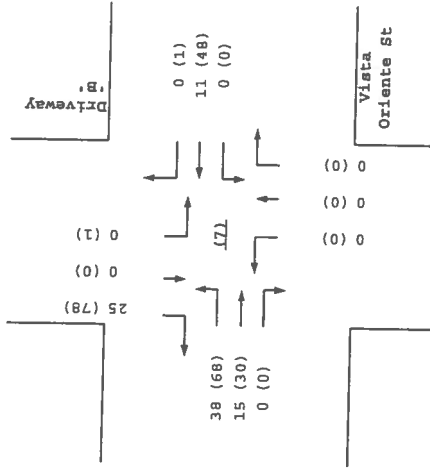
2010
NO BUILD



Trips



2010
BUILD



Vista Oriente St / Driveway 'B'

98th / Unser Commercial Development
Projected Turning Movements Worksheet
Driveway 'C' / Unser Blvd

INTERSECTION :E-W Street: **Driveway 'C'**

(8)

N-S Street: **Unser Blvd**

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - A.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Total AM Peak Hour BUILD Volumes

0.00%			0.00%			6.84%			6.84%		
Eastbound (Driveway 'C')			Westbound (Driveway 'C')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	669	0	0	814	0
0	0	0	0	0	0	0	137	0	0	167	0
0	0	0	0	0	0	0	806	0	0	981	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.12%	0.00%	18.29%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	18.29%	0.00%	0.00%	0.00%	0.00%
0	0	0	0	0	0	0	24	32	0	37	0
0	0	0	0	0	0	0	830	32	0	1,018	0

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Total PM Peak Hour BUILD Volumes

0.00%			0.00%			5.15%			5.15%		
Eastbound (Driveway 'C')			Westbound (Driveway 'C')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	895	0	0	845	0
0	0	0	0	0	0	0	138	0	0	131	0
0	0	0	0	0	0	0	1,033	0	0	976	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.12%	0.00%	18.29%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	18.29%	0.00%	0.00%	0.00%	0.00%
0	0	0	0	0	0	0	75	57	0	65	0
0	0	0	0	0	0	0	1,108	57	0	1,041	0

Number of Commercial Trips Generated

Entering Exiting

200	130	A.M.
356	409	P.M.

100% Commercial Development

2007 AM Peak Hr. Volumes

2007 PM Peak Hr. Volumes

Eastbound (Driveway 'C')			Westbound (Driveway 'C')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
0	0	0	0	0	0	0	669	0	0	814	0
0	0	0	0	0	0	0	895	0	0	845	0

MRCOG Forecast Volumes Worksheet**Based on 2007 Traffic Count**

2007 AM Link Volume

0

0

669

814

2007 PM Link Volume

0

0

895

845

Based on MRCOG Model (2025 Data Set)

2005 AM Link Volume

370

327

1248

1049

2005 PM Link Volume

313

1024

1058

1246

2025 AM Link Volume

1468

848

1609

777

2025 PM Link Volume

923

1753

1389

1534

Growth Rate to Apply to Existing Counts to Match 2025 Forecasts

2006-2025 AM Growth Rates

#DIV/0!

#DIV/0!

7.81%

-0.25%

2006-2025 PM Growth Rates

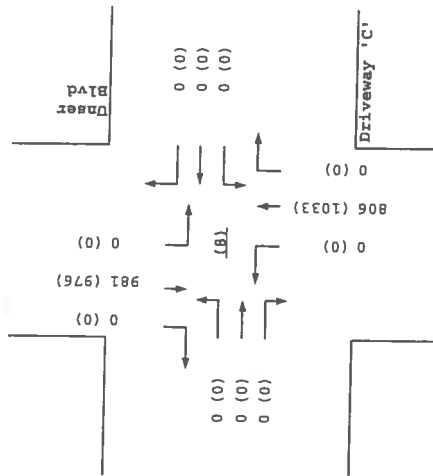
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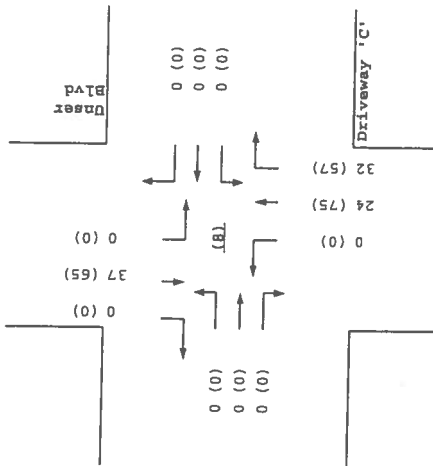
3.07%

4.53%

2010
NO BUILD

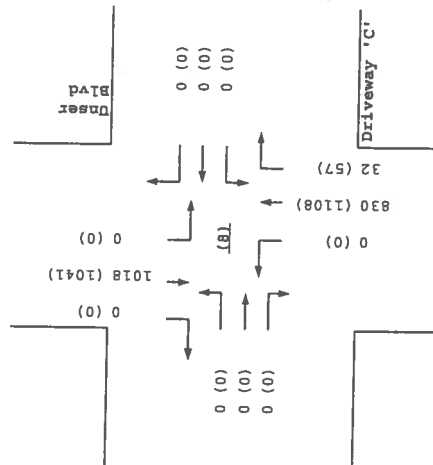


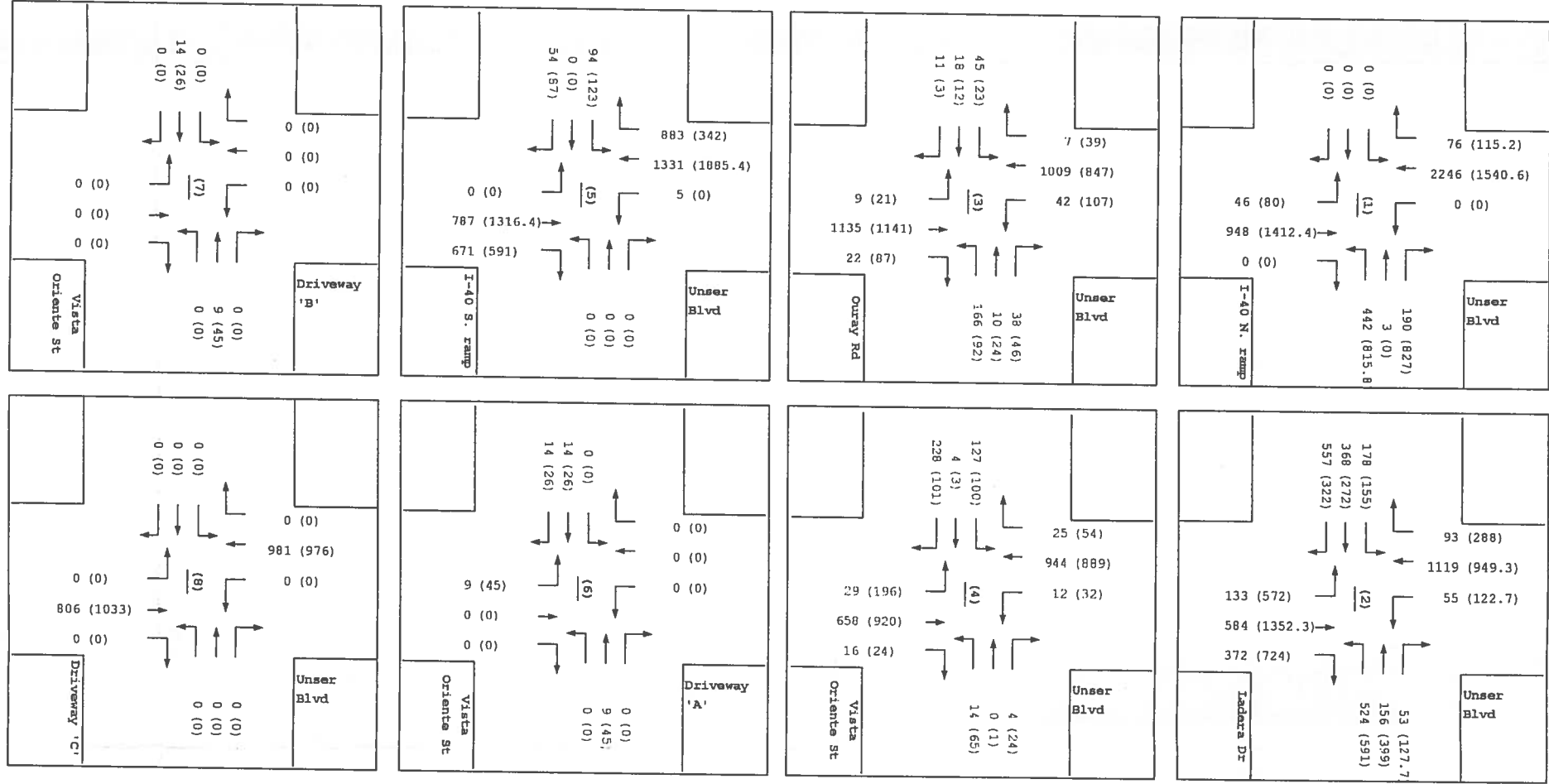
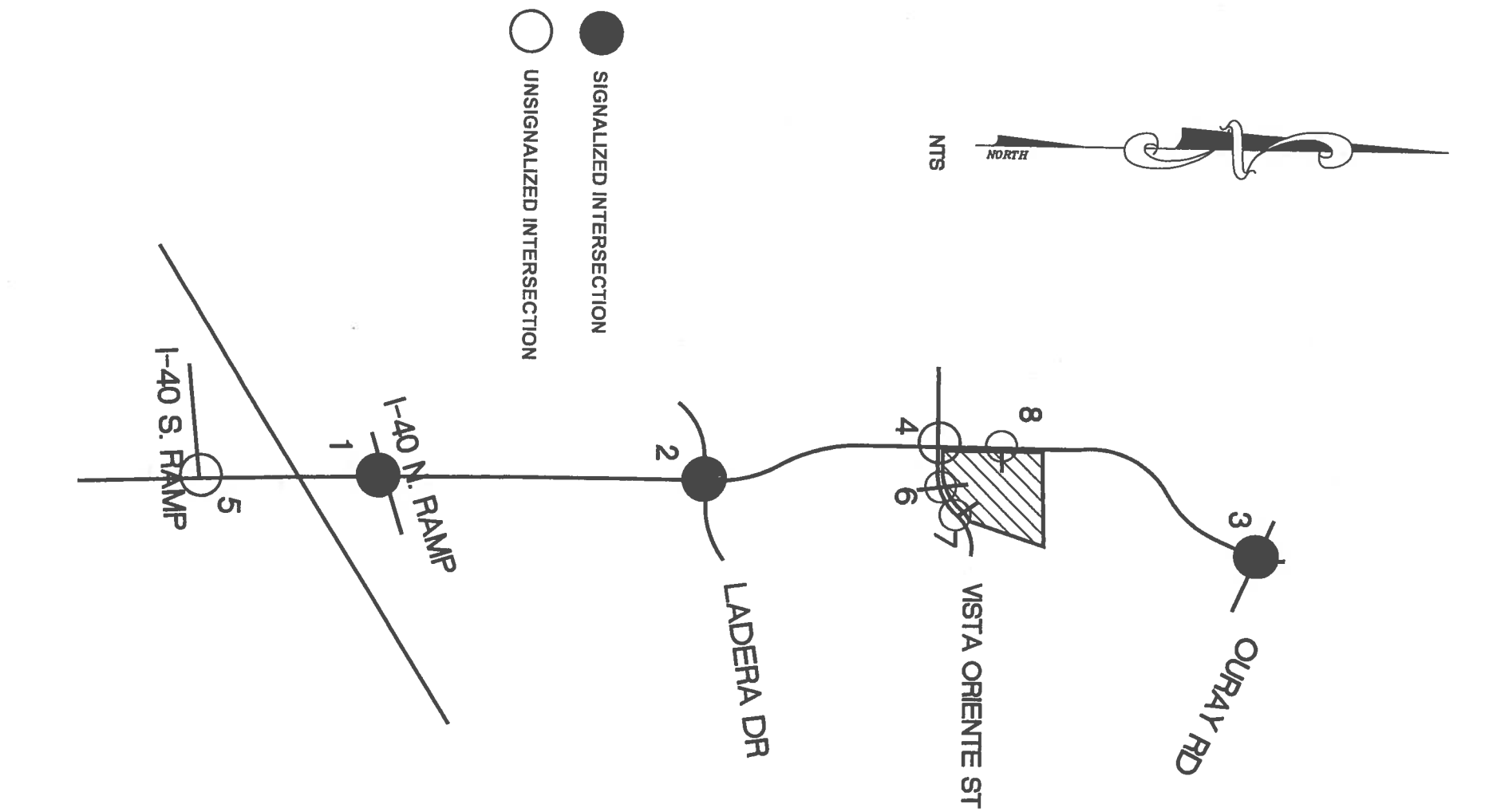
Trips



Driveway 'C' / Unser Blvd

2010
BUILD

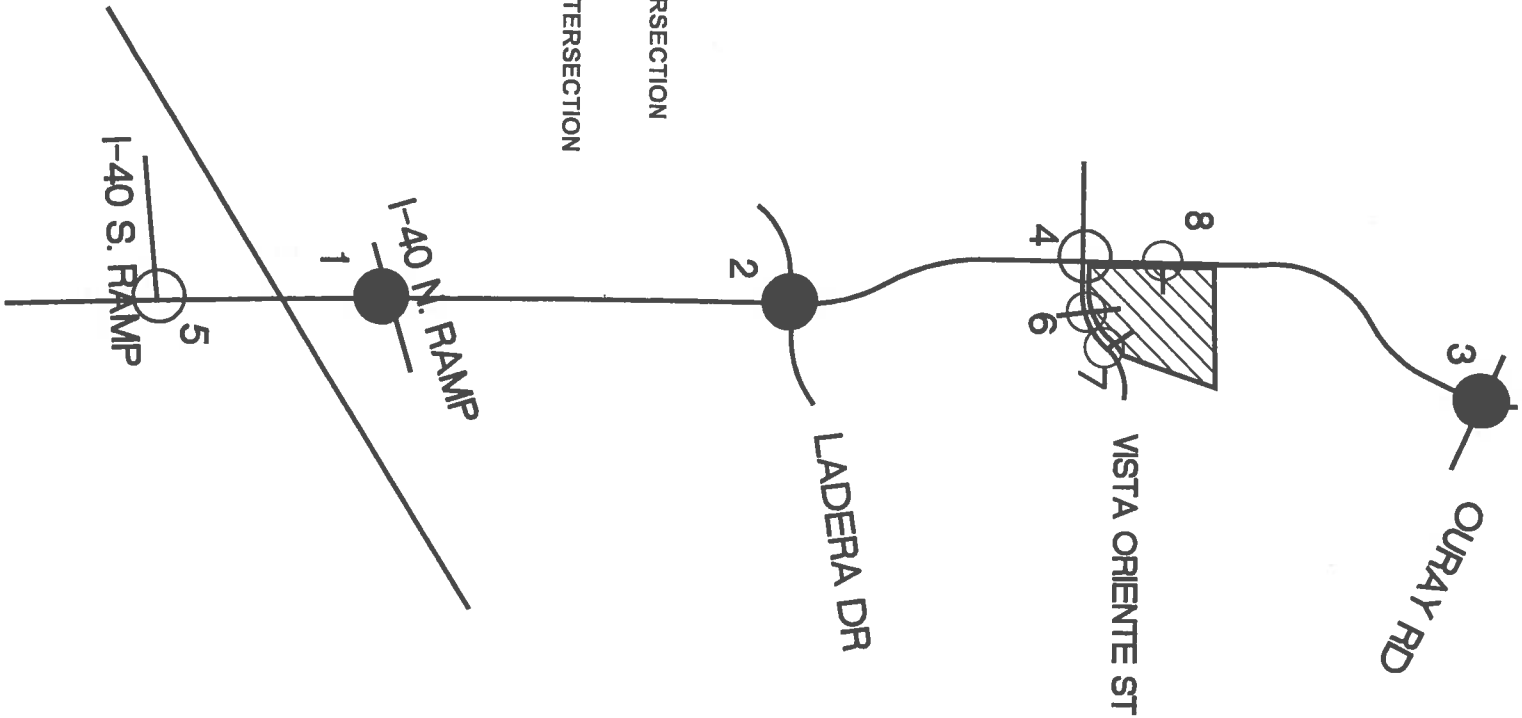




98th / Unser Commercial Development

2011 NO BUILD Volumes - AM(PM)

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Albuquerque, NM 87199-2051
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(505)212-0267 (Fax)

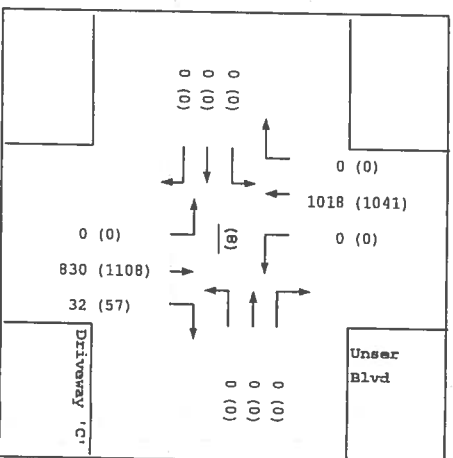
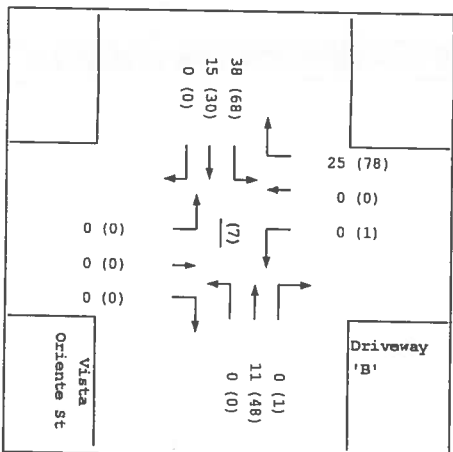
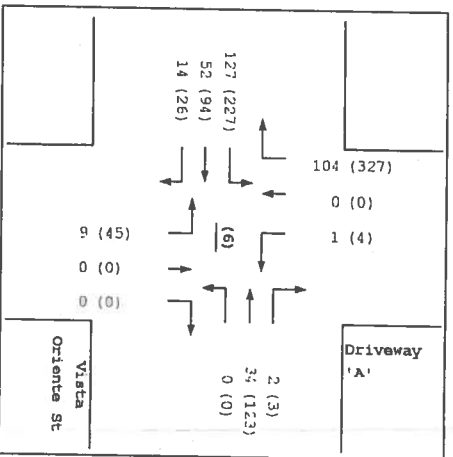
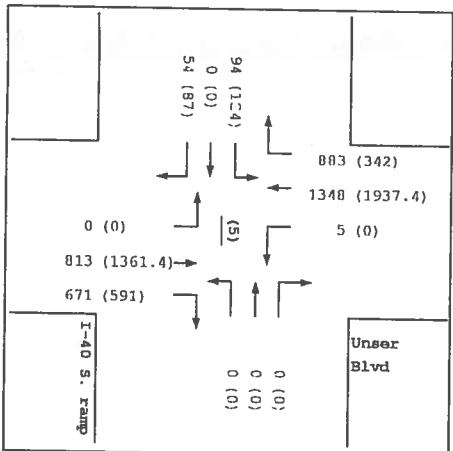
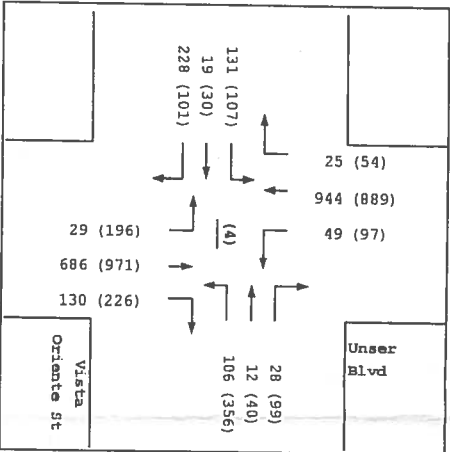
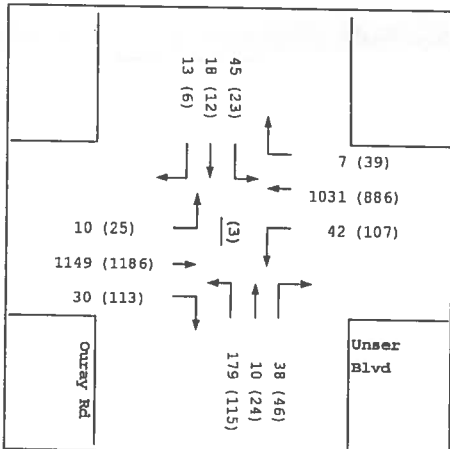
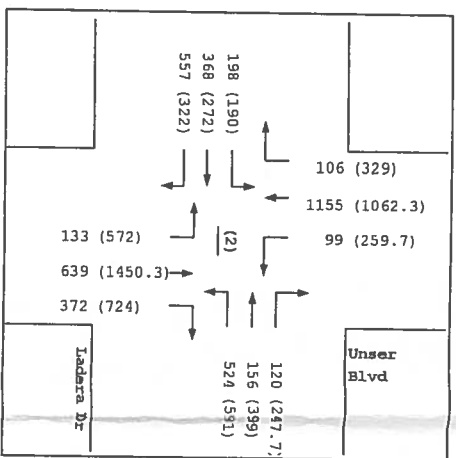
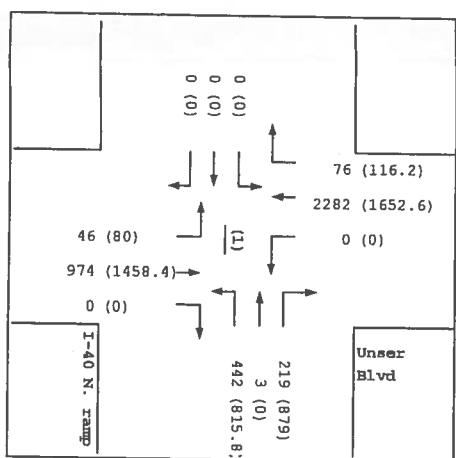
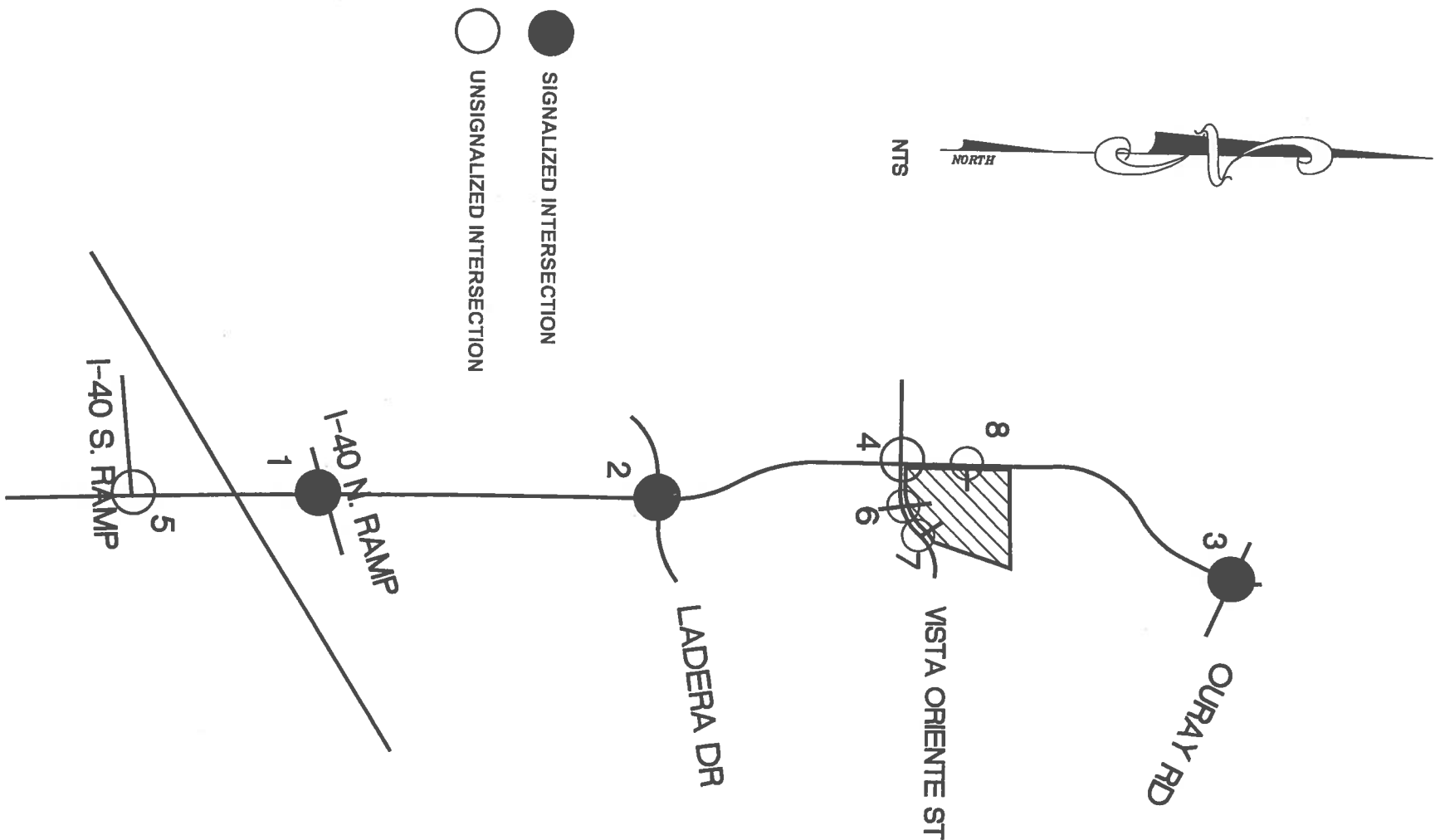


<p>Unser Blvd</p> <p>0 (1) 36 (112) 0 (0)</p> <p>0 (0) 0 (0) 0 (0) 0 (0)</p> <p>26 (46) 0 (0)</p> <p>I-40 N. ramp</p> <p>29 (52) 0 (0) 0 (0)</p>	<p>Unser Blvd</p> <p>13 (41) 36 (113) 44 (137)</p> <p>20 (35) 0 (0) 0 (0) 0 (0)</p> <p>0 (0) 55 (98) 0 (0)</p> <p>Ladera Dr</p> <p>67 (120) 3 (0) 0 (0)</p>
<p>Unser Blvd</p> <p>0 (0) 22 (39) 0 (0)</p> <p>0 (0) 0 (0) 0 (0) 2 (3)</p> <p>1 (4) 14 (45) 8 (26)</p> <p>Ouray Rd</p> <p>0 (0) 0 (0) 13 (23)</p>	<p>Unser Blvd</p> <p>0 (0) 0 (0) 37 (65)</p> <p>4 (7) 15 (27) 0 (0)</p> <p>0 (0) 28 (51) 114 (202)</p> <p>Vista Oriente St</p> <p>24 (75) 12 (39) 92 (291)</p>
<p>Unser Blvd</p> <p>0 (1) 17 (52) 0 (0)</p> <p>0 (1) 0 (0) 0 (0) 0 (0)</p> <p>26 (45) 0 (0)</p> <p>I-40 S. ramp</p> <p>0 (0) 0 (0) 0 (0)</p>	<p>Driveway 'A'</p> <p>104 (327) 0 (0) 1 (4)</p> <p>127 (227) 38 (68) 0 (0)</p> <p>0 (0) 0 (0) 0 (0)</p> <p>Vista Oriente St</p> <p>2 (3) 25 (78) 0 (0)</p>
<p>Driveway 'B'</p> <p>25 (78) 0 (0) 0 (1)</p> <p>0 (1) 2 (3) 0 (0)</p> <p>38 (68) 1 (4) 0 (0)</p> <p>Vista Oriente St</p>	<p>Unser Blvd</p> <p>0 (0) 37 (65) 0 (0)</p> <p>0 (0) 0 (0) 0 (0)</p> <p>24 (75) 32 (57)</p> <p>Driveway 'C'</p>

98th / Unser Commercial Development

Trips Generated Volumes - AM(PM)

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Albuquerque, NM 87199-2051
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98th / Unser Commercial Development

2011 BUILD Volumes - AM(PM)

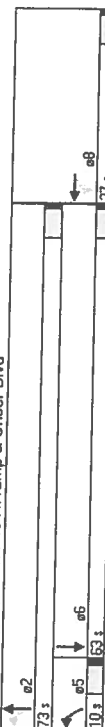
Terry O. Braun, P.E.
P.O. Box 92051
Albuquerque, NM 87199-2051
(505)883-8807 (Voice)
(505)212-0267 (Fax)

Analysis of Intersection #1
I-40 North Ramp / Unser Blvd.

Timings
1: I-40 N. ramp & Unser Blvd
Terry O. Brown, P.E.
9/8/2007

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations	442	3	190	46	948	2246
Volume (vph)	Perm		Free	pm+pt		
Turn Type	8	8	Free	5	2	6
Protected Phases	8	8	Free	5	2	6
Detector Phases	8	8	Free	5	2	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	27.0	27.0	0.0	10.0	73.0	63.0
Total Split (%)	27.0%	27.0%	0.0%	10.0%	73.0%	63.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						Lag
Lead-Lag Optimize?						
Recall Mode	Min	Min	Min	C-Min	C-Min	C-Min
Act Eff Green (s)	20.5	20.5	100.0	73.5	73.5	63.0
Actuated g/C Ratio	0.20	0.20	1.00	0.74	0.74	0.63
v/c Ratio	0.71	0.72	0.13	0.23	0.38	0.80
Control Delay	48.6	49.0	0.2	6.9	5.7	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	49.0	0.2	6.9	5.7	10.7
LOS	D	D	A	A	A	B
Approach Delay						
Approach LOS						
Intersection Summary						
Cycle Length: 100						
Actuated Cycle Length: 100						
Offset: 84 (84%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 70						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.80						
Intersection Signal Delay: 13.4						
Intersection Capacity Utilization 69.9%						
Analysis Period (min) 15						
Intersection LOS: B						
ICU Level of Service C						

Splits and Phases: 1: I-40 N. ramp & Unser Blvd



2010 AM Peak NOBUILD Conditions
D:\ATOBEP\PROJECTS\98th_Unser_Commercial\Synchro2010\ANX.sy7
Existing Geometry

HCM Signalized Intersection Capacity Analysis
1: I-40 N. ramp & Unser Blvd
Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1665	1670	1568	1752	3505	5036	5036	5036	5036	5036	5036
Flt Permitted	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Satd. Flow (perm)	1665	1670	1568	112	3505	5036	5036	5036	5036	5036	5036
Volume (vph)	0	0	0	442	3	190	46	948	0	0	2246
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.97	0.97	0.97	0.89	0.89
Adj. Flow (vph)	0	0	0	486	3	209	47	977	0	0	2524
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	243	246	209	47	977	0	0	2524
Turn Type				Perm	Free	pm+pt					
Protected Phases				8	8	5	2				6
Permitted Phases				8	8	5	2				6
Actuated Green, G (s)				18.5	18.5	100.0	71.5	71.5			61.0
Effective Green, g (s)				20.5	20.5	100.0	73.5	73.5			63.0
Actuated g/C Ratio				0.20	0.20	1.00	0.74	0.74			0.63
Clearance Time (s)				5.0	5.0	5.0	5.0	5.0			5.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)				341	342	1568	205	2576			3173
v/s Ratio Prot				0.15	0.15	0.13	0.15	0.15			c0.50
v/s Ratio Perm				0.71	0.72	0.13	0.23	0.38			0.80
Uniform Delay, d1				37.0	37.1	0.0	12.8	4.9			13.7
Progression Factor				1.00	1.00	1.00	1.00	1.00			0.68
Incremental Delay, d2				6.9	7.1	0.2	0.6	0.4			0.8
Delay (s)				43.9	44.1	0.2	13.4	5.3			10.1
Level of Service				D	D	A	B	A			B
Approach Delay (s)				0.0	30.9		5.7				10.1
Approach LOS				A	C		A				B
Intersection Summary											
HCM Average Control Delay				12.5							B
HCM Volume to Capacity ratio				0.75							
Actuated Cycle Length (s)				100.0							
Intersection Capacity Utilization				69.9%							9.0
Analysis Period (min)				15							C
c Critical Lane Group											

2010 AM Peak NOBUILD Conditions
D:\ATOBEP\PROJECTS\98th_Unser_Commercial\Synchro2010\ANX.sy7
Existing Geometry

Timings
1: I-40 N. ramp & Unser Blvd
Terry O. Brown, P.E.
9/8/2007

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations	4	3	219	46	974	2282
Volume (vph)	442	3	219	46	974	2282
Turn Type	Perm	8	Free	pm-pt	5	2
Protected Phases	8	8	Free	2	2	6
Detector Phases	8	8	Free	5	2	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	26.0	26.0	0.0	10.0	74.0	64.0
Total Split (%)	26.0%	26.0%	0.0%	10.0%	74.0%	64.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?						
Recall Mode	Min	Min	Min	C-Min	C-Min	C-Min
Act Eff Green (s)	20.1	20.1	100.0	73.9	73.9	63.4
Actuated g/C Ratio	0.20	0.20	1.00	0.74	0.74	0.63
v/c Ratio	0.73	0.73	0.15	0.23	0.39	0.80
Control Delay	50.0	50.4	0.2	6.7	5.6	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	50.4	0.2	6.7	5.6	10.4
LOS	D	D	A	A	A	B
Approach Delay	33.7	C		5.7	10.4	B
Approach LOS				A	B	
Intersection Summary						
Cycle Length: 100						
Actuated Cycle Length: 100						
Offset: 95 (95%), Referenced to phase 2:NBT and 6:SBT, Start of Green						
Natural Cycle: 75						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.80						
Intersection Signal Delay: 13.1						
Intersection Capacity Delay: 70.6%						
Analysis Period (min) 15						
Intersection LOS: B						
ICU Level of Service C						

Splits and Phases: 1: I-40 N. ramp & Unser Blvd



HCM Signalized Intersection Capacity Analysis
1: I-40 N. ramp & Unser Blvd
Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations				4	3	219	46	974	2282	2282	2282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1665	1670	1568	1752	3505	5036	5036	5036	5036	5036	5036
Flt Permitted	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Satd. Flow (perm)	1665	1670	1568	111	3505	5036	5036	5036	5036	5036	5036
Volume (vph)	0	0	0	442	3	219	46	974	0	2282	0
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.97	0.97	0.97	0.89	0.89
Adj. Flow (vph)	0	0	0	486	3	241	47	1004	0	2564	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	243	246	241	47	1004	0	2564	0
Turn Type				Perm	Free	pm-pt	Free	pm-pt			
Protected Phases				8	8	5	2	2			
Permitted Phases				8	8	5	2	2			
Actuated Green, G (s)				18.1	18.1	100.0	71.9	71.9			
Effective Green, g (s)				20.1	20.1	100.0	73.9	73.9			
Actuated g/C Ratio				0.20	0.20	1.00	0.74	0.74			
Clearance Time (s)				5.0	5.0	5.0	5.0	5.0			
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)				335	336	1568	205	2590			
v/s Ratio Prot				0.15	0.15	0.15	0.02	0.29			
v/s Ratio Perm				0.73	0.73	0.15	0.23	0.39			
Uniform Delay, d1				37.4	37.4	0.0	13.1	4.8			
Progression Delay, d2				1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2				7.6	8.0	0.2	0.6	0.4			
Delay (s)				45.0	45.4	0.2	13.7	5.2			
Level of Service				D	D	A	B	A			
Approach Delay (s)				0.0	A						
Approach LOS				A							
Intersection Summary											
HCM Average Control Delay				12.2							
HCM Volume to Capacity ratio				0.76							
Actuated Cycle Length (s)				100.0							
Intersection Capacity Utilization				70.6%							
Analysis Period (min)				15							
c Critical Lane Group											

Timings
1: 1-40 N. ramp & Unser Blvd
Terry O. Brown, P.E.
9/8/2007

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations	816	1	827	80	1412	1541
Volume (vph)	Perm	8	Free	Free	pm+pt	
Turn Type	Protected Phases	8	8	5	2	6
Permitted Phases	Detector Phases	8	8	5	2	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	48.0	48.0	0.0	12.0	72.0	60.0
Total Split (%)	40.0%	40.0%	0.0%	10.0%	60.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	Min	Min	Min	Min	C-Min	C-Min
Act Effct Green (s)	37.3	37.3	120.0	76.7	76.7	64.3
Act Effct Green (s)	0.31	0.31	1.00	0.64	0.64	0.54
Actuated g/c Ratio	0.84	0.84	0.56	0.45	0.72	0.62
v/c Ratio	52.8	52.7	1.5	20.0	18.3	11.4
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	52.8	52.7	1.5	20.0	18.3	11.4
Total Delay	0.0	0.0	0.0	0.0	0.0	0.0
LOS	D	D	A	C	B	B
Approach Delay	26.9				18.4	11.4
Approach LOS	C				B	B



Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 76 (63%), Referenced to phase 2 NBT and 6 SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 19.0
Intersection Capacity Utilization 68.3%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service C

Splits and Phases: 1: 1-40 N. ramp & Unser Blvd

HCM Signalized Intersection Capacity Analysis
1: 1-40 N. ramp & Unser Blvd
Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBT	SBT
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Fit Protected	1665	1669	1568	1568	1752	3505						
Satd. Flow (prot)	0.95	0.95	1.00	0.08	1.00	1.00						
Fit Permitted	1665	1669	1568	142	3505							
Satd. Flow (perm)	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Volume (vph)	0	0	0	816	1	827	80	1412	0	0	1541	0
Peak-hour factor, PHF	0.85	0.85	0.85	0.94	0.94	0.94	0.87	0.87	0.87	0.87	0.92	0.92
Adj. Flow (vph)	0	0	0	868	1	880	92	1623	0	0	1675	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	434	435	880	92	1623	0	0	1675	0
Turn Type	Perm	Perm	Free	Perm	Free	Free	Free	Free	Perm	Perm	Free	Free
Protected Phases	8	8	5	2	2	2	2	2	2	2	2	2
Permitted Phases	8	8	5	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	35.3	35.3	120.0	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7
Effective Green, g (s)	37.3	37.3	120.0	76.7	76.7	76.7	76.7	76.7	76.7	76.7	76.7	76.7
Actuated g/c Ratio	0.31	0.31	1.00	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	518	519	1568	216	2240	2703						
v/s Ratio Prot	0.26	0.26	0.56	0.03	0.46	0.33						
v/s Ratio Perm	0.84	0.84	0.56	0.43	0.72	0.62						
v/c Ratio	38.5	38.5	0.0	13.7	14.6	19.3						
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00						
Progression Factor	11.3	11.3	1.5	1.4	2.1	0.3						
Incremental Delay, d2	49.8	49.9	1.5	15.1	16.6	10.6						
Delay (s)	D	D	A	B	B	B						
Level of Service	D	D	A	B	B	B						
Approach Delay (s)	0.0	A		25.5	16.5	10.6						
Approach LOS	A			C	B	B						

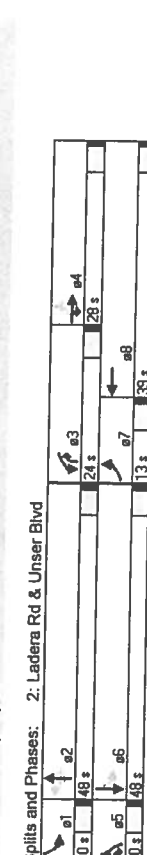
Intersection Summary
HCM Average Control Delay 17.7 HCM Level of Service B
HCM Volume to Capacity ratio 0.76
Actuated Cycle Length (s) 120.0
Intersection Capacity Utilization 68.3%
Analysis Period (min) 15
c Critical Lane Group

Timings 2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	178	368	557	524	158	133	584	372	55	1119	1119
Volume (vph)	178	368	557	524	158	133	584	372	55	1119	1119
Turn Type	pm+pt	pm+pt	pm+ov	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt
Protected Phases	4	4	4	5	3	8	5	2	3	1	6
Permitted Phases	4	4	4	5	3	8	5	2	3	1	6
Detector Phases	4	4	4	5	3	8	5	2	3	1	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	21.0
Total Split (s)	13.0	28.0	38.0	24.0	39.0	10.0	48.0	24.0	10.0	48.0	48.0
Total Split (%)	11.8%	25.5%	34.5%	21.8%	35.5%	9.1%	43.6%	21.8%	9.1%	43.6%	43.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effd Green (s)	35.0	25.0	35.0	21.0	36.0	52.0	45.0	89.0	52.0	45.0	45.0
Actuated g/c Ratio	0.32	0.23	0.32	0.19	0.33	0.47	0.41	0.63	0.47	0.41	0.41
v/c Ratio	0.50	1.01	0.71	1.02	0.45	0.87	0.48	0.41	0.19	0.96	0.96
Control Delay	25.8	89.5	37.0	85.3	30.1	63.1	25.3	6.4	15.9	47.4	47.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	89.5	37.0	85.3	30.1	63.1	25.3	6.4	15.9	47.4	47.4
LOS	C	F	D	F	C	E	C	A	B	D	D
Approach Delay	52.7					89.6		23.4			
Approach LOS	D					E		C			

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 18 (15%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 48.3
Intersection Capacity Utilization 88.9%
Analysis Period (min) 15
Intersection LOS: D
ICU Level of Service E



HCM Signalized Intersection Capacity Analysis 2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	0.88	0.97	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fit	1.00	1.00	0.85	1.00	0.96	1.00	1.00	0.85	1.00	0.85	1.00
Fit Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1752	1845	2760	3400	1774	1752	3505	1568	1752	3465	1752
Flt Permitted	0.60	1.00	1.00	0.95	1.00	0.09	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	1100	1845	2760	3400	1774	184	3505	1568	507	3465	1845
Volume (vph)	178	368	557	524	158	53	133	584	372	55	1119
Peak-hour factor, PHF	0.87	0.87	0.87	0.79	0.79	0.79	0.85	0.85	0.85	0.89	0.89
Adj. Flow (vph)	205	423	640	663	197	67	158	687	438	62	1257
RTOR Reduction (vph)	0	0	18	0	11	0	0	0	81	0	5
Lane Group Flow (vph)	205	423	622	663	253	0	158	687	357	62	1356
Turn Type	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt
Protected Phases	7	4	4	5	3	8	5	2	3	1	6
Permitted Phases	4	4	4	5	3	8	5	2	3	1	6
Actuated Green, G (s)	31.0	23.0	33.0	19.0	34.0	48.0	43.0	82.0	48.0	43.0	43.0
Effective Green, g (s)	35.0	25.0	35.0	21.0	36.0	52.0	45.0	86.0	52.0	45.0	45.0
Actuated g/c Ratio	0.32	0.23	0.32	0.19	0.33	0.47	0.41	0.60	0.47	0.41	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	409	419	878	649	581	179	1434	984	319	1418	1418
v/s Ratio Prot	0.05	c0.23	c0.23	c0.20	0.14	0.06	0.20	0.07	0.01	c0.39	0.39
v/s Ratio Perm	0.11					0.38		0.16	0.08		
v/c Ratio	0.50	1.01	0.71	1.02	0.43	0.87	0.48	0.36	0.19	0.96	0.96
Uniform Delay, d1	29.0	42.5	33.0	44.5	29.0	24.9	23.9	11.3	16.7	31.5	31.5
Progression Delay, d2	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	46.4	2.6	40.9	0.5	34.0	1.1	0.2	0.3	15.5	15.5
Delay (s)	29.8	88.9	35.7	85.4	29.5	58.9	25.0	11.5	17.0	47.0	47.0
Level of Service	C	F	D	F	C	E	C	B	B	D	D
Approach Delay (s)	52.5					69.5		24.5			
Approach LOS	D					E		C			

Intersection Summary
HCM Average Control Delay 46.4 HCM Level of Service D
HCM Volume to Capacity ratio 0.95
Actuated Cycle Length (s) 110.0 Sum of lost time (s) 9.0
Intersection Capacity Utilization 88.8% ICU Level of Service E
Analysis Period (min) 15
Critical Lane Group

Timings
2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	190	368	557	524	156	133	639	372	99	1155
Volume (vph)	190	368	557	524	156	133	639	372	99	1155
Turn Type	pm+pt	pm+pt	pt+ov	Prot	pm+pt	pm+pt	pm+ov	pm+pt	pm+pt	pm+pt
Protected Phases	7	4	4.5	3	8	5	2	3	1	6
Permitted Phases	4	4	4.5	3	8	5	2	3	1	6
Detector Phases	7	4	4.5	3	8	5	2	3	1	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Total Split (s)	14.0	28.0	38.0	24.0	38.0	10.0	48.0	24.0	10.0	48.0
Total Split (%)	12.7%	25.5%	34.5%	21.8%	34.5%	9.1%	43.6%	21.8%	9.1%	43.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Eff Green (s)	36.0	25.0	35.0	21.0	35.0	52.0	45.0	69.0	52.0	45.0
Actuated g/C Ratio	0.33	0.23	0.32	0.19	0.32	0.47	0.41	0.63	0.47	0.41
w/c Ratio	0.63	1.01	0.72	1.02	0.91	0.87	0.52	0.42	0.38	1.00
Control Delay	30.3	89.5	37.2	85.3	33.5	63.1	26.1	7.6	18.6	55.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	89.5	37.2	85.3	33.5	63.1	26.1	7.6	18.6	55.8
LOS	C	F	D	F	C	E	C	A	B	E
Approach Delay	53.1	D	D	67.4	E	E	24.4	C	D	D
Approach LOS	D	D	D	E	E	E	C	C	D	D
Intersection Summary										
Cycle Length: 110										
Actuated Cycle Length: 110										
Offset: 28 (25%), Referenced to phase 2:NBT and 6:SBTL, Start of Green										
Natural Cycle: 100										
Control Type: Actuated-Coordinated										
Maximum w/c Ratio: 1.02										
Intersection Signal Delay: 48.4										
Intersection Capacity Utilization 90.3%										
Analysis Period (min) 15										



2010 AM Peak BUILD Conditions
Existing Geometry
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HCM Signalized Intersection Capacity Analysis
2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

9/8/2007

2. Ladera Rd & Uniser Blvd

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	0.88	0.97	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Flt	1.00	1.00	0.85	1.00	0.93	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1845	2760	3400	1724	1752	3505	1588	1752	3461	3461
Flt Permitted	0.44	1.00	1.00	0.95	1.00	0.09	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	813	1845	2760	3400	1724	184	3505	1588	446	3461	3461
Volume (vph)	198	368	557	524	156	120	639	372	99	1155	108
Peak-hour factor, PHF	0.87	0.87	0.87	0.79	0.79	0.79	0.85	0.85	0.85	0.89	0.89
Adj. Flow (vph)	228	423	640	663	197	152	752	438	111	1288	119
RTOR Reduction (vph)	0	0	16	0	25	0	0	0	64	0	7
Lane Group Flow (vph)	228	423	624	663	324	0	158	752	374	111	1411
Turn Type	pm+pt	pt+ov	Prot	pt+ov	Prot	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt
Protected Phases	7	4	4.5	3	8	5	2	3	1	6	6
Permitted Phases	4	4	4.5	3	8	2	2	2	2	2	2
Actuated Green, G (s)	32.0	23.0	33.0	19.0	33.0	48.0	43.0	62.0	48.0	43.0	43.0
Effective Green, g (s)	36.0	25.0	35.0	21.0	35.0	52.0	45.0	66.0	52.0	45.0	45.0
Actuated g/C Ratio	0.33	0.23	0.32	0.19	0.32	0.47	0.41	0.60	0.47	0.41	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	360	419	878	649	548	179	1434	984	294	1416	1416
v/s Ratio Prot	0.08	0.23	0.23	0.20	0.19	0.06	0.21	0.07	0.02	0.41	0.41
v/s Ratio Perm	0.14	0.63	1.01	0.71	1.02	0.36	0.17	0.15	0.15	0.15	0.15
w/c Ratio	0.63	1.01	0.71	1.02	0.59	0.67	0.52	0.38	0.38	0.38	0.38
Uniform Delay, d1	28.8	42.5	33.0	44.5	31.5	25.6	24.4	11.4	17.6	32.4	32.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	46.4	2.7	40.9	1.6	34.0	1.4	0.2	0.8	23.0	23.0
Delay (s)	32.4	88.9	35.8	85.4	33.1	59.6	25.8	11.7	18.4	55.4	55.4
Level of Service	C	F	D	F	C	E	C	B	B	E	E
Approach Delay (s)	52.6	D	D	67.4	E	25.1	C	C	B	B	B
Approach LOS	D	D	D	E	E	C	C	C	B	B	B
Intersection Summary											
HCM Average Control Delay	48.4										
HCM Volume to Capacity ratio	0.97										
actuated Cycle Length (s)	110.0										
Intersection Capacity Utilization	90.3%										
analysis Period (min)	15										
Critical Lane Group	D										
	9.0										
	E										

2010 AM Peak BUILD Conditions
Existing Geometry
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Timings
2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	178	368	557	524	156	133	584	372	55	1119
Volume (vph)	178	368	557	524	156	133	584	372	55	1119
Turn Type	pm+pt	7	4	4.5	3	8	5	2	3	1
Protected Phases	4	4	4.5	3	8	5	2	3	1	6
Permitted Phases	7	4	4.5	3	8	5	2	3	1	6
Detector Phases	7	4	4.5	3	8	5	2	3	1	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Total Split (s)	13.0	28.0	38.0	24.0	38.0	10.0	48.0	24.0	10.0	48.0
Total Split (%)	11.8%	25.5%	34.5%	21.8%	35.5%	9.1%	43.6%	21.8%	9.1%	43.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	35.0	25.0	35.0	21.0	36.0	52.0	45.0	69.0	52.0	45.0
Actuated g/C Ratio	0.32	0.23	0.32	0.19	0.33	0.47	0.41	0.63	0.47	0.41
v/c Ratio	0.50	1.01	0.71	1.02	0.45	0.87	0.48	0.41	0.19	0.96
Control Delay	25.8	89.5	37.0	85.3	30.1	63.1	25.3	6.4	15.9	47.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	89.5	37.0	85.3	30.1	63.1	25.3	6.4	15.9	47.4
LOS	C	F	D	F	C	E	C	A	B	D
Approach Delay	52.7									
Approach LOS	D									



2010 AM Peak NOBUILD Conditions
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Existing Geometry

HCM Signalized Intersection Capacity Analysis
2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	1.00	1.00	0.88	0.97	1.00	1.00	0.85	1.00	1.00	0.95
Lane Util. Factor	1.00	1.00	0.85	0.95	1.00	0.95	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.85	1.00	0.95
Satd. Flow (prot)	1752	1845	2760	3400	1774	1752	3505	1568	1752	3465
Flt Permitted	0.60	1.00	1.00	0.95	1.00	0.95	1.00	0.85	1.00	0.95
Satd. Flow (perm)	1100	1845	2760	3400	1774	104	3505	1568	507	3465
Volume (vph)	178	368	557	524	156	133	584	372	55	1119
Peak-hour factor, PHF	0.87	0.87	0.79	0.79	0.79	0.85	0.85	0.85	0.89	0.89
Adj. Flow (vph)	205	423	640	663	197	158	687	438	62	1257
RTOR Reduction (vph)	0	0	18	0	11	0	0	81	0	5
Lane Group Flow (vph)	205	423	622	663	253	0	158	687	357	62
Turn Type	pm+pt	7	4	4.5	3	8	5	2	3	1
Protected Phases	4	4	4.5	3	8	5	2	3	1	6
Permitted Phases	7	4	4.5	3	8	5	2	3	1	6
Actuated Green, G (s)	31.0	23.0	33.0	19.0	34.0	48.0	43.0	82.0	48.0	43.0
Effective Green, g (s)	35.0	25.0	35.0	21.0	36.0	52.0	45.0	86.0	52.0	45.0
Actuated g/C Ratio	0.32	0.23	0.32	0.19	0.33	0.47	0.41	0.60	0.47	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	409	419	878	849	581	179	1434	984	319	1418
v/s Ratio Prot	0.05	c0.23	c0.23	c0.20	0.14	0.06	0.20	0.07	0.01	c0.39
v/s Ratio Perm	0.11					0.36		0.16	0.08	
v/c Ratio	0.50	1.01	0.71	1.02	0.43	0.87	0.48	0.36	0.19	0.96
Uniform Delay, d1	29.0	42.5	33.0	44.5	29.0	24.9	23.9	11.3	16.7	31.5
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	1.0	46.4	2.6	40.9	0.5	34.0	1.1	0.2	0.3	15.5
Delay (s)	29.9	88.9	35.7	85.4	29.5	58.9	25.0	11.5	17.0	47.0
Level of Service	C	F	D	F	C	E	C	B	B	D
Approach Delay (s)	52.5					69.5				45.7
Approach LOS	D					E				D

Intersection Summary
HCM Average Control Delay 46.4 HCM Level of Service D
HCM Volume to Capacity ratio 0.95
Actuated Cycle Length (s) 110.0 Sum of lost time (s) 9.0
Intersection Capacity Utilization 88.9% ICU Level of Service E
Analysis Period (min) 15
c Critical Lane Group

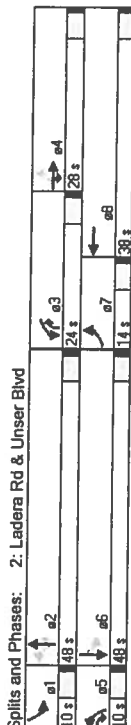
2010 AM Peak NOBUILD Conditions
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Existing Geometry

Timings
2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	198	368	557	524	156	133	639	372	98	1155
Volume (vph)	198	368	557	524	156	133	639	372	98	1155
Turn Type	pm+pt	pt+ov	pt+ov	pt+ov	pt+ov	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt
Permitted Phases	4	4	4	4	4	4	4	4	4	4
Detector Phases	7	4	4	4	4	4	4	4	4	4
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Total Split (s)	14.0	28.0	38.0	24.0	38.0	10.0	48.0	24.0	10.0	48.0
Total Split (%)	12.7%	25.5%	34.5%	21.8%	34.5%	9.1%	43.6%	21.8%	9.1%	43.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	36.0	25.0	35.0	21.0	35.0	52.0	45.0	69.0	52.0	45.0
Actuated g/C Ratio	0.33	0.23	0.32	0.19	0.32	0.47	0.41	0.63	0.47	0.41
vc Ratio	0.63	1.01	0.72	1.02	0.61	0.87	0.52	0.42	0.38	1.00
Control Delay	30.3	89.5	37.2	85.3	33.5	63.1	26.1	7.6	18.6	55.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	89.5	37.2	85.3	33.5	63.1	26.1	7.6	18.6	55.8
LOS	C	F	D	F	C	E	C	A	B	E
Approach Delay	53.1	D	67.4	E	24.4	C	C	D	53.1	D
Approach LOS	D	D	E	E	C	C	C	D	D	D

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 28 (25%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 48.4
Intersection Capacity Utilization 90.3%
Analysis Period (min) 15



2010 AM Peak BUILD Conditions
Existing Geometry
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HCM Signalized Intersection Capacity Analysis
2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1752	1845	2760	3400	1724	1752	3505	1588	1752	3461	1752
Flt Permitted	0.44	1.00	1.00	0.95	1.00	0.09	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	813	1845	2760	3400	1724	184	3505	1588	446	3461	1752
Volume (vph)	198	368	557	524	156	120	133	639	372	98	1155
Peak-hour factor, PHF	0.87	0.87	0.87	0.79	0.79	0.79	0.85	0.85	0.85	0.89	0.89
Adj. Flow (vph)	228	423	640	663	197	152	156	752	438	111	1288
RTOR Reduction (vph)	0	0	16	0	25	0	0	0	64	0	7
Lane Group Flow (vph)	228	423	624	663	324	0	156	752	374	111	1411
Turn Type	pm+pt	pt+ov	pt+ov	pt+ov	pt+ov	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt
Protected Phases	7	4	4	5	3	8	5	2	3	1	6
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	32.0	23.0	33.0	19.0	33.0	48.0	43.0	62.0	48.0	43.0	43.0
Effective Green, g (s)	36.0	25.0	35.0	21.0	35.0	52.0	45.0	66.0	52.0	45.0	45.0
Actuated g/C Ratio	0.33	0.23	0.32	0.19	0.32	0.47	0.41	0.60	0.47	0.41	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	360	419	878	649	549	179	1434	984	294	1416	1416
v/s Ratio Prot	0.06	c0.23	c0.23	c0.20	0.19	0.06	0.21	0.07	0.02	c0.41	c0.41
v/s Ratio Perm	0.14	0.63	1.01	0.71	1.02	0.36	0.52	0.38	0.38	1.00	1.00
Uniform Delay, d1	28.8	42.5	33.0	44.5	31.5	25.6	24.4	11.4	17.6	32.4	32.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	46.4	2.7	40.9	1.6	34.0	1.4	0.2	0.8	23.0	23.0
Delay (s)	32.4	88.9	35.8	85.4	33.1	59.6	25.8	11.7	18.4	55.4	55.4
Level of Service	C	F	D	F	C	E	C	B	B	E	E
Approach Delay (s)	52.6	D	67.4	E	25.1	C	C	D	52.7	D	D
Approach LOS	D	D	E	E	C	C	C	D	D	D	D

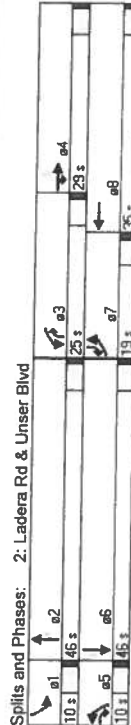
Intersection Summary
HCM Average Control Delay 48.4 HCM Level of Service D
HCM Volume to Capacity ratio 0.97 Sum of lost time (s) 9.0
Actuated Cycle Length (s) 110.0 ICU Level of Service E
Intersection Capacity Utilization 90.3%
Analysis Period (min) 15
c Critical Lane Group

2010 AM Peak BUILD Conditions
Existing Geometry
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Timings 2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/9/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	198	368	557	524	156	133	639	372	99	1155	106
Volume (vph)	198	368	557	524	156	133	639	372	99	1155	106
Turn Type	pm+pt	4	4	4	5	2	2	3	1	6	7
Permitted Phases	7	4	4	5	3	8	5	2	3	1	6
Protected Phases	4	4	4	5	3	8	5	2	3	1	6
Detector Phases	7	4	4	5	3	8	5	2	3	1	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	19.0	29.0	39.0	35.0	10.0	46.0	25.0	10.0	46.0	19.0	19.0
Total Split (%)	17.3%	26.4%	35.5%	22.7%	31.8%	9.1%	41.8%	22.7%	9.1%	41.8%	17.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimizer?	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	40.8	26.0	36.0	33.2	7.0	43.0	68.0	7.0	43.0	60.8	60.8
Actuated g/C Ratio	0.37	0.24	0.33	0.20	0.30	0.06	0.39	0.06	0.39	0.55	0.55
v/c Ratio	0.59	0.97	0.70	0.97	0.84	0.72	0.55	0.43	0.51	0.95	0.13
Control Delay	25.7	78.8	36.0	73.3	36.3	69.9	27.9	9.6	58.7	47.6	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	78.8	36.0	73.3	36.3	69.9	27.9	9.6	58.7	47.6	2.4
LOS	C	E	D	E	D	E	C	A	E	D	A
Approach Delay	48.2	D	D	E	E	E	C	A	E	D	A
Approach LOS	D	D	D	E	E	E	C	A	E	D	A
Intersection Summary											
Cycle Length: 110											
Actuated Cycle Length: 110											
Offset: 28 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green											
Natural Cycle: 90											
Control Type: Actuated-Coordinated											
Maximum v/c Ratio: 0.97											
Intersection Signal Delay: 44.1											
Intersection Capacity Utilization 83.7%											
Analysis Period (min) 15											



HCM Signalized Intersection Capacity Analysis 2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/9/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1800	1900	1900	1900	1900	1800	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	1.00	1.00	0.88	0.97	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Lane Util. Factor	1.00	1.00	0.85	1.00	0.93	1.00	1.00	0.85	1.00	0.95	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.85	1.00	0.95	1.00
Satd. Flow (prot)	1752	1845	2760	3400	1724	3400	3505	1568	3400	3505	1568
Flt Permitted	0.38	1.00	1.00	0.95	1.00	0.95	1.00	0.85	1.00	0.95	1.00
Satd. Flow (perm)	694	1845	2760	3400	1724	3400	3505	1568	3400	3505	1568
Volume (vph)	198	368	557	524	156	133	639	372	99	1155	106
Peak-hour factor, PHF	0.87	0.87	0.87	0.79	0.79	0.85	0.85	0.85	0.89	0.89	0.89
Adj. Flow (vph)	228	423	640	663	197	152	752	438	111	1298	119
RTOR Reduction (vph)	0	0	13	0	25	0	0	0	42	0	0
Lane Group Flow (vph)	228	423	627	663	324	0	156	752	396	111	1298
Turn Type	pm+pt	4	4	5	3	8	5	2	3	1	6
Protected Phases	7	4	4	5	3	8	5	2	3	1	6
Permitted Phases	4	4	4	5	3	8	5	2	3	1	6
Actuated Green, G (s)	36.8	24.0	34.0	20.0	31.2	5.0	41.0	61.0	5.0	41.0	53.8
Effective Green, g (s)	40.8	26.0	36.0	22.0	33.2	7.0	43.0	65.0	7.0	43.0	57.8
Actuated g/C Ratio	0.37	0.24	0.33	0.20	0.30	0.08	0.39	0.59	0.08	0.39	0.53
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	400	436	903	680	520	216	1370	989	216	1370	867
v/s Ratio Prot	0.08	0.23	0.23	0.20	0.19	0.05	0.21	0.08	0.03	0.37	0.01
v/s Ratio Perm	0.13	0.97	0.69	0.97	0.62	0.72	0.55	0.41	0.51	0.95	0.03
Uniform Delay, d1	25.4	41.6	32.2	43.7	33.0	50.5	26.0	12.1	49.9	32.4	12.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	35.3	2.3	28.1	2.3	11.3	1.6	0.3	2.1	14.6	0.0
Delay (s)	27.3	76.9	34.5	71.8	35.3	61.8	27.6	12.4	51.9	47.0	12.9
Level of Service	C	E	C	E	D	E	C	B	D	D	B
Approach Delay (s)	47.1	D	D	E	E	E	C	B	D	D	B
Approach LOS	D	D	D	E	E	E	C	B	D	D	B
Intersection Summary											
HCM Average Control Delay	43.5										
HCM Volume to Capacity ratio	0.93										
Actuated Cycle Length (s)	110.0										
Intersection Capacity Utilization	83.7%										
Analysis Period (min)	15										
c Critical Lane Group											

Timings

2: Ladera Rd & Unser Blvd Terry O. Brown, P.E. 9/8/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	155	272	322	581	389	572	1352	724	123	949
Volume (vph)	155	272	322	581	389	572	1352	724	123	949
Turn Type	pm+pt	7	4	4	5	3	8	5	2	3
Protected Phases	4	4	4	5	3	8	5	2	3	1
Permitted Phases	7	4	4	5	3	8	5	2	3	1
Detector Phases	7	4	4	5	3	8	5	2	3	1
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	10.0	10.0	21.0
Total Split (s)	10.0	23.0	59.0	25.0	38.0	36.0	71.0	25.0	11.0	46.0
Total Split (%)	7.7%	17.7%	45.4%	19.2%	27.7%	54.8%	19.2%	8.5%	35.4%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effd Green (s)	27.0	20.0	58.0	22.0	35.0	79.0	68.0	83.0	51.0	43.0
Actuated g/C Ratio	0.21	0.15	0.43	0.17	0.27	0.61	0.52	0.72	0.39	0.33
v/c Ratio	1.11	1.03	0.29	1.10	1.16	1.20	0.78	0.96	0.72	1.13
Control Delay	140.1	114.3	22.8	118.7	135.9	143.4	28.6	11.4	46.2	109.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	140.1	114.3	22.8	118.7	135.9	143.4	28.6	11.4	46.2	109.0
LOS	F	F	C	F	F	F	C	B	D	F
Approach Delay	80.3	F	F	126.8	F	48.7	D			
Approach LOS	F			F			D			



2010 PM Peak NOBUILD Conditions Existing Geometry D:\VATOBEP\PROJECTS\98th_Unser_Commercial\Synchro2010PNX.s77

HCM Signalized Intersection Capacity Analysis Terry O. Brown, P.E. 9/8/2007
2: Ladera Rd & Unser Blvd

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	1.00	1.00	0.88	0.97	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Lane Util. Factor	1.00	1.00	0.88	0.97	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Fit Protected	0.95	1.00	0.85	1.00	0.96	1.00	0.85	1.00	0.95	1.00	0.97
Satd. Flow (prot)	1752	1845	2760	3400	1777	1752	3505	1568	1752	3382	
Fit Permitted	0.20	1.00	1.00	0.95	1.00	0.09	1.00	1.00	0.12	1.00	
Satd. Flow (perm)	369	1845	2760	3400	1777	160	3505	1568	216	3382	
Volume (vph)	155	272	322	581	389	128	572	724	123	949	288
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.96	0.96
Adj. Flow (vph)	167	292	346	635	428	138	602	762	128	989	300
RTOR Reduction (vph)	0	0	15	0	9	0	0	0	37	0	22
Lane Group Flow (vph)	167	292	331	635	558	0	602	1423	725	128	1267
Turn Type	pm+pt	7	4	4	5	3	8	5	2	3	1
Protected Phases	4	4	4	5	3	8	5	2	3	1	6
Permitted Phases	7	4	4	5	3	8	5	2	3	1	6
Actuated Green, G (s)	23.0	18.0	54.0	20.0	33.0	77.0	66.0	86.0	47.0	41.0	
Effective Green, g (s)	27.0	20.0	56.0	22.0	35.0	79.0	68.0	90.0	51.0	43.0	
Actuated g/C Ratio	0.21	0.15	0.43	0.17	0.27	0.61	0.52	0.69	0.39	0.33	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	151	284	1189	575	478	501	1833	1122	179	1119	
v/s Ratio Prot	0.06	0.16	0.12	c0.19	c0.31	c0.30	0.41	0.11	0.04	0.37	
v/s Ratio Perm	1.11	1.03	0.28	1.10	1.17	c0.42	0.78	0.85	0.72	1.13	
Uniform Delay, d1	63.7	55.0	23.9	54.0	47.5	50.7	24.9	11.1	27.5	43.5	
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	104.5	80.9	0.1	69.4	96.1	108.8	3.3	1.3	12.7	71.0	
Delay (s)	188.1	115.9	24.1	123.4	143.6	159.3	28.2	12.4	40.2	114.5	
Level of Service	F	F	C	F	F	F	C	B	D	F	
Approach Delay (s)	87.2	F	F	132.9	F	52.2	D			107.8	
Approach LOS	F			F			D			F	

Intersection Summary	HCM Average Control Delay	HCM Level of Service
HCM Volume to Capacity ratio	85.1	F
Actuated Cycle Length (s)	130.0	
Intersection Capacity Utilization	117.8%	H
Analysis Period (min)	15	
c Critical Lane Group		

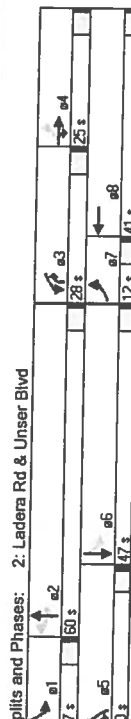
2010 PM Peak NOBUILD Conditions Existing Geometry D:\VATOBEP\PROJECTS\98th_Unser_Commercial\Synchro2010PNX.s77

Timings
2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	190	272	322	591	398	572	1450	724	260	1062
Volume (vph)	190	272	322	591	398	572	1450	724	260	1062
Turn Type	pm+pt	4	4	5	3	8	5	2	3	1
Protected Phases	4	4	4	5	3	8	5	2	3	1
Permitted Phases	7	4	4	5	3	8	5	2	3	1
Detector Phases	7	4	4	5	3	8	5	2	3	1
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	10.0	21.0	10.0
Total Split (s)	12.0	25.0	55.0	28.0	41.0	30.0	60.0	28.0	17.0	47.0
Total Split (%)	9.2%	19.2%	42.3%	21.5%	31.5%	23.1%	46.2%	21.5%	13.1%	38.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effd Green (s)	31.0	22.0	52.0	25.0	38.0	74.0	57.0	85.0	58.0	44.0
Actuated g/C Ratio	0.24	0.17	0.40	0.19	0.29	0.57	0.44	0.65	0.45	0.34
v/c Ratio	1.15	0.84	0.31	0.97	1.33	1.43	0.99	0.72	1.10	1.24
Control Delay	143.9	90.4	25.9	80.9	195.5	238.4	57.7	17.2	123.8	153.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	143.9	90.4	25.9	80.9	195.5	238.4	57.7	17.2	123.8	153.1
LOS	F	F	C	F	F	F	E	B	F	F
Approach Delay	76.8									
Approach LOS	E									

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 117 (90%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.43	
Intersection Signal Delay: 110.9	Intersection LOS: F
Intersection Capacity Utilization 131.5%	ICU Level of Service H
Analysis Period (min) 15	



2010 PM Peak BUILD Conditions
Existing Geometry
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HCM Signalized Intersection Capacity Analysis
2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	190	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	0.88	0.97	1.00	1.00	0.85	1.00	1.00	0.95	0.95
Fit Protected	0.95	1.00	1.00	0.95	1.00	0.94	1.00	1.00	0.85	1.00	0.95
Satd. Flow (prot)	1752	1845	2780	3400	1739	1752	3505	1568	1752	3390	1800
Flt Permitted	0.18	1.00	1.00	0.95	1.00	0.09	1.00	1.00	0.08	1.00	0.08
Satd. Flow (perm)	335	1845	2780	3400	1739	157	3505	1568	188	3380	329
Volume (vph)	190	272	322	591	398	248	572	1450	724	260	1062
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	204	292	348	635	429	267	602	1528	782	271	1108
RTOR Reduction (vph)	0	0	13	0	17	0	0	0	37	0	22
Lane Group Flow (vph)	204	292	333	635	679	0	602	1528	725	271	1427
Turn Type	pm+pt	pm+pt	pt+ov	Prot	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt
Protected Phases	7	4	4	5	3	8	5	2	3	1	6
Permitted Phases	4	20.0	50.0	23.0	36.0	72.0	55.0	78.0	54.0	42.0	42.0
Actuated Green, G (s)	27.0	20.0	50.0	23.0	36.0	72.0	55.0	78.0	54.0	42.0	42.0
Effective Green, g (s)	31.0	22.0	52.0	25.0	38.0	74.0	57.0	82.0	58.0	44.0	44.0
Actuated g/C Ratio	0.24	0.17	0.40	0.19	0.29	0.57	0.44	0.63	0.45	0.34	0.34
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	178	312	1104	654	508	421	1537	1025	248	1144	1144
v/s Ratio Prot	0.08	0.16	0.12	0.19	0.39	0.30	0.44	0.14	0.12	0.42	0.42
v/s Ratio Perm	0.19					0.52		0.33	0.37		
v/c Ratio	1.15	0.94	0.30	0.97	1.34	1.43	0.98	0.71	1.10	1.25	1.25
Uniform Delay, d1	62.7	53.3	26.6	52.1	48.0	53.7	36.3	16.0	39.7	43.0	43.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	112.2	34.2	0.2	27.9	164.4	208.8	21.3	2.3	87.3	118.6	118.6
Delay (s)	174.9	87.5	26.8	80.1	210.4	260.5	57.6	18.2	126.9	161.6	161.6
Level of Service	F	F	C	F	F	F	E	B	F	F	F
Approach Delay (s)	83.7										
Approach LOS	F										

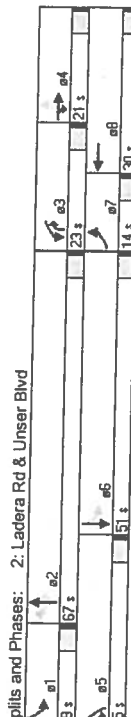
Intersection Summary	
HCM Average Control Delay	117.2
HCM Volume to Capacity ratio	1.37
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	131.5%
Analysis Period (min)	15
c Critical Lane Group	

2010 PM Peak BUILD Conditions
Existing Geometry
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Timings
2: Ladera Rd & Unser Blvd
Terry O. Brown, P.E.
9/8/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	190	272	322	591	385	572	1450	724	260	1062
Volume (vph)	190	272	322	591	385	572	1450	724	260	1062
Turn Type	pm+pt	4	4	5	3	8	5	2	3	6
Protected Phases	4	4	4	5	3	8	5	2	3	6
Detector Phases	7	4	4	5	3	8	5	2	3	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Total Split (s)	14.0	21.0	56.0	30.0	35.0	67.0	23.0	19.0	51.0	51.0
Total Split (%)	10.8%	16.2%	43.1%	17.7%	23.1%	26.9%	51.5%	17.7%	14.6%	39.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead-Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Eff Green (s)	29.0	18.0	53.0	20.0	27.0	83.0	64.0	87.0	64.0	48.0
Actuated g/C Ratio	0.22	0.14	0.41	0.15	0.21	0.64	0.49	0.67	0.49	0.37
v/c Ratio	1.00	1.15	0.30	1.21	0.92	1.23	0.88	0.71	1.00	1.14
Control Delay	100.7	150.4	24.7	159.0	61.2	156.6	37.2	16.2	94.0	110.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.7	150.4	24.7	159.0	61.2	156.6	37.2	16.2	94.0	110.4
LOS	F	F	C	F	E	F	D	B	F	F
Approach Delay	86.7	F	F	107.9	F	56.5	E	F	107.8	F
Approach LOS	F	F	F	F	F	E	E	F	F	F

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 83.4
Intersection Capacity Utilization 116.1%
Analysis Period (min) 15



2010 PM Peak BUILD Conditions
Existing Geometry w/City Improvements
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HCM Signalized Intersection Capacity Analysis
2: Ladera Rd & Unser Blvd
Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	1.00	1.00	0.88	0.97	0.95	1.00	0.95	1.00	0.85	1.00	0.95
Lane Util. Factor	0.95	1.00	1.00	0.85	1.00	0.94	1.00	1.00	0.85	1.00	0.96
Flt Protected	0.95	1.00	1.00	0.85	1.00	0.94	1.00	1.00	0.85	1.00	0.96
Satd. Flow (prot)	1752	1845	2760	3400	3303	1752	3505	1568	1752	3380	1752
Flt Permitted	0.22	1.00	1.00	0.95	1.00	0.08	1.00	1.00	0.08	1.00	0.08
Satd. Flow (perm)	410	1845	2760	3400	3303	145	3505	1568	154	3380	145
Volume (vph)	190	272	322	591	399	248	572	1450	724	260	1062
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.96	0.96
Adj. Flow (vph)	204	292	346	635	429	267	602	1526	762	271	1106
RTOR Reduction (vph)	0	0	16	0	74	0	0	0	30	0	23
Lane Group Flow (vph)	204	292	330	635	622	0	602	1526	732	271	1426
Turn Type	pm+pt	pm+pt	pt+ov	Prot	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt
Protected Phases	7	4	4	5	3	8	5	2	3	6	6
Permitted Phases	4	4	4	5	3	8	5	2	3	6	6
Actuated Green, G (s)	25.0	16.0	51.0	18.0	25.0	81.0	62.0	80.0	60.0	46.0	46.0
Effective Green, g (s)	29.0	18.0	53.0	20.0	27.0	83.0	64.0	84.0	64.0	48.0	48.0
Actuated g/C Ratio	0.22	0.14	0.41	0.15	0.21	0.64	0.49	0.65	0.49	0.37	0.37
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	205	255	1125	523	686	488	1726	1049	272	1248	1248
v/s Ratio Prot	0.08	c0.16	0.12	c0.19	0.19	c0.30	0.44	0.11	0.12	0.42	0.42
v/s Ratio Perm	1.00	1.15	0.29	1.21	0.91	c0.48	0.36	0.36	0.37	0.37	0.37
Uniform Delay, d1	47.4	56.0	25.9	55.0	50.3	123	88	0.70	1.00	1.14	1.14
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	61.1	101.2	0.1	113.0	15.5	121.9	7.0	2.0	53.2	74.3	74.3
Delay (s)	108.5	157.2	26.0	168.0	65.8	173.1	36.7	16.9	93.2	115.3	115.3
Level of Service	F	F	C	F	E	F	D	B	F	F	F
Approach Delay (s)	91.5	F	F	114.6	F	59.9	E	F	111.8	F	F
Approach LOS	F	F	F	F	F	F	E	F	F	F	F

Intersection Summary
HCM Average Control Delay 87.7 HCM Level of Service F
HCM Volume to Capacity ratio 1.21
Actuated Cycle Length (s) 130.0 Sum of lost time (s) 9.0
Intersection Capacity Utilization 116.1% ICU Level of Service H
Analysis Period (min) 15
c Critical Lane Group

2010 PM Peak BUILD Conditions
Existing Geometry w/City Improvements
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Timings

2: Ladera Rd & Unser Blvd

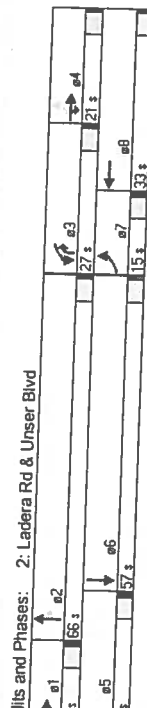
Terry O. Brown, P.E.

9/8/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	190	272	322	591	399	572	1450	724	260	1062
Volume (vph)										
Turn Type	pm+pt	7	4	4.5	3	8	5	2	3	1
Protected Phases										
Permitted Phases										
Detector Phases										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Total Split (s)	15.0	21.0	46.0	27.0	33.0	25.0	66.0	27.0	16.0	57.0
Total Split (%)	11.5%	16.2%	35.4%	20.8%	25.4%	19.2%	50.8%	20.8%	12.3%	43.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	29.0	17.0	43.0	29.0	23.0	63.7	90.7	13.3	54.0	
Actuated g/c Ratio	0.22	0.13	0.33	0.18	0.22	0.18	0.49	0.70	0.10	0.42
v/c Ratio	0.95	0.64	0.37	1.01	0.86	1.00	0.89	0.69	0.78	1.02
Control Delay	85.3	60.1	30.0	91.1	52.9	90.7	38.0	14.7	73.0	64.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.3	60.1	30.0	91.1	52.9	90.7	38.0	14.7	73.0	64.7
LOS	F	E	C	F	D	F	D	B	E	E
Approach Delay	53.9									
Approach LOS	D									

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 116 (89%), Referenced to phase 2.NBT and 6.SBT, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 55.6
 Intersection Capacity Utilization 99.0%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F



2010 PM Peak BUILD Conditions

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Mitigated Geometry

HCM Signalized Intersection Capacity Analysis

2: Ladera Rd & Unser Blvd

Terry O. Brown, P.E.

9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	190	272	322	591	399	572	1450	724	260	1062
Volume (vph)										
Turn Type	pm+pt	7	4	4.5	3	8	5	2	3	1
Protected Phases										
Permitted Phases										
Detector Phases										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Total Split (s)	15.0	21.0	46.0	27.0	33.0	25.0	66.0	27.0	16.0	57.0
Total Split (%)	11.5%	16.2%	35.4%	20.8%	25.4%	19.2%	50.8%	20.8%	12.3%	43.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	29.0	17.0	43.0	29.0	23.0	63.7	90.7	13.3	54.0	
Actuated g/c Ratio	0.22	0.13	0.33	0.18	0.22	0.18	0.49	0.70	0.10	0.42
v/c Ratio	0.95	0.64	0.37	1.01	0.86	1.00	0.89	0.69	0.78	1.02
Control Delay	85.3	60.1	30.0	91.1	52.9	90.7	38.0	14.7	73.0	64.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.3	60.1	30.0	91.1	52.9	90.7	38.0	14.7	73.0	64.7
LOS	F	E	C	F	D	F	D	B	E	E
Approach Delay	53.9									
Approach LOS	D									

Intersection Summary

HCM Average Control Delay 56.0 HCM Level of Service E
 HCM Volume to Capacity ratio 0.98
 Actuated Cycle Length (s) 130.0
 Intersection Capacity Utilization 99.0%
 Analysis Period (min) 15
 Critical Lane Group

2010 PM Peak BUILD Conditions

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Mitigated Geometry

Timings

3: Ouray Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

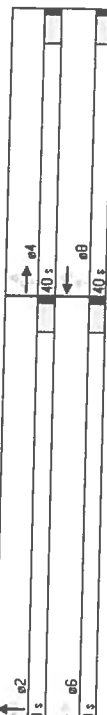
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	45	18	11	166	10	38	9	1135	22	42	1009	7
Volume (vph)	Perm	4	4	4	8	8	8	8	2	2	6	6
Turn Type	Perm	4	4	4	8	8	8	8	2	2	6	6
Protected Phases	4	4	4	4	8	8	8	8	2	2	6	6
Detector Phases	4	4	4	4	8	8	8	8	2	2	6	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
Actuated g/c Ratio	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.16	0.05	0.03	0.73	0.03	0.13	0.04	0.52	0.02	0.27	0.41	0.01
Control Delay	29.9	27.5	13.1	49.2	27.0	9.1	5.0	5.9	1.5	12.3	6.9	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	27.5	13.1	49.2	27.0	9.1	5.0	5.9	1.5	12.3	6.9	3.6
LOS	C	C	B	D	C	A	A	A	A	B	A	A
Approach Delay	26.8			41.0	D						7.1	A
Approach LOS	C			D							A	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 23 (23%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 10.5
 Intersection Capacity Utilization 57.4%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 3: Ouray Rd & Unser Blvd



HCM Signalized Intersection Capacity Analysis

3: Ouray Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.95	1.00	0.85	1.00	1.00	0.85	1.00	0.95	1.00	0.85	1.00	0.85
Fit Protected	1752	1845	1568	1752	1845	1568	1752	3505	1568	1752	3505	1568
Satd. Flow (prot)	0.75	1.00	1.00	0.75	1.00	1.00	0.75	1.00	1.00	0.75	1.00	1.00
Fit Permitted	1382	1845	1568	1374	1845	1568	1374	3505	1568	1374	3505	1568
Satd. Flow (perm)	45	18	11	166	10	38	9	1135	22	42	1009	7
Volume (vph)	0.93	0.93	0.93	0.75	0.75	0.75	0.86	0.86	0.86	0.86	0.98	0.98
Peak-hour factor, PHF	48	19	12	221	13	51	10	1320	26	43	1030	7
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	48	19	3	221	13	13	13	10	1320	19	43	1030
Lane Group Flow (vph)	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Turn Type	4	4	4	8	8	8	2	2	2	6	6	6
Protected Phases	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
Permitted Phases	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
Actuated Green, G (s)	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Effective Green, g (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Actuated g/c Ratio	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Clearance Time (s)	307	410	348	305	410	348	322	2517	1126	219	2517	1126
Vehicle Extension (s)	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Lane Grp Cap (vph)	0.16	0.05	0.01	0.72	0.03	0.04	0.03	0.52	0.02	0.20	0.41	0.00
v/s Ratio Prot	31.4	30.6	30.3	36.1	30.5	30.5	4.1	6.4	4.0	4.6	5.6	4.0
v/c Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay, d1	0.2	0.0	0.0	8.3	0.0	0.0	0.0	0.2	0.8	0.0	0.5	0.0
Progression Factor	31.6	30.6	30.3	44.3	30.5	30.5	3.3	5.2	2.4	6.6	6.1	4.0
Incremental Delay, d2	C	C	C	D	C	C	A	A	A	A	A	A
Delay (s)	31.2			41.2	D						6.1	A
Level of Service	C			D							A	
Approach Delay (s)	31.2			41.2	D						6.1	A
Approach LOS	C			D							A	

Intersection Summary

HCM Average Control Delay 9.9 HCM Level of Service A
 HCM Volume to Capacity ratio 0.57
 Actuated Cycle Length (s) 100.0 Sum of lost time (s) 6.0
 Intersection Capacity Utilization 57.4% ICU Level of Service B
 Analysis Period (min) 15
 Critical Lane Group

2010 AM Peak NOBUILD Conditions

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 Existing Geometry

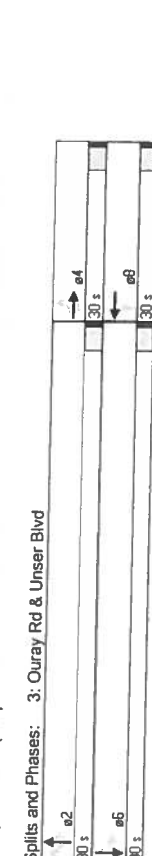
Timings

3: Ouray Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	23	12	6	115	24	46	25	1186	113	107	886	39
Volume (vph)	Perm	4	4	4	8	8	2	2	2	6	6	6
Turn Type	4	4	4	4	4	4	4	4	4	4	4	4
Protected Phases	4	4	4	4	4	4	4	4	4	4	4	4
Detector Phases	4	4	4	4	4	4	4	4	4	4	4	4
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
Actuated g/c Ratio	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
v/c Ratio	0.15	0.06	0.03	0.62	0.09	0.18	0.07	0.46	0.10	0.47	0.35	0.03
Control Delay	43.8	41.4	21.5	60.1	42.2	12.6	2.9	3.7	0.6	12.1	4.0	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	41.4	21.5	60.1	42.2	12.6	2.9	3.7	0.6	12.1	4.0	1.2
LOS	D	D	C	E	D	B	A	A	A	B	A	A
Approach Delay	39.9			45.9								
Approach LOS	D			D								

Intersection Summary
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 63 (53%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 7.7
 Intersection Capacity Utilization 61.8%
 Analysis Period (min) 15



Split and Phases: 3: Ouray Rd & Unser Blvd

HCM Signalized Intersection Capacity Analysis

3: Ouray Rd & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1845	1568	1752	1845	1568	1752	1845	1568	1752	1845	1568
Fit Permitted	0.74	1.00	1.00	0.75	1.00	1.00	0.75	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	1366	1845	1568	1378	1845	1568	1366	1845	1568	1378	1845	1568
Volume (vph)	23	12	6	115	24	46	25	1186	113	107	886	39
Peak-hour factor, PHF	0.75	0.75	0.75	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	31	16	8	126	26	51	27	1303	124	118	974	43
RTOR Reduction (vph)	0	0	7	0	0	43	0	25	0	0	0	9
Lane Group Flow (vph)	31	16	1	126	26	8	27	1303	99	118	974	34
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	4	4	4	8	8	8	2	2	2	6	6	6
Permitted Phases	4	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
Actuated Green, G (s)	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
Effective Green, g (s)	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Actuated g/c Ratio	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	203	274	233	204	274	233	204	274	233	204	274	233
Lane Grp Cap (vph)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
v/s Ratio Prot	0.02	0.06	0.01	0.62	0.09	0.03	0.07	0.46	0.08	0.43	0.35	0.02
v/c Ratio	0.15	0.06	0.01	0.62	0.09	0.03	0.07	0.46	0.08	0.43	0.35	0.02
Uniform Delay, d1	44.5	43.9	43.6	47.9	44.1	43.7	2.5	3.8	2.5	3.6	3.3	2.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.0	5.5	0.2	0.1	0.3	0.5	0.1	4.8	0.3	0.0
Delay (s)	44.9	44.0	43.6	53.4	44.3	43.8	2.1	3.4	1.8	8.4	3.6	2.5
Level of Service	D	D	D	D	D	D	A	A	A	A	A	A
Approach Delay (s)	44.4			49.8								
Approach LOS	D			D								

Intersection Summary
 HCM Average Control Delay 7.7 HCM Level of Service A
 HCM Volume to Capacity ratio 0.49
 Actuated Cycle Length (s) 120.0 Sum of lost time (s) 6.0
 Intersection Capacity Utilization 61.8% ICU Level of Service B
 Analysis Period (min) 15
 Critical Lane Group

2010 PM Peak BUILD Conditions

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Existing Geometry

Analysis of Intersection #4
Tierra Pintada Blvd. / Unser Blvd.

Timings

4: Tierra Pintada & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBT
Lane Configurations	127	4	228	14	1	4	29	658	16	12	944	25
Volume (vph)	Perm	4	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Turn Type	4	4	4	4	8	8	2	2	2	2	6	6
Protected Phases	4	4	4	4	8	8	2	2	2	2	6	6
Detector Phases	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Minimum Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Eff Green (s)	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
Act Eff Green Ratio	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.58	0.01	0.76	0.07	0.00	0.02	0.11	0.26	0.01	0.03	0.38	0.02
Control Delay	44.3	28.2	39.1	30.0	28.0	16.8	5.9	4.2	2.9	3.7	3.9	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	28.2	39.1	30.0	28.0	16.8	5.9	4.2	2.9	3.7	3.9	1.0
LOS	D	C	D	C	C	B	A	A	A	A	A	A
Approach Delay	40.8											
Approach LOS	D											

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 97 (97%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 11.6
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15

Splits and Phases: 4: Tierra Pintada & Unser Blvd



HCM Signalized Intersection Capacity Analysis

4: Tierra Pintada & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBT
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1845	1568	1752	1845	1568	1752	1845	1568	1752	1845	1568
Flt Permitted	0.76	1.00	1.00	0.75	1.00	1.00	0.76	1.00	1.00	0.76	1.00	1.00
Satd. Flow (perm)	1397	1845	1568	1392	1845	1568	1392	1845	1568	1392	1845	1568
Volume (vph)	127	4	228	14	1	4	29	658	16	12	944	25
Peak-hour factor, PHF	0.81	0.81	0.81	0.75	0.75	0.75	0.97	0.97	0.97	0.97	0.94	0.94
Adj. Flow (vph)	157	5	281	19	1	5	30	678	16	13	1004	27
RTOR Reduction (vph)	0	0	68	0	0	4	0	0	4	0	0	0
Lane Group Flow (vph)	157	5	213	19	1	1	30	678	12	13	1004	20
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	4	4	4	8	8	8	2	2	2	2	6	6
Actuated Green, G (s)	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
Effective Green, g (s)	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	270	356	303	269	356	303	354	2618	1171	519	2618	1171
v/s Ratio Prot	0.11											
v/s Ratio Perm	0.58	0.01	0.70	0.07	0.00	0.00	0.06	0.01	0.02	0.02	0.01	0.01
Uniform Delay, d1	36.7	32.7	37.7	33.0	32.6	32.6	3.4	4.0	3.2	3.3	4.5	0.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.86	1.14	0.70	0.67	0.46
Incremental Delay, d2	3.2	0.0	7.2	0.1	0.0	0.0	0.4	0.2	0.0	0.1	0.4	0.0
Delay (s)	39.8	32.7	44.9	33.1	32.6	32.6	3.6	3.6	3.7	2.4	3.4	1.5
Level of Service	D	C	D	C	C	C	A	A	A	A	A	A
Approach Delay (s)	43.0											
Approach LOS	D											

Intersection Summary

HCM Average Control Delay 11.6 HCM Level of Service B
 HCM Volume to Capacity ratio 0.45
 Actuated Cycle Length (s) 100.0 Sum of lost time (s) 6.0
 Intersection Capacity Utilization 54.4% ICU Level of Service A
 Analysis Period (min) 15
 Critical Lane Group c

2010 AM Peak NOBUILD Conditions

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2010 AM Peak NOBUILD Conditions

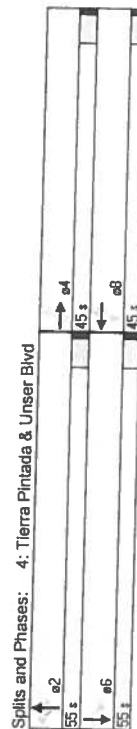
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Existing Geometry

Timings

4: Tierra Pintada & Unser Blvd Terry O. Brown, P.E. 9/8/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	131	19	228	106	12	28	29	686	130	49	944	25
Volume (vph)	Perm		Perm	Perm		Perm	Perm	Perm	Perm	Perm	Perm	Perm
Turn Type	4		4	4	8	8	2	2	2	2	6	6
Protected Phases	4		4	4	8	8	2	2	2	2	6	6
Permitted Phases	4		4	4	8	8	2	2	2	2	6	6
Detector Phases	4		4	4	8	8	2	2	2	2	6	6
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	45.0		45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Total Split (%)	45.0%		45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode												
Act Eff Green (s)	19.3		19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
Actuated g/C Ratio	0.19		0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.61		0.76	0.53	0.04	0.11	0.11	0.27	0.11	0.12	0.38	0.02
Control Delay	45.6		29.9	39.0	42.4	29.3	10.0	7.4	5.5	2.9	3.8	4.1
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.6		29.9	39.0	42.4	29.3	10.0	7.4	5.5	2.9	3.8	4.1
LOS	D		C	D	C	B	A	A	A	A	A	A
Approach Delay	40.8		35.1	35.1	35.1	35.1	35.1	35.1	35.1	35.1	35.1	35.1
Approach LOS	D		D	D	D	D	D	D	D	D	D	D
Intersection Summary												
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 15 (15%), Referenced to phase 2: NBTL and 6: SBT, Start of Green												
Natural Cycle: 45												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.76												
Intersection Signal Delay: 13.3												
Intersection Capacity Utilization 56.1%												
Analysis Period (min) 15												



2010 AM Peak BUILD Conditions

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Existing Geometry

HCM Signalized Intersection Capacity Analysis

4: Tierra Pintada & Unser Blvd Terry O. Brown, P.E. 9/8/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1845	1568	1752	1845	1568	1752	1845	1568	1752	1845	1568
Flt Permitted	0.75	1.00	1.00	0.74	1.00	1.00	0.75	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	1378	1845	1568	1369	1845	1568	1378	1845	1568	1369	1845	1568
Volume (vph)	131	19	228	106	12	28	29	686	130	49	944	25
Peak-hour factor, PHF	0.81	0.81	0.81	0.75	0.75	0.75	0.97	0.97	0.97	0.94	0.94	0.94
Adj. Flow (vph)	162	23	281	141	16	37	30	707	134	52	1004	27
RTOR Reduction (vph)	0	0	68	0	0	30	0	0	34	0	0	7
Lane Group Flow (vph)	162	23	213	141	16	7	30	707	100	52	1004	20
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	4		4	8	8	8	2	2	2	6	6	6
Permitted Phases	4		4	8	8	8	2	2	2	6	6	6
Actuated Green, G (s)	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
Effective Green, g (s)	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	266	356	303	264	356	303	354	2618	1171	502	2618	1171
v/s Ratio Prot	0.01		0.01	0.01	0.01	0.01	0.06	0.06	0.06	0.08	0.08	0.01
v/s Ratio Perm	0.12		0.14	0.10	0.04	0.02	0.08	0.08	0.08	0.10	0.10	0.01
v/c Ratio	0.61		0.70	0.53	0.04	0.02	0.08	0.08	0.08	0.10	0.10	0.01
Uniform Delay, d1	36.9		37.7	36.3	32.8	32.7	3.4	3.4	3.4	3.5	3.5	3.2
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.22	1.12	1.22	1.22	1.22	1.00
Incremental Delay, d2	3.9		0.1	7.2	2.1	0.1	0.0	0.2	0.1	0.4	0.4	0.0
Delay (s)	40.8		38.1	43.5	38.4	32.9	3.4	3.6	3.5	3.9	3.9	3.2
Level of Service	D		C	D	D	C	A	A	A	A	A	A
Approach Delay (s)	42.9		42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9
Approach LOS	D		D	D	D	D	D	D	D	D	D	D
Intersection Summary												
HCM Average Control Delay	13.6		13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
HCM Volume to Capacity ratio	0.45		0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Actuated Cycle Length (s)	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Intersection Capacity Utilization	56.1%		56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%
Analysis Period (min)	15		15	15	15	15	15	15	15	15	15	15
C Critical Lane Group												


















2010 AM Peak BUILD Conditions

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Existing Geometry

HCM Unsignalized Intersection Capacity Analysis 5: I-40 S. ramp & Unser Blvd

Terry O. Brown, P.E.
9/8/2007


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	94	0	0	0	0	0	0	787	0	0	1331	0
Peak Hour Factor	0.75	0.75	0.75	0.85	0.85	0.85	0.80	0.80	0.80	0.88	0.88	0.88
Hourly flow rate (vph)	125	0	0	0	0	0	0	984	0	0	1512	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			None							
Median storage veh		1										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2004	2496	756	1740	2496	492	1512			984		
vC1, stage 1 conf vol	1512	1512										
vC2, stage 2 conf vol	492	984										
vCu, unblocked vol	2004	2496	756	1740	2496	492	1512			984		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6										
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	100	100	100	100	100			100		
cM capacity (veh/h)	101	117	348	55	28	520	433			692		
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	125	492	492	756	756							
Volume Left	125	0	0	0	0							
Volume Right	0	0	0	0	0							
cSH	101	1700	1700	1700	1700							
Volume to Capacity	1.24	0.29	0.29	0.44	0.44							
Queue Length 95th (ft)	214	0	0	0	0							
Control Delay (s)	247.0	0.0	0.0	0.0	0.0							
Lane LOS	F											
Approach Delay (s)	247.0	0.0		0.0								
Approach LOS	F											
Intersection Summary												
Average Delay	11.8											
Intersection Capacity Utilization	69.9%			ICU Level of Service					C			
Analysis Period (min)	15											

2010 AM Peak NOBUILD Conditions

Existing Geometry
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HCM Unsignalized Intersection Capacity Analysis
5: I-40 S. ramp & Unser Blvd

Terry O. Brown, P.E.
9/8/2007


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	94	0	0	0	0	0	0	813	0	0	1348	0
Peak Hour Factor	0.75	0.75	0.75	0.85	0.85	0.85	0.80	0.80	0.80	0.88	0.88	0.88
Hourly flow rate (vph)	125	0	0	0	0	0	0	1016	0	0	1532	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			None							
Median storage veh		1										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2040	2548	766	1782	2548	508	1532			1016		
vC1, stage 1 conf vol	1532	1532										
vC2, stage 2 conf vol	508	1016										
vCu, unblocked vol	2040	2548	766	1782	2548	508	1532			1016		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6										
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	100	100	100	100	100			100		
cM capacity (veh/h)	98	113	343	51	26	507	426			672		
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	125	508	508	766	766							
Volume Left	125	0	0	0	0							
Volume Right	0	0	0	0	0							
cSH	98	1700	1700	1700	1700							
Volume to Capacity	1.28	0.30	0.30	0.45	0.45							
Queue Length 95th (ft)	220	0	0	0	0							
Control Delay (s)	264.0	0.0	0.0	0.0	0.0							
Lane LOS	F											
Approach Delay (s)	264.0	0.0		0.0								
Approach LOS	F											
Intersection Summary												
Average Delay		12.4										
Intersection Capacity Utilization		70.6%	ICU Level of Service									
Analysis Period (min)		15	C									

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HCM Unsignalized Intersection Capacity Analysis
5: I-40 S. ramp & Unser Blvd

Terry O. Brown, P.E.
9/8/2007


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	123	0	0	0	0	0	0	1316	0	0	1885	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.92	0.92	0.92	0.97	0.97	0.97
Hourly flow rate (vph)	137	0	0	0	0	0	0	1430	0	0	1943	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			None							
Median storage (veh)		1										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2659	3374	972	2402	3374	715	1943			1430		
vC1, stage 1 conf vol	1943	1943										
vC2, stage 2 conf vol	715	1430										
vCu, unblocked vol	2659	3374	972	2402	3374	715	1943			1430		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6										
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	100	100	100	100	100			100		
cM capacity (veh/h)	54	67	250	17	7	371	294			466		
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	137	715	715	972	972							
Volume Left	137	0	0	0	0							
Volume Right	0	0	0	0	0							
cSH	54	1700	1700	1700	1700							
Volume to Capacity	2.54	0.42	0.42	0.57	0.57							
Queue Length 95th (ft)	350	0	0	0	0							
Control Delay (s)	859.9	0.0	0.0	0.0	0.0							
Lane LOS	F											
Approach Delay (s)	859.9	0.0		0.0								
Approach LOS	F											
Intersection Summary												
Average Delay	33.5											
Intersection Capacity Utilization	68.3%		ICU Level of Service		C							
Analysis Period (min)	15											

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HCM Unsignalized Intersection Capacity Analysis 5: I-40 S. ramp & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	124	0	0	0	0	0	0	1361	0	0	1937	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.92	0.92	0.92	0.97	0.97	0.97
Hourly flow rate (vph)	138	0	0	0	0	0	0	1479	0	0	1997	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			None							
Median storage veh		1										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2737	3476	998	2478	3476	740	1997			1479		
vC1, stage 1 conf vol	1997	1997										
vC2, stage 2 conf vol	740	1479										
vCu, unblocked vol	2737	3476	998	2478	3476	740	1997			1479		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)	6.6	5.6										
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	100	100	100	100	100			100		
cM capacity (veh/h)	50	63	240	15	6	357	280			446		
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	138	740	740	998	998							
Volume Left	138	0	0	0	0							
Volume Right	0	0	0	0	0							
cSH	50	1700	1700	1700	1700							
Volume to Capacity	2.76	0.44	0.44	0.59	0.59							
Queue Length 95th (ft)	363	0	0	0	0							
Control Delay (s)	970.2	0.0	0.0	0.0	0.0							
Lane LOS	F											
Approach Delay (s)	970.2	0.0		0.0								
Approach LOS	F											
Intersection Summary												
Average Delay	37.0											
Intersection Capacity Utilization	69.6%											
Analysis Period (min)	15											
									ICU Level of Service			
									C			

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Analysis of Intersection #6
Vista Oriente St. / Driveway "A"

HCM Unsignalized Intersection Capacity Analysis
6: Vista Oriente & Vista Oeste

Terry O. Brown, P.E.
9/8/2007

















	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖			↗	↖	↗
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	14	14	1	9	9	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.85	0.85
Hourly flow rate (vph)	19	19	1	12	11	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)	399					
pX, platoon unblocked						
vC, conflicting volume			37		43	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			37		43	28
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1567		965	1044
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	37	13	12			
Volume Left	0	1	11			
Volume Right	19	0	1			
cSH	1700	1567	972			
Volume to Capacity	0.02	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.7	8.7			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.7	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization	13.3%			ICU Level of Service	A	
Analysis Period (min)	15					

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HCM Unsignalized Intersection Capacity Analysis
6: Vista Oriente & 'A'

Terry O. Brown, P.E.
9/8/2007

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	127	52	14	1	34	2	9	1	1	1	1	104
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	169	69	19	1	45	3	11	1	1	1	1	122
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)		378										
pX, platoon unblocked												
vC, conflicting volume	48			88			590	468	79	468	476	47
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	48			88			590	468	79	468	476	47
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			100			97	100	100	100	100	88
cM capacity (veh/h)	1553			1501			336	437	979	459	433	1020
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	257	49	13	125								
Volume Left	169	1	11	1								
Volume Right	19	3	1	122								
cSH	1553	1501	366	996								
Volume to Capacity	0.11	0.00	0.04	0.13								
Queue Length 95th (ft)	9	0	3	11								
Control Delay (s)	5.3	0.2	15.2	9.1								
Lane LOS	A	A	C	A								
Approach Delay (s)	5.3	0.2	15.2	9.1								
Approach LOS			C	A								
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utilization			30.9%		ICU Level of Service				A			
Analysis Period (min)			15									

2010 AM Peak BUILD Conditions

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HCM Unsignalized Intersection Capacity Analysis
6: Vista Oriente & Vista Oeste

Terry O. Brown, P.E.
9/9/2007

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↗	↖
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	26	26	1	45	45	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.85	0.85
Hourly flow rate (vph)	35	35	1	60	53	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					Raised	
Median storage veh					1	
Upstream signal (ft)	378					
pX, platoon unblocked						
vC, conflicting volume			69		97	35
vC1, stage 1 conf vol					35	
vC2, stage 2 conf vol					63	
vCu, unblocked vol			69		97	35
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		94	100
cM capacity (veh/h)			1525		852	1035
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	35	35	61	54		
Volume Left	0	0	1	53		
Volume Right	0	35	0	1		
cSH	1700	1700	1525	855		
Volume to Capacity	0.02	0.02	0.00	0.06		
Queue Length 95th (ft)	0	0	0	5		
Control Delay (s)	0.0	0.0	0.2	9.5		
Lane LOS			A	A		
Approach Delay (s)	0.0		0.2	9.5		
Approach LOS				A		
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			13.3%	ICU Level of Service		A
Analysis Period (min)			15			

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HCM Unsignalized Intersection Capacity Analysis

6: Vista Oriente & 'A'

Terry O. Brown, P.E.
9/9/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱		↕			↕	↱
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	227	94	26	1	123	3	45	1	1	1	1	327
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	267	111	31	1	145	4	53	1	1	1	1	385
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)								Raised		Raised		
Upstream signal (ft)		378						1		1		
pX, platoon unblocked												
vC, conflicting volume	148			141			792	795	111	795	824	146
vC1, stage 1 conf vol							645	645		149	149	
vC2, stage 2 conf vol							148	151		646	675	
vCu, unblocked vol	148			141			792	795	111	795	824	146
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	81			100			71	100	100	100	100	57
cM capacity (veh/h)	1427			1436			185	310	940	322	314	898
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2				
Volume Total	267	111	31	1	148	55	2	385				
Volume Left	267	0	0	1	0	53	1	0				
Volume Right	0	0	31	0	4	1	0	385				
cSH	1427	1700	1700	1436	1700	190	318	898				
Volume to Capacity	0.19	0.07	0.02	0.00	0.09	0.29	0.01	0.43				
Queue Length 95th (ft)	17	0	0	0	0	29	1	54				
Control Delay (s)	8.1	0.0	0.0	7.5	0.0	31.6	16.4	12.0				
Lane LOS	A			A		D	C	B				
Approach Delay (s)	5.3			0.1		31.6	12.0					
Approach LOS						D	B					
Intersection Summary												
Average Delay		8.6										
Intersection Capacity Utilization		40.2%				ICU Level of Service			A			
Analysis Period (min)		15										










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Analysis of Intersection #7
Vista Oriente St. / Driveway "B"

HCM Unsignalized Intersection Capacity Analysis
7: Vista Oriente & 'B'

Terry O. Brown, P.E.
9/8/2007










						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	38	15	11	1	1	25
Peak Hour Factor	0.75	0.75	0.75	0.75	0.85	0.85
Hourly flow rate (vph)	51	20	15	1	1	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)		645				
pX, platoon unblocked						
vC, conflicting volume	16				137	15
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16				137	15
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	97
cM capacity (veh/h)	1595				827	1061
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	71	16	31			
Volume Left	51	0	1			
Volume Right	0	1	29			
cSH	1595	1700	1050			
Volume to Capacity	0.03	0.01	0.03			
Queue Length 95th (ft)	2	0	2			
Control Delay (s)	5.3	0.0	8.5			
Lane LOS	A		A			
Approach Delay (s)	5.3	0.0	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay		5.4				
Intersection Capacity Utilization		19.6%	ICU Level of Service	A		
Analysis Period (min)		15				

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HCM Unsignalized Intersection Capacity Analysis 7: Vista Oriente & 'B'

Terry O. Brown, P.E.
9/8/2007

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	68	30	48	1	1	78
Peak Hour Factor	0.75	0.75	0.75	0.75	0.85	0.85
Hourly flow rate (vph)	91	40	64	1	1	92
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)		645				
pX, platoon unblocked						
vC, conflicting volume	65				286	65
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	65				286	65
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	91
cM capacity (veh/h)	1530				661	997
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	131	65	93			
Volume Left	91	0	1			
Volume Right	0	1	92			
cSH	1530	1700	990			
Volume to Capacity	0.06	0.04	0.09			
Queue Length 95th (ft)	5	0	8			
Control Delay (s)	5.3	0.0	9.0			
Lane LOS	A		A			
Approach Delay (s)	5.3	0.0	9.0			
Approach LOS			A			
Intersection Summary						
Average Delay		5.3				
Intersection Capacity Utilization		23.6%	ICU Level of Service	A		
Analysis Period (min)		15				

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Analysis of Intersection #8

Driveway "C" / Unser Blvd.

HCM Unsignalized Intersection Capacity Analysis
8: 'C' & Unser Blvd

Terry O. Brown, P.E.
9/8/2007

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑	↑		↑↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0	830	32	0	1018
Peak Hour Factor	0.85	0.85	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	883	34	0	1083
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised					
Median storage veh	1					
Upstream signal (ft)			607			
pX, platoon unblocked	0.96	0.96			0.96	
vC, conflicting volume	1424	441			917	
vC1, stage 1 conf vol	883					
vC2, stage 2 conf vol	541					
vCu, unblocked vol	1400	376			872	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	254	594			732	
Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	
Volume Total	441	441	34	541	541	
Volume Left	0	0	0	0	0	
Volume Right	0	0	34	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.26	0.26	0.02	0.32	0.32	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization		31.5%		ICU Level of Service		A
Analysis Period (min)		15				

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**Table 17.B-2
Criteria For Deceleration Lanes On
URBAN MULTI-LANE HIGHWAYS**

Turning Volume ¹ (vph)	LEFT-TURN DECELERATION LANE			RIGHT-TURN DECELERATION LANE		
	Minimum Volume in Adjacent Through Lane (vphpl) ²			Minimum Volume in Adjacent Through Lane (vphpl) ²		
	≤30 mph	35 to 40 mph	45 to 55 mph	≤30 mph	35 to 40 mph	45 to 55 mph
<5	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
5	Not Required	490	420	1,200	730	450
10	420	370	300	820	490	320
15	360	290	220	600	350	240
20	310	230	160	460	260	180
25	270	190	130	360	230	150
30	240	160	110	290	200	130
35	210	130	100	260	180	120
40	180	120	Required	240	170	110
45	160	110	Required	220	160	Required
50	140	Required	Required	200	Required	Required
55	120	Required	Required	190	Required	Required
≥56	Required	Required	Required	Required	Required	Required
	Left-turn Decelerataion Lanes are Required on Urban Multi-lane Highways for the following Left-turn Volumes: <ul style="list-style-type: none">• ≤30 mph : 56 vph or more• 35 to 40 mph : 46 vph or more• 45 to 55 mph : 36 vph or more			Right-turn Decelerataion Lanes are Required on Urban Multi-lane Highways for the following Right-turn Volumes: <ul style="list-style-type: none">• ≤30 mph : 56 vph or more• 35 to 40 mph : 46 vph or more• 45 to 55 mph : 41 vph or more		

Notes:

1. Use linear interpolation for turning volumes between 5 and 55 vph.
2. The volume in the adjacent through lane includes through vehicles and turning vehicles.

Table 18.K-1
Deceleration and Acceleration Lengths (feet)

Table 18.K-1 Deceleration and Acceleration Lengths (feet)											
Speed Change Lane Condition	Posted Speed (mph)										
	25	30	35	40	45	50	55	60	65	70	
<u>Deceleration Distance</u>											
Stop Condition	150	200	250	325	400	475	550	650	725	850	
Slow to 15 MPH	130	175	230	300	370	450	525	620	700	820	
<u>Deceleration Taper</u>											
Length for 12-foot Lane	50	75	100	125	150	175	200	225	250	250	
Straight Line Ratios (L:W)	4:1	6:1	8:1	10.5:1	12.5:1	14.5:1	16.5:1	18.5:1	21:1	21:1	
<u>Acceleration Lane Length</u>											
<u>Acceleration Taper</u>	N/A	190	270	380	550	760	960	1,170	1,380	1,590	
Length of 12-foot Lane											
Straight Line Ratios (L:W)	N/A	100	120	150	170	180	230	270	300	300	
	N/A	8:1	10:1	12.5:1	14:1	15:1	19:1	22.5:1	25:1	25:1	

Traffic Count Data Sheet

Year Counts Taken: 2007

E-W Street I-40 N. ramp
N-S Street: Unser BlvdSpeed Limit (I-40 N. ramp)= 25 MPH
Speed Limit (Unser Blvd)= 45 MPH
Date of Count: 5/22/07

Begin Time	End Time	Eastbound (I-40 N. ramp)			Westbound (I-40 N. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	0	0	0	87	3	38	13	165	0	0	496	19
7:15 AM	7:30 AM	0	0	0	83	0	35	6	175	0	0	498	13
7:30 AM	7:45 AM	0	0	0	93	0	53	3	180	0	0	424	25
7:45 AM	8:00 AM	0	0	0	80	0	62	2	167	0	0	357	11
8:00 AM	8:15 AM	0	0	0	58	0	54	2	134	0	0	356	13
8:15 AM	8:30 AM	0	0	0	74	0	67	4	156	0	0	319	5
8:30 AM	8:45 AM	0	0	0	77	0	64	2	130	0	0	298	9
8:45 AM	9:00 AM	0	0	0	78	0	47	8	92	0	0	264	6
AM Peak Hour Volumes		0	0	0	343	3	188	24	687	0	0	1775	68
% of Total Traffic		0.0%	0.0%	0.0%	11.1%	0.1%	6.1%	0.8%	22.2%	0.0%	0.0%	57.5%	2.2%
% Directional						17.3%			23.0%			59.7%	
AM Peak Hour Factor						0.91			0.97			0.89	

Begin Time	End Time	Eastbound (I-40 N. ramp)			Westbound (I-40 N. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	0	0	0	158	3	137	4	178	0	0	276	13
4:15 PM	4:30 PM	0	0	0	177	0	159	4	145	0	0	232	10
4:30 PM	4:45 PM	0	0	0	184	4	143	6	146	0	0	207	16
4:45 PM	5:00 PM	0	0	0	157	0	193	44	166	0	0	229	18
5:00 PM	5:15 PM	0	0	0	153	0	217	6	210	0	0	219	20
5:15 PM	5:30 PM	0	0	0	145	0	190	8	193	0	0	208	14
5:30 PM	5:45 PM	0	0	0	168	0	190	3	148	0	0	232	15
5:45 PM	6:00 PM	0	0	0	160	0	174	7	174	0	0	244	21
PM Peak Hour Volumes		0	0	0	626	0	771	24	725	0	0	903	70
% of Total Traffic		0.0%	0.0%	0.0%	20.1%	0.0%	24.7%	0.8%	23.2%	0.0%	0.0%	29.0%	2.2%
% Directional						44.8%			24.0%			31.2%	
PM Peak Hour Factor						0.94			0.87			0.92	

Turning Movement Count Data

Date: 6/12/2007
E-W Street: Ladera Dr

Day: Tuesday
N-S Street: Unser Blvd

AM Period

Time	Eastbound					Westbound					Northbound					Southbound					Sum	Hourly Total
	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum		
7:00-7:15	46	52	88	3	186	68	16	10	0	94	10	88	42	2	140	9	237	17	1	263	683	2967
7:15-7:30	44	66	91	1	201	75	15	6	1	96	6	104	49	2	159	10	263	11	2	284	740	
7:30-7:45	44	77	106	0	227	76	43	9	0	128	18	120	69	1	207	17	227	15	0	259	821	
7:45-8:00	41	56	80	2	177	98	31	19	1	148	14	117	64	4	195	9	179	15	0	203	723	
8:00-8:15	26	35	80	1	141	61	16	27	1	104	17	109	49	4	175	22	198	10	0	230	650	
8:15-8:30	32	49	80	1	161	86	14	8	1	108	17	100	55	3	172	22	179	12	2	213	654	
8:30-8:45	33	38	65	2	136	61	19	6	1	86	17	79	46	1	142	11	177	13	5	201	565	
8:45-9:00	28	31	63	2	122	45	23	10	1	78	17	76	33	3	126	13	149	14	4	176	502	
9:00-9:15	25	24	37	2	88	42	19	7	1	68	14	72	28	1	115	14	128	17	2	159	430	
9:15-9:30	21	31	37	0	89	41	15	5	0	61	19	71	36	3	129	8	105	14	2	127	406	
9:30-9:45	26	38	31	2	97	40	26	9	3	75	16	88	44	3	151	12	126	17	7	155	478	1816
9:45-10:00	29	62	30	1	122	47	19	9	1	75	18	72	38	1	128	14	100	17	0	131	456	1770
Peak Hour	175	251	365	6	791	317	105	44	2	468	48	429	224	9	701	45	906	58	3	1009	2967	Peak
PHF	0.95	0.81	0.86		0.87	0.81	0.61	0.58		0.79	0.67	0.89	0.81		0.85	0.66	0.86	0.85		0.89	0.90	7:00
Truck %				1%					0%					1%					0%		0.90	8:00

Mid-Day Period

Time	Eastbound					Westbound					Northbound					Southbound					Sum	Hourly Total
	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum		
11:00-11:15	26	30	32	0	88	43	19	12	0	74	28	80	41	3	149	15	75	16	2	106	417	1692
11:15-11:30	29	24	29	1	82	41	27	16	3	84	34	73	47	3	154	14	86	14	2	114	434	
11:30-11:45	22	32	29	0	83	38	22	8	1	68	18	74	49	1	141	21	76	18	0	115	407	
11:45-12:00	17	38	24	0	79	46	27	6	2	79	14	71	53	2	138	16	103	19	0	138	434	
12:00-12:15	22	26	15	0	63	37	34	8	2	79	53	97	62	2	212	22	98	16	2	136	490	
12:15-12:30	17	31	37	0	85	48	43	10	0	101	31	98	58	4	187	13	99	21	1	133	506	
12:30-12:45	25	28	31	0	84	39	40	12	0	91	30	81	48	3	159	8	98	18	2	124	458	
12:45-1:00	27	29	32	0	88	50	33	7	0	90	31	83	42	2	156	15	98	20	5	133	467	
1:00-1:15	26	26	17	1	69	46	26	18	0	90	28	95	46	1	169	16	80	17	2	113	441	
1:15-1:30	20	38	24	0	82	53	29	7	1	89	31	92	46	4	169	16	100	15	0	131	471	
1:30-1:45	18	39	26	0	83	30	29	5	0	64	27	69	58	0	154	17	91	19	3	127	428	1807
1:45-2:00	15	32	16	1	63	58	25	3	1	86	24	76	71	1	171	16	90	21	0	127	447	1787
Peak Hour	91	114	115	0	320	174	150	37	2	361	145	359	210	11	714	58	393	75	10	526	1921	Peak
PHF	0.84	0.92	0.78		0.91	0.87	0.87	0.77		0.89	0.68	0.92	0.85		0.84	0.66	0.99	0.89		0.97	0.95	12:00
Truck %				0%					1%					2%					2%		0.97	1:00

PM Period

Time	Eastbound					Westbound					Northbound					Southbound					Sum	Hourly Total
	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum		
3:00-3:15	27	21	32	0	80	49	36	12	1	97	38	116	60	1	214	10	97	30	1	137	528	2509
3:15-3:30	29	24	28	0	81	43	42	12	3	97	43	123	59	0	225	16	117	32	0	165	568	
3:30-3:45	29	47	33	0	109	57	44	16	1	117	35	174	99	1	308	16	160	22	0	198	732	
3:45-4:00	21	26	17	0	64	50	45	22	0	117	64	154	82	1	300	14	151	35	0	200	681	
4:00-4:15	29	38	22	0	89	53	36	21	3	110	56	180	104	2	340	36	145	41	0	222	761	
4:15-4:30	20	42	16	0	78	59	62	21	2	142	59	172	67	1	298	20	144	50	0	214	732	
4:30-4:45	26	44	32	0	102	61	56	16	1	133	70	209	86	0	365	21	144	36	3	201	801	
4:45-5:00	33	45	31	1	109	56	58	16	0	130	65	213	85	4	363	13	128	52	0	193	795	
5:00-5:15	32	36	34	0	102	78	58	19	0	155	73	238	89	3	400	33	149	33	0	215	872	
5:15-5:30	36	52	33	0	121	83	64	29	1	176	66	215	102	1	383	22	131	54	0	207	887	
5:30-5:45	34	50	39	1	123	53	75	27	0	155	68	222	103	3	393	17	124	50	0	191	862	3416
5:45-6:00	38	44	32	0	114	67	67	32	1	166	81	185	78	0	344	22	143	47	0	212	836	3457
Peak Hour	140	182	138	1	460	281	264	107	2	652	288	860	372	7	1520	94	547	184	0	825	3457	Peak
PHF	0.92	0.88	0.88		0.93	0.85	0.88	0.84		0.93	0.89	0.90	0.90		0.95	0.71	0.92	0.85		0.98	0.97	5:00
Truck %				0%					0%					0%					0%		0.98	6:00

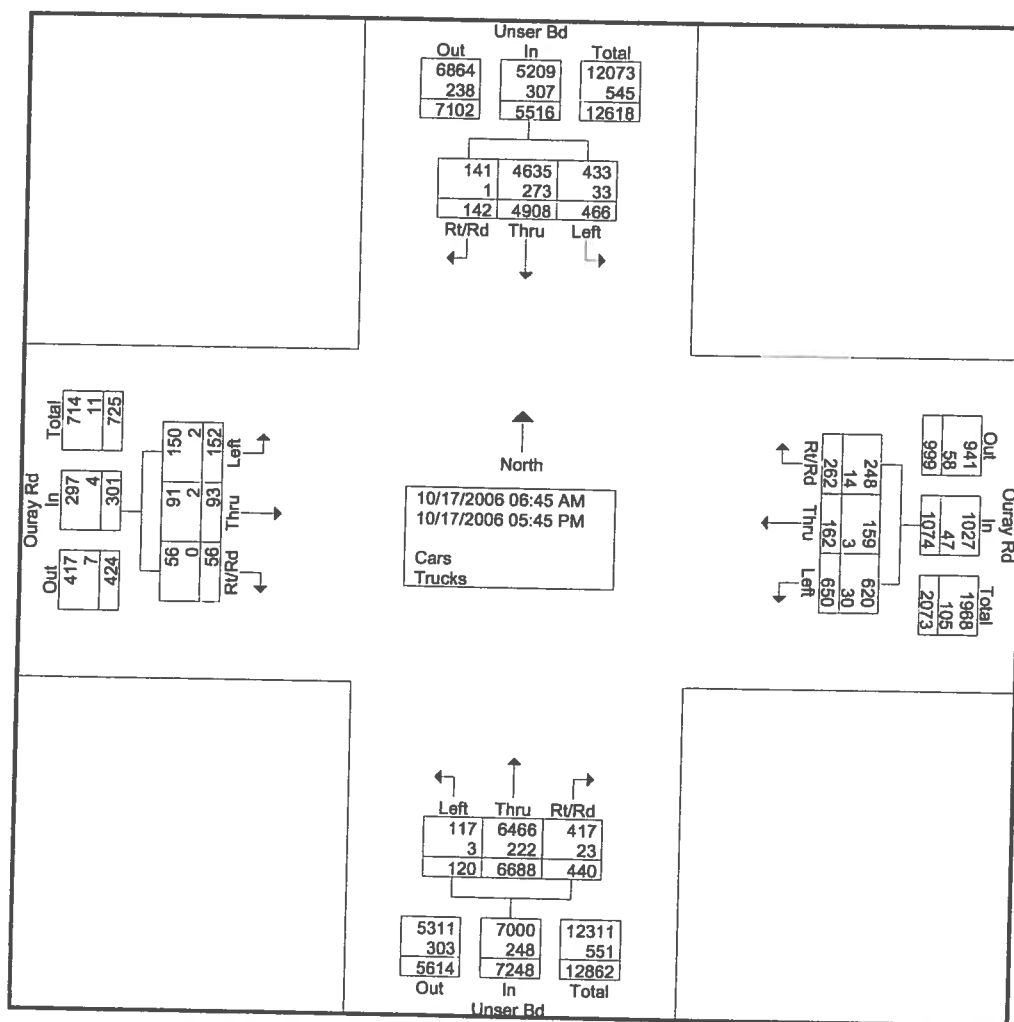
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File Name : Ouray Rd and Unser B
Site Code : 00025702
Start Date : 10/17/2006
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Groups Printed- Cars - Trucks

Start Time	Unser Bd From North				Ouray Rd From East				Unser Bd From South				Ouray Rd From West				Int. Total
	Right	Rt/Rd	Thru	Left	Right	Rt/Rd	Thru	Left	Right	Rt/Rd	Thru	Left	Right	Rt/Rd	Thru	Left	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
05:00 PM	5	0	195	16	7	4	8	13	22	1	309	10	0	1	5	7	603
05:15 PM	8	1	161	26	2	3	3	17	26	0	265	7	0	1	3	4	527
05:30 PM	4	0	200	32	3	3	11	13	14	0	205	5	1	1	6	3	501
05:45 PM	9	1	167	16	4	2	10	17	26	0	256	10	0	0	6	3	527
Total	26	2	723	90	16	12	32	60	88	1	1035	32	1	3	20	17	2158
Grand Total	137	5	4908	466	122	140	162	650	420	20	6688	120	32	24	93	152	14139
Apprch %	2.5	0.1	89	8.4	11.4	13	15.1	60.5	5.8	0.3	92.3	1.7	10.6	8	30.9	50.5	
Total %	1	0	34.7	3.3	0.9	1	1.1	4.6	3	0.1	47.3	0.8	0.2	0.2	0.7	1.1	
Cars	136	5	4635	433	115	133	159	620	399	18	6466	117	32	24	91	150	13533
% Cars	99.3	100	94.4	92.9	94.3	95	98.1	95.4	95	90	96.7	97.5	100	100	97.8	98.7	95.7
Trucks	1	0	273	33	7	7	3	30	21	2	222	3	0	0	2	2	606
% Trucks	0.7	0	5.6	7.1	5.7	5	1.9	4.6	5	10	3.3	2.5	0	0	2.2	1.3	4.3

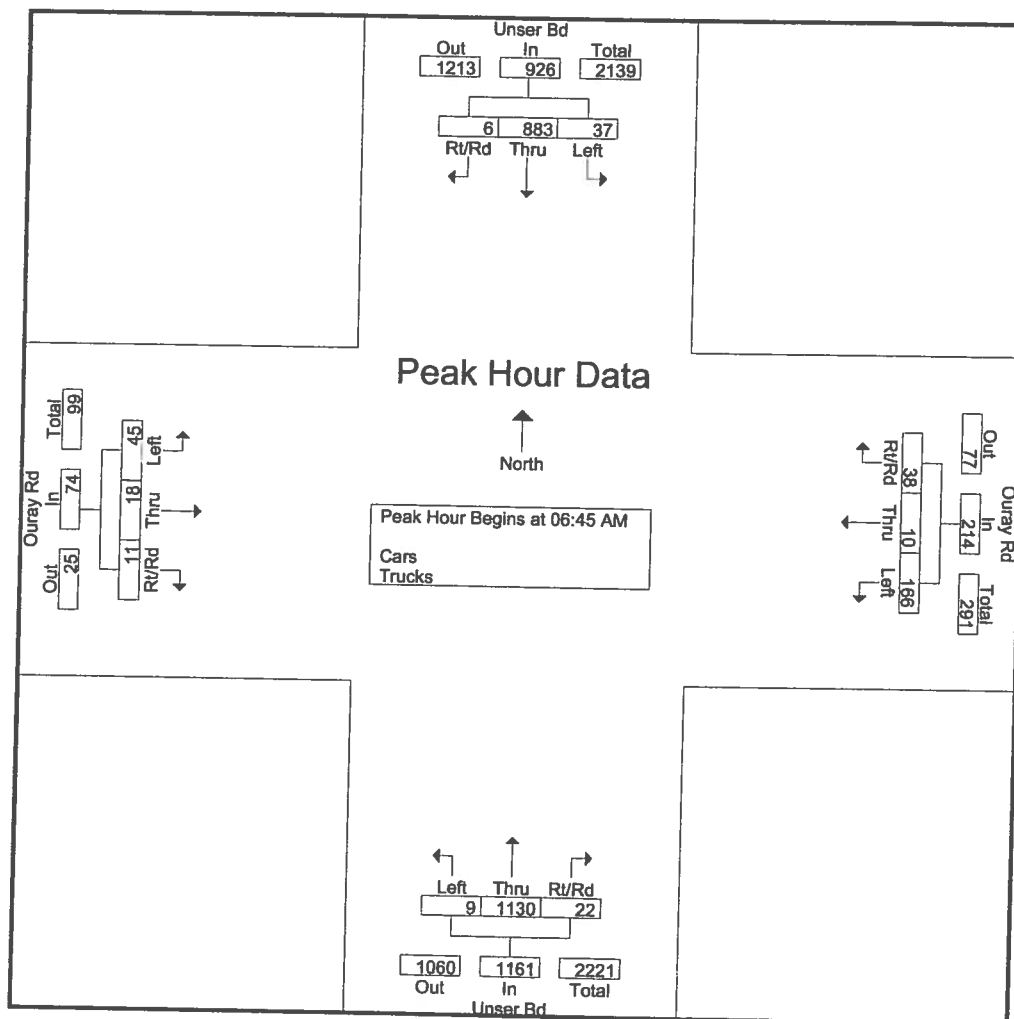


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Site Code : 00025702
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	Unser Bd From North					Ouray Rd From East					Unser Bd From South					Ouray Rd From West					
Start Time	Right	Rt/Rd	Thru	Left	App. Total	Right	Rt/Rd	Thru	Left	App. Total	Right	Rt/Rd	Thru	Left	App. Total	Right	Rt/Rd	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45 AM																					
06:45 AM	2	0	229	6	237	9	5	3	58	75	4	0	213	1	218	4	0	2	12	18	548
07:00 AM	1	0	220	15	236	4	5	2	41	52	3	0	281	3	287	0	1	8	9	18	593
07:15 AM	0	0	222	5	227	2	3	1	39	45	4	1	313	1	319	3	1	3	13	20	611
07:30 AM	3	0	212	11	226	5	5	4	28	42	8	2	323	4	337	2	0	5	11	18	623
Total Volume	6	0	883	37	926	20	18	10	166	214	19	3	1130	9	1161	9	2	18	45	74	2375
% App. Total	0.6	0	95.4	4		9.3	8.4	4.7	77.6		1.6	0.3	97.3	0.8		12.2	2.7	24.3	60.8		
PHF	.500	.000	.964	.617	.977	.556	.900	.625	.716	.713	.594	.375	.875	.563	.861	.563	.500	.563	.865	.925	.953

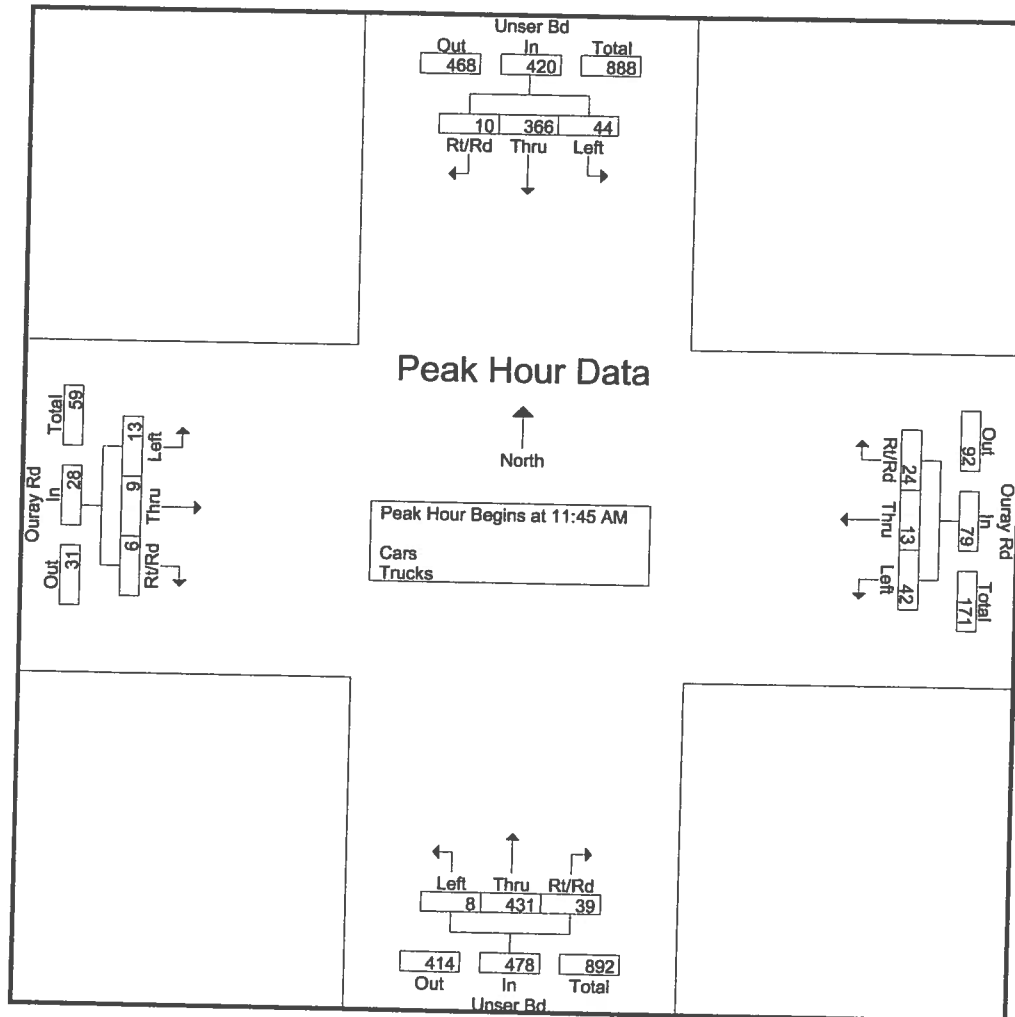


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File Name : Ouray Rd and Unser B
Site Code : 00025702
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	Unser Bd From North					Ouray Rd From East					Unser Bd From South					Ouray Rd From West					
Start Time	Right	Rt/Rd	Thru	Left	App. Total	Right	Rt/Rd	Thru	Left	App. Total	Right	Rt/Rd	Thru	Left	App. Total	Right	Rt/Rd	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45 AM																					
11:45 AM	1	0	91	12	104	3	2	3	14	22	10	1	95	1	107	0	0	1	2	3	236
12:00 PM	1	0	86	10	97	3	2	2	15	22	6	1	128	2	137	1	1	1	5	8	264
12:15 PM	4	0	105	7	116	3	5	3	6	17	11	0	94	1	106	0	2	3	4	9	248
12:30 PM	4	0	84	15	103	4	2	5	7	18	10	0	114	4	128	1	1	4	2	8	257
Total Volume	10	0	366	44	420	13	11	13	42	79	37	2	431	8	478	2	4	9	13	28	1005
% App. Total	2.4	0	87.1	10.5		16.5	13.9	16.5	53.2		7.7	0.4	90.2	1.7		7.1	14.3	32.1	46.4		
PHF	.625	.000	.871	.733	.905	.813	.550	.650	.700	.898	.841	.500	.842	.500	.872	.500	.500	.563	.650	.778	.952

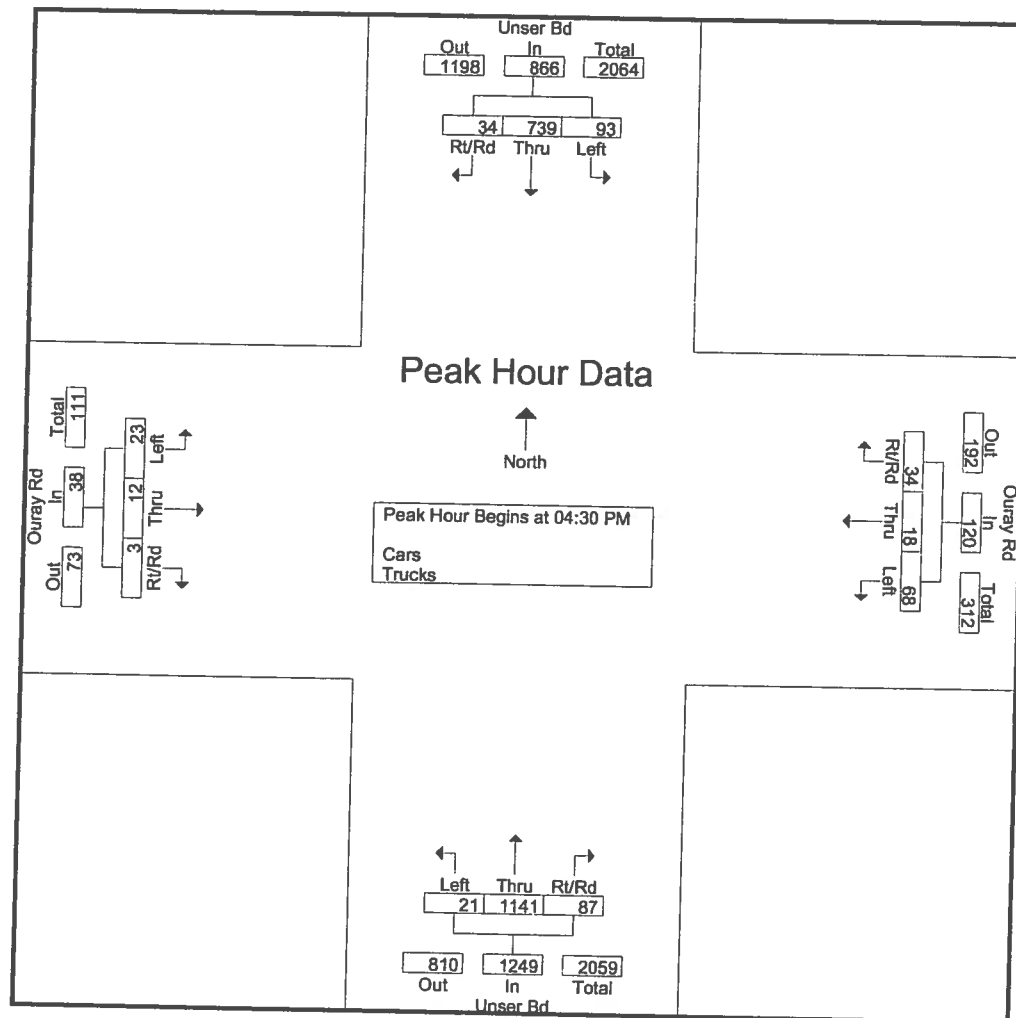


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File Name : Ouray Rd and Unser B
Site Code : 00025702
Start Date : 10/17/2006
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	Unser Bd From North					Ouray Rd From East					Unser Bd From South					Ouray Rd From West					
Start Time	Right	Rt/Rd	Thru	Left	App. Total	Right	Rt/Rd	Thru	Left	App. Total	Right	Rt/Rd	Thru	Left	App. Total	Right	Rt/Rd	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	8	0	185	22	215	3	6	5	16	30	16	0	267	4	287	0	0	2	6	8	540
04:45 PM	12	0	198	29	239	3	6	2	22	33	22	0	300	0	322	1	0	2	6	9	603
05:00 PM	5	0	195	16	216	7	4	8	13	32	22	1	309	10	342	0	1	5	7	13	603
05:15 PM	8	1	161	26	196	2	3	3	17	25	26	0	265	7	298	0	1	3	4	8	527
Total Volume	33	1	739	93	866	15	19	18	68	120	86	1	1141	21	1249	1	2	12	23	38	2273
% App. Total	3.8	0.1	85.3	10.7		12.5	15.8	15	56.7		6.9	0.1	91.4	1.7		2.6	5.3	31.6	60.5		
PHF	.688	.250	.933	.802	.906	.536	.792	.563	.773	.909	.827	.250	.923	.525	.913	.250	.500	.600	.821	.731	.942



Turning Movement Count Data

Date: 6/13/2007
E-W Street: 98th St (Vista Oriente)

Day: Wednesday
N-S Street: Unser Blvd

AM Period

Time	Eastbound					Westbound					Northbound					Southbound					Sum	Hourly Total
	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum		
7:00-7:15	8	2	51	0	61	7	0	2	0	9	9	111	3	4	123	3	169	2	0	174	367	1714
7:15-7:30	7	0	62	0	69	2	0	0	0	2	7	161	2	1	170	0	215	2	0	217	458	
7:30-7:45	17	0	55	0	72	5	0	1	0	6	6	163	4	3	173	3	209	4	0	216	467	
7:45-8:00	6	0	42	0	48	1	0	1	0	2	5	160	3	5	168	5	191	8	0	204	422	
8:00-8:15	4	3	36	0	43	6	0	2	0	8	10	147	6	2	163	2	168	7	0	177	391	
8:15-8:30	10	0	35	0	45	6	0	3	0	9	14	121	4	3	139	4	131	2	0	137	330	
8:30-8:45	9	1	40	0	50	11	0	4	0	15	8	126	4	8	138	3	161	3	0	167	370	
8:45-9:00	2	1	28	1	31	5	1	3	0	9	19	99	3	3	121	3	136	3	0	142	303	
9:00-9:15	10	1	23	1	34	4	1	1	0	6	17	71	3	4	91	2	120	2	0	124	255	
9:15-9:30	8	1	27	0	36	6	0	1	0	7	12	69	6	1	87	2	118	6	0	126	256	
9:30-9:45	7	0	26	0	33	7	2	3	0	12	22	96	7	1	125	3	94	4	0	101	271	
9:45-10:00	10	2	24	2	36	4	0	2	0	6	15	93	2	1	110	3	102	8	0	113	265	
Peak Hour	34	3	195	0	232	14	0	4	0	18	28	631	15	11	674	10	783	21	0	814	1738	Peak
PHF	0.50	0.25	0.79		0.81	0.58	####	0.50		0.56	0.70	0.97	0.63		0.97	0.50	0.91	0.66		0.94	0.93	7:15
Truck %				0%					0%					2%					0%		0.93	8:15

Mid-Day Period

Time	Eastbound					Westbound					Northbound					Southbound					Sum	Hourly Total
	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum		
11:00-11:15	9	0	22	0	31	4	0	4	0	8	16	74	8	3	98	3	99	7	0	109	246	1048
11:15-11:30	6	0	30	0	36	15	0	2	0	17	20	100	8	2	128	6	84	6	0	96	277	
11:30-11:45	8	1	30	0	39	13	0	3	0	16	12	106	7	3	125	5	105	4	0	114	294	
11:45-12:00	2	0	21	0	23	12	1	3	0	16	14	81	10	2	105	3	78	6	0	87	231	
12:00-12:15	4	1	20	1	25	11	0	4	0	15	24	96	13	4	133	5	86	5	0	96	289	
12:15-12:30	7	2	22	0	31	16	2	8	0	26	33	116	4	2	153	7	120	8	0	135	345	
12:30-12:45	8	1	26	0	35	8	2	4	0	14	24	98	7	1	129	1	78	7	0	86	264	
12:45-1:00	10	0	23	1	33	3	0	11	0	14	20	100	11	0	131	5	85	4	0	94	272	
1:00-1:15	10	2	28	0	40	12	0	9	0	21	24	77	7	2	108	10	96	9	0	115	284	
1:15-1:30	5	1	22	0	28	15	2	6	0	23	23	99	5	1	127	4	85	5	0	94	272	
1:30-1:45	8	1	17	0	26	8	1	4	0	13	23	102	4	4	129	4	89	9	0	102	270	
1:45-2:00	6	1	11	0	18	7	2	1	0	10	22	100	11	2	133	4	93	3	0	100	261	
Peak Hour	35	5	99	1	139	39	4	32	0	75	101	391	29	5	521	23	379	28	0	430	1165	Peak
PHF	0.88	0.63	0.88		0.87	0.61	0.50	0.73		0.72	0.77	0.84	0.66		0.85	0.58	0.79	0.78		0.80	0.84	12:15
Truck %				1%					0%					1%					0%		0.80	1:15

PM Period

Time	Eastbound					Westbound					Northbound					Southbound					Sum	Hourly Total
	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum	LT	TH	RT	Truck	Sum		
3:00-3:15	2	1	11	0	14	13	0	5	0	18	27	116	8	6	151	9	122	5	0	136	319	1557
3:15-3:30	11	1	14	0	26	5	0	8	0	13	30	148	14	3	192	5	129	12	0	146	377	
3:30-3:45	6	1	28	0	35	10	0	5	0	15	23	170	6	1	199	4	154	4	0	162	411	
3:45-4:00	12	2	22	0	36	11	1	7	0	19	42	186	10	0	238	2	147	8	0	157	450	
4:00-4:15	8	0	26	0	34	10	2	5	0	17	38	161	7	0	206	5	182	11	0	198	455	
4:15-4:30	3	3	13	0	19	18	4	7	0	29	45	203	10	2	258	9	168	11	0	188	494	
4:30-4:45	6	0	33	0	39	6	3	8	0	17	40	201	6	0	247	6	158	13	0	177	480	
4:45-5:00	4	0	20	0	24	7	1	11	0	19	45	172	17	1	234	3	183	8	0	194	471	
5:00-5:15	8	1	17	0	26	22	1	8	0	31	48	216	8	1	272	6	180	13	0	199	528	
5:15-5:30	7	0	17	0	24	11	0	0	0	11	45	229	3	0	277	10	179	5	0	194	506	
5:30-5:45	8	0	20	0	28	20	0	11	0	31	34	206	6	0	246	6	219	15	0	240	545	
5:45-6:00	8	1	14	0	23	12	0	5	0	17	52	189	5	1	246	6	192	14	0	212	498	
Peak Hour	31	2	68	0	101	65	1	24	0	90	179	840	22	2	1041	28	770	47	0	845	2077	Peak
PHF	0.97	0.50	0.85		0.90	0.74	0.25	0.55		0.73	0.86	0.92	0.69		0.94	0.70	0.88	0.78		0.88	0.95	5:00
Truck %				0%					0%					0%					0%		0.88	6:00

Traffic Count Data Sheet

Year Counts Taken:

2007

E-W Street I-40 S. ramp
N-S Street: Unser Blvd

Speed Limit (I-40 S. ramp)= 25 MPH

Speed Limit (Unser Blvd)= 45 MPH

Date of Count: 5/21/07

Begin Time	End Time	Eastbound (I-40 S. ramp)			Westbound (I-40 S. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	8:00 AM	9	0	6	0	0	0	0	0	0	0	0	0
8:00 AM	8:15 AM	10	0	1	0	0	0	3	173	172	3	296	145
8:15 AM	8:30 AM	9	0	0	0	0	0	0	126	141	1	206	206
8:30 AM	8:45 AM	3	0	2	0	0	0	0	128	138	0	165	209
8:45 AM	9:00 AM	6	0	4	0	0	0	0	108	129	0	154	180
AM Peak Hour Volumes		31	0	9	0	0	0	40	96	443	5	488	439
% of Total Traffic		1.1%	0.0%	0.3%	0.0%	0.0%	0.0%	0.1%	19.6%	21.3%	0.1%	30.2%	27.2%
% Directional			1.5%			0.0%			41.1%			57.5%	
AM Peak Hour Factor			0.67			#DIV/0!			0.80				0.88

Begin Time	End Time	Eastbound (I-40 S. ramp)			Westbound (I-40 S. ramp)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	40	0	5	0	0	0	0	444	82	0	297	94
4:15 PM	4:30 PM	19	0	6	0	0	0	0	168	106	0	285	91
4:30 PM	4:45 PM	17	0	5	0	0	0	0	135	77	0	294	80
4:45 PM	5:00 PM	18	0	2	0	0	0	0	162	92	0	272	71
5:00 PM	5:15 PM	15	0	8	0	0	0	0	176	89	0	311	66
5:15 PM	5:30 PM	48	0	5	0	0	0	0	458	95	0	297	55
5:30 PM	5:45 PM	48	0	6	0	0	0	0	438	75	0	324	78
5:45 PM	6:00 PM	42	0	2	0	0	0	0	456	87	0	276	69
PM Peak Hour Volumes		69	0	21	0	0	0	0	641	364	0	1162	308
% of Total Traffic		2.7%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	25.0%	14.2%	0.0%	45.3%	12.0%
% Directional			3.5%			0.0%			39.2%			57.3%	
PM Peak Hour Factor			0.90			#DIV/0!			0.92			0.97	



New Mexico DEPARTMENT OF
TRANSPORTATION
MORALITY FOR EVERYONE

District Three Office - Albuquerque

February 4, 2008

Mr. Terry O. Brown, P.E., PTOE
P. O. Box 92051
Albuquerque, NM 87199

Subject: Proposed 98th Street and Unser Commercial Development
Unser and Vista Oriente Street Intersection
Albuquerque, Bernalillo County, District Three

Dear Mr. Brown:

I am writing you this letter in conjunction with the completion of our review of the Traffic Impact Study (TIS) for the proposed 98th Street/Unser Commercial Development, dated September 7, 2007. The proposed development is located at the northeast quadrant of the Unser Boulevard and Vista Oriente Street intersection.

I regret to inform you that we are unable to approve the TIA at this time. The NMDOT has the following concerns:

1. The report did not comprehensively address traffic operations and circulation along Vista Oriente east of the intersection. The report needs to address how traffic movements are going to operate considering that a full access driveway exists within 270' of the Unser Blvd. and Vista Oriente intersection. In addition, there is an additional access to the development immediately east of the major access (within 150'). The location of the access points onto Vista Oriente needs to be revisited by the developer and the city. Failures along Vista Oriente will have direct impact to the operation of the Unser Boulevard and Vista Oriente intersection.
2. I would like to see a full and comprehensive analysis of the Vista Oriente, Driveway A and Vista Oeste un-signalized full access intersection. The analysis shall include a traffic simulation of the operation at the intersection. The analysis shall take into account the upstream signalized intersection at Unser and Vista Oriente.
3. On page 16, your evening (PM) WB to SB left turn queue is 475'. That means that left turn queue will extend beyond the eastern access point to the development. Can you please explain how EB traffic is going to turn left into the development if the WB left turn queue extends 475' east of the intersection? This is a fatal flaw in your report.
4. On page, 17, the left turn lane queue in advance of Driveway "A" is expected to be 227 feet. If you add a transition area that is required for the left turn pocket, the beginning of the turn lane will extend into the intersection. That would not be possible and thus the left turn capacity will be deficient.

Bill Richardson
Governor

Rhonda G. Faught P.E.
Cabinet Secretary

Commission

Johnny Cope
Chairman
District 2

David Schutz
Vice Chairman
District 5

Gregory T. Ortiz
Secretary
District 6

Norman Ased
Commissioner
District 3

Jim Franken
Commissioner
District 4

John L. Hummer
Commissioner
District 1



NEW MEXICO DEPARTMENT OF
TRANSPORTATION
MOVING TO THE FUTURE

5. On page 17, the same concern will apply to left turn lane length in advance of Driveway "B".
6. On page A-33, there are 356 westbound to southbound left turn vehicles at the Unser Boulevard and Vista Oriente intersection. That volume meets the criteria for installation of dual left turn lanes. Any improvements at the intersection shall include dual left turn lanes on the westbound approach to the intersection.
7. On Page A-74, you can not analyze the intersection of Vista Oriente, Driveway A and Vista Oeste as two separate intersections. This approach is totally unacceptable.
8. We do not agree with your assessment that the development should be excluded from providing improvements at the Ladera and Unser intersection to resolve operational deficiencies that result from increased traffic flow through the intersection. At a minimum, the developer shall extend the deficient left turn lane lengths to address the required left turn queue storage requirements.

If you have any questions, please feel free to give me a call at (505) 841-2761.

Sincerely,

Tony Abbo

Digitally signed by Tony Abbo
DN: CN = Tony Abbo, C = US, O =
NMDOT, OU = Traffic
Reason: I am the author of this
document
Date: 2008.02.04 23:17:16 -07'00'

Tony Abbo, P.E., P.T.O.E.
District Three Traffic Engineer

cc: Terry Doyle
Christina Bahl
Tony Loyd, City of Albuquerque
File