

Terry O. Brown P.E.

Heritage Neighborhood Marketplace
(Ladera Dr. / Unser Blvd.)

Access Justification Study

Draft – December 31, 2007

Final – February 2, 2009

Presented to:

New Mexico Department of Transportation
District 3
&
City of Albuquerque
Transportation Development Section

Prepared for:

SunCal Companies
201 3rd St. NW, Suite 500
Albuquerque, NM 87102



A handwritten signature in blue ink that reads "Terry O. Brown".

Terry O. Brown P.E.
P.O. Box 92051
Albuquerque, NM 87199
505 · 883 · 8807

Monday, December 31, 2007

Tony Abbo, District 3 Traffic Engineer
New Mexico Department of Transportation
7500 Pan American Freeway N.E.
P. O. Box 91750
Albuquerque, New Mexico 87199-1750

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.

Dear Tony:

This letter constitutes the access justification analysis required to demonstrate the feasibility of permitting a full access signalized access on the east side of Unser Blvd. approximately 900 feet south of the intersection of Ladera Dr. / Unser Blvd. (centerline to centerline). The proposed access driveway is also located approximately 2,000 feet north of the I-40 Westbound off-ramp where it perpendicularly intersects Unser Blvd. (exclusive of the right turn ramp). Plans are currently in progress for an approximately 200,000 S.F. retail commercial development at the southeast corner of Ladera Dr. / Unser Blvd. (See Vicinity Map on Page A-1 of this report). The property is currently zoned for RD uses in the City of Albuquerque. The proposed commercial site plan has been proposed for approval by the City of Albuquerque Environmental Planning Commission.

Access to the new project is proposed along Ladera Dr. (2 driveways), along Market Rd. (1 driveways), and along Hanover Rd. (1 driveway). In order to properly access the new development and minimize delays at the intersection of Ladera Dr. / Unser Blvd. additional access is needed onto Unser Blvd. between Ladera Dr. and Interstate 40 (Driveway "D").

Unser Blvd. is classified as a Limited Access Principal Arterial Roadway on the Long Range Roadway Plan for the Albuquerque Metropolitan Area from Dennis Chavez Blvd. in Albuquerque to Southern Blvd. in Rio Rancho. Generally speaking, partial access to Unser Blvd. is permitted at 1/4 mile intervals and full access at 1/2 mile intervals. In addition, access to Unser Blvd. south of Ladera Dr. is restricted by the Access Control Line for the I-40 / Unser Blvd. Interchange. Following is a graphical depiction showing the general geometry of Unser Blvd. near Ladera Dr. and showing the approximation of the access control line for the I-40 / Unser Blvd. Interchange.

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The requested access point on Unser Blvd. will be required to be approved by both the Transportation Coordinating Committee (T.C.C.) at the Mid-Region Council of Governments and the Access Control Board at the New Mexico Department of Transportation. The requested access is located approximately 950 feet south of the south curbline of Ladera Dr. on Unser Blvd. (See previous page for graphic dimensioned drawing).

The current access control line for the I-40 / Unser Blvd. interchange extends north to Ladera Dr. However, there is an existing break in the existing access control line which is aligned with the Hanover Rd. alignment. The Hanover Rd. alignment is slightly more than 300 feet south of the proposed Driveway "D" on Unser Blvd. accessing this project.

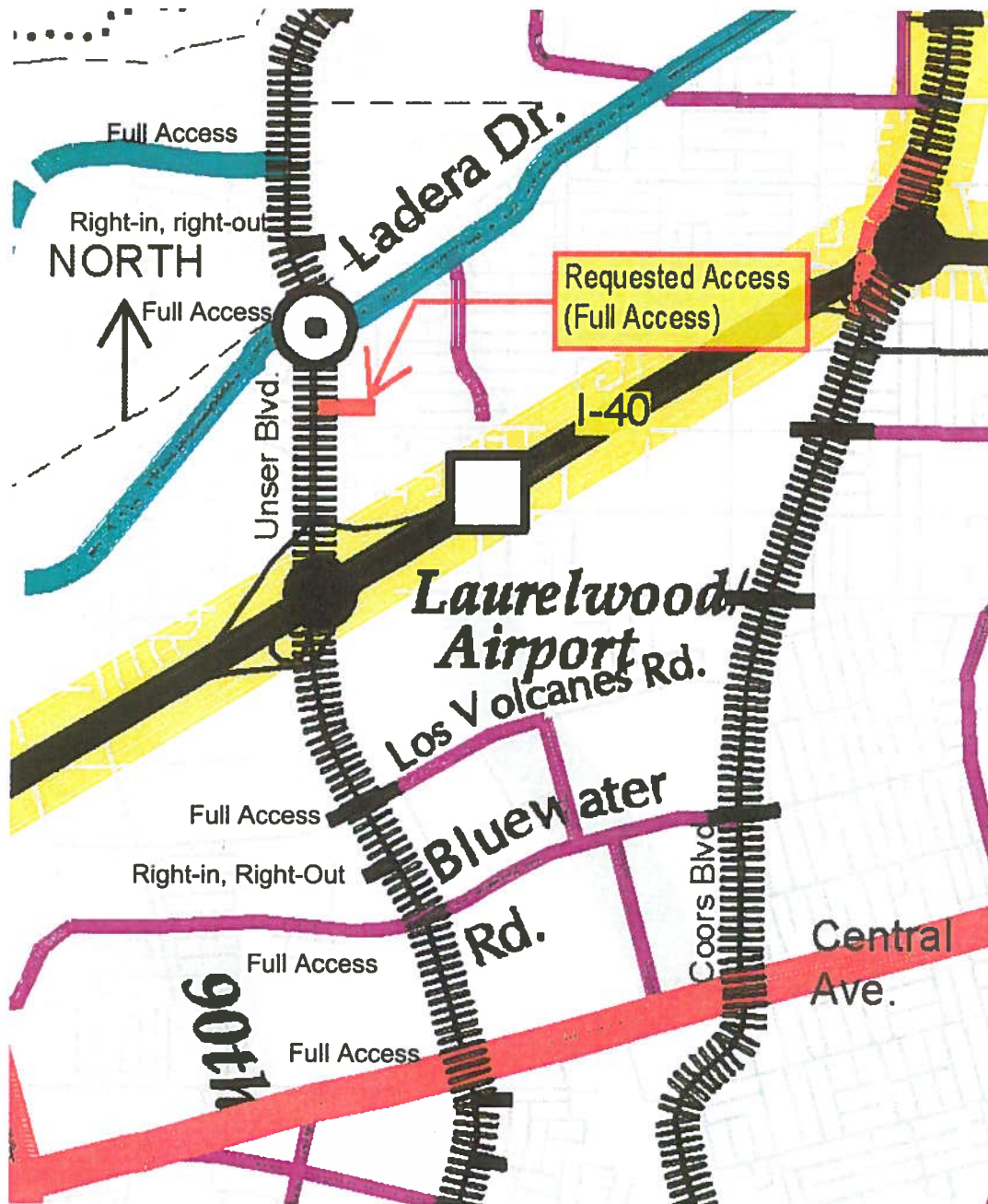
The current approved access points on Unser Blvd. as depicted on the Long Range Roadway Plan for the Albuquerque Metropolitan Area in the vicinity of the proposed Heritage Neighborhood Marketplace are listed as follows:

- a) I-40 South Ramp [full access]
- b) I-40 North Ramp [full access]
- c) Ladera Dr. [full access]
- d) La Mirada [right-in, right-out]
- e) Tierra Pintada (Old 98th St.) / Vista Oriente [full access]

Additionally, there was a right-in only access driveway approved recently on the east side of Unser Blvd. north of Tierra Pintada. The right-in only driveway serves a new commercial / office development including a Walgreen's Pharmacy store.

The following map demonstrates the currently approved access points on Unser Blvd. in the vicinity of this project:

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.



Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.

Approval of the requested access break will not adversely impact other approved access points along Unser Blvd. Similarly, the approval of the new access point on the east side of Unser Blvd. approximately 950 feet south of the intersection of Ladera Dr. / Unser Blvd. will not change volumes at the I-40 / Unser Blvd. Interchange. It will, however, reduce and / or convert turning movement volumes at the intersection of Ladera Dr. / Unser Blvd. and therefore, provide a benefit to the adjacent transportation system.

The process of quantifying the benefit of permitting the proposed access to Unser Blvd. was performed with the following steps:

- 1) Determine the number of trips that are projected for the AM and PM Peak Hour periods associated with full development of the proposed retail commercial project at the southeast corner of Ladera Dr. / Unser Blvd. The AM and PM Peak Hour volumes of trips generation by the project will be determined based on ITE Trip Generation Manual, 7th Edition (2003).
- 2) Determine trip distribution of the newly generated trips based on Mid-Region Council of Governments' Socioeconomic data. For retail commercial trips, the distribution was determined based on distribution of population within a two-mile radius of the project.
- 3) Determine trip assignments to the intersections and driveways in the analysis based on the results of the trip distribution analysis utilized logical routing to and from the project.
- 4) Utilize Mid-Region Council of Governments' Regional Transportation Model data to forecast 2010 and 2030 background traffic volumes at intersections analyzed in this study.
- 5) Add the trips generated by the development into the forecast volumes for the years 2010 (implementation year) and 2030 (horizon year) to obtain the forecast 2010 and 2030 BUILD Conditions volumes. The BUILD Condition volumes only will be used in this Access Justification Study. The NO BUILD Volumes will be utilized in the Traffic Impact Study. The BUILD Volumes in this study will be applied for four different Cases to compare the results. The first case is Case "F" which evaluates the transportation conditions associated with the implementation of the proposed full-access driveway on Unser Blvd. The second case (Case "L") evaluates the transportation conditions associated with implementation of a right-turn-in, right-turn-out, left-turn-in only driveway on Unser Blvd. The third case (Case "R") evaluated the transportation conditions associated with implementation of a right-turn-in, right-turn-out only driveway on Unser Blvd. The final case (Case "N") evaluates the transportation conditions associated with no access directly to Unser Blvd. from this project.
- 6) Evaluate the intersections of Ladera Dr. / Unser Blvd., Ladera Dr. / Market Rd., Ladera Dr. / Driveway "A", Driveway "B" / Market Rd., Hanover Rd. / Driveway "C", and Driveway "D" / Unser Blvd. to determine benefit of each Case analyzed.

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Intersection Delays Study

Implementation of a full access on Unser Blvd. south of Ladera Dr. for the proposed development will have the following impacts on BUILD volumes at the intersection of Ladera Dr. / Unser Blvd.:

- 1) A percentage of the eastbound thru movements will be converted to right turn movements.
- 2) Virtually no westbound left turn volumes will be generated by this project at Ladera Dr.
- 3) A percentage of westbound thru movements will be converted to northbound left turn movements.
- 4) A percentage of westbound right turn movements will be converted to northbound thru movements.
- 5) A percentage of northbound right turn movements will be eliminated.
- 6) A percentage of southbound left turn movements will be converted to southbound thru movements.

Overall, some turning movements will change as outlined above and the overall volumes at the intersection will be reduced as outlined above. The change in turning movements and the reduction in volumes at the intersection are both the result of the new access to Unser Blvd. as requested. The new access will provide an alternate means of entering and exiting the new commercial development. Traffic entering the project from the north will be able to turn left (southbound to eastbound) into the new driveway, thus reducing the southbound left turn volume on Unser Blvd. at Ladera Dr. Similarly, traffic exiting this project desiring to travel south on Unser Blvd. will be able to turn left from the new driveway (westbound to southbound) and, therefore, will not have to travel through the intersection of Ladera Dr. / Unser Blvd. Most importantly, the absence of the full access driveway on Unser Blvd. will force all traffic desiring to travel south on Unser (i.e., to access I-40) to exit onto Market Rd., then turn left onto Ladera Dr. and make a second left turn on Ladera Dr. at Unser Blvd. This not only is detrimental to the development itself, but also has a substantial negative impact on Ladera Dr. / Unser Blvd.

Analysis of the four Cases (Case "F", Case "L", Case "R", and Case "N") were performed using Synchro (Version 6) software. Signalized and unsignalized intersection delay and levels-of-service were calculated for each Case and a summary of the results report in the tables that follow:

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.**Analysis on Intersection #2 (Ladera Dr. / Unser Blvd.)**

The intersection of Ladera Dr. / Unser Blvd. is currently a signalized intersection. Both Ladera Dr. and Unser Blvd. are major streets on the Long Range Roadway Plan for the Albuquerque Metropolitan Area. Unser Blvd. is classified as a Limited Access Principal Arterial Roadway and Ladera Dr. is classified as a Minor Arterial Roadway. Unser Blvd. is generally a four or a six lane facility near this project. Ladera Dr. is a four lane divided urban roadway in the vicinity of this project.

A summary of the delays at the intersection of Ladera Dr. / Unser Blvd. associated with the 2010 and 2030 AM and PM Peak Hour BUILD conditions for each Case analyzed in this study are summarized in the following table:

Intersection No. #2	
2010 AM Peak Hour	
Case "F"	D - 43.3
Case "L"	D - 54.5
Case "R"	D - 51.4
Case "N"	D - 49.4

2010 PM Peak Hour	
Case "F"	D - 49.1
Case "L"	E - 77.3
Case "R"	E - 79.7
Case "N"	E - 76.8

Intersection No. #2	
2030 AM Peak Hour	
Case "F"	F - 124.8
Case "L"	F - 141.0
Case "R"	F - 133.8
Case "N"	F - 129.1

2030 PM Peak Hour	
Case "F"	F - 176.4
Case "L"	F - 206.4
Case "R"	F - 212.6
Case "N"	F - 225.8

There is a noticeable reduction in delay at the intersection for both the 2010 AM and PM Peak Hour periods as well as the 2030 AM and PM Peak Hour periods resulting from implementation of a full access driveway on Unser Blvd. south of Ladera Dr. The reduction in delay for the PM Peak Hour analysis is significant. It is up to approximately 50 seconds improvement in delay. The average delay reported in the table above is a weighted average delay at the intersection. When considering both the reduced average delay and the reduced traffic volume, the total intersection delay (vehicle-hours) shows sizeable benefit. The following table reports the total delays at the intersection for the various Cases (average delay x total intersection volume):

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.**Ladera Dr. / Unser Blvd.**

2010					2030				
AM	Delay	Volume	Tot. Delay	Incr.	AM	Delay	Volume	Tot. Delay	Incr.
Case "F"	43.3	4,962	214,855		Case "F"	124.8	7,083	883,958	
Case "L"	54.5	5,106	278,277	30%	Case "L"	141.0	7,227	1,019,007	15%
Case "R"	51.4	5,106	262,448	22%	Case "R"	133.8	7,227	966,973	9%
Case "N"	49.4	5,319	262,759	22%	Case "N"	129.1	7,440	960,504	9%
PM	Delay	Volume	2010	2010	PM	Delay	Volume	2030	2030
Case "F"	49.1	6,895	338,545		Case "F"	176.4	9,364	1,651,810	
Case "L"	77.3	7,235	559,266	65%	Case "L"	206.4	9,704	2,002,906	21%
Case "R"	79.7	7,235	576,630	70%	Case "R"	212.6	9,704	2,063,070	25%
Case "N"	76.8	7,622	585,370	73%	Case "N"	225.8	10,091	2,278,548	38%

The preceding table demonstrates that the benefit gained by permitting a full access driveway on Unser Blvd. south of Ladera Dr. during the 2010 PM Peak Hour BUILD condition is a substantial reduction in total intersection delay. The increase in intersection delay if the full access is not permitted varies from 65% to 73%. As previously demonstrated, the change in the average delays at the intersection follow a similar trend.

The following table presents a more detailed view of the delays and levels-of-service for individual turning movements as well as the entire intersection of Ladera Dr. / Unser Blvd. for the various Cases:

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Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.**Intersection No. #2 (Ladera Dr. / Unser Blvd.)****2010 AM Peak Hour**

Ladera Dr.	Case "F"	Case "L"	Case "R"	Case "N"
EB Left	C - 33.4	C - 33.4	C - 33.4	C - 32.6
EB Thru	E - 65.7	E - 65.7	F - 82.4	F - 82.4
EB Right	D - 53.2	E - 66.7	D - 54.9	D - 54.9
Ladera Dr.				
WB Left	E - 66.7	F - 83.4	E - 72.4	E - 72.4
WB Thru	D - 37.4	C - 32.3	C - 31.4	C - 33.2
WB Right	D - 37.4	C - 32.3	C - 31.4	C - 33.2
Unser Blvd.				
NB Left	E - 58.6	F - 83.7	F - 83.7	E - 62.8
NB Thru	B - 18.5	C - 26.8	C - 31.5	C - 30.4
NB Right	A - 7.4	A - 9.2	B - 11.1	B - 15.5
Unser Blvd.				
SB Left	D - 51.9	D - 52.3	D - 50.1	D - 50.1
SB Thru	D - 47.9	E - 66.0	E - 56.8	E - 56.8
SB Right	A - 7.9	B - 11.4	B - 11.9	B - 11.5

Intersection: D - 43.3 D - 54.5 D - 51.4 D - 49.4**2030 AM Peak Hour**

Minor St. (Market Rd.)	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	D - 48.3	D - 47.0	D - 47.0	D - 48.0
NB Thru	F - 102.1	F - 102.1	F - 128.8	F - 128.8
NB Right	F - 118.5	F - 118.5	F - 95.0	F - 95.0
Minor St. (Market Rd.)				
SB Left	F - 239.5	F - 280.1	F - 280.7	F - 358.0
SB Thru	D - 42.7	D - 39.3	D - 39.3	D - 41.9
SB Right	D - 42.7	D - 39.3	D - 39.3	D - 41.9
Minor St. (Market Rd.)				
SB Left	F - 167.6	F - 170.8	F - 170.8	F - 120.5
SB Thru	C - 26.1	C - 32.8	D - 38.8	D - 47.8
SB Right	A - 8.6	B - 10.7	B - 13.1	B - 19.4
Minor St. (Market Rd.)				
SB Left	E - 70.3	E - 70.3	E - 62.4	F - 87.2
SB Thru	F - 202.7	F - 226.5	F - 202.9	F - 214.8
WB Left	B - 10.5	B - 11.8	B - 11.8	B - 11.5

F - 124.8 F - 141.0 F - 133.8 F - 129.1

2010 PM Peak Hour

Ladera Dr.	Case "F"	Case "L"	Case "R"	Case "N"
EB Left	F - 81.8	D - 51.4	D - 51.6	F - 98.6
EB Thru	D - 52.4	D - 53.0	E - 57.3	E - 56.3
EB Right	C - 30.1	C - 32.7	C - 30.4	C - 31.8
Ladera Dr.				
WB Left	E - 76.3	F - 119.6	F - 137.3	F - 122.6
WB Thru	E - 59.7	D - 43.8	D - 45.4	E - 63.9
WB Right	E - 59.7	D - 43.8	D - 45.4	E - 63.9
Unser Blvd.				
NB Left	E - 78.4	F - 125.2	F - 90.6	F - 98.2
NB Thru	D - 40.3	F - 87.4	F - 108.3	F - 92.3
NB Right	B - 11.8	B - 12.7	B - 15.3	C - 32.0
Unser Blvd.				
SB Left	F - 81.4	F - 168.8	F - 145.4	F - 146.8
SB Thru	D - 45.3	F - 85.1	E - 72.2	E - 65.6
SB Right	C - 24.3	C - 23.2	C - 24.2	C - 25.5

Intersection: D - 49.1 E - 77.3 E - 79.7 E - 76.8**2030 PM Peak Hour**

Minor St. (Market Rd.)	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	F - 269	F - 269	F - 269	F - 269
NB Thru	E - 77.9	F - 93.1	F - 124.0	F - 124
NB Right	C - 33.0	C - 34.9	C - 33.8	C - 33.8
Minor St. (Market Rd.)				
SB Left	F - 258.3	F - 362.5	F - 394.2	F - 362.5
SB Thru	F - 212.8	F - 136.4	F - 153.0	F - 278.5
SB Right	F - 212.8	F - 136.4	F - 153.0	F - 278.5
Minor St. (Market Rd.)				
SB Left	F - 327	F - 353.8	F - 353.8	F - 313.3
SB Thru	F - 226	F - 282.2	F - 295.5	F - 279.8
SB Right	D - 47.4	E - 58.2	E - 68.3	F - 167.2
Minor St. (Market Rd.)				
SB Left	F - 241	F - 241.4	F - 253.4	F - 253.4
SB Thru	F - 132.1	F - 168.5	F - 126.6	F - 138.7
WB Left	C - 22.6	C - 25.0	C - 24.2	C - 25.1

F - 176.4 F - 206.4 F - 212.6 F - 225.8

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.**Analysis on Intersection #7 (Ladera Dr. / Market Rd.)**

The intersection of Ladera Dr. / Market Rd. is currently an unsignalized full access intersection. Ladera Dr. is classified as a Minor Arterial roadway on the Long Range Roadway Plan for the Albuquerque Metropolitan Area. Market Rd. is not classified on the Long Range Roadway Plan for the Albuquerque Metropolitan Area, but is considered a local public street owned and maintained by the City of Albuquerque. Market Rd. is a two lane urban local roadway with curbs and gutters on both sides of the street.

A summary of the delays at the intersection of Ladera Dr. / Market Rd. associated with the 2010 and 2030 AM and PM Peak Hour BUILD conditions for each Case analyzed in this study are summarized in the following table:

Intersection No. #7 (Ladera Dr. / Market Rd.)**2010 AM Peak Hour**

Minor St. (Market Rd.)	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	F - 82	F - 394	F - 396	F - 606
NB Thru	B - 12	B - 12	B - 12	B - 12
NB Right	B - 12	B - 12	B - 12	B - 12
Minor St. (Market Rd.)				
SB Left	D - 31	D - 31	D - 31	D - 31
SB Thru	D - 31	D - 31	D - 31	D - 31
SB Right	D - 31	D - 31	D - 31	D - 31
Major St. (Market Pl.)				
EB Left	A - 1	A - 1	A - 1	A - 1
WB Left	B - 10	B - 10	B - 10	B - 10

2030 AM Peak Hour

Minor St. (Market Rd.)	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	F - 81	F - 379	F - 381	F - 587
NB Thru	B - 12	B - 12	B - 12	B - 12
NB Right	B - 12	B - 12	B - 12	B - 12
Minor St. (Market Rd.)				
SB Left	D - 32	D - 32	D - 32	D - 32
SB Thru	D - 32	D - 32	D - 32	D - 32
SB Right	D - 32	D - 32	D - 32	D - 32
Major St. (Market Pl.)				
EB Left	A - 1	A - 1	A - 1	A - 1
WB Left	B - 10	B - 10	B - 10	B - 10

2010 PM Peak Hour

Minor St. (Market Rd.)	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	F - 292	F - Err	F - Err	F - Err
NB Thru	B - 15	B - 15	B - 15	B - 15
NB Right	B - 15	B - 15	B - 15	B - 15
Minor St. (Market Rd.)				
SB Left	F - 121	F - 121	F - 123	F - 123
SB Thru	F - 121	F - 121	F - 123	F - 123
SB Right	F - 121	F - 121	F - 123	F - 123
Major St. (Ladera Dr.)				
EB Left	A - 9	A - 9	A - 9	A - 9
WB Left	B - 14	B - 14	B - 14	B - 14

2030 PM Peak Hour

Minor St. (Market Rd.)	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	F - 947	F - err	F - err	F - err
NB Thru	C - 23	C - 23	C - 23	C - 23
NB Right	C - 23	C - 23	C - 23	C - 23
Minor St. (Market Rd.)				
SB Left	F - 601	F - 601	F - 613	F - 613
SB Thru	F - 601	F - 601	F - 613	F - 613
SB Right	F - 601	F - 601	F - 613	F - 613
Major St. (Ladera Dr.)				
EB Left	A - 10	A - 10	A - 10	A - 10
WB Left	D - 26	D - 26	D - 26	D - 26

The preceding table demonstrates that as the proposed full access on Unser Blvd. south of Ladera becomes more and more restricted, the northbound left turn movement delay

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increases exponentially. Anything less than full access on Unser Blvd. at proposed Driveway "D" will result in delay for the northbound left turn movement at Ladera Dr. / Market Rd. that is so high as to result in a error in value. Subsequent to determination of the access for Driveway "D" on Unser Blvd., Ladera Dr. / Market Rd. may need to be evaluated for warrants for a traffic signal.

Analysis on Intersection #9 (Ladera Dr. / Driveway "A")

The intersection of Ladera Dr. / Driveway "A". is currently an unsignalized full access intersection located approximately 440 feet east of Unser Blvd. (centerline to centerline). Ladera Dr. is classified as a Minor Arterial roadway on the Long Range Roadway Plan for the Albuquerque Metropolitan Area. Under the new plan for the proposed Heritage Neighborhood Marketplace, Driveway "A" will be restricted to right-turn-in, right-turn-out only movements.

A summary of the delays at the intersection of Ladera Dr. / Driveway "A" associated with the 2010 and 2030 AM and PM Peak Hour BUILD conditions for each Case analyzed in this study are summarized in the following table:

Intersection No. #9 (Ladera Dr. / Driveway "A")**2010 AM Peak Hour**

Minor St. (Driveway "A")	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	N/A	N/A	N/A	N/A
NB Right	B - 10	B - 10	B - 11	B - 12
Major St. (Ladera Dr.)				
WB Left	N/A	N/A	N/A	N/A

2030 AM Peak Hour

Minor St. (Driveway "A")	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	N/A	N/A	N/A	N/A
NB Right	B - 11	B - 11	B - 11	B - 12
Major St. (Ladera Dr.)				
WB Left	N/A	N/A	N/A	N/A

2010 PM Peak Hour

Minor St. (Driveway "A")	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	N/A	N/A	N/A	N/A
NB Right	B - 13	B - 14	B - 15	C - 17
Major St. (Ladera Dr.)				
WB Left	N/A	N/A	N/A	N/A

2030 PM Peak Hour

Minor St. (Driveway "A")	Case "F"	Case "L"	Case "R"	Case "N"
NB Left	N/A	N/A	N/A	N/A
NB Right	C - 18	C - 18	C - 19	C - 24
Major St. (Ladera Dr.)				
WB Left	N/A	N/A	N/A	N/A

The tables above demonstrate that the impact of the proposed access on Unser Blvd. south of Ladera Dr. has little impact on the intersection of Ladera Dr. / Driveway "A".

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.**Analysis on Intersection #10 (Driveway "B" / Market Rd.)**

The intersection of Driveway "B" / Market Rd. does not currently exist. It will be constructed with the implementation of the proposed Heritage Neighborhood Marketplace. It is proposed to be a full access unsignalized driveway.

A summary of the delays at the intersection of Driveway "B" / Market Rd. associated with the 2010 and 2030 AM and PM Peak Hour BUILD conditions for each Case analyzed in this study are summarized in the following table:

Intersection No. #10 (Driveway "B" / Market Rd.)**2010 AM Peak Hour**

Minor St. (Driveway "B")	Case "F"	Case "L"	Case "R"	Case "N"
EB Left	B - 12	C - 16	C - 16	C - 20
EB Right	B - 12	C - 16	C - 16	C - 20
Major St. (Market Rd.)				
NB Left	A - 1	A - 1	A - 1	A - 1

2030 AM Peak Hour

Minor St. (Driveway "B")	Case "F"	Case "L"	Case "R"	Case "N"
EB Left	B - 12	B - 15	C - 16	C - 18
EB Right	B - 12	B - 15	C - 16	C - 18
Major St. (Market Rd.)				
NB Left	A - 1	A - 1	A - 1	A - 1

2010 PM Peak Hour

Minor St. (Driveway "B")	Case "F"	Case "L"	Case "R"	Case "N"
EB Left	C - 16	F - 123	F - 127	F - 428
EB Right	C - 16	F - 123	F - 127	F - 428
Major St. (Market Rd.)				
NB Left	A - 1	A - 1	A - 1	A - 1

2030 PM Peak Hour

Minor St. (Driveway "B")	Case "F"	Case "L"	Case "R"	Case "N"
EB Left	C - 16	F - 123	F - 127	F - 366
EB Right	C - 16	F - 123	F - 127	F - 366
Major St. (Market Rd.)				
NB Left	A - 1	A - 1	A - 1	A - 1

The preceding table demonstrates that as the proposed full access on Unser Blvd. south of Ladera becomes more and more restricted, the eastbound left turn movement delay increases significantly. Anything less than full access on Unser Blvd. at proposed Driveway "D" will result in delay for the eastbound left turn movement at Driveway "B" that is excessively high.

Analysis on Intersection #11 (Hanover Rd. / Driveway "C")

The intersection of Hanover Rd. / Driveway "C" does not currently exist. It will be constructed with the implementation of the proposed Heritage Neighborhood Marketplace. It is proposed to be a full access unsignalized driveway.

A summary of the delays at the intersection of Hanover Rd. / Driveway "C" associated with the 2010 and 2030 AM and PM Peak Hour BUILD conditions for each Case analyzed in this study are summarized in the following table:

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.**Intersection No. #11 (Hanover Rd. / Driveway "C")****2010 AM Peak Hour**

Minor St. (Driveway "C")	Case "F"	Case "L"	Case "R"	Case "N"
SB Left	A - 9	A - 9	A - 9	A - 9
SB Right	A - 9	A - 9	A - 9	A - 9
Major St. (Hanover Rd.)				
EB Left	A - 1	A - 1	A - 1	A - 1

2030 AM Peak Hour

Minor St. (Driveway "C")	Case "F"	Case "L"	Case "R"	Case "N"
SB Left	A - 9	A - 9	A - 9	A - 9
SB Right	A - 9	A - 9	A - 9	A - 9
Major St. (Hanover Rd.)				
EB Left	A - 1	A - 1	A - 1	A - 1

2010 PM Peak Hour

Minor St. (Driveway "C")	Case "F"	Case "L"	Case "R"	Case "N"
SB Left	A - 9	A - 9	A - 9	A - 9
SB Right	A - 9	A - 9	A - 9	A - 9
Major St. (Hanover Rd.)				
EB Left	A - 1	A - 1	A - 1	A - 1

2030 PM Peak Hour

Minor St. (Driveway "C")	Case "F"	Case "L"	Case "R"	Case "N"
SB Left	A - 9	A - 9	A - 9	A - 9
SB Right	A - 9	A - 9	A - 9	A - 9
Major St. (Hanover Rd.)				
EB Left	A - 1	A - 1	A - 1	A - 1

The preceding tables demonstrate that the impact of the degree of access on Unser Blvd. south of Ladera Dr. is negligible.

Analysis on Intersection #12 (Driveway "D" / Unser Blvd.)

The intersection of Driveway "D" / Unser Blvd. does not currently exist. It will be constructed with the implementation of the proposed Heritage Neighborhood Marketplace and the approval of the New Mexico Department of Transportation's Access Control Committee and the approval of the Mid-Region Council of Governments' Transportation Coordinating Committee. It is proposed to be a full access signalized driveway. However, the following summary of analysis will report delays and levels-of-service for other access scenarios as well (i.e., partial access and no access). The intersection of Driveway "D" / Unser Blvd. will be signalized only for Case "F" (full access).

A summary of the delays at the intersection of Driveway "D" associated with the 2010 and 2030 AM and PM Peak Hour BUILD conditions for each Case analyzed in this study are summarized in the following table:

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.**Intersection No. #12 (Ladera Dr. / Driveway "A")****2010 AM Peak Hour**

Driveway "A"	Case "F"	Case "L"	Case "R"	Case "N"
WB Left	D - 47.5	N/A	N/A	N/A
WB Right	D - 37.2	B - 11	B - 11	N/A
Unser Blvd.				
NB Thru	A - 8.5	N/A	N/A	N/A
NB Right	A - 5.9	N/A	N/A	N/A
Unser Blvd.				
SB Left	A - 1.6	B - 13	N/A	N/A
SB Thru	A - 1.8	N/A	N/A	N/A

Intersection: A - 6.7 N/A* N/A* N/A***2030 AM Peak Hour**

Driveway "A"	Case "F"	Case "L"	Case "R"	Case "N"
WB Left	D - 50.9	N/A	N/A	N/A
WB Right	D - 41.7	B - 14	B - 14	N/A
Unser Blvd.				
NB Thru	A - 6.1	N/A	N/A	N/A
NB Right	A - 1.5	N/A	N/A	N/A
Unser Blvd.				
SB Left	A - 5.5	C - 23	N/A	N/A
SB Thru	A - 2.4	N/A	N/A	N/A

A - 5.4 N/A* N/A* N/A***2010 PM Peak Hour**

Driveway "A"	Case "F"	Case "L"	Case "R"	Case "N"
WB Left	E - 55.4	N/A	N/A	N/A
WB Right	D - 38.8	D - 32	D - 32	N/A
Unser Blvd.				
NB Thru	A - 4.8	N/A	N/A	N/A
NB Right	A - 2.0	N/A	N/A	N/A
Unser Blvd.				
SB Left	B - 17.4	F - 56	N/A	N/A
SB Thru	A - 4.3	N/A	N/A	N/A

Intersection: B - 12.6 N/A* N/A* N/A***2030 PM Peak Hour**

Driveway "A"	Case "F"	Case "L"	Case "R"	Case "N"
WB Left	D - 56.1	N/A	N/A	N/A
WB Right	D - 47.5	F - 293	F - 293	N/A
Unser Blvd.				
NB Thru	C - 25.5	N/A	N/A	N/A
NB Right	A - 8.3	N/A	N/A	N/A
Unser Blvd.				
SB Left	D - 32.2	F - 1,293	N/A	N/A
SB Thru	A - 5.7	N/A	N/A	N/A

C - 21.7 N/A* N/A* N/A*

NOTE: Driveway "A" is signalized for Case "F" Only

Unser Case "F", the intersection of Driveway "D" / Unser Blvd. is a signalized intersection. The warrant analysis for the driveway (full access) was evaluated in the Traffic Impact Study for the project. The timing of the signal at Driveway "D" is designed to provide maximum delay for the side street and optimize the green time on Unser Blvd. The maximum delay for the side street is near 55 seconds (threshold of LOS "E").

Under Case "L" and Case "R", the intersection of Driveway "D" / Unser Blvd. is an unsignalized intersection.

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.

Also of importance are the critical queue lengths associated with each case analyzed in this report. Following are the summarized calculated queuing lengths at the intersection of Ladera Dr. / Unser Blvd.:

Case "F" (2010)

Queueing Analysis Summary Sheet

Project: Heritage Neighborhood Center
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	2	251	Cont	2	365	250	
AM NO BUILD Queue	1	199	250	2	446	300	2	557	375	
AM BUILD Queue	1	199	250	2	498	325	2	557	375	
Existing Lane Length	1	140	250	2	182	Cont	2	138	250	
PM NO BUILD Queue	1	192	275	2	319	250	2	322	250	
PM BUILD Queue	1	192	275	2	381	300	2	322	250	
Westbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length	2	317	250	2	105	Cont	0	44	0	
AM NO BUILD Queue	2	542	350	2	186	150	0	123	175	
AM BUILD Queue	2	686	425	2	196	175	0	140	200	
Existing Lane Length	2	281	250	2	264	Cont	0	107	0	
PM NO BUILD Queue	2	594	425	2	480	350	0	249	325	
PM BUILD Queue	2	853	550	2	496	350	0	279	375	
Northbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length	2	48	250	2	429	Cont	1	224	250	
AM NO BUILD Queue	2	134	125	2	653	425	1	376	425	
AM BUILD Queue	2	163	150	2	704	450	1	376	425	
Existing Lane Length	2	288	250	2	860	Cont	1	372	250	
PM NO BUILD Queue	2	560	400	2	1,433	875	1	708	800	
PM BUILD Queue	2	607	425	2	1,524	1,001	1	708	800	
Southbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length	2	45	250	2	906	Cont	0	58	0	
AM NO BUILD Queue	2	99	100	2	1,279	725	0	105	150	
AM BUILD Queue	2	201	175	2	1,279	725	0	105	150	
Existing Lane Length	2	94	250	2	547	Cont	0	184	0	
PM NO BUILD Queue	2	263	225	2	1,087	700	0	333	425	
PM BUILD Queue	2	372	275	2	1,087	700	0	333	425	

Cycle Length: **AM** 110 **PM** 120

NOTE: Queue lengths are in feet.

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

Monday, December 31, 2007

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.**Case "F" (2030)****Queueing Analysis Summary Sheet**

Project:

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Intersection:

Ladera Dr / Unser Blvd

2030											
Approach			Left Turns			Thru Movements			Right Turns		
Eastbound			# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>			1	175	250	2	251	Cont	2	365	250
AM NO BUILD Queue			1	222	275	2	480	325	2	607	400
AM BUILD Queue			1	222	275	2	494	325	2	647	425
<i>Existing Lane Length</i>			1	140	250	2	182	Cont	2	138	250
PM NO BUILD Queue			1	303	400	2	464	350	2	432	325
PM BUILD Queue			1	303	400	2	479	350	2	479	350
Westbound			# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>			2	317	250	2	105	Cont	0	44	0
AM NO BUILD Queue			2	972	575	2	329	250	0	183	250
AM BUILD Queue			2	972	575	2	339	250	0	200	250
<i>Existing Lane Length</i>			2	281	250	2	264	Cont	0	107	0
PM NO BUILD Queue			2	735	500	2	612	425	0	303	400
PM BUILD Queue			2	735	500	2	628	425	0	333	425
Northbound			# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>			2	48	250	2	429	Cont	1	224	250
AM NO BUILD Queue			2	178	150	2	1,046	625	1	581	625
AM BUILD Queue			2	207	175	2	1,097	650	1	581	625
<i>Existing Lane Length</i>			2	288	250	2	860	Cont	1	372	250
PM NO BUILD Queue			2	799	525	2	2,146	1,001	1	1,017	1,001
PM BUILD Queue			2	846	550	2	2,237	1,001	1	1,017	1,001
Southbound			# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>			2	45	250	2	906	Cont	0	58	0
AM NO BUILD Queue			2	132	125	2	1,942	1,001	0	148	200
AM BUILD Queue			2	158	150	2	2,018	1,001	0	148	200
<i>Existing Lane Length</i>			2	94	250	2	547	Cont	0	184	0
PM NO BUILD Queue			2	321	250	2	1,429	875	0	448	550
PM BUILD Queue			2	348	275	2	1,511	1,001	0	448	550

Cycle Length: AM 110 PM 120

NOTE: Queue lengths are in feet.

* - Queue Length of 1,001 indicates the calculated queue > 1,000

The dual northbound left turn lanes are recommended to be constructed to a length of 425 feet plus transition to accommodate the projected 2010 PM Peak Hour BUILD conditions and to a length of 55 feet plus transition to accommodate the 2030 PM Peak

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.

Hour BUILD Conditions. Also, the calculated right turn queues at this intersection can be reduced by 50% to account for right-turns-on-red and overlap phases.

Following are the summarized calculated queuing lengths at the proposed intersection of Driveway "D" / Unser Blvd.:

Case "F" (2010)

Queueing Analysis Summary Sheet

Project:

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Intersection:

Driveway 'D' / 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	0	TBD	0	0	Cont	1	0	TBD
AM NO BUILD Queue			2	0	0	0	0	0	1	0	0
AM BUILD Queue			2	144	125	0	0	0	1	80	125
<i>Existing Lane Length</i>			2	0	TBD	0	0	Cont	1	0	TBD
PM NO BUILD Queue			2	0	0	0	0	0	1	0	0
PM BUILD Queue			2	340	275	0	0	0	1	295	375
Northbound			# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>			0	0	0	3	701	Cont	1	0	300
AM NO BUILD Queue			0	0	0	3	797	375	1	0	0
AM BUILD Queue			0	0	0	3	797	375	1	216	275
<i>Existing Lane Length</i>			0	0	0	3	1,520	Cont	1	0	300
PM NO BUILD Queue			0	0	0	3	1,709	750	1	0	0
PM BUILD Queue			0	0	0	3	1,613	700	1	327	425
Southbound			# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
<i>Existing Lane Length</i>			1	0	TBD	3	1,588	Cont	0	0	0
AM NO BUILD Queue			1	0	0	3	1,806	725	0	0	0
AM BUILD Queue			1	116	175	3	1,806	725	0	0	0
<i>Existing Lane Length</i>			1	0	TBD	3	966	Cont	0	0	0
PM NO BUILD Queue			1	0	0	3	1,086	500	0	0	0
PM BUILD Queue			1	204	275	3	1,011	475	0	0	0

Cycle Length: AM 110 PM 120

NOTE: Queue lengths are in feet.

* - Queue Length of 1,001 indicates the calculated queue > 1,000

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.

Case "F" (2030)

Queueing Analysis Summary Sheet

Project:

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Intersection:

Driveway 'D' / Unser Blvd

2030											
Approach		Left Turns			Thru Movements			Right Turns			
Eastbound		# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length		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	
Existing Lane Length		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	
Existing Lane Length		2	0	TBD	0	0	Cont	1	0	TBD	
AM NO BUILD Queue		2	0	0	0	0	0	1	0	0	
AM BUILD Queue		2	144	125	0	0	0	1	80	125	
Existing Lane Length		2	0	TBD	0	0	Cont	1	0	TBD	
PM NO BUILD Queue		2	0	0	0	0	0	1	0	0	
PM BUILD Queue		2	340	275	0	0	0	1	295	375	
Northbound		# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length		0	0	0	3	701	Cont	1	0	300	
AM NO BUILD Queue		0	0	0	3	1,439	600	1	0	0	
AM BUILD Queue		0	0	0	3	1,439	600	1	216	275	
Existing Lane Length		0	0	0	3	1,520	Cont	1	0	300	
PM NO BUILD Queue		0	0	0	3	2,971	1,001	1	0	0	
PM BUILD Queue		0	0	0	3	2,875	1,001	1	327	425	
Southbound		# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length	
Existing Lane Length		1	0	TBD	3	1,588	Cont	0	0	0	
AM NO BUILD Queue		1	0	0	3	3,261	1,001	0	0	0	
AM BUILD Queue		1	116	175	3	3,261	1,001	0	0	0	
Existing Lane Length		1	0	TBD	3	966	Cont	0	0	0	
PM NO BUILD Queue		1	0	0	3	1,888	800	0	0	0	
PM BUILD Queue		1	204	275	3	1,813	775	0	0	0	

Cycle Length: AM PM
 110 120

NOTE: Queue lengths are in feet.

* - Queue Length of 1,001 indicates the calculated queue > 1,000

The southbound left turn lane on Unser Blvd. at Driveway "D" should be designed and constructed to a minimum length of 275 feet plus transition to contain the queues calculated for this project.

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.

All of the preceding analyses assume construction of improvements to Ladera Dr. / Unser Blvd. as recommended in the Traffic Impact Study as summarized below:

Ladera Dr. / Unser Blvd. – Construct the intersection of Ladera Dr. / Unser Blvd. with the minimum geometry outlined 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	2	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

The auxiliary lanes at the intersection should be designed and constructed to the length recommended in the Traffic Impact Study for the project as approved by the City of Albuquerque and the New Mexico Department of Transportation.

With the improvements recommended in the Traffic Impact Study and with the new full access on the east side of Unser Blvd. between Ladera Dr. and I-40, the adjacent transportation system will operate satisfactorily. There is a significant benefit to permitting the full access signalized driveway on Unser Blvd. characterized by a reduction in delays and queue lengths at the intersections of Ladera Dr. / Unser Blvd. and Driveway "B" / Market Rd.

Also, time-space diagrams were developed for the 2010 AM and PM Peak Hour BUILD conditions for Case "F" (signalized Driveway "D"). The predominant flow of traffic during the AM Peak Hour period on Unser is markedly southbound while the predominant flow of traffic during the PM Peak Hour period is markedly northbound. Upon optimization of the traffic signal system on Unser Blvd. associated with this project, the time-space diagram revealed that the green band southbound during the AM Peak Hour was unaffected by the new signal at Driveway "D" and the green band northbound during the PM Peak Hour was unaffected by the new signal at Driveway "D".

In summary there is a significant operational benefit to the adjacent transportation system by virtue of the analysis which demonstrates a reduction in delays at the intersections of Ladera Dr. / Unser Blvd. and at Ladera Dr. / Market Rd. Additionally, it was demonstrated that the installation of a traffic signal at the proposed new driveway on Unser Blvd. approximately 950 feet south of Ladera Dr. would not negatively impact the southbound AM Peak Hour predominant flow of traffic nor the northbound PM Peak Hour predominant flow of traffic on Unser Blvd.

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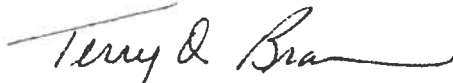
Tony Abbo, District 3 Traffic Engineer
Monday, December 31, 2007

Re: Heritage Neighborhood Marketplace Development - Access to Unser Blvd.

Therefore, on behalf of the client, I hereby request consideration and approval of the new full access signalized driveway along the east side of Unser Blvd. approximately 950 feet south of Ladera Dr. as described herein. This would constitute a relocation of the existing access control break at Hanover Rd. approximately 300 feet to the north.

Please call me if you have questions or if you need additional information.

Sincerely Yours,

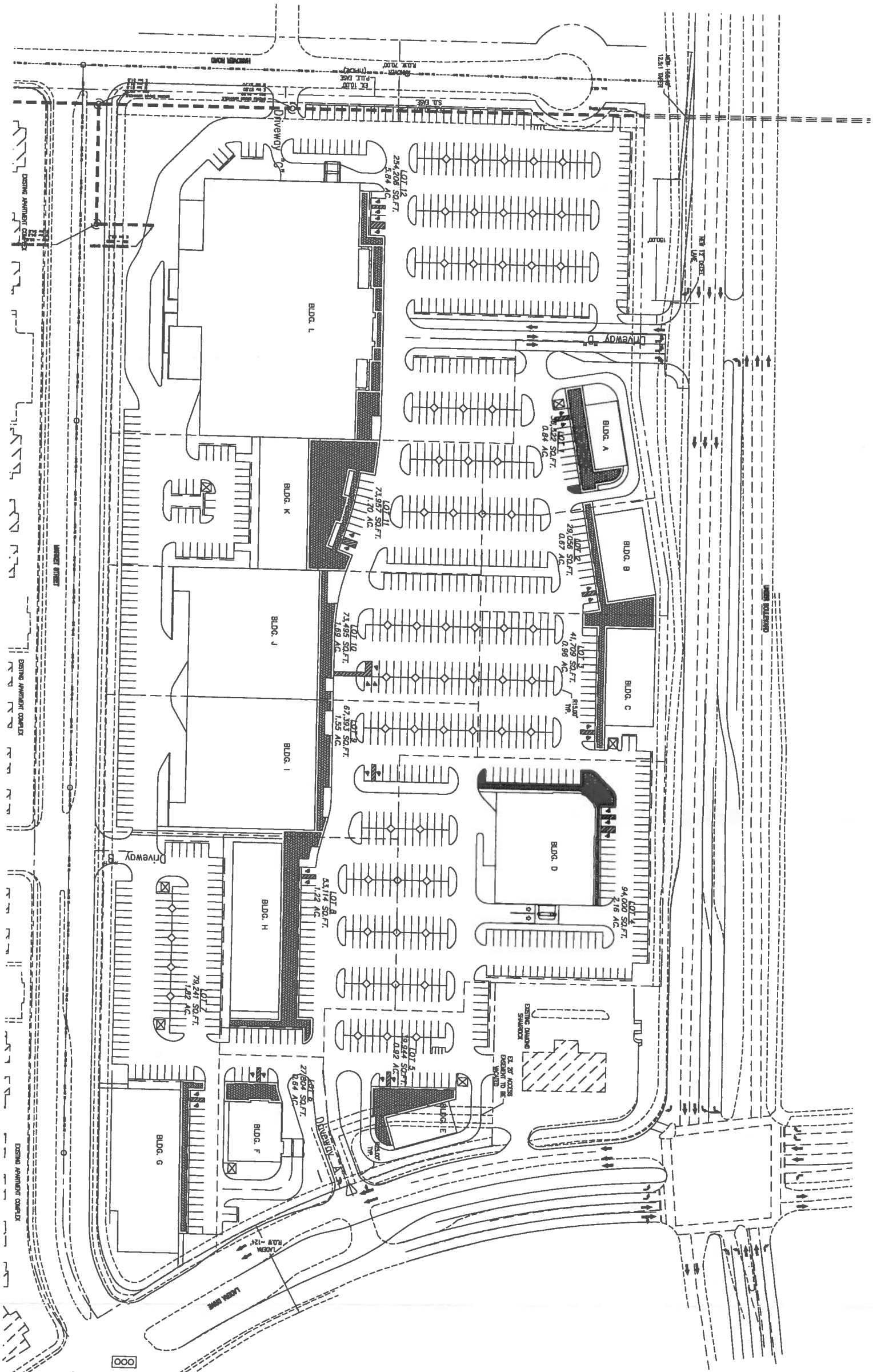

Terry O. Brown

attachments as noted

APPENDIX

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APPENDIX



LOT SUMMARY



CONSensus PLANNING, INC.
 Planning / Landscape Architecture
 302 Eighth Street NW
 Albuquerque, NM 87102
 (505) 764-9801 FAX 842-5495
 e-mail: cp@consensusplanning.com

HUTT-ZOLLARS
 363 Rio Rancho Drive NE Suite 101
 Rio Rancho, New Mexico 87224
 Phone (505) 862-5141 Fax (505) 862-3288

**SITE PLAN
 FOR
 SUBDIVISION**
 2007-101
 12.8.07



**ARCHITECTS
 ORANGE**
 141 West Street, Suite 100, Santa Fe, NM 87501
 Phone (505) 820-1111 Fax (505) 820-1112

HERITAGE NEIGHBORHOOD MARKETPLACE
ALBUQUERQUE, NM
SunCal Companies

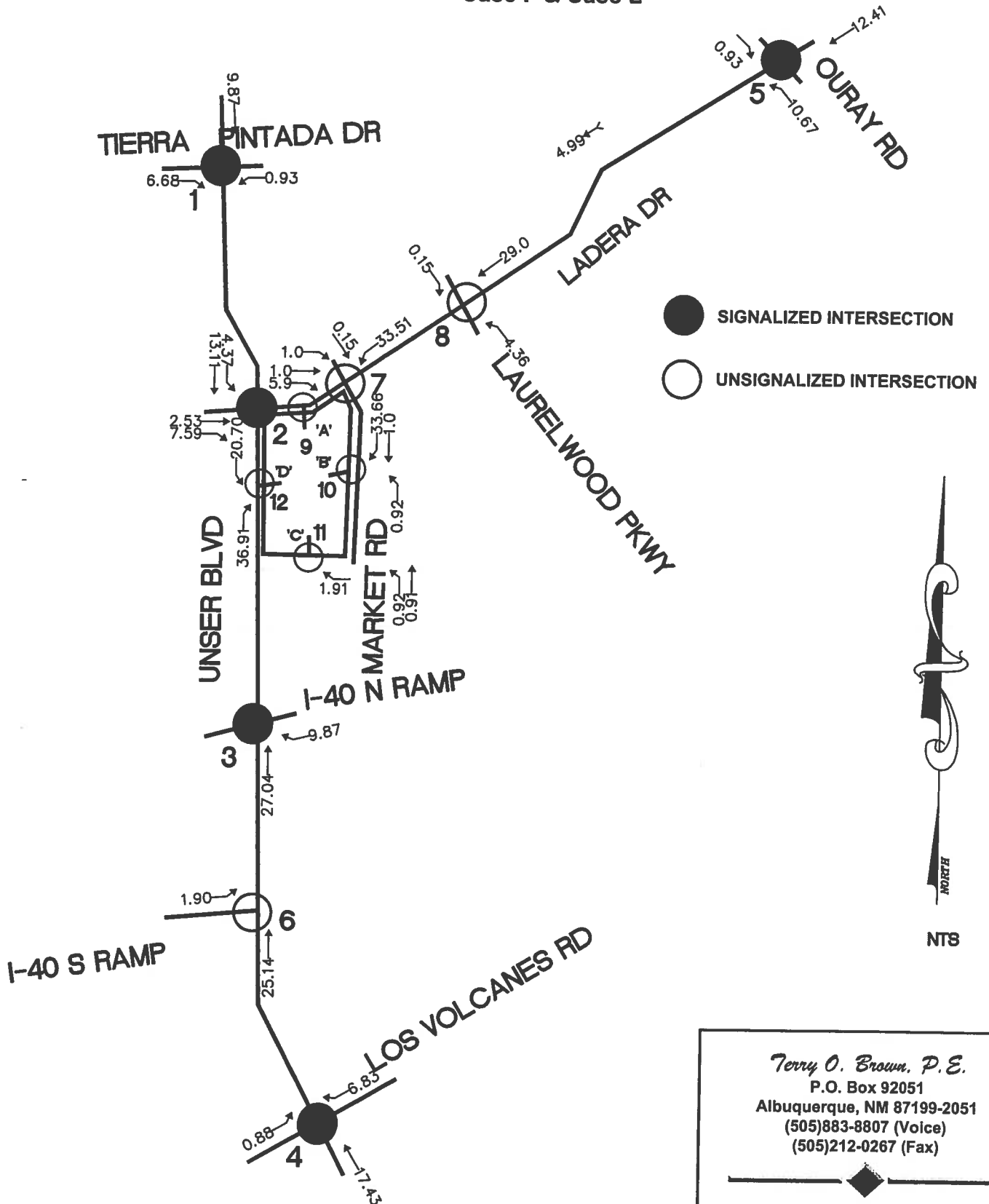
**ARCHITECTS
 ORANGE**

Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Commercial (% Entering)

Case F & Case L



Terry O. Brown, P.E.

P.O. Box 92051

Albuquerque, NM 87199-2051

(505)883-8807 (Voice)

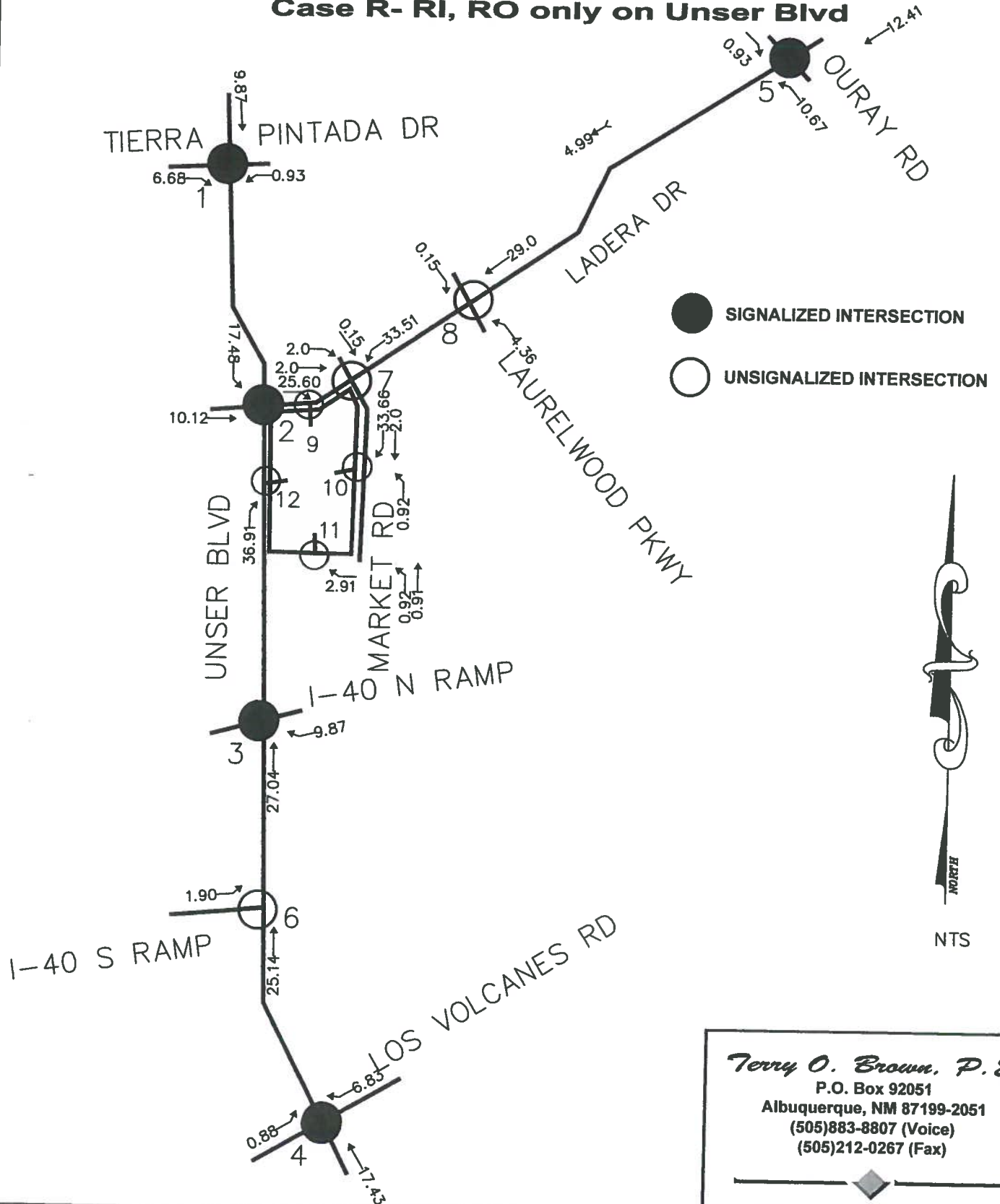
(505)212-0267 (Fax)

Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Commercial (% Entering)

Case R- RI, RO only on Unser Blvd



Terry O. Brown, P.E.

P.O. Box 92051

Albuquerque, NM 87199-2051

(505)883-8807 (Voice)

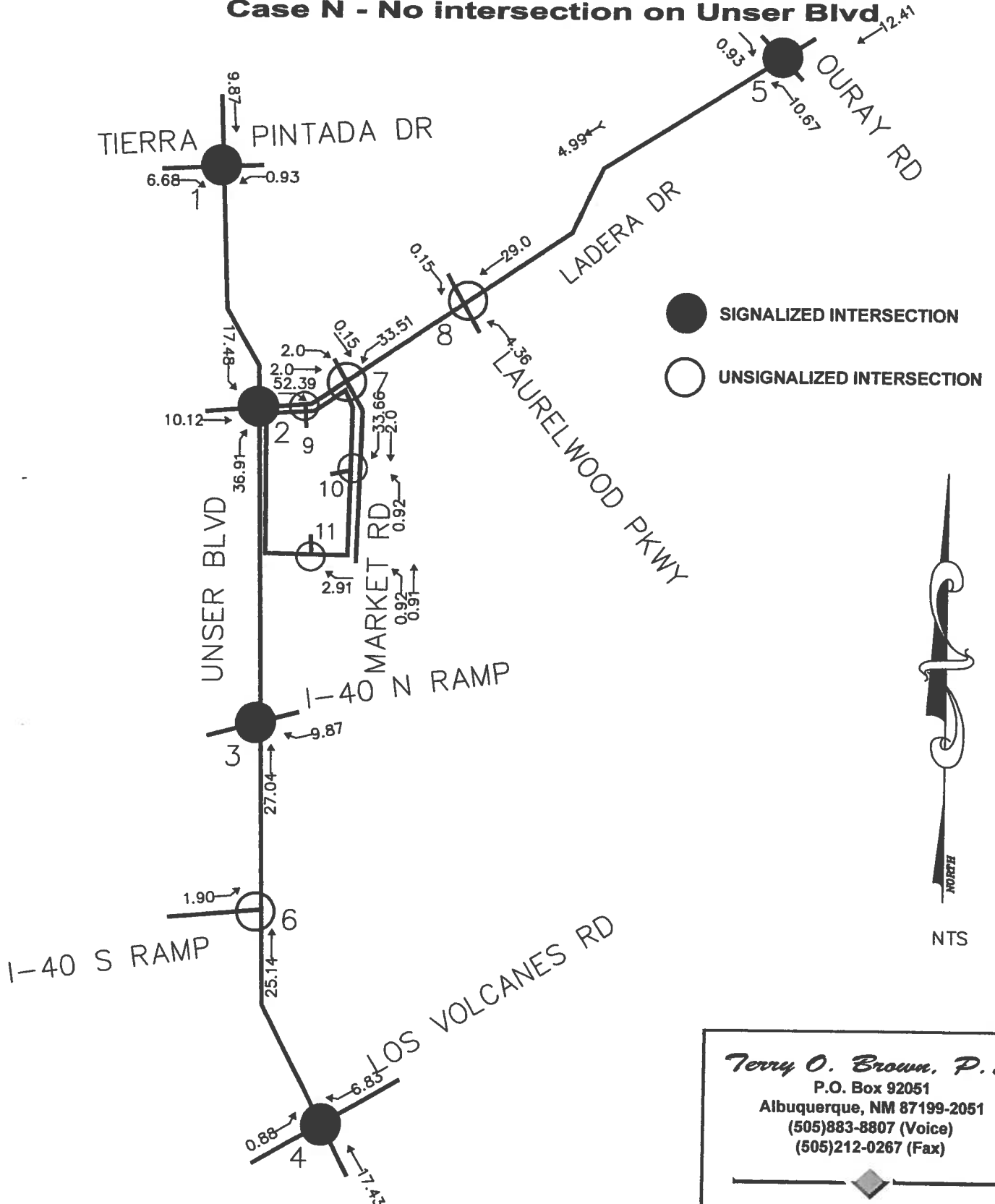
(505)212-0267 (Fax)

Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Commercial (% Entering)

Case N - No intersection on Unser Blvd



Terry O. Brown, P.E.

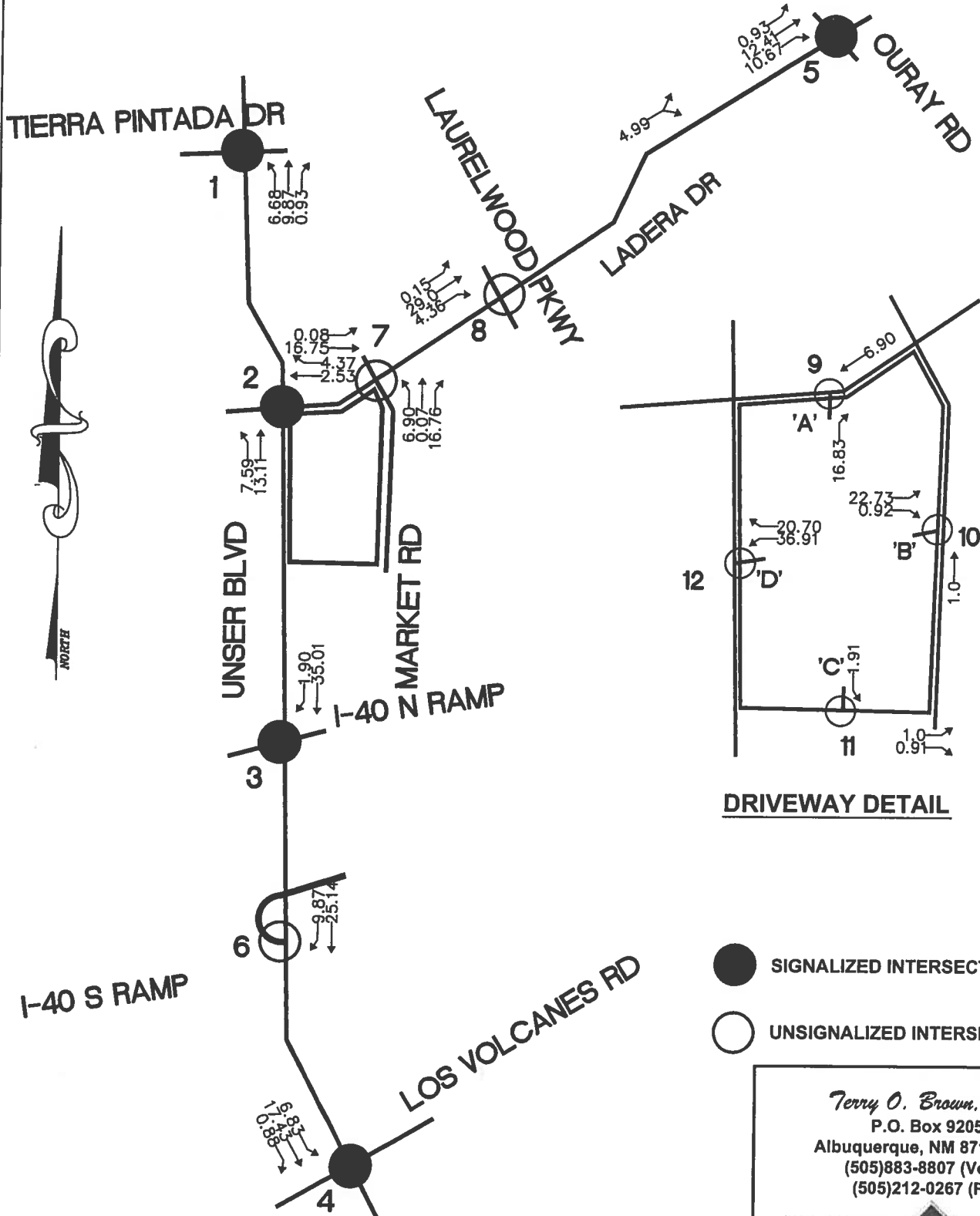
P.O. Box 92051
Albuquerque, NM 87199-2051
(505)883-8807 (Voice)
(505)212-0267 (Fax)

Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Commercial (% Exiting)

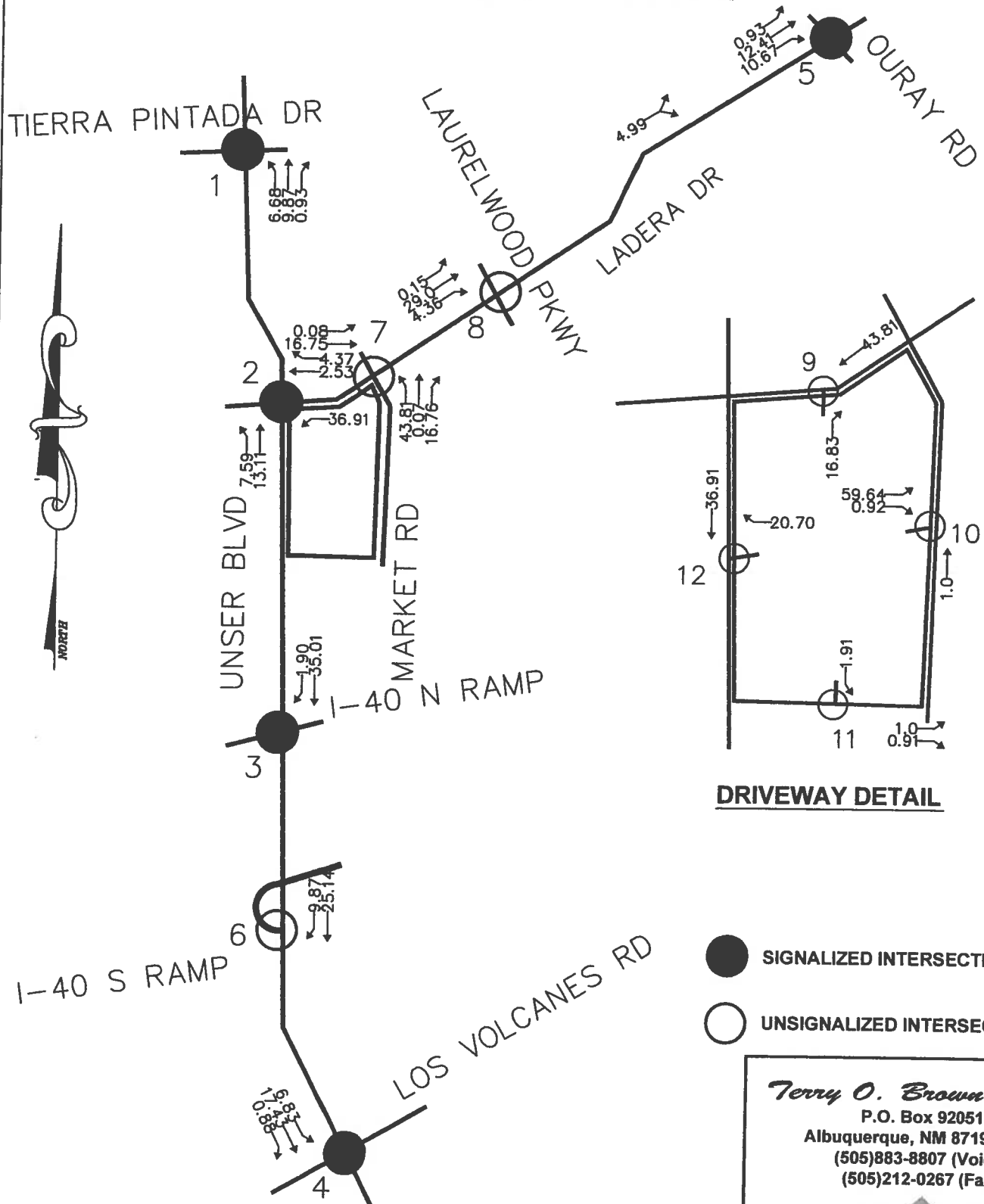
Case F - Full access on Unser Blvd



Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Commercial (% Exiting)
Case L & Case R



Terry O. Brown, P.E.

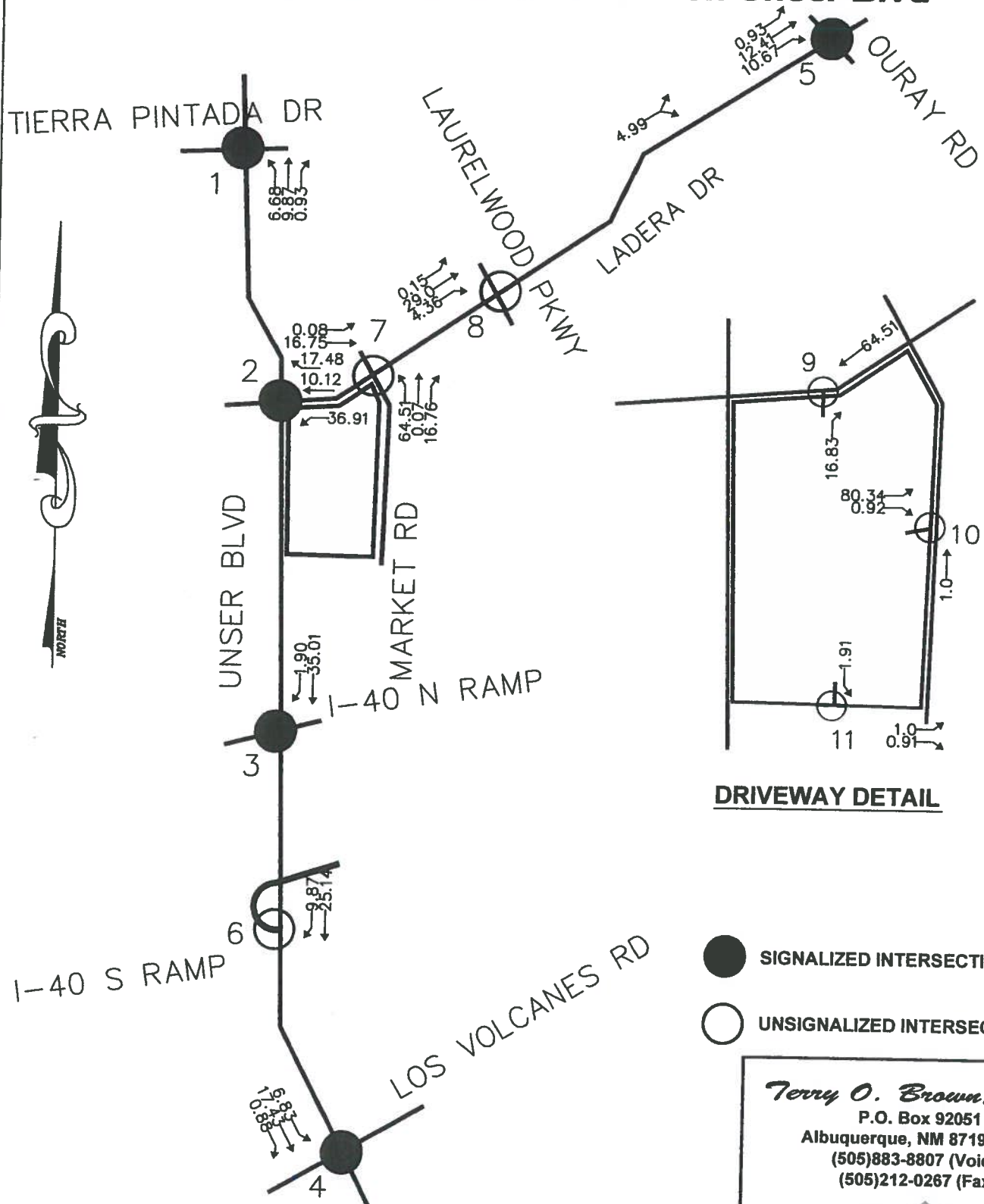
P.O. Box 92051
Albuquerque, NM 87199-2051
(505)883-8807 (Voice)
(505)212-0267 (Fax)

Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Commercial (% Exiting)

Case N - No Intersection on Unser Blvd

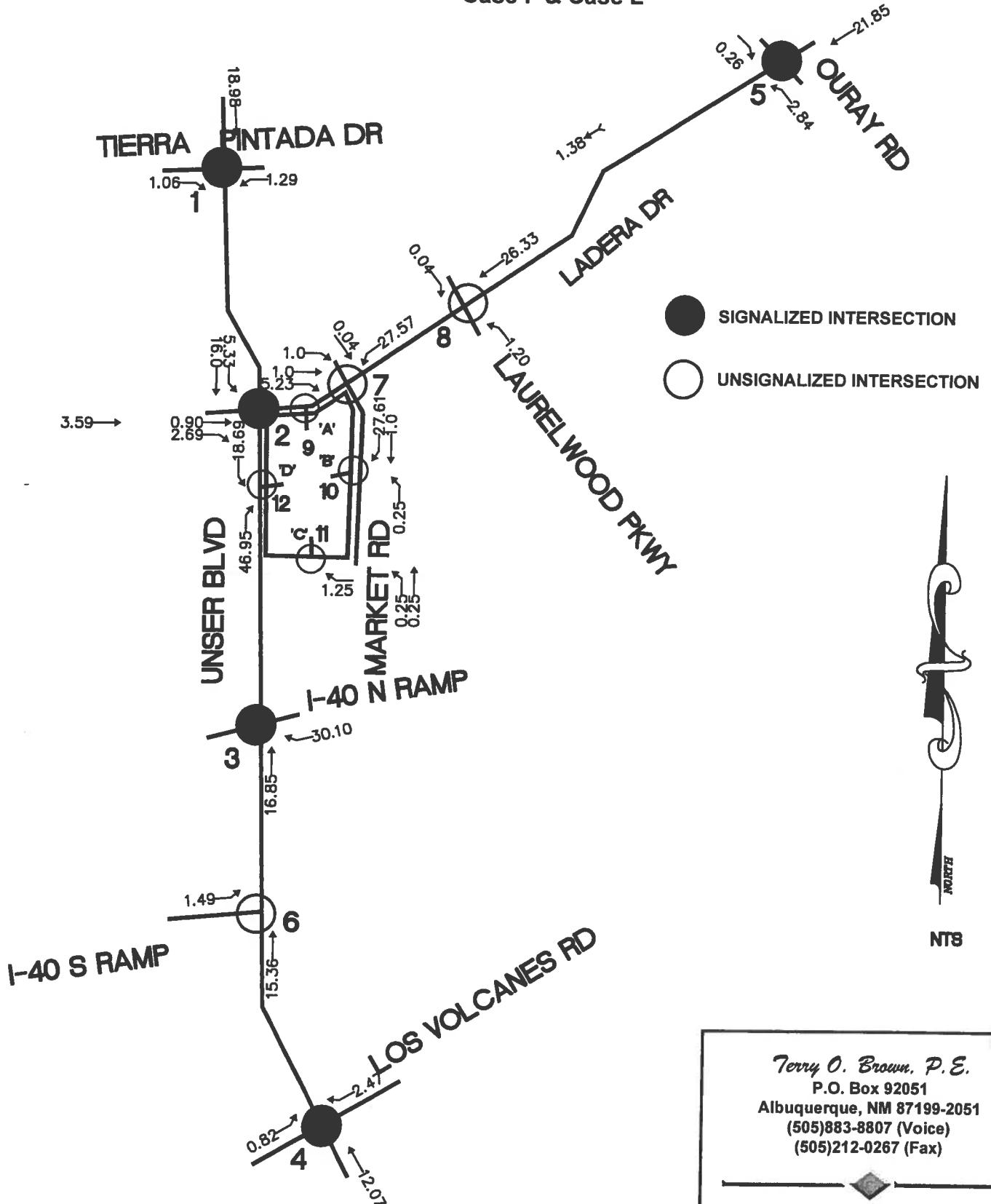


Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Office (% Entering)

Case F & Case L

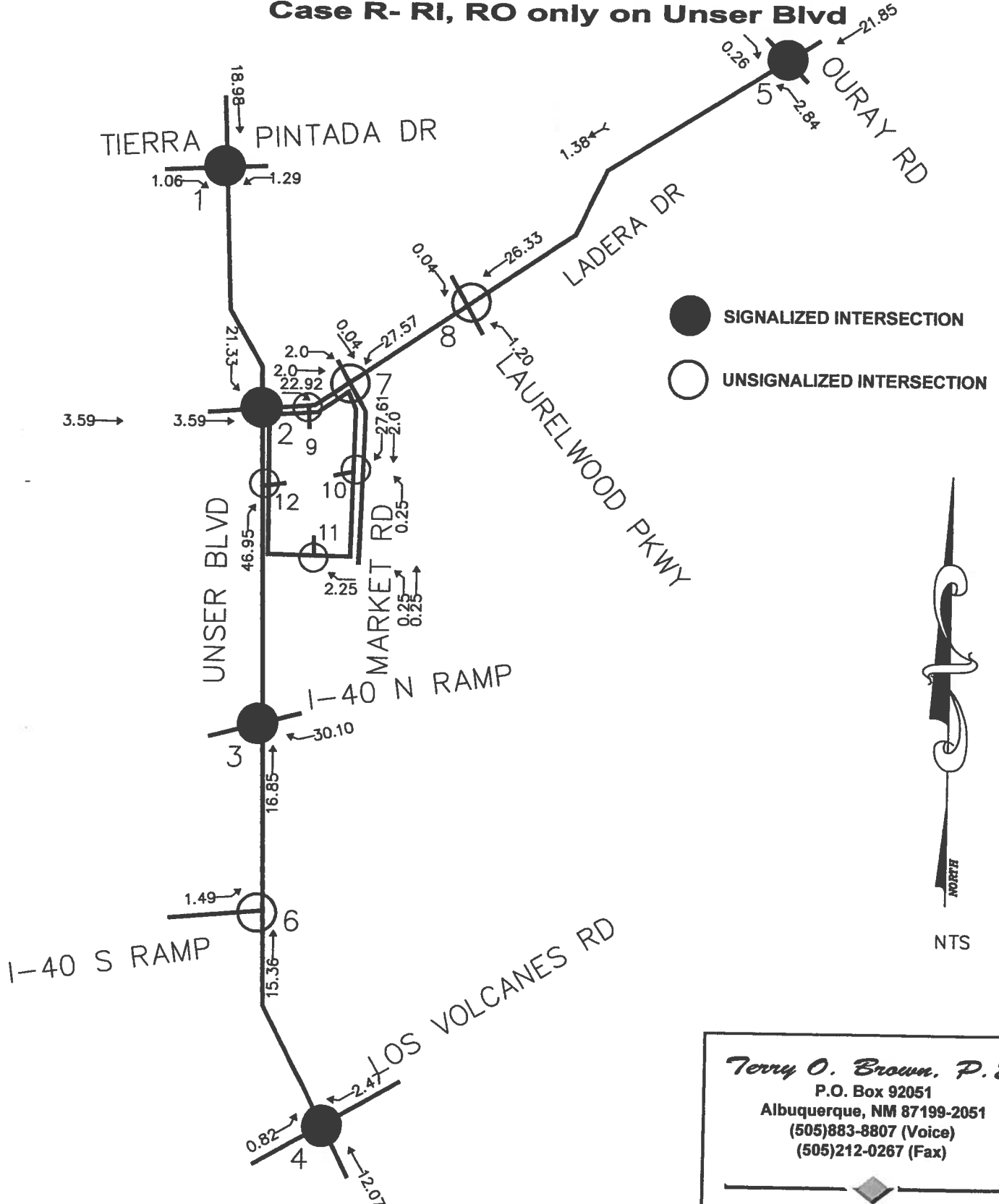


Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Office (% Entering)

Case R- RI, RO only on Unser Blvd



Terry O. Brown, P.E.

P.O. Box 92051

Albuquerque, NM 87199-2051

(505)883-8807 (Voice)

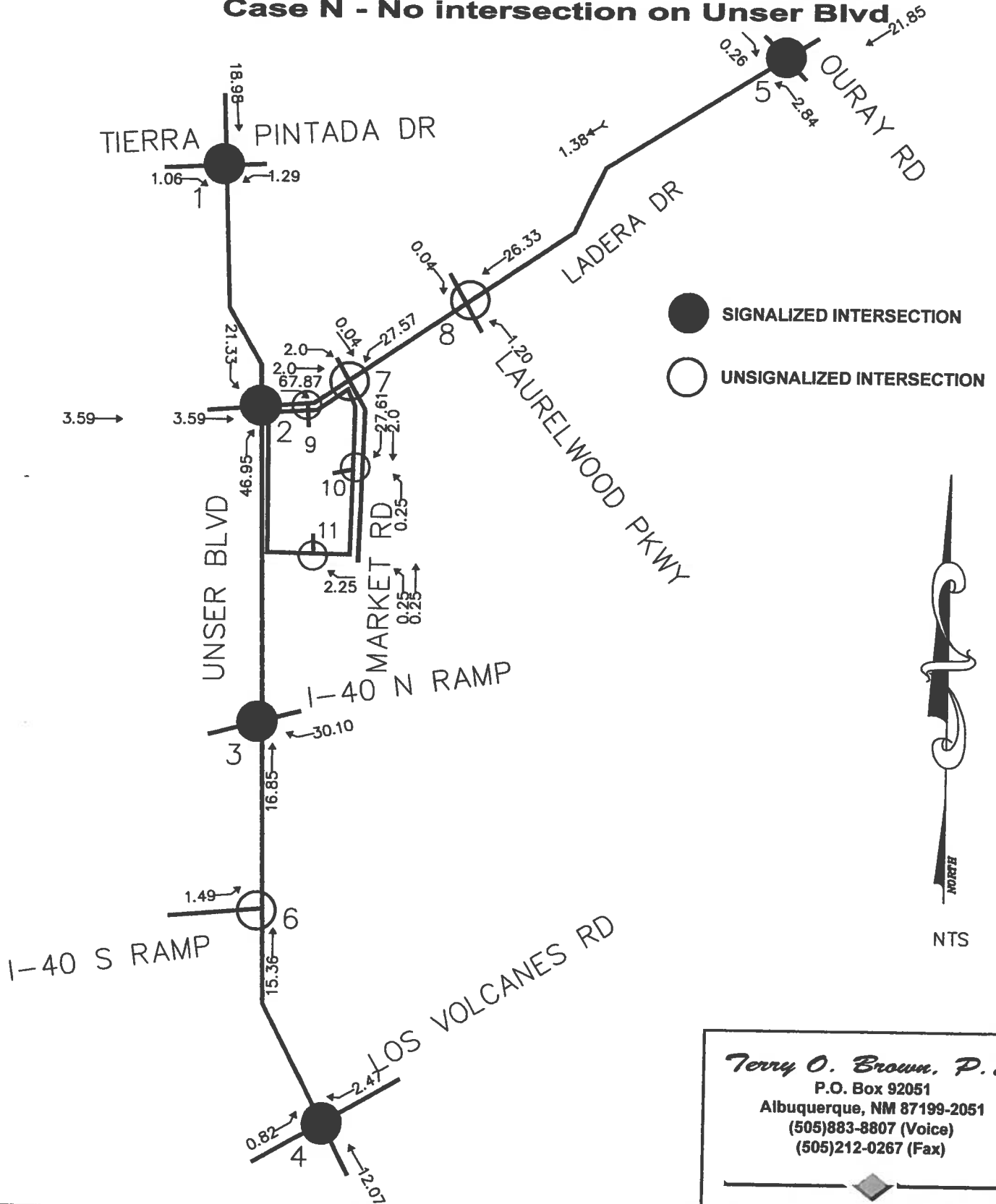
(505)212-0267 (Fax)

Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Office (% Entering)

Case N - No intersection on Unser Blvd



Terry O. Brown, P.E.

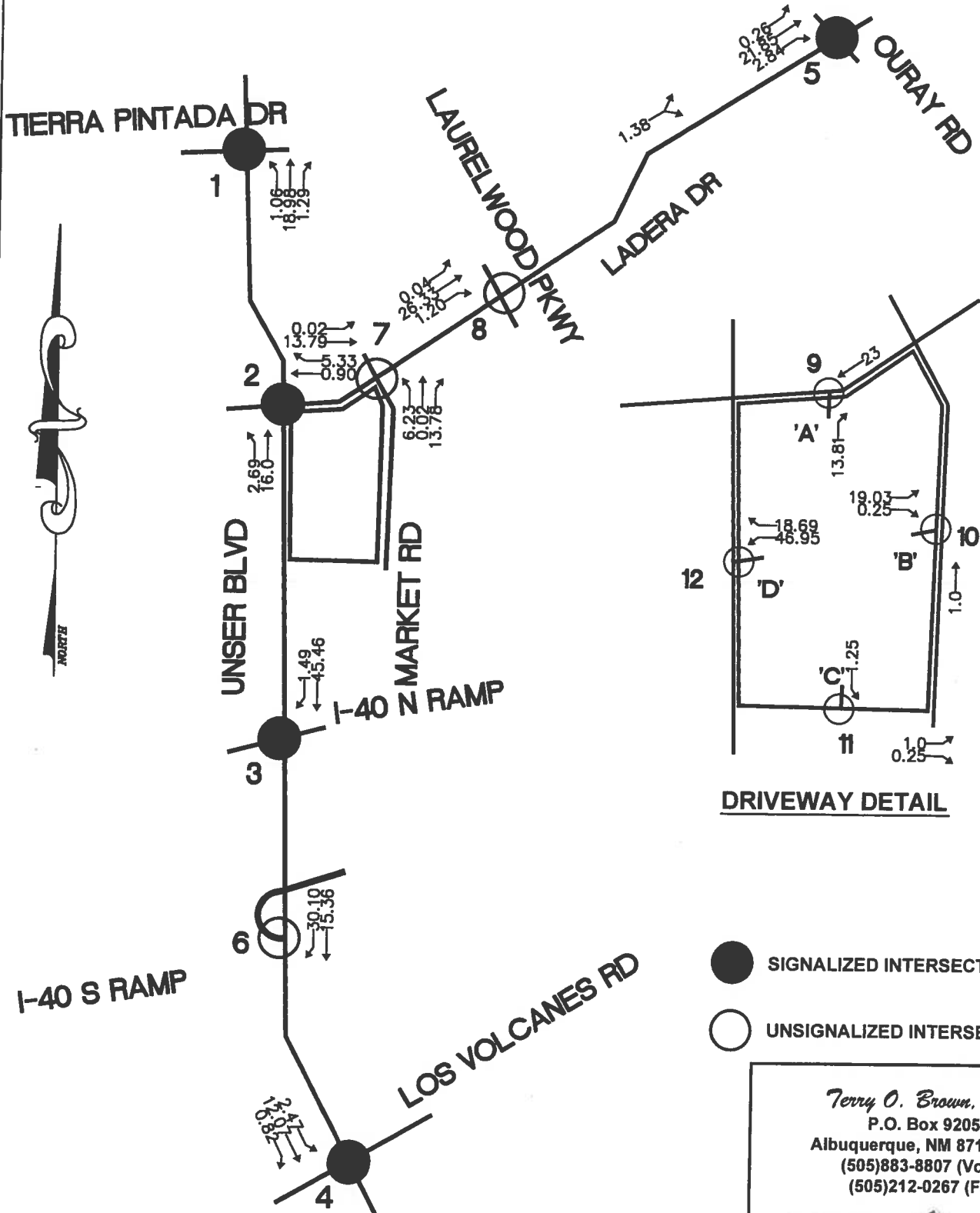
P.O. Box 92051
Albuquerque, NM 87199-2051
(505)883-8807 (Voice)
(505)212-0267 (Fax)

Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Office (% Exiting)

Case F - Full access on Unser Blvd



DRIVEWAY DETAIL

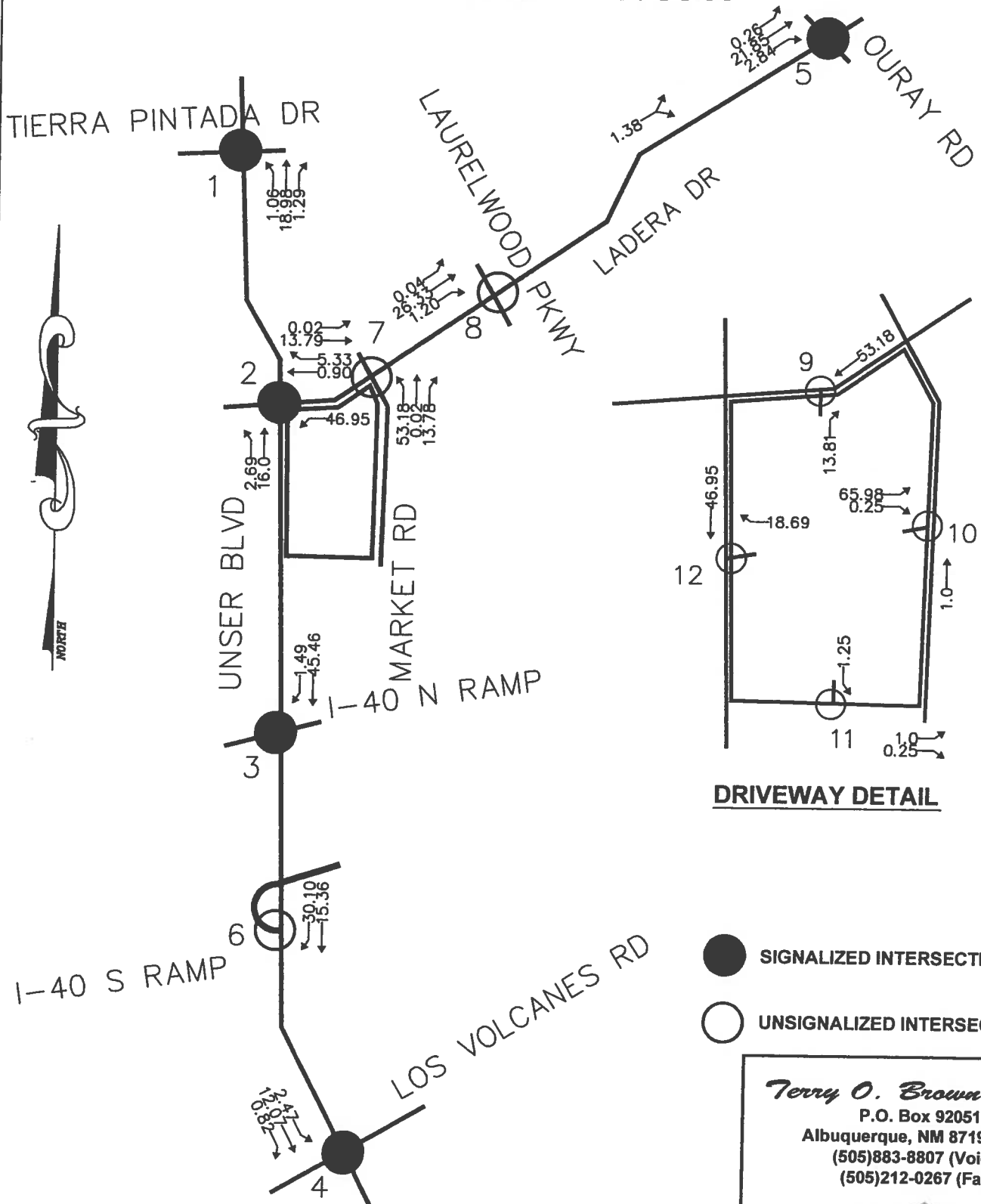
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION

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Albuquerque, NM 87199-2051
(505)883-8807 (Voice)
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Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Office (% Exiting)
Case L & Case R



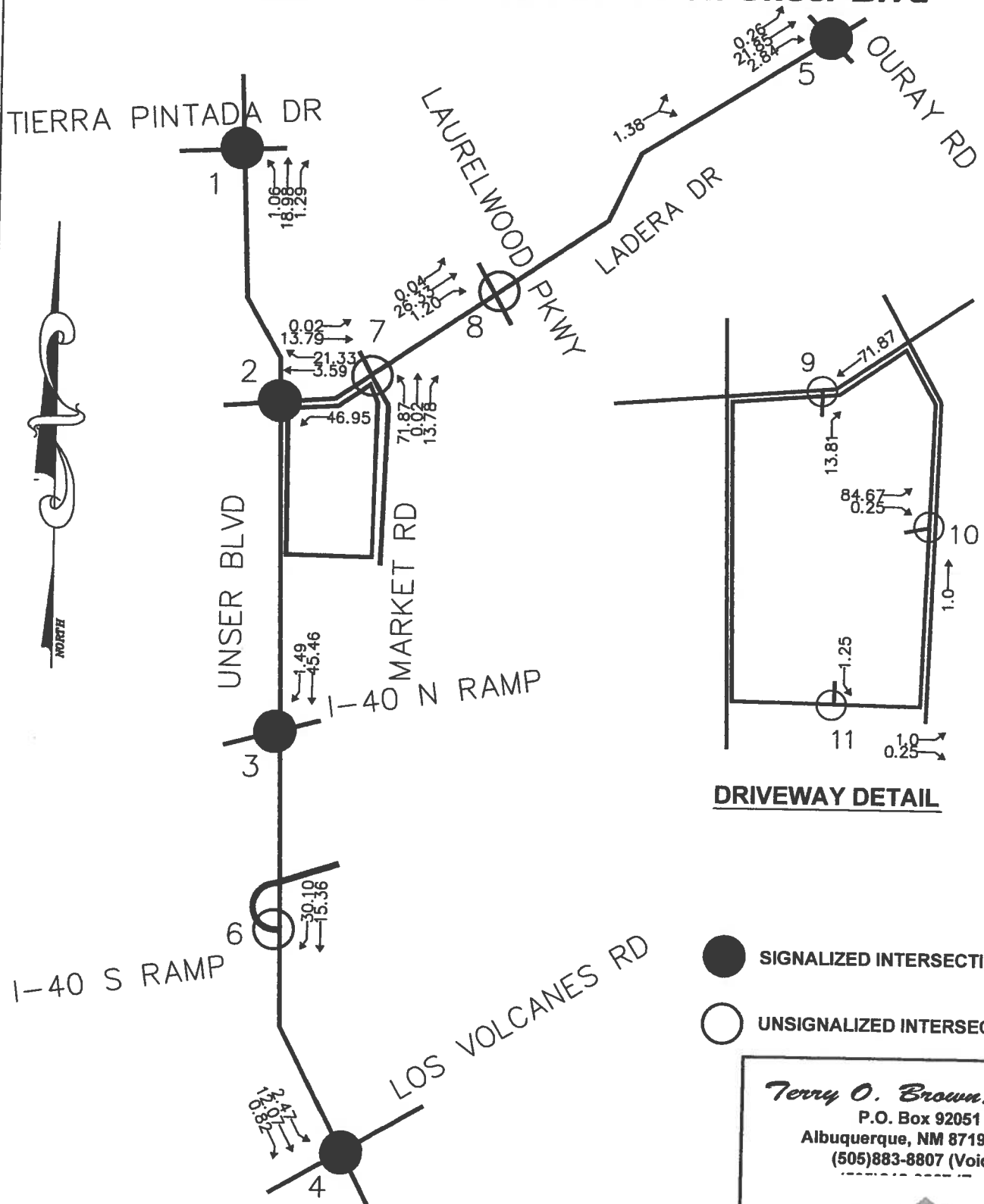
Terry O. Brown, P.E.

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Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Trip Assignments - Office (% Exiting)
Case N - No Intersection on Unser Blvd



DRIVEWAY DETAIL

- SIGNALIZED INTERSECTIONS**
- UNSIGNALIZED INTERSECTION**

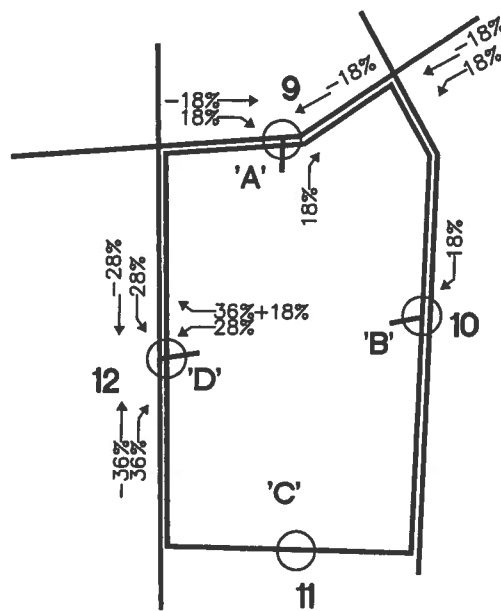
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P.O. Box 92051
Albuquerque, NM 87199-2051
(505)883-8807 (Voice)

Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Passby Trips

Case F - Full access on Unser Blvd



DRIVEWAY DETAIL



SIGNALIZED INTERSECTION



UNSIGNALIZED INTERSECTION

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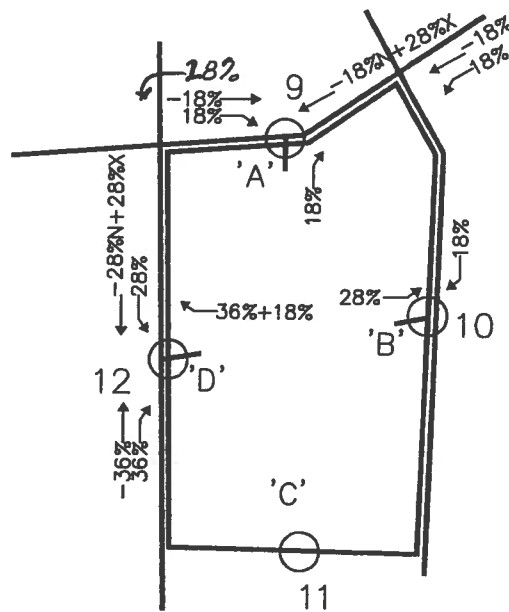


Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Passby Trips

Case L - RI, RO, LI only on Unser Blvd



DRIVEWAY DETAIL

● SIGNALIZED INTERSECTIONS

○ UNSIGNALIZED INTERSECTION

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Albuquerque, NM 87199-2051
(505)883-8807 (Voice)
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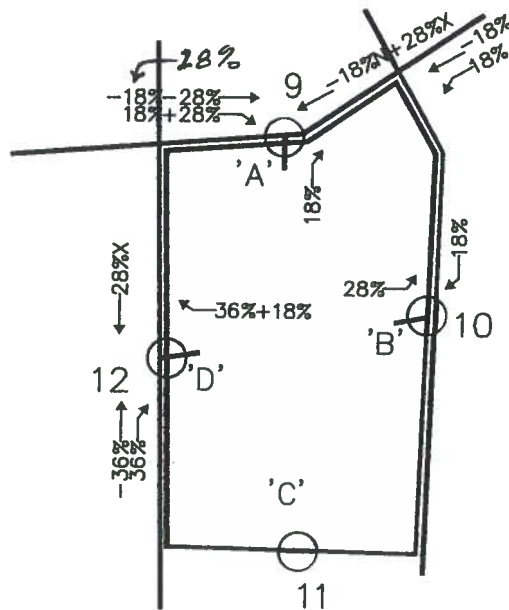


Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Passby Trips

Case R- RI, RO only on Unser Blvd



DRIVEWAY DETAIL

-  SIGNALIZED INTERSECTIONS
-  UNSIGNALIZED INTERSECTION

Terry O. Brown, P.E.

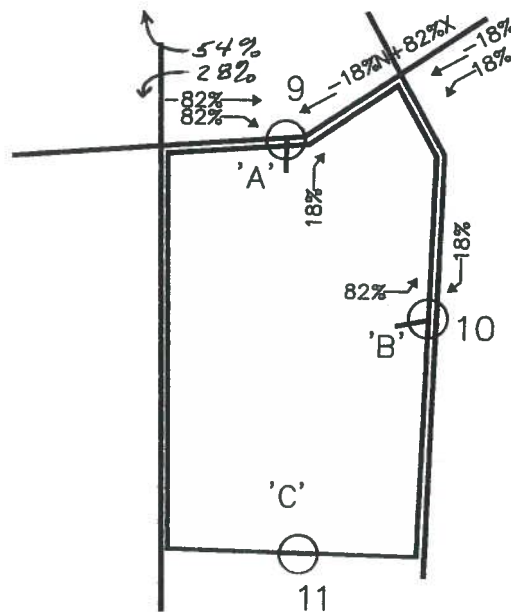
P.O. Box 92051
Albuquerque, NM 87199-2051
(505)883-8807 (Voice)
(505)212-0267 (Fax)

Heritage Neighborhood Center

(Ladera Dr / Unser Blvd)

Passby Trips

Case N - No intersection on Unser Blvd



DRIVEWAY DETAIL

- SIGNALIZED INTERSECTIONS
- UNSIGNALIZED INTERSECTION

Terry O. Brown, P.E.

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

Analysis of
2010 BUILD Conditions
CASE "F"
(Full Access Driveway on Unser Blvd.)

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements SUMMARY PROPOSED DEVELOPMENT (2010) - 100% Development

Case F - full access at Intersection 12

INTERSECTION:

Summary

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	
199	446	557	542	186	123	134	653	376	99	1,279	105	
199	460	597	542	196	140	163	704	376	125	1,355	105	

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	
192	319	322	594	480	249	560	1,433	708	263	1,087	333	
192	334	369	594	496	279	607	1,524	708	290	1,169	333	

Ladera Dr / Market Rd

(7)

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

0.88			0.79			0.86			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	425	28	14	365	0	113	0	72	0	0	0	
0	425	28	15	398	0	113	0	72	0	0	0	
0	489	34	201	398	0	140	0	136	0	1	0	

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

0.93			0.80			0.88			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	513	156	48	463	0	83	0	36	0	0	0	
0	559	170	52	505	0	83	0	36	0	0	0	
0	669	176	260	505	0	129	0	146	0	1	0	

Ladera Dr / Driveway 'A'

(9)

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

0.79			0.79			0.85			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	520	0	0	466	0	0	0	0	0	0	0	
0	520	0	0	466	0	0	0	0	0	0	0	
0	526	33	0	493	0	0	0	65	0	0	0	

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

0.93			0.93			0.85			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	648	0	0	652	0	0	0	0	0	0	0	
0	706	0	0	711	0	0	0	0	0	0	0	
0	664	85	0	709	0	0	0	163	0	0	0	

Driveway 'B' / Market Rd

(10)

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

0.85			0.85			0.86			0.86			PHF
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	185	0	0	42	0	
0	0	0	0	0	0	0	185	0	0	42	0	
88	0	3	0	0	0	5	189	0	0	48	187	

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

0.85			0.85			0.88			0.88			PHF
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	119	0	0	204	0	
0	0	0	0	0	0	0	119	0	0	204	0	
150	0	5	0	0	0	6	126	0	0	210	257	

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Ladera Dr / Unser Blvd

INTERSECTION:

E-W Street: Ladera Dr
N-S Street: Unser Blvd

(2)

Year of Existing Counts: 2007
Implementation Year: 2010

Growth Rates

	0.68%			6.77%			4.58%			3.68%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	175	251	365	317	105	44	48	429	224	45	906	58
Background Traffic Growth	4	5	7	84	21	9	7	59	31	5	100	6
Subtotal	179	256	372	381	126	53	55	488	255	50	1,006	64
I-40 / Unser Development	0	0	43	161	0	0	32	32	121	0	42	0
Ladera Business Park	0	0	0	0	0	3	0	28	0	5	47	0
Previous Development from below	20	190	142	0	60	67	47	105	0	44	184	41
Subtotal (NO BUILD - A.M.)	199	446	557	542	186	123	134	653	376	99	1,279	105
Percent Commercial Trips Generated(Entering)	0.00%	2.53%	7.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.37%	13.11%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	2.53%	4.37%	7.59%	13.11%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.90%	2.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.33%	16.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.90%	5.33%	2.69%	16.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	14	40	0	10	17	29	51	0	26	76	0
Total AM Peak Hour BUILD Volumes	199	460	597	542	196	140	163	704	376	125	1,355	105

	3.98%			2.50%			4.15%			3.12%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	140	182	138	281	264	107	288	860	372	94	547	184
Background Traffic Growth	17	22	16	21	20	8	36	107	46	9	51	17
Subtotal	157	204	154	302	284	115	324	967	418	103	598	201
I-40 / Unser Development	0	0	78	292	0	0	77	77	290	0	77	0
Ladera Business Park	0	0	0	0	0	14	0	123	0	23	204	0
Previous Development from below	35	115	90	0	196	120	159	268	0	137	208	132
Subtotal (NO BUILD - P.M.)	192	319	322	594	480	249	560	1,433	708	263	1,087	333
Percent Commercial Trips Generated(Entering)	0.00%	2.53%	7.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.37%	13.11%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	2.53%	4.37%	7.59%	13.11%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.90%	2.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.33%	16.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.90%	5.33%	2.69%	16.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	15	47	0	18	30	47	91	0	27	82	0
Total PM Peak Hour BUILD Volumes	192	334	369	594	498	279	607	1,524	708	290	1,169	333

Number of Commercial Trips Generated	Entering: 499	Exiting: 378	A.M.	100% Commercial Development
Number of Office Trips Generated	602	580	P.M.	
	68	9	A.M.	100% Office Development
	20	96	P.M.	

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	175	251	365	317	105	44	48	429	224	45	906	58
2007 PM Peak Hr. Volumes	140	182	138	281	264	107	288	860	372	94	547	184

Previous Developments - AM Peak Hour Volumes

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Watershed Residential & Retail	0	78	0	0	24	0	0	6	0	0	17	0
Storm Cloud Dev. w/ others	0	112	142	0	36	0	47	44	0	0	131	28
98th / Unser Development	20	0	0	0	0	67	0	55	0	44	36	13
Subtotal	20	190	142	0	60	67	47	105	0	44	184	41

Previous Developments - PM Peak Hour Volumes

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Watershed Residential & Retail	0	44	0	0	78	0	0	19	0	0	12	0
Storm Cloud Dev. w/ others	0	71	90	0	118	0	159	149	0	0	83	91
98th / Unser Development	35	0	0	0	0	120	0	99	0	137	113	41
Subtotal	35	115	90	0	196	120	159	268	0	137	208	132

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 (2030 Data Set)

2005 AM Link Volume	289	355	530	1526
2005 PM Link Volume	270	261	2016	1163
2030 AM Link Volume	914	1192	1440	1859
2030 PM Link Volume	581	1027	2970	1417

Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	0.68%	6.77%	4.58%	3.68%
2007-2030 PM Growth Rates	3.98%	2.50%	4.15%	3.12%

Growth Rate to Apply to 2005 Model Volumes to Match 2025 Forecasts

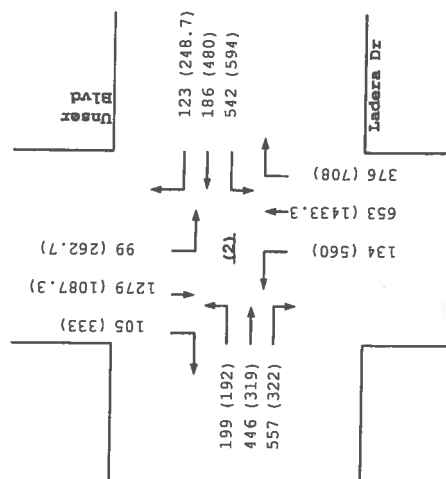
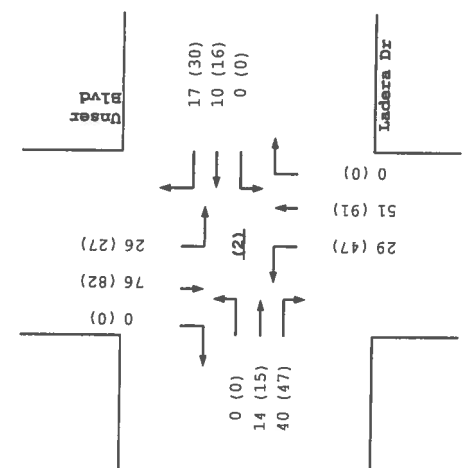
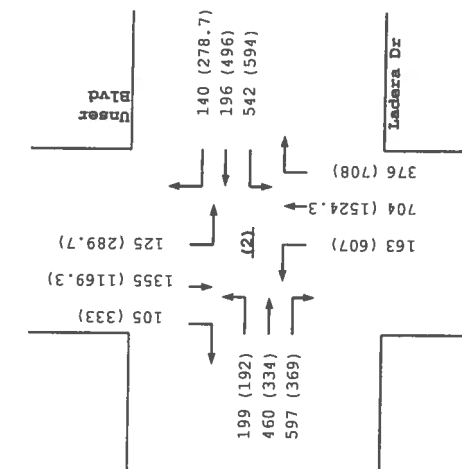
2005-2030 AM Growth Rates	8.23%	9.43%	6.87%	0.87%
2005-2030 PM Growth Rates	9.05%	11.74%	1.89%	0.87%

2010
BUILD

Trips

2010
NO BUILD

Ladera Dr / Unser Blvd



Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Ladera Dr / Market Rd

INTERSECTION :

E-W Street: Ladera Dr

(7)

N-S Street: Market Rd

Year of Existing Counts 2007

Implementation Year 2010

Growth Rates

	0.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	425	28	14	365	0	113	0	72	0	0	0
Background Traffic Growth	0	0	0	1	33	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	425	28	15	398	0	113	0	72	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	1.00%	33.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%
Percent Commercial Trips Generated(Exiting)	0.08%	16.75%	0.00%	0.00%	0.00%	0.00%	6.90%	0.07%	16.76%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	1.00%	27.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%
Percent Office Trips Generated(Exiting)	0.02%	13.79%	0.00%	0.00%	0.00%	0.00%	6.23%	0.02%	13.78%	0.00%	0.00%	0.00%
Total Trips Generated	0	64	6	186	0	0	27	0	64	0	1	0
Total AM Peak Hour BUILD Volumes	0	489	34	201	398	0	140	0	136	0	1	0

	3.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	513	156	48	463	0	83	0	36	0	0	0
Background Traffic Growth	0	46	14	4	42	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	559	170	52	505	0	83	0	36	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	1.00%	33.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%
Percent Commercial Trips Generated(Exiting)	0.08%	16.75%	0.00%	0.00%	0.00%	0.00%	6.90%	0.07%	16.76%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	1.00%	27.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%
Percent Office Trips Generated(Exiting)	0.02%	13.79%	0.00%	0.00%	0.00%	0.00%	6.23%	0.02%	13.78%	0.00%	0.00%	0.00%
Total Trips Generated	0	110	6	208	0	0	46	0	110	0	1	0
Total PM Peak Hour BUILD Volumes	0	669	176	260	505	0	129	0	146	0	1	0

	Entering	Exiting	
Number of Commercial Trips Generated	499	378	A.M. 100% Commercial Development
	602	580	P.M.
Number of Office Trips Generated	68	9	A.M. 100% Office Development
	20	96	P.M.

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
2007 AM Peak Hr. Volumes	0	425	28	14	365	0	113	0	72	0	0	0
2007 PM Peak Hr. Volumes	0	513	156	48	463	0	83	0	36	0	0	0

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

2007 AM Link Volume	453	379	185	0
2007 PM Link Volume	669	511	119	0

Based on MRCOG Model (2030 Data Set)

2005 AM Link Volume	355	355	0	0
2005 PM Link Volume	261	261	0	0
2030 AM Link Volume	452	1202	30	0
2030 PM Link Volume	1062	1042	47	0

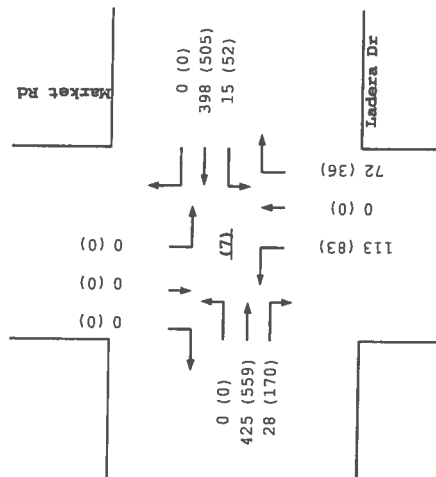
Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	-0.01%	9.44%	-3.64%	#DIV/0!
2007-2030 PM Growth Rates	2.56%	4.62%	-2.63%	#DIV/0!

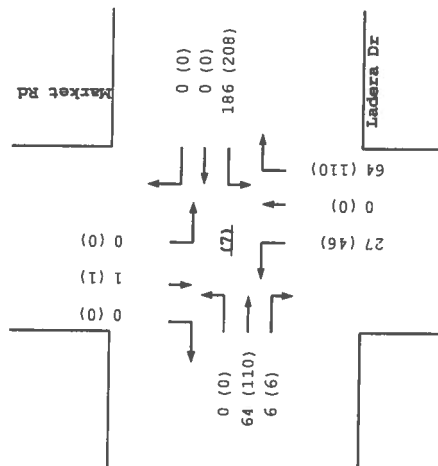
Growth Rate to Apply to 2005 Model Volumes to Match 2030 Forecasts

2005-2030 AM Growth Rates	1.09%	9.54%	#DIV/0!	#DIV/0!
2005-2030 PM Growth Rates	12.28%	11.97%	#DIV/0!	#DIV/0!

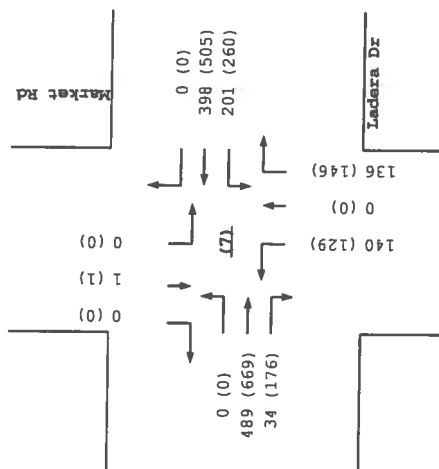
2010
NO BUILD



Trips



2010
BUILD



Ladera Dr / Market Rd

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Ladera Dr / Driveway 'A'

INTERSECTION: E-W Street: Ladera Dr (9)

N-S Street: Driveway 'A'

Year of Existing Counts 2007

Implementation Year 2010

Growth Rates

	0.00%			0.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	520	0	0	466	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	520	0	0	466	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	1.00%	5.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	6.90%	0.00%	0.00%	0.00%	16.83%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	1.00%	5.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	6.23%	0.00%	0.00%	0.00%	13.81%	0.00%	0.00%	0.00%
Total Trips Generated	0	6	33	0	27	0	0	0	65	0	0	0
Total AM Peak Hour BUILD Volumes	0	526	33	0	493	0	0	0	65	0	0	0

	3.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	648	0	0	652	0	0	0	0	0	0	0
Background Traffic Growth	0	58	0	0	59	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	706	0	0	711	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	1.00%	5.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	6.90%	0.00%	0.00%	0.00%	16.83%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	1.00%	5.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	6.23%	0.00%	0.00%	0.00%	13.81%	0.00%	0.00%	0.00%
Total Trips Generated	0	6	37	0	46	0	0	0	111	0	0	0
Subtotal PM Pk Hr. BUILD Volumes	0	712	37	0	757	0	0	0	111	0	0	0
Pass-by Trip Adjustments	0	-48	48	0	-48	0	0	0	52	0	0	0
Total PM Peak Hour BUILD Volumes	0	664	85	0	709	0	0	0	163	0	0	0

Number of Commercial Trips Generated	Entering 499	Exiting 378	A.M.	100% Commercial Development
Number of Office Trips Generated	602	580	P.M.	
	68	9	A.M.	100% Office Development
	20	96	P.M.	

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	0	520	0	0	466	0	0	0	0	0	0	0
2007 PM Peak Hr. Volumes	0	648	0	0	652	0	0	0	0	0	0	0

MRCOG Forecast Volumes Worksheet

Based on 2007 Traffic Count

2007 AM Link Volume	520	466	0	0
2007 PM Link Volume	648	652	0	0

Based on MRCOG Model (2030 Data Set)

2005 AM Link Volume	370	327	1248	1049
2005 PM Link Volume	313	1024	1058	1248
2030 AM Link Volume	1468	848	1609	777
2030 PM Link Volume	923	1753	1389	1534

Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	7.93%	3.56%	#DIV/0!	#DIV/0!
2007-2030 PM Growth Rates	1.85%	7.34%	#DIV/0!	#DIV/0!

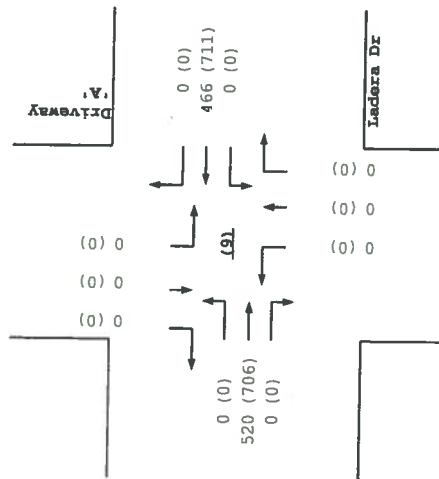
Growth Rate to Apply to 2005 Model Volumes to Match 2030 Forecasts

2005-2030 AM Growth Rates	11.87%	6.37%	1.16%	-1.04%
2005-2030 PM Growth Rates	7.80%	2.85%	1.25%	0.92%

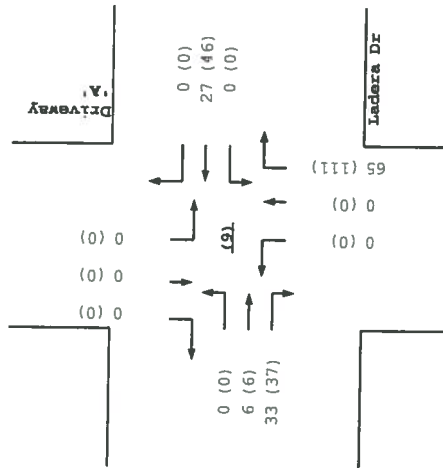
Pass-by Trip Calculations:

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
PM Pass-by Trips	0.00%	-18.00%	18.00%	0.00%	-18.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Entering	0	-48	48	0	-48	0	0	0	0	0	0	0
Volume Entering	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	18.00%	0.00%	0.00%	0.00%
Percent Exiting	0	0	0	0	0	0	0	0	52	0	0	0
Volume Exiting	0	-48	48	0	-48	0	0	0	52	0	0	0
Net PM Passby Trips	0	-48	48	0	-48	0	0	0	52	0	0	0
Entering	0			0			0			0		
Exiting	0			0			0			0		
Pass-by Trips	0			0			0			0		
	267			290								

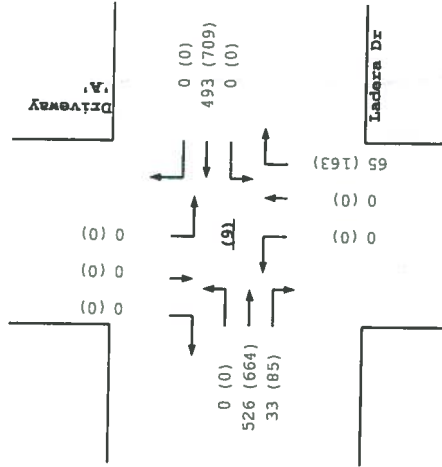
2010
NO BUILD



Trips



2010
BUILD



Ladera Dr / Driveway 'A'

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Driveway 'B' / Market Rd

INTERSECTION:

E-W Street: Driveway 'B' (10)

N-S Street: Market Rd

Year of Existing Counts 2007

Implementation Year 2010

Growth Rates

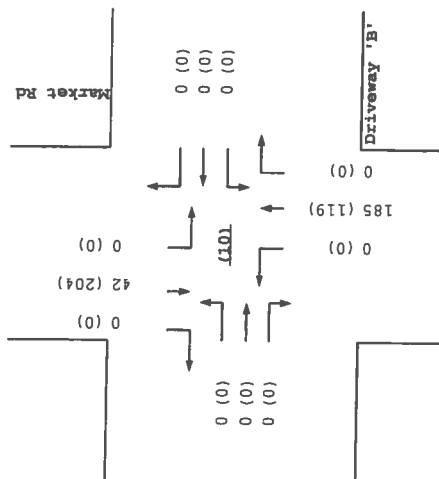
	0.00%			0.00%			0.00%			0.00%		
	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	185	0	0	42	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	0	0	0	0	0	0	185	0	0	42	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.92%	0.00%	0.00%	0.00%	1.00%	33.66%
Percent Commercial Trips Generated(Exiting)	22.73%	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	1.00%	27.61%
Percent Office Trips Generated(Exiting)	19.03%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
- Total Trips Generated	88	0	3	0	0	0	5	4	0	0	6	187
Total AM Peak Hour BUILD Volumes	88	0	3	0	0	0	5	189	0	0	48	187

	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	119	0	0	204	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	0	0	0	0	0	0	119	0	0	204	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.92%	0.00%	0.00%	0.00%	1.00%	33.66%
Percent Commercial Trips Generated(Exiting)	22.73%	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	1.00%	27.61%
Percent Office Trips Generated(Exiting)	19.03%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	150	0	5	0	0	0	6	7	0	0	6	209
Total PM Peak Hour BUILD Volumes	150	0	5	0	0	0	6	126	0	0	210	257

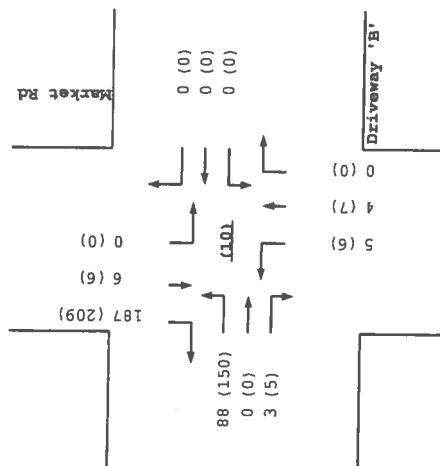
	Entering	Exiting	
Number of Commercial Trips Generated	499	378	A.M. 100% Commercial Development
	602	580	P.M.
Number of Office Trips Generated	88	9	A.M. 100% Office Development
	20	96	P.M.

	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	0	0	0	0	0	0	0	185	0	0	42	0
2007 PM Peak Hr. Volumes	0	0	0	0	0	0	0	119	0	0	204	0

2010
NO BUILD

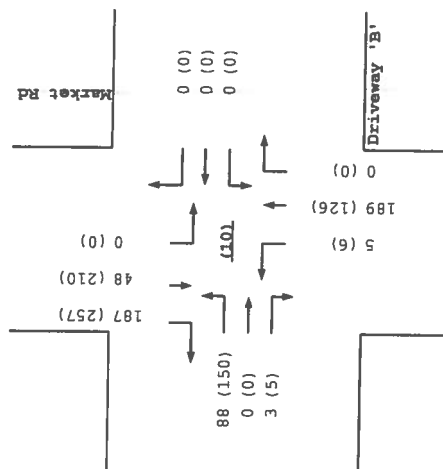


Trips



Driveway 'B' / Market Rd

2010
BUILD



Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements SUMMARY

PROPOSED DEVELOPMENT (2010) - 100% Development

Case F - full access at Intersection 12

INTERSECTION:

Summary

Hanover Rd / Driveway 'C'

(11)

3.0% Truck

Existing (2007)

2010 (NO BUILD - A.M.)

2010 (BUILD - A.M.)

0.85			0.85			0.85			0.85			PHF
Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	11	0	0	0	7	0	0	0

Existing (2007)

2010 (NO BUILD - P.M.)

2010 (BUILD - P.M.)

0.85			0.85			0.85			0.85			PHF
Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	11	0	0	0	12	0	0	0

Driveway 'D' / Unser Blvd

(12)

3.0% Truck

Existing (2007)

2010 (NO BUILD - A.M.)

2010 (BUILD - A.M.)

0.85			0.85			0.85			0.85			PHF
Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	701	0	0	1,588	0	0
0	0	0	0	0	0	0	797	0	0	1,806	0	0
0	0	0	144	0	80	0	797	216	116	1,806	0	0

Existing (2007)

2010 (NO BUILD - P.M.)

2010 (BUILD - P.M.)

0.85			0.85			0.95			0.95			PHF
Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	1,520	0	0	966	0	0
0	0	0	0	0	0	0	1,709	0	0	1,086	0	0
0	0	0	340	0	295	0	1,613	327	204	1,011	0	0

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Hanover Rd / Driveway 'C'

INTERSECTION :

E-W Street: Hanover Rd
N-S Street: Driveway 'C'

(11)

Year of Existing Counts 2007
Implementation Year 2010

Growth Rates

	0.00%			0.00%			0.00%			0.00%		
	Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	0	0	0	0	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.91%	0.00%	0.00%	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%	1.91%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%
- Total Trips Generated	0	0	0	0	0	11	0	0	0	7	0	0
Total AM Peak Hour BUILD Volumes	0	0	0	0	0	11	0	0	0	7	0	0

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Percent Office Trips Generated(Entering)

Percent Office Trips Generated(Exiting)

Total Trips Generated

Total PM Peak Hour BUILD Volumes

	Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	0	0	0	0	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.91%	0.00%	0.00%	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%	1.91%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%
Total Trips Generated	0	0	0	0	0	11	0	0	0	12	0	0
Total PM Peak Hour BUILD Volumes	0	0	0	0	0	11	0	0	0	12	0	0

Number of Commercial Trips Generated

Entering 499 Exiting 378

A.M. 100% Commercial Development

Number of Office Trips Generated

602 580

P.M. 100% Office Development

68 9

A.M. 100% Office Development

20 96

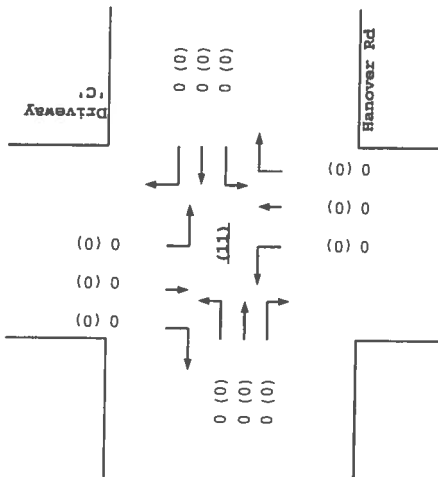
P.M. 100% Office Development

2007 AM Peak Hr. Volumes

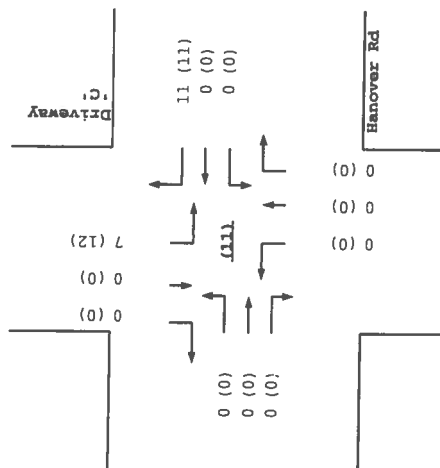
2007 PM Peak Hr. Volumes

	Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2007 PM Peak Hr. Volumes	0	0	0	0	0	0	0	0	0	0	0	0

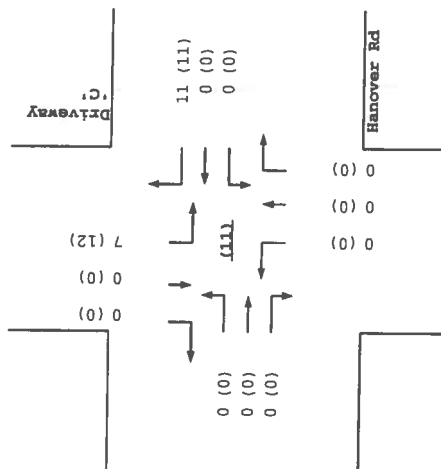
2010
NO BUILD



Trips



2010
BUILD



Hanover Rd / Driveway 'C'

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Driveway 'D' / Unser Blvd

INTERSECTION:

E-W Street: Driveway 'D' (12)

N-S Street: Unser Blvd

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

	0.00%			0.00%			4.58%			4.58%		
	Eastbound (Driveway 'D')			Westbound (Driveway 'D')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	701	0	0	1,588	0
Background Traffic Growth	0	0	0	0	0	0	0	96	0	0	218	0
Subtotal (NO BUILD - A.M.)	0	0	0	0	0	0	0	797	0	0	1,806	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.91%	20.70%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	36.91%	0.00%	20.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.95%	18.69%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	46.95%	0.00%	18.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	144	0	80	0	0	216	116	0	0
Total AM Peak Hour BUILD Volumes	0	0	0	144	0	80	0	797	216	116	1,806	0

	0.00%			0.00%			4.15%			4.15%		
	Eastbound (Driveway 'D')			Westbound (Driveway 'D')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	1,520	0	0	966	0
Background Traffic Growth	0	0	0	0	0	0	0	189	0	0	120	0
Subtotal (NO BUILD - P.M.)	0	0	0	0	0	0	0	1,709	0	0	1,086	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.91%	20.70%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	36.91%	0.00%	20.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.95%	18.69%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	46.95%	0.00%	18.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	259	0	138	0	0	231	129	0	0
Subtotal PM Pk Hr. BUILD Volumes	0	0	0	259	0	138	0	1,709	231	129	1,086	0
Pass-by Trip Adjustments	0	0	0	81	0	157	0	-96	96	75	-75	0
Total PM Peak Hour BUILD Volumes	0	0	0	340	0	295	0	1,613	327	204	1,011	0

Number of Commercial Trips Generated	Entering 499	Exiting 378	A.M.	100% Commercial Development
Number of Office Trips Generated	602	580	P.M.	
	88	9	A.M.	100% Office Development
	20	96	P.M.	

2007 AM Peak Hr. Volumes
2007 PM Peak Hr. Volumes

	Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	0	0	0	0	701	0	0	1,588	0
2007 PM Peak Hr. Volumes	0	0	0	0	0	0	0	1,520	0	0	966	0

Pass-by Trip Calculations:

PM Pass-by Trips
Percent Entering
Volume Entering
Percent Exiting
Volume Exiting
Net PM Passby Trips

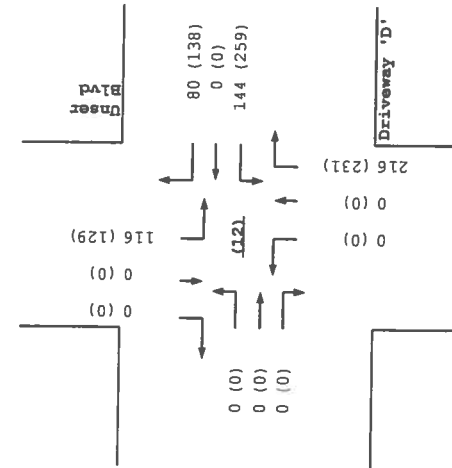
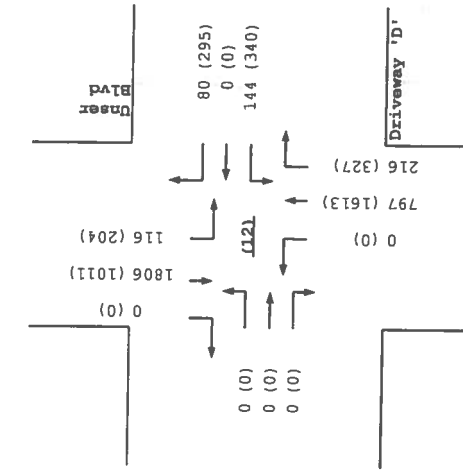
	Eastbound (Driveway 'D')			Westbound (Driveway 'D')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-36.00%	36.00%	28.00%	-28.00%	0.00%
0	0	0	0	0	0	0	0	-96	96	75	-75	0
0.00%	0.00%	0.00%	0.00%	28.00%	0.00%	54.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	0	0	0	81	0	157	0	0	0	0	0	0
Entering	0	0	0	81	0	157	0	-96	96	75	-75	0
Exiting	0	0	0	0	0	0	0	0	0	0	0	0

Pass-by Trips
0 0 AM
267 290 PM

2010
BUILD

Trips

2010
NO BUILD



Driveway 'D' / Unser Blvd

Timings

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/26/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	199	460	597	542	198	163	704	376	126	1355	105
Volume (vph)	pm+ov	7	4	5	3	8	5	2	3	1	6
Turn Type	pm+ov	7	4	5	3	8	5	2	3	1	6
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Detector Phases	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
Minimum Split (s)	10.0	21.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	21.0	21.0	12.0	26.0	26.0	12.0	52.0	26.0	11.0	51.0	21.0
Total Split (%)	19.1%	19.1%	10.9%	23.6%	23.6%	10.9%	47.3%	23.6%	10.0%	46.4%	18.1%
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	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimizer?											
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effort Green (s)	34.2	16.0	30.0	23.0	24.8	9.0	49.0	75.0	8.0	48.0	67.2
Actuated g/C Ratio	0.31	0.16	0.27	0.21	0.23	0.08	0.45	0.68	0.07	0.44	0.61
v/c Ratio	0.81	0.92	0.90	0.98	0.50	0.88	0.53	0.41	0.57	1.00	0.12
Control Delay	31.2	68.4	53.5	68.5	26.7	65.0	18.7	7.0	58.0	48.8	1.4
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	31.2	68.4	53.5	68.5	26.7	65.0	18.7	7.0	58.0	48.8	1.4
LOS	C	E	D	E	C	E	B	A	E	D	A
Approach Delay	55.4				52.5		21.2				46.4
Approach LOS	E				D		C				D



Splits and Phases: 2: Ladera Dr & Unser Blvd

HCM Signalized Intersection Capacity Analysis

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/26/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	199	460	597	542	198	163	704	376	126	1355	105
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	0.95	0.88	0.97	0.95	0.97	0.95	1.00	0.95	0.88	0.95
Fit Protected	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85
Satd. Flow (prot)	1752	3505	2760	3400	3286	3400	3505	1568	3400	3505	1568
Fit Permitted	0.44	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	811	3505	2760	3400	3286	3400	3505	1568	3400	3505	1568
Volume (vph)	199	460	597	542	198	163	704	376	126	1355	105
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	529	686	686	248	177	828	442	140	1522	118
RTOR Reduction (vph)	0	0	13	0	115	0	0	11	0	0	49
Lane Group Flow (vph)	228	529	673	686	310	0	828	431	140	1522	69
Turn Type	pm+pt	7	4	5	3	8	5	2	3	1	6
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	30.2	16.0	23.0	21.0	22.8	7.0	47.0	68.0	6.0	48.0	60.2
Effective Green, g (s)	34.2	18.0	27.0	23.0	24.8	9.0	49.0	72.0	8.0	48.0	64.2
Actuated g/C Ratio	0.31	0.16	0.25	0.21	0.23	0.08	0.45	0.65	0.07	0.44	0.58
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)	391	574	753	711	741	278	1561	1089	247	1529	958
v/s Ratio Prot	0.09	0.15	0.07	0.20	0.09	0.06	0.24	0.08	0.04	0.43	0.01
v/s Ratio Perm	0.10		0.17					0.19			0.03
v/c Ratio	0.59	0.92	0.89	0.98	0.42	0.69	0.53	0.40	0.57	1.00	0.07
Uniform Delay, d1	30.1	45.3	40.1	43.1	36.4	49.1	22.1	8.9	49.3	30.9	10.0
Progression Factor	1.00	1.00	1.00	0.97	1.02	1.05	0.78	0.80	1.00	0.87	0.79
Incremental Delay, d2	2.2	20.4	13.0	25.1	0.4	7.2	1.3	0.2	2.7	21.0	0.0
Delay (s)	32.3	65.7	53.2	68.7	37.4	56.3	18.5	7.4	51.9	47.9	7.9
Level of Service	C	E	D	E	D	E	B	A	D	D	A
Approach Delay (s)	54.4				55.5		20.4				46.6
Approach LOS	D				E		C				D




















Intersection Summary	
HCM Average Control Delay	43.3
HCM Volume to Capacity ratio	0.95
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	83.8%
Analysis Period (min)	15
c Critical Lane Group	

2010 AM Peak BUILD Conditions - MITIGATED

Case F - full access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 7: Ladera Dr & Market Rd

Terry O. Brown, P.E.
12/26/2007

												
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)	0	489	34	201	398	0	140	0	136	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.79	0.79	0.79	0.86	0.86	0.86	0.85	0.85	0.85
Hourly flow rate (vph)	0	556	39	254	504	0	163	0	158	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh								1			1	
Upstream signal (ft)		888										
pX, platoon unblocked												
vC, conflicting volume	504			594			1336	1588	297	1449	1607	252
vC1, stage 1 conf vol							575	575		1013	1013	
vC2, stage 2 conf vol							761	1013		436	594	
vCu, unblocked vol	504			594			1336	1588	297	1449	1607	252
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			74			15	100	77	100	99	100
cM capacity (veh/h)	1050			971			191	173	696	110	141	745
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	0	370	224	254	336	168	163	158	1			
Volume Left	0	0	0	254	0	0	163	0	0			
Volume Right	0	0	39	0	0	0	0	158	0			
cSH	1700	1700	1700	971	1700	1700	191	696	141			
Volume to Capacity	0.00	0.22	0.13	0.26	0.20	0.10	0.85	0.23	0.01			
Queue Length 95th (ft)	0	0	0	26	0	0	157	22	1			
Control Delay (s)	0.0	0.0	0.0	10.0	0.0	0.0	82.4	11.7	30.8			
Lane LOS				B			F	B	D			
Approach Delay (s)	0.0			3.4			47.5		30.8			
Approach LOS							E		D			
Intersection Summary												
Average Delay			10.7									
Intersection Capacity Utilization			50.2%			ICU Level of Service			A			
Analysis Period (min)			15									

2010 AM Peak BUILD Conditions - MITIGATED

Case F - full access at Intersection 12

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HCM Unsignalized Intersection Capacity Analysis 9: Ladera Dr & 'A'

Terry O. Brown, P.E.
12/26/2007

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	526	33	0	493	0	65
Peak Hour Factor	0.79	0.79	0.79	0.79	0.85	0.85
Hourly flow rate (vph)	666	42	0	624	0	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	481					
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			708		999	354
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			585		904	198
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			894		251	737
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	444	264	312	312	76	
Volume Left	0	0	0	0	0	
Volume Right	0	42	0	0	76	
cSH	1700	1700	1700	1700	737	
Volume to Capacity	0.26	0.16	0.18	0.18	0.10	
Queue Length 95th (ft)	0	0	0	0	9	
Control Delay (s)	0.0	0.0	0.0	0.0	10.4	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		10.4	
Approach LOS					B	
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			26.3%		ICU Level of Service	A
Analysis Period (min)			15			










2010 AM Peak BUILD Conditions - MITIGATED

Case F - full access at Intersection 12

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HCM Unsignalized Intersection Capacity Analysis 10: 'B' & Market Rd

Terry O. Brown, P.E.
12/26/2007

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	88	3	5	189	48	187
Peak Hour Factor	0.85	0.85	0.85	0.85	0.86	0.86
Hourly flow rate (vph)	104	4	6	222	56	217
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	399	165	273			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	399	165	273			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	100	100			
cM capacity (veh/h)	602	877	1284			
Direction/Lane #	EB 1	NB 1	SB 1			
Volume Total	107	228	273			
Volume Left	104	6	0			
Volume Right	4	0	217			
cSH	608	1284	1700			
Volume to Capacity	0.18	0.00	0.16			
Queue Length 95th (ft)	16	0	0			
Control Delay (s)	12.2	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.2	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		2.2				
Intersection Capacity Utilization		25.8%		ICU Level of Service		A
Analysis Period (min)		15				

2010 AM Peak BUILD Conditions - MITIGATED

Case F - full access at Intersection 12

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HCM Unsignalized Intersection Capacity Analysis
11: Hanover Rd & 'C'

Terry O. Brown, P.E.
12/26/2007



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	0	11	7	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	13	8	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13				6	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				6	6
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)	1599				1012	1073
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	0	13	8			
Volume Left	0	0	8			
Volume Right	0	13	0			
cSH	1700	1700	1012			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.6			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

2010 AM Peak BUILD Conditions - MITIGATED

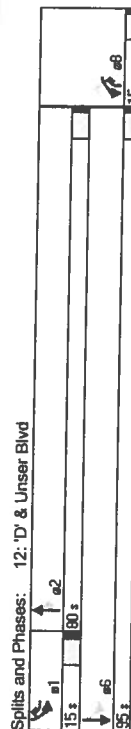
Case F - full access at Intersection 12

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Timings 12: 'D' & Unser Blvd

Terry O. Brown, P.E.
12/26/2007

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	144	80	787	216	116	1806
Volume (vph)	144	80	787	216	116	1806
Turn Type	pm+ov	pm+ov	pm+ov	pm+ov	pm+ov	pm+ov
Protected Phases	8	1	2	8	1	6
Permitted Phases	8	1	2	8	1	6
Detector Phases	8	1	2	8	1	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	10.0	21.0	21.0	10.0	21.0
Total Split (s)	15.0	15.0	80.0	15.0	15.0	95.0
Total Spill (%)	13.6%	13.6%	72.7%	13.6%	13.6%	86.4%
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 Optimization?	Min	Min	Min	Min	Min	Min
Recall Mode	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	11.4	23.0	81.0	95.4	92.8	92.6
Actuated g/C Ratio	0.10	0.21	0.74	0.87	0.84	0.84
W/C Ratio	0.48	0.23	0.25	0.18	0.27	0.50
Control Delay	51.1	8.8	8.7	0.8	1.8	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	8.8	8.7	0.8	1.8	1.9
LOS	D	A	A	A	A	A
Approach Delay	36.0	7.0	A	A	A	1.9
Approach LOS	D	A	A	A	A	A



HCM Signalized Intersection Capacity Analysis 12: 'D' & Unser Blvd

Terry O. Brown, P.E.
12/26/2007

	WBL	WBR	NBT	NBR	SBL	SBT
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	144	80	787	216	116	1806
Volume (vph)	144	80	787	216	116	1806
Turn Type	pm+ov	pm+ov	pm+ov	pm+ov	pm+ov	pm+ov
Protected Phases	8	1	2	8	1	6
Permitted Phases	8	1	2	8	1	6
Actuated Green, G (s)	9.4	16.0	79.0	88.4	90.8	90.8
Effective Green, g (s)	11.4	20.0	81.0	92.4	92.6	92.6
Actuated g/C Ratio	0.10	0.18	0.74	0.84	0.84	0.84
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)	352	328	3708	1360	516	4239
W/C Ratio Prot	0.05	0.00	0.19	0.02	0.02	0.42
W/C Ratio Perm	0.01	0.01	0.12	0.12	0.20	0.20
W/C Ratio	0.48	0.05	0.25	0.16	0.28	0.50
Uniform Delay, d1	46.5	37.2	4.7	1.6	1.8	2.4
Progression Factor	1.00	1.00	1.77	3.59	0.87	0.71
Incremental Delay, d2	1.0	0.1	0.2	0.1	0.1	0.1
Delay (s)	47.5	37.2	8.5	5.9	1.6	1.8
Level of Service	D	D	A	A	A	A
Approach Delay (s)	43.8	7.9	A	A	A	1.8
Approach LOS	D	A	A	A	A	A

Intersection Summary

HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2010 AM Peak BUILD Conditions - MITIGATED Case F - full access at Intersection 12
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2010 AM Peak BUILD Conditions - MITIGATED Case F - full access at Intersection 12
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Timings

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/26/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	192	334	369	594	496	607	1624	708	290	1169	333
Volume (vph)	pm+pt	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot
Turn Type	7	4	5	3	8	5	2	3	1	6	7
Protected Phases	4	4	5	3	8	5	2	3	1	6	7
Permitted Phases	7	4	5	3	8	5	2	3	1	6	7
Detector Phases	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)	10.0	21.0	10.0	10.0	21.0	10.0	10.0	10.0	21.0	10.0	10.0
Minimum Split (s)	14.0	21.0	26.0	33.0	26.0	33.0	26.0	33.0	26.0	33.0	26.0
Total Split (s)	11.7%	17.5%	21.7%	21.7%	27.5%	21.7%	49.2%	21.7%	11.7%	39.2%	11.7%
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	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimiza?	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	28.8	17.8	44.0	23.0	26.8	23.2	56.0	82.0	11.2	44.0	58.0
Act Effct Green (s)	0.24	0.15	0.37	0.19	0.25	0.19	0.47	0.68	0.09	0.37	0.48
Actuated g/c Ratio	0.93	0.89	0.39	0.88	0.94	0.87	0.88	0.69	0.95	0.95	0.44
v/c Ratio	77.1	56.1	27.9	77.3	56.7	79.3	41.3	12.3	83.8	45.8	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay	77.1	56.1	27.9	77.3	56.7	79.3	41.3	12.3	83.8	45.8	21.1
LOS	E	E	C	E	E	E	D	B	F	D	C
Approach Delay	48.9	D	D	65.6	E	E	42.2	D	D	47.4	D
Approach LOS	D	D	D	E	E	E	D	D	D	D	D

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 26 (22%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 49.2
 Intersection Capacity Utilization 97.0%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service F

Splits and Phases: 2: Ladera Dr & Unser Blvd



HCM Signalized Intersection Capacity Analysis

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/26/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	192	334	369	594	496	607	1624	708	290	1169	333
Volume (vph)	pm+pt	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot
Turn Type	7	4	5	3	8	5	2	3	1	6	7
Protected Phases	4	4	5	3	8	5	2	3	1	6	7
Permitted Phases	7	4	5	3	8	5	2	3	1	6	7
Actuated Green, G (s)	24.8	15.8	37.0	21.0	27.8	21.2	54.0	75.0	9.2	42.0	51.0
Effective Green, g (s)	28.8	17.8	41.0	23.0	29.8	23.2	56.0	79.0	11.2	44.0	55.0
Actuated g/c Ratio	0.24	0.15	0.34	0.19	0.25	0.19	0.47	0.68	0.09	0.37	0.48
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)	222	520	1012	852	823	657	1636	1071	317	1285	758
v/s Ratio Prot	0.08	0.10	0.07	0.19	0.23	0.19	0.46	0.13	0.09	0.35	0.04
v/s Ratio Perm	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
v/c Ratio	0.93	0.89	0.38	0.98	0.93	0.97	0.98	0.69	0.95	0.95	0.43
Uniform Delay, d1	41.3	48.5	29.9	48.3	44.1	48.1	31.5	12.8	54.1	36.9	21.9
Progression Factor	1.00	1.00	1.00	0.96	0.97	1.06	0.72	0.79	0.94	0.90	1.10
Incremental Delay, d2	40.5	3.9	0.2	29.9	17.0	27.4	17.6	1.8	30.7	12.0	0.3
Delay (s)	81.8	52.4	30.1	78.3	59.7	78.4	40.3	11.8	81.4	45.3	24.3
Level of Service	F	D	C	E	E	E	D	B	F	D	C
Approach Delay (s)	49.5	D	D	68.9	E	E	41.4	D	47.2	D	D
Approach LOS	D	D	D	E	E	E	D	D	D	D	D

Intersection Summary

HCM Average Control Delay 49.1 HCM Level of Service D
 HCM Volume to Capacity ratio 0.98
 Actuated Cycle Length (s) 120.0 Sum of lost time (s) 6.0
 Intersection Capacity Utilization 97.0% ICU Level of Service F
 Analysis Period (min) 15
 Critical Lane Group




















2010 PM Peak BUILD Conditions - MITIGATED

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Case F - full access at Intersection 12

HCM Unsignalized Intersection Capacity Analysis 7: Ladera Dr & Market Rd

Terry O. Brown, P.E.
12/26/2007

												
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)	1	669	176	260	505	1	129	1	146	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.80	0.80	0.80	0.88	0.88	0.88	0.85	0.85	0.85
Hourly flow rate (vph)	1	719	189	325	631	1	147	1	166	1	1	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage (veh)								1			1	
Upstream signal (ft)		888										
pX, platoon unblocked												
vC, conflicting volume	632			909			1784	2099	454	1810	2193	316
vC1, stage 1 conf vol							816	816		1282	1282	
vC2, stage 2 conf vol							967	1282		528	911	
vCu, unblocked vol	632			909			1784	2099	454	1810	2193	316
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			56			0	99	70	95	95	100
cM capacity (veh/h)	939			739			106	98	550	22	25	677
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	1	480	429	325	421	212	147	167	4			
Volume Left	1	0	0	325	0	0	147	0	1			
Volume Right	0	0	189	0	0	1	0	166	1			
cSH	939	1700	1700	739	1700	1700	106	533	34			
Volume to Capacity	0.00	0.28	0.25	0.44	0.25	0.12	1.38	0.31	0.10			
Queue Length 95th (ft)	0	0	0	56	0	0	259	33	8			
Control Delay (s)	8.8	0.0	0.0	13.6	0.0	0.0	292.2	14.8	121.3			
Lane LOS	A			B			F	B	F			
Approach Delay (s)	0.0			4.6			144.5		121.3			
Approach LOS							F		F			
Intersection Summary												
Average Delay	23.0											
Intersection Capacity Utilization	62.3%			ICU Level of Service						B		
Analysis Period (min)	15											

2010 PM Peak BUILD Conditions - MITIGATED

Case F - full access at Intersection 12

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HCM Unsignalized Intersection Capacity Analysis
9: Ladera Dr & 'A'

Terry O. Brown, P.E.
12/26/2007

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	664	85	0	757	0	111
Peak Hour Factor	0.93	0.93	0.93	0.93	0.85	0.85
Hourly flow rate (vph)	714	91	0	814	0	131
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	481					
pX, platoon unblocked						
vC, conflicting volume			805		1167	403
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			805		1167	403
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	78
cM capacity (veh/h)			808		185	594
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	476	329	407	407	131	
Volume Left	0	0	0	0	0	
Volume Right	0	91	0	0	131	
cSH	1700	1700	1700	1700	594	
Volume to Capacity	0.28	0.19	0.24	0.24	0.22	
Queue Length 95th (ft)	0	0	0	0	21	
Control Delay (s)	0.0	0.0	0.0	0.0	12.8	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		12.8	
Approach LOS					B	
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			34.6%		ICU Level of Service	A
Analysis Period (min)			15			










2010 PM Peak BUILD Conditions - MITIGATED

Case F - full access at Intersection 12

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HCM Unsignalized Intersection Capacity Analysis 10: 'B' & Market Rd

Terry O. Brown, P.E.
12/26/2007

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	150	5	6	126	210	209
Peak Hour Factor	0.85	0.85	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	176	6	7	143	239	238
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	514	357	476			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	514	357	476			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	66	99	99			
cM capacity (veh/h)	515	685	1081			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	182	150	476			
Volume Left	176	7	0			
Volume Right	6	0	238			
cSH	519	1081	1700			
Volume to Capacity	0.35	0.01	0.28			
Queue Length 95th (ft)	39	0	0			
Control Delay (s)	15.6	0.4	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.6	0.4	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		3.6				
Intersection Capacity Utilization		39.1%		ICU Level of Service		A
Analysis Period (min)		15				










2010 PM Peak BUILD Conditions - MITIGATED

Case F - full access at Intersection 12

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HCM Unsignalized Intersection Capacity Analysis 11: Hanover Rd & 'C'

Terry O. Brown, P.E.
12/26/2007

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	0	11	12	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	13	14	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13				6	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				6	6
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)	1599				1012	1073
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	0	13	14			
Volume Left	0	0	14			
Volume Right	0	13	0			
cSH	1700	1700	1012			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.6			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay		4.5				
Intersection Capacity Utilization		13.3%	ICU Level of Service	A		
Analysis Period (min)		15				

2010 PM Peak BUILD Conditions - MITIGATED

Case F - full access at Intersection 12

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Timings

Terry O. Brown, P.E.
12/26/2007

12: 'D' & Unser Blvd

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	11	11	11	11	11	11
Volume (vph)	340	242	1613	327	204	1011
Turn Type	pm+ov	pm+ov	Perm	pm+pt	Perm	pm+pt
Protected Phases	8	1	2	2	1	6
Permitted Phases	8	1	2	2	1	6
Detector Phases	8	1	2	2	1	6
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	10.0	21.0	21.0	10.0	21.0
Total Split (s)	22.0	20.0	78.0	78.0	20.0	98.0
Total Split (%)	18.3%	16.7%	65.0%	65.0%	16.7%	81.7%
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	Lag	Lag	Lag	Lead
Lead-Lag Optimizes?						
Recall Mode	Min	C-Max	C-Max	Min	C-Max	Min
Act Effect Green (s)	18.4	36.1	77.9	77.9	95.6	95.6
Actuated g/C Ratio	0.15	0.30	0.65	0.65	0.80	0.80
v/c Ratio	0.77	0.58	0.52	0.30	0.68	0.27
Control Delay	59.2	36.5	5.0	0.7	18.6	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	36.5	5.0	0.7	18.6	4.4
LOS	E	D	A	A	B	A
Approach Delay	49.7	4.3	A	A	6.8	A
Approach LOS	D	A	A	A	B	A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 114 (95%), Referenced to phase 2:NBT and 6:SBTL Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 12.8
 Intersection Capacity Utilization 62.2%
 Analysis Period (min) 15

Splits and Phases: 12: 'D' & Unser Blvd



HCM Signalized Intersection Capacity Analysis

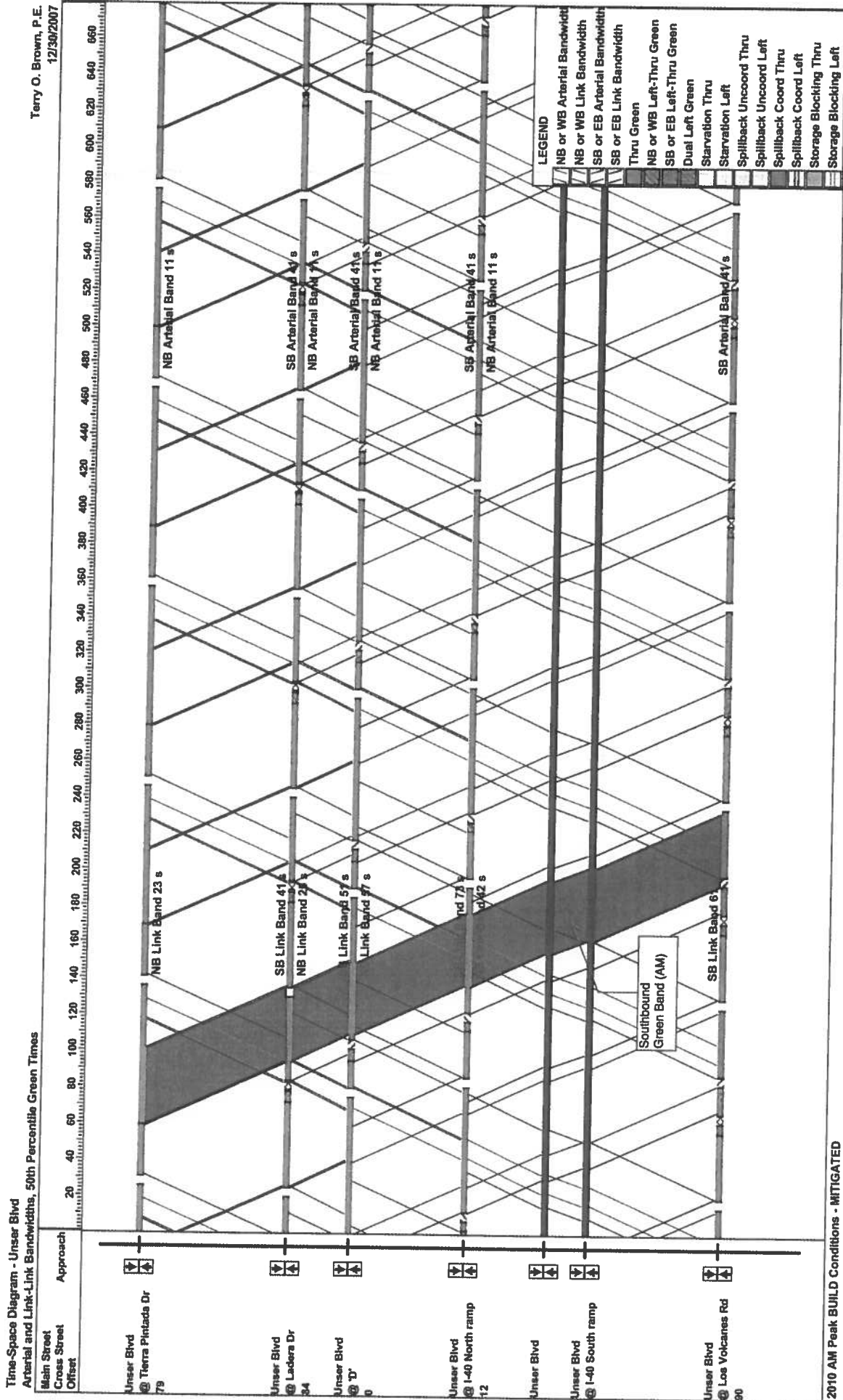
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12/28/2007

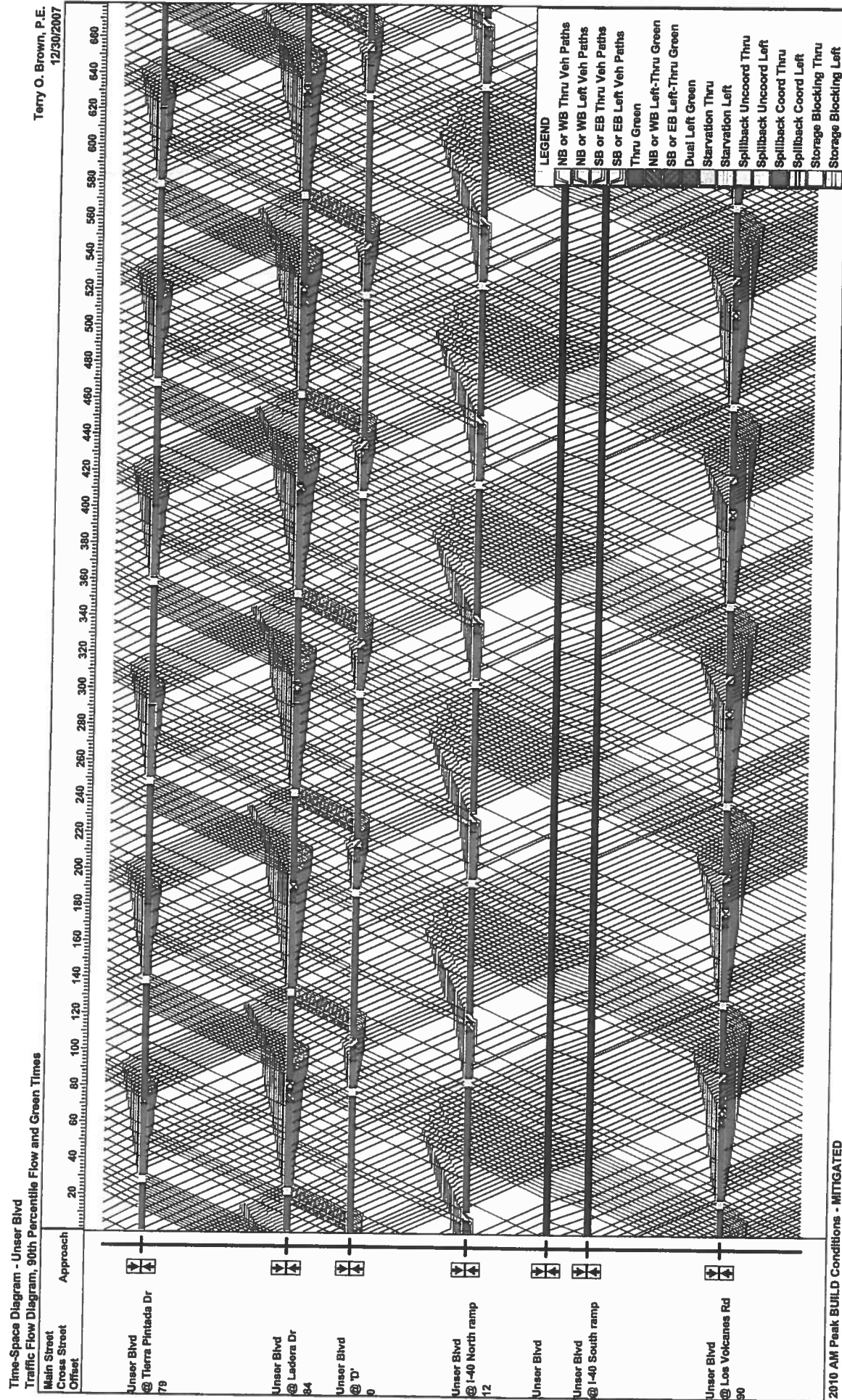
12: 'D' & Unser Blvd

	WBL	WBR	NBT	NBR	SBL	SBT
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	11	11	11	11	11	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Fit	1.00	0.85	1.00	0.85	1.00	0.91
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3400	1568	5036	1568	1752	5036
Fit Permitted	0.85	1.00	1.00	1.00	0.10	1.00
Satd. Flow (perm)	3400	1568	5036	1568	176	5036
Volume (vph)	340	242	1613	327	204	1011
Peak-hour factor, PHF	0.85	0.85	0.95	0.95	0.95	0.95
Adj. Flow (vph)	400	286	1698	344	215	1064
RTOR Reduction (vph)	0	20	0	121	0	0
Lane Group Flow (vph)	400	286	1698	223	215	1064
Turn Type	pm+ov	pm+ov	Perm	pm+pt	Perm	pm+pt
Protected Phases	8	1	2	1	6	6
Permitted Phases	8	1	2	1	6	6
Actuated Green, G (s)	18.4	29.1	75.9	75.9	93.8	93.8
Effective Green, g (s)	18.4	33.1	77.9	77.9	95.6	95.6
Actuated g/C Ratio	0.15	0.28	0.65	0.65	0.80	0.80
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)	521	472	3269	1018	333	4012
Wt Ratio Prot	0.12	0.07	0.34	0.08	0.21	0.21
v/c Ratio	0.10	0.10	0.52	0.22	0.65	0.27
Uniform Delay, d1	48.7	37.2	11.1	8.6	17.5	3.1
Progression Factor	1.00	1.00	0.39	0.19	0.68	1.35
Incremental Delay, d2	6.7	1.5	0.4	0.3	2.1	0.1
Delay (s)	55.4	38.8	4.8	2.0	17.4	4.3
Level of Service	E	D	A	A	B	A
Approach Delay (s)	48.5	4.3	A	A	6.5	A
Approach LOS	D	A	A	A	B	A

Intersection Summary

HCM Average Control Delay
 HCM Volume to Capacity ratio
 Actuated Cycle Length (s)
 Intersection Capacity Utilization
 Analysis Period (min)
 Critical Lane Group

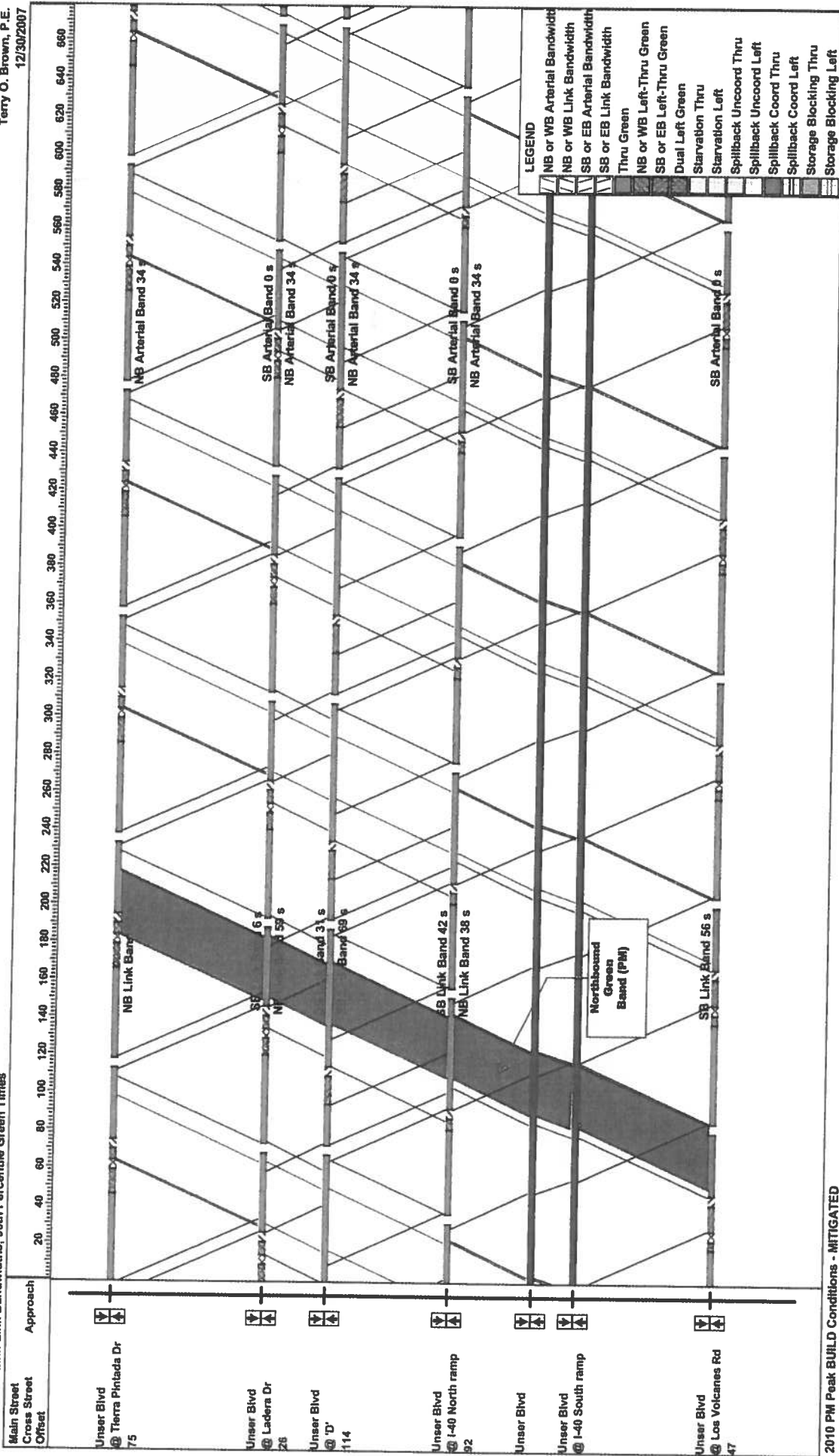




Case F - full access at Intersection 12
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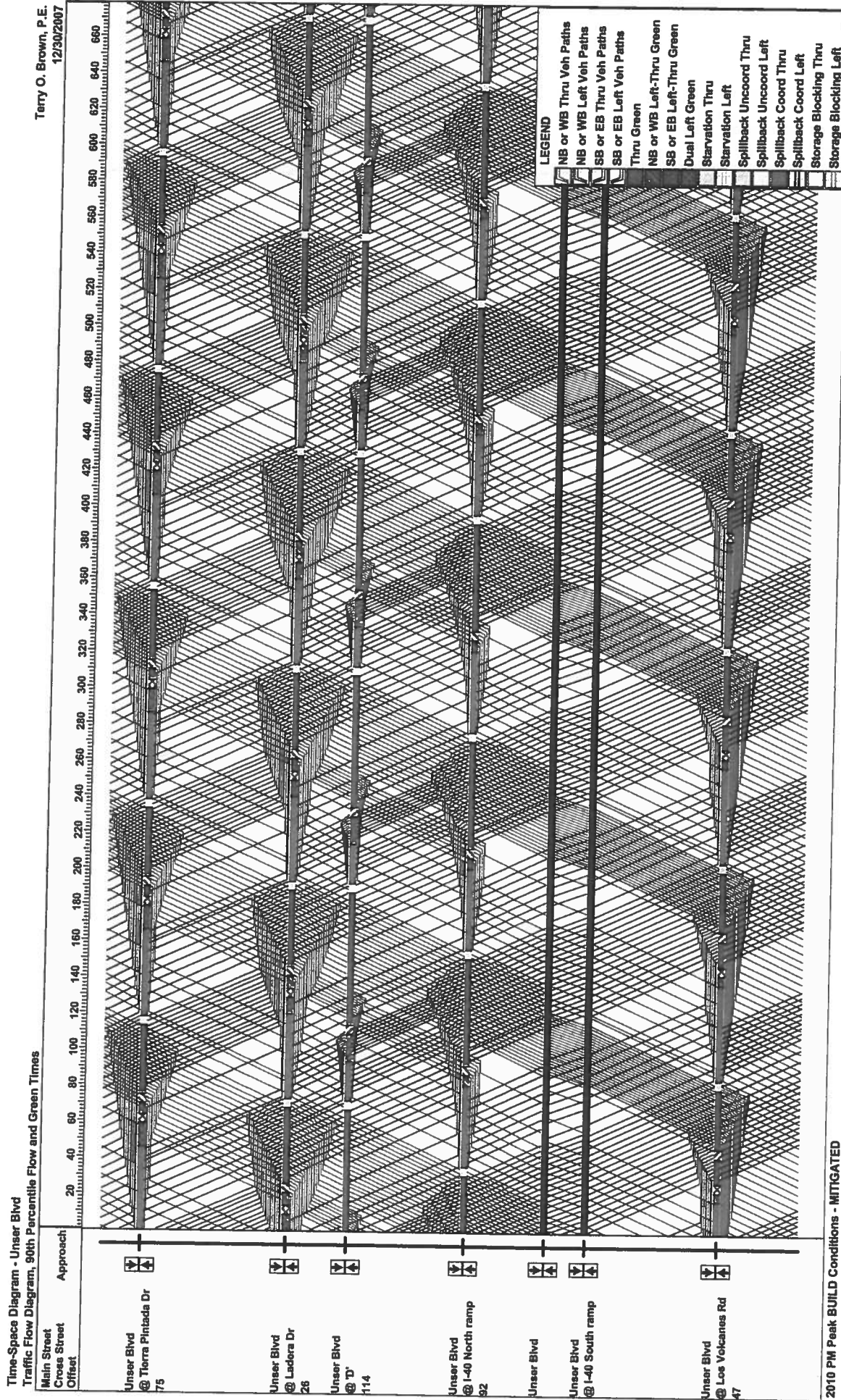
Time-Space Diagram - Unser Blvd
Arterial and Link-Link Bandwidths, 90th Percentile Green Times

Terry O. Brown, P.E.
12/30/2007



2010 PM Peak BUILD Conditions - MITIGATED

Case F - full access at Intersection 12
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2010 PM Peak BUILD Conditions - MITIGATED

Analysis of
2010 BUILD Conditions

CASE "L"
(Right-in, Right-out, Left-in Access Driveway on Unser Blvd.)

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements SUMMARY PROPOSED DEVELOPMENT (2010) - 100% Development

Case L - RI, RO, LI only at Intersection 12

INTERSECTION:

Summary

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	
199	446	557	542	186	123	134	653	376	99	1,279	105	
199	460	597	686	196	140	163	704	376	125	1,355	105	

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	
192	319	322	594	480	249	560	1,433	708	263	1,087	333	
192	334	369	934	496	279	607	1,524	708	290	1,169	333	

Ladera Dr / Market Rd

(7)
3.0% Truck
Existing (2007)
2010 (NO BUILD - A.M.)
2010 (BUILD - A.M.)

0.88			0.79			0.86			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	425	28	14	385	0	113	0	72	0	0	0	
0	425	28	15	398	0	113	0	72	0	0	0	
0	489	34	201	398	0	284	0	136	0	1	0	

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

0.93			0.80			0.88			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	513	156	48	463	0	83	0	36	0	0	0	
0	559	170	52	505	0	83	0	36	0	0	0	
0	669	176	260	505	0	388	0	146	0	1	0	

Ladera Dr / Driveway 'A'

(9)
3.0% Truck
Existing (2007)
2010 (NO BUILD - A.M.)
2010 (BUILD - A.M.)

0.79			0.79			0.85			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	520	0	0	466	0	0	0	0	0	0	0	
0	520	0	0	466	0	0	0	0	0	0	0	
0	526	33	0	637	0	0	0	65	0	0	0	

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

0.93			0.93			0.85			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	648	0	0	652	0	0	0	0	0	0	0	
0	706	0	0	711	0	0	0	0	0	0	0	
0	664	85	0	1,049	0	0	0	163	0	0	0	

Driveway 'B' / Market Rd

(10)
3.0% Truck
Existing (2007)
2010 (NO BUILD - A.M.)
2010 (BUILD - A.M.)

0.85			0.85			0.86			0.86			PHF
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	185	0	0	42	0	
0	0	0	0	0	0	0	185	0	0	42	0	
231	0	3	0	0	0	5	189	0	0	48	187	

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

0.85			0.85			0.88			0.88			PHF
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	119	0	0	204	0	
0	0	0	0	0	0	0	119	0	0	204	0	
490	0	5	0	0	0	6	128	0	0	210	257	

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)
Projected Turning Movements Worksheet
Ladera Dr / Unser Blvd

INTERSECTION: E-W Street: Ladera Dr
 N-S Street: Unser Blvd
 Year of Existing Counts: 2007
 Implementation Year: 2010

(2)

	0.88%			8.77%			4.58%			3.66%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	175	251	385	317	105	44	48	429	224	45	908	58
Background Traffic Growth	4	5	7	54	21	9	7	59	31	5	100	6
Subtotal	179	256	372	381	126	53	55	488	255	50	1,006	64
I-40 / Unser Development	0	0	43	161	0	0	32	32	121	0	42	0
Ladera Business Park	0	0	0	0	0	3	0	28	0	5	47	0
Previous Development from below	20	190	142	0	60	67	47	105	0	44	184	41
Subtotal (NO BUILD - A.M.)	199	446	557	542	186	123	134	653	376	99	1,279	105
Percent Commercial Trips Generated(Entering)	0.00%	2.53%	7.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.37%	13.11%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	36.91%	2.53%	4.37%	7.59%	13.11%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	8.90%	2.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.33%	16.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	46.89%	8.90%	5.33%	2.69%	16.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	14	40	144	10	17	29	51	0	26	78	0
Total AM Peak Hour BUILD Volumes	199	460	597	686	196	140	163	704	376	125	1,355	105

	3.98%			2.50%			4.15%			3.12%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	140	182	138	281	264	107	288	860	372	94	547	184
Background Traffic Growth	17	22	16	21	20	8	36	107	46	9	51	17
Subtotal	157	204	154	302	284	115	324	967	418	103	598	201
I-40 / Unser Development	0	0	78	292	0	0	77	290	0	77	290	0
Ladera Business Park	0	0	0	0	0	14	0	123	0	23	204	0
Previous Development from below	35	115	90	0	196	120	159	266	0	137	208	132
Subtotal (NO BUILD - P.M.)	192	319	322	594	480	249	560	1,433	708	283	1,087	333
Percent Commercial Trips Generated(Entering)	0.00%	2.53%	7.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.37%	13.11%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	36.91%	2.53%	4.37%	7.59%	13.11%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	8.90%	2.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.33%	16.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	46.89%	8.90%	5.33%	2.69%	16.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	15	47	259	16	30	47	91	0	27	82	0
Subtotal PM Pk Hr. BUILD Volumes	192	334	369	853	496	279	607	1,524	708	290	1,169	333
Pass-by Trip Adjustments	0	0	0	81	0	0	0	0	0	0	0	0
Total PM Peak Hour BUILD Volumes	192	334	369	934	496	279	607	1,524	708	290	1,169	333

Number of Commercial Trips Generated: 499 Entering, 378 Exiting, A.M. 100% Commercial Development
 602 Entering, 580 Exiting, P.M.
 Number of Office Trips Generated: 68 Entering, 9 Exiting, A.M. 100% Office Development
 20 Entering, 96 Exiting, P.M.

Previous Developments - AM Peak Hour Volumes

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Watershed Residential & Retail	0	78	0	0	24	0	0	6	0	0	17	0
Storm Cloud Dev. w/ others	0	112	142	0	36	0	47	44	0	0	131	28
98th / Unser Development	20	0	0	0	0	67	0	55	0	44	36	13
Subtotal	20	190	142	0	60	67	47	105	0	44	184	41

Previous Developments - PM Peak Hour Volumes

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Watershed Residential & Retail	0	44	0	0	78	0	0	19	0	0	12	0
Storm Cloud Dev. w/ others	0	71	90	0	118	0	159	149	0	0	83	91
98th / Unser Development	35	0	0	0	0	120	0	98	0	137	113	41
Subtotal	35	115	90	0	196	120	159	266	0	137	208	132

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

2007 AM Link Volume	791	466	701	1,009
2007 PM Link Volume	480	652	1,520	825

Based on MRCOG Model (2030 Data Set)

2030 AM Link Volume	914	1192	1440	1859
2030 PM Link Volume	881	1027	2970	1417

Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	0.68%	6.77%	4.58%	3.66%
2007-2030 PM Growth Rates	3.98%	2.50%	4.15%	3.12%

Pass-by Trip Calculations:**AM Pass-by Trips**

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Percent Entering	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Volume Entering	0	0	0	0	0	0	0	0	0	0	0	0
Percent Exiting	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Volume Exiting	0	0	0	0	0	0	0	0	0	0	0	0
Net AM Passby Trips	0	0	0	0	0	0	0	0	0	0	0	0

PM Pass-by Trips

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Percent Entering	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Volume Entering	0	0	0	0	0	0	0	0	0	0	0	0
Percent Exiting	0.00%	0.00%	0.00%	28.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Volume Exiting	0	0	0	81	0	0	0	0	0	0	0	0
Net PM Passby Trips	0	0	0	81	0	0	0	0	0	0	0	0

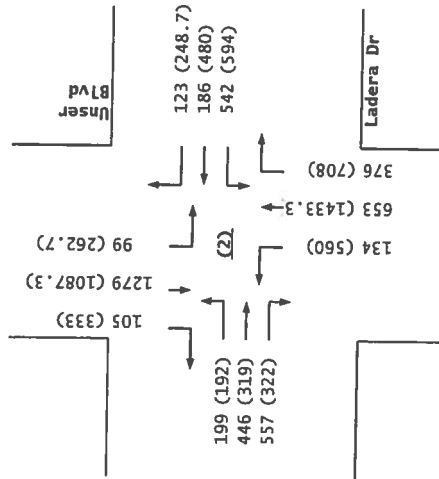
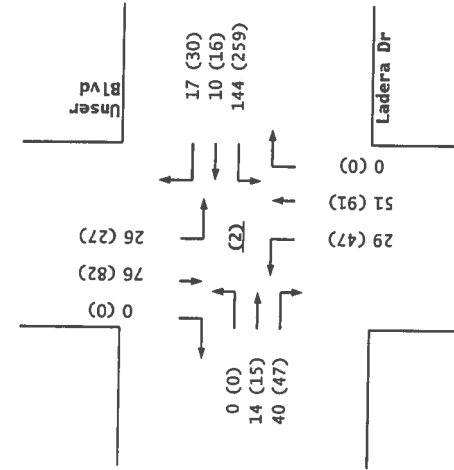
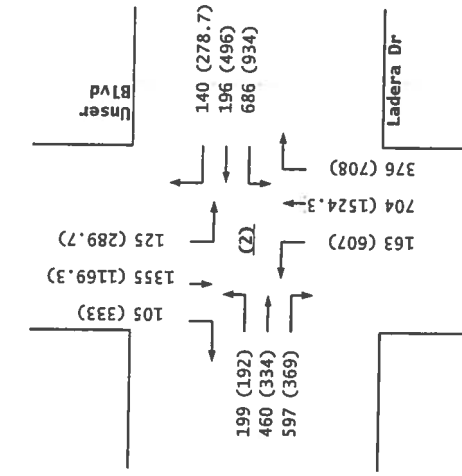
Pass-by Trips

Entering	0	0	AM
Exiting	0	290	PM

2010
BUILD

Trips

2010
NO BUILD



Ladera Dr / Unser Blvd

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Ladera Dr / Market Rd

INTERSECTION :

E-W Street: Ladera Dr (7)

N-S Street: Market Rd

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

	0.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	425	28	14	365	0	113	0	72	0	0	0
Background Traffic Growth	0	0	0	1	33	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	425	28	15	398	0	113	0	72	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	1.00%	33.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%
Percent Commercial Trips Generated(Exiting)	0.08%	16.75%	0.00%	0.00%	0.00%	0.00%	43.81%	0.07%	16.76%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	1.00%	27.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%
Percent Office Trips Generated(Exiting)	0.02%	13.79%	0.00%	0.00%	0.00%	0.00%	53.18%	0.02%	13.78%	0.00%	0.00%	0.00%
Total Trips Generated	0	64	6	186	0	0	171	0	64	0	1	0
Total AM Peak Hour BUILD Volumes	0	489	34	201	398	0	284	0	136	0	1	0

	3.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	513	156	48	463	0	83	0	36	0	0	0
Background Traffic Growth	0	46	14	4	42	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	559	170	52	505	0	83	0	36	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	1.00%	33.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%
Percent Commercial Trips Generated(Exiting)	0.08%	16.75%	0.00%	0.00%	0.00%	0.00%	43.81%	0.07%	16.76%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	1.00%	27.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%
Percent Office Trips Generated(Exiting)	0.02%	13.79%	0.00%	0.00%	0.00%	0.00%	53.18%	0.02%	13.78%	0.00%	0.00%	0.00%
Total Trips Generated	0	110	6	208	0	0	305	0	110	0	1	0
Total PM Peak Hour BUILD Volumes	0	669	176	260	505	0	388	0	146	0	1	0

Number of Commercial Trips Generated	Entering 499	Exiting 378	A.M.	100% Commercial Development
Number of Office Trips Generated	602	580	P.M.	
	68	9	A.M.	100% Office Development
	20	96	P.M.	

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
2007 AM Peak Hr. Volumes	0	425	28	14	365	0	113	0	72	0	0	0
2007 PM Peak Hr. Volumes	0	513	156	48	463	0	83	0	36	0	0	0

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

2007 AM Link Volume	453	379	185	0
2007 PM Link Volume	669	511	119	0

Based on MRCOG Model (2030 Data Set)

2005 AM Link Volume	355	355	0	0
2005 PM Link Volume	261	261	0	0
2030 AM Link Volume	452	1202	30	0
2030 PM Link Volume	1062	1042	47	0

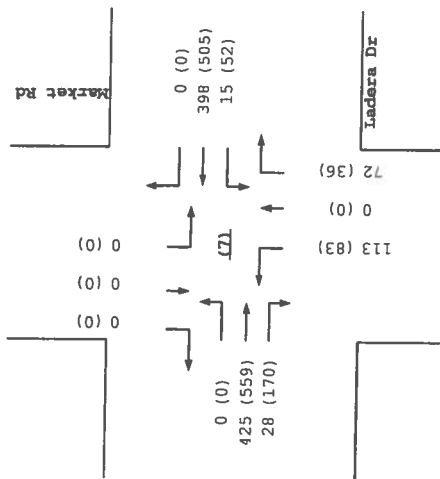
Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	-0.01%	9.44%	-3.64%	#DIV/0!
2007-2030 PM Growth Rates	2.55%	4.52%	-2.63%	#DIV/0!

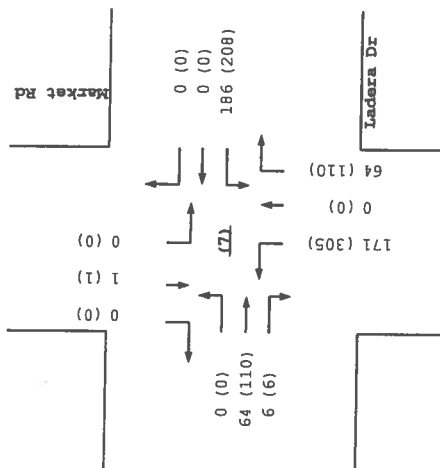
Growth Rate to Apply to 2005 Model Volumes to Match 2030 Forecasts

2005-2030 AM Growth Rates	1.09%	9.54%	#DIV/0!	#DIV/0!
2005-2030 PM Growth Rates	12.28%	11.97%	#DIV/0!	#DIV/0!

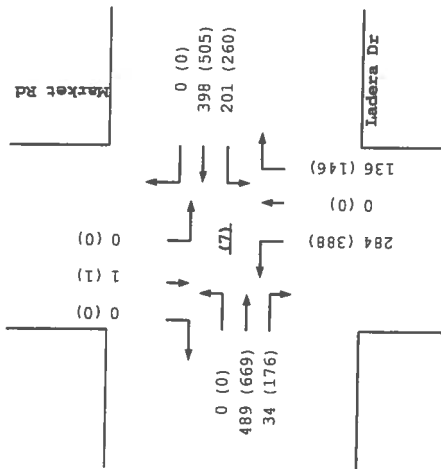
2010
NO BUILD



Trips



2010
BUILD



Heritage Neighborhood Center (Ladera Dr / Unser Blvd)
Projected Turning Movements Worksheet
Ladera Dr / Driveway 'A'

INTERSECTION: E-W Street: Ladera Dr (9)
 N-S Street: Driveway 'A'
 Year of Existing Counts: 2007
 Implementation Year: 2010
 Growth Rates:

	0.00%			0.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	520	0	0	466	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	520	0	0	466	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	1.00%	5.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	43.81%	0.00%	0.00%	0.00%	16.83%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	1.00%	5.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	53.18%	0.00%	0.00%	0.00%	13.81%	0.00%	0.00%	0.00%
Total Trips Generated	0	6	33	0	171	0	0	0	65	0	0	0
Total AM Peak Hour BUILD Volumes	0	526	33	0	637	0	0	0	65	0	0	0

	3.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	648	0	0	652	0	0	0	0	0	0	0
Background Traffic Growth	0	58	0	0	59	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	706	0	0	711	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	1.00%	5.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	43.81%	0.00%	0.00%	0.00%	16.83%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	1.00%	5.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	53.18%	0.00%	0.00%	0.00%	13.81%	0.00%	0.00%	0.00%
Total Trips Generated	0	6	37	0	305	0	0	0	111	0	0	0
Subtotal PM Pk Hr. BUILD Volumes	0	712	37	0	1,016	0	0	0	111	0	0	0
Pass-by Trip Adjustments	0	-48	48	0	33	0	0	0	52	0	0	0
Total PM Peak Hour BUILD Volumes	0	664	85	0	1,049	0	0	0	163	0	0	0

Number of Commercial Trips Generated: 499 Entering, 378 Exiting A.M. 100% Commercial Development
 602 Entering, 580 Exiting P.M.
 Number of Office Trips Generated: 68 Entering, 9 Exiting A.M. 100% Office Development
 20 Entering, 96 Exiting P.M.

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
2007 AM Peak Hr. Volumes	0	520	0	0	466	0	0	0	0	0	0	0
2007 PM Peak Hr. Volumes	0	648	0	0	652	0	0	0	0	0	0	0

MRCOG Forecast Volumes Worksheet

Based on 2007 Traffic Count

2007 AM Link Volume	520	466	0	0
2007 PM Link Volume	648	652	0	0

Based on MRCOG Model (2030 Data Set)

2005 AM Link Volume	370	327	1248	1049
2005 PM Link Volume	313	1024	1058	1248
2030 AM Link Volume	1468	848	1609	777
2030 PM Link Volume	923	1753	1389	1534

Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	7.93%	3.58%	#DIV/0!	#DIV/0!
2007-2030 PM Growth Rates	1.85%	7.34%	#DIV/0!	#DIV/0!

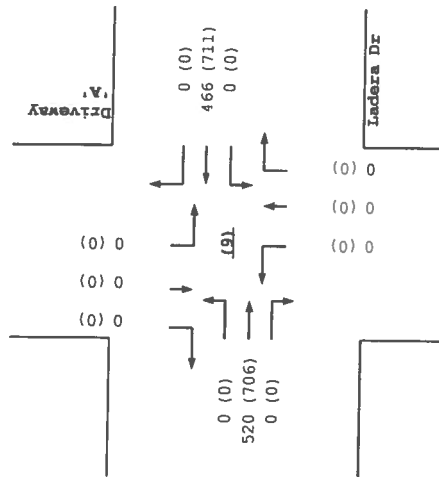
Growth Rate to Apply to 2005 Model Volumes to Match 2030 Forecasts

2005-2030 AM Growth Rates	11.87%	6.37%	1.16%	-1.04%
2005-2030 PM Growth Rates	7.80%	2.85%	1.25%	0.92%

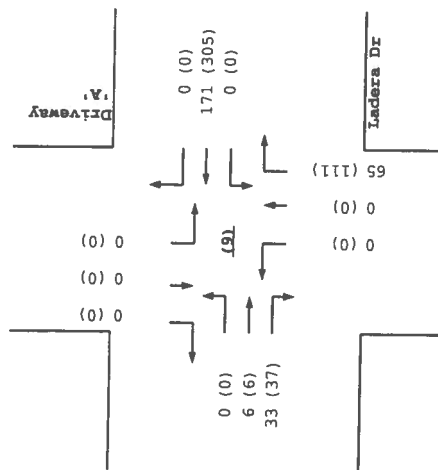
Pass-by Trip Calculations:

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	0.00%	-18.00%	18.00%	0.00%	-18.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PM Pass-by Trips	0	-48	48	0	-48	0	0	0	0	0	0	0
Percent Entering	0.00%	0.00%	0.00%	0.00%	28.00%	0.00%	0.00%	0.00%	18.00%	0.00%	0.00%	0.00%
Volume Entering	0	0	0	0	81	0	0	0	52	0	0	0
Percent Exiting	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Volume Exiting	0	0	0	0	0	0	0	0	0	0	0	0
Net PM Passby Trips	0	-48	48	0	33	0	0	0	52	0	0	0
Entering	0	0	0	0	0	0	0	0	0	0	0	0
Exiting	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0
267	290	PM										

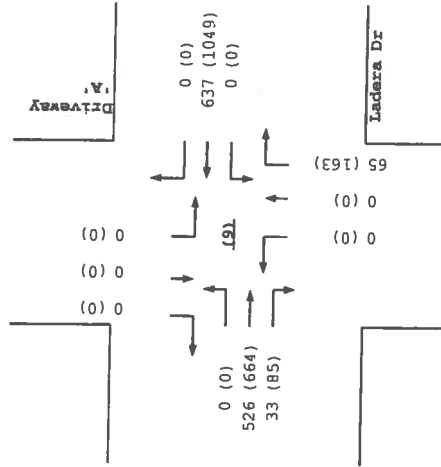
2010
NO BUILD



Trips



2010
BUILD



Ladera Dr / Driveway 'A'

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Driveway 'B' / Market Rd

INTERSECTION:

E-W Street: Driveway 'B' (10)

N-S Street: Market Rd

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)

Percent Office Trips Generated(Entering)

Percent Office Trips Generated(Exiting)

Total Trips Generated

Total AM Peak Hour BUILD Volumes

0.00%			0.00%			0.00%			0.00%		
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	185	0	0	42	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	185	0	0	42	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.92%	0.00%	0.00%	0.00%	1.00%	33.66%
59.64%	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	1.00%	27.61%
65.98%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
231	0	3	0	0	0	5	4	0	0	6	187
231	0	3	0	0	0	5	189	0	0	48	187

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Percent Office Trips Generated(Entering)

Percent Office Trips Generated(Exiting)

Total Trips Generated

Subtotal PM Pk Hr. BUILD Volumes

Pass-by Trip Adjustments

Total PM Peak Hour BUILD Volumes

Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	119	0	0	204	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	119	0	0	204	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.92%	0.00%	0.00%	0.00%	1.00%	33.66%
59.64%	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	1.00%	27.61%
65.98%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
409	0	5	0	0	0	6	7	0	0	6	209
409	0	5	0	0	0	6	126	0	0	210	209
81	0	0	0	0	0	0	0	0	0	0	48
490	0	5	0	0	0	6	126	0	0	210	257

Number of Commercial Trips Generated

Entering 499 Exiting 378

A.M. 100% Commercial Development

Number of Office Trips Generated

602 580

P.M. 100% Office Development

88 9

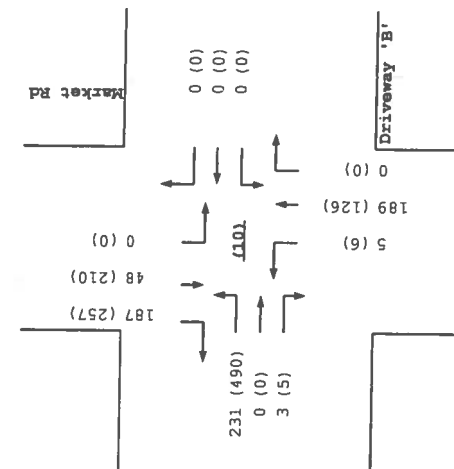
20 96

2007 AM Peak Hr. Volumes

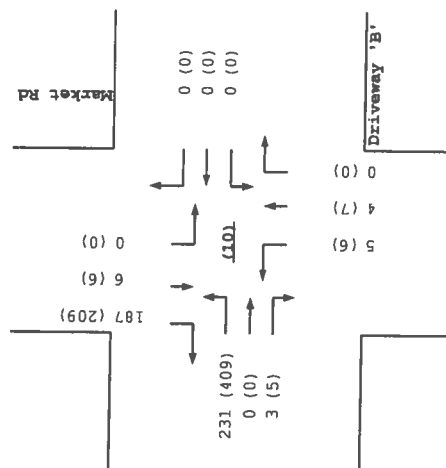
2007 PM Peak Hr. Volumes

Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	185	0	0	42	0
0	0	0	0	0	0	0	119	0	0	204	0

2010
BUILD

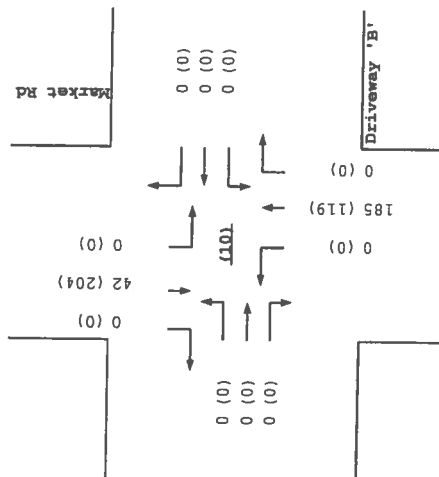


Trips



Driveway 'B' / Market Rd

2010
NO BUILD



Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements SUMMARY

PROPOSED DEVELOPMENT (2010) - 100% Development

Case L - RI, RO, LI only at Intersection 12

INTERSECTION:

Summary

Hanover Rd / Driveway 'C'

(11)

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

0.85			0.85			0.85			0.85			PHF		
Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')					
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right			
0	0	0	0	0	0	0	0	0	0	0	0			
0	0	0	0	0	0	0	0	0	0	0	0			
0	0	0	0	0	11	0	0	0	7	0	0			

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

0.85			0.85			0.85			0.85			PHF		
Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')					
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right			
0	0	0	0	0	0	0	0	0	0	0	0			
0	0	0	0	0	0	0	0	0	0	0	0			
0	0	0	0	0	11	0	0	0	12	0	0			

Driveway 'D' / Unser Blvd

(12)

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

0.85			0.85			0.85			0.85			PHF		
Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	701	0	0	1,588	0			
0	0	0	0	0	0	0	797	0	0	1,806	0			
0	0	0	0	0	80	0	797	216	116	1,950	0			

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

0.85			0.85			0.95			0.95			PHF		
Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	1,520	0	0	966	0			
0	0	0	0	0	0	0	1,709	0	0	1,086	0			
0	0	0	0	0	295	0	1,613	327	204	1,351	0			

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Hanover Rd / Driveway 'C'

INTERSECTION: E-W Street: Hanover Rd (11)

N-S Street: Driveway 'C'

Year of Existing Counts 2007

Implementation Year 2010

Growth Rates

	0.00%			0.00%			0.00%			0.00%		
	Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	0	0	0	0	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.91%	0.00%	0.00%	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%	1.91%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%
Total Trips Generated	0	0	0	0	0	11	0	0	0	7	0	0
Total AM Peak Hour BUILD Volumes	0	0	0	0	0	11	0	0	0	7	0	0

	Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	0	0	0	0	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.91%	0.00%	0.00%	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%	1.91%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%
Total Trips Generated	0	0	0	0	0	11	0	0	0	12	0	0
Total PM Peak Hour BUILD Volumes	0	0	0	0	0	11	0	0	0	12	0	0

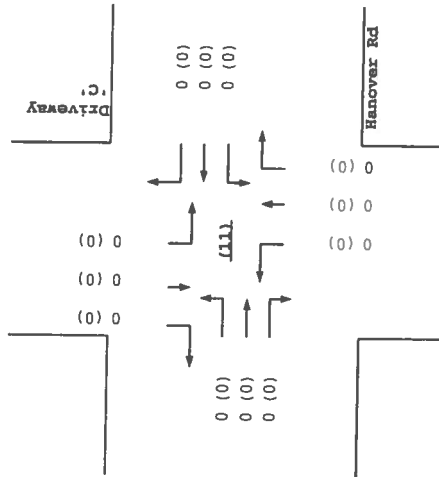
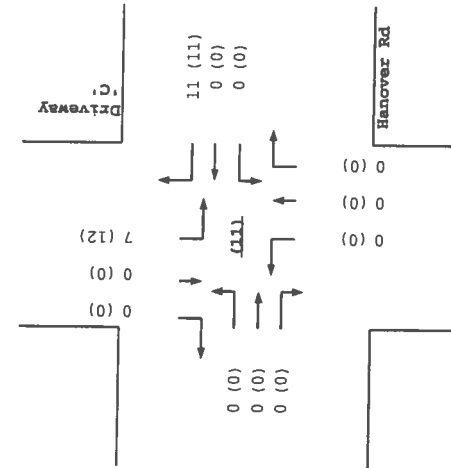
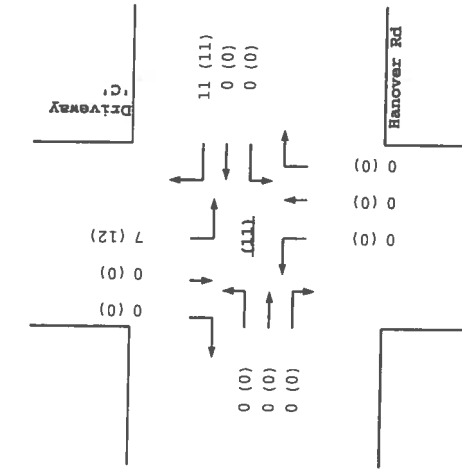
	Entering	Exiting		
Number of Commercial Trips Generated	499	378	A.M.	100% Commercial Development
	602	580	P.M.	
Number of Office Trips Generated	68	9	A.M.	100% Office Development
	20	96	P.M.	

	Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2007 PM Peak Hr. Volumes	0	0	0	0	0	0	0	0	0	0	0	0

2010
BUILD

Trips

2010
NO BUILD



Hanover Rd / Driveway 'C'

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Driveway 'D' / Unser Blvd

INTERSECTION :

E-W Street: Driveway 'D' (12)

N-S Street: Unser Blvd

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

	0.00%			0.00%			4.58%			4.58%		
	Eastbound (Driveway 'D')			Westbound (Driveway 'D')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	701	0	0	1,588	0
Background Traffic Growth	0	0	0	0	0	0	0	96	0	0	218	0
Subtotal (NO BUILD - A.M.)	0	0	0	0	0	0	0	797	0	0	1,806	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.91%	20.70%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	20.70%	0.00%	0.00%	0.00%	0.00%	36.91%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.95%	18.69%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	18.69%	0.00%	0.00%	0.00%	0.00%	46.95%	0.00%
Total Trips Generated	0	0	0	0	0	80	0	0	216	116	144	0
Total AM Peak Hour BUILD Volumes	0	0	0	0	0	80	0	797	216	116	1,950	0

	0.00%			0.00%			4.15%			4.15%		
	Eastbound (Driveway 'D')			Westbound (Driveway 'D')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
- Existing Volumes	0	0	0	0	0	0	0	1,520	0	0	966	0
Background Traffic Growth	0	0	0	0	0	0	0	189	0	0	120	0
Subtotal (NO BUILD - P.M.)	0	0	0	0	0	0	0	1,709	0	0	1,086	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.91%	20.70%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	20.70%	0.00%	0.00%	0.00%	0.00%	36.91%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.95%	18.69%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	18.69%	0.00%	0.00%	0.00%	0.00%	46.95%	0.00%
Total Trips Generated	0	0	0	0	0	138	0	0	231	129	259	0
Subtotal PM Pk Hr. BUILD Volumes	0	0	0	0	0	138	0	1,709	231	129	1,345	0
Pass-by Trip Adjustments	0	0	0	0	0	157	0	-96	96	75	6	0
Total PM Peak Hour BUILD Volumes	0	0	0	0	0	295	0	1,613	327	204	1,351	0

Number of Commercial Trips Generated	Entering 499	Exiting 378	A.M.	100% Commercial Development
Number of Office Trips Generated	602	580	P.M.	
	68	9	A.M.	100% Office Development
	20	96	P.M.	

2007 AM Peak Hr. Volumes
2007 PM Peak Hr. Volumes

Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	701	0	0	1,588	0
0	0	0	0	0	0	0	1,520	0	0	966	0

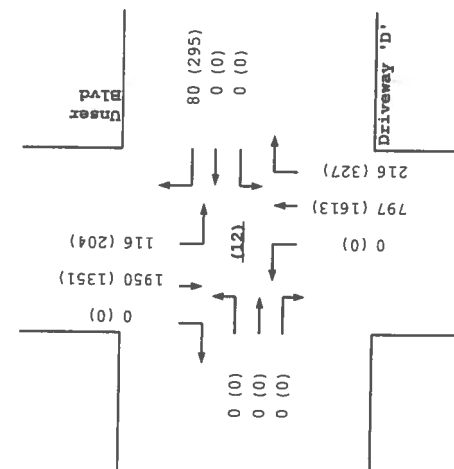
Pass-by Trip Calculations:

PM Pass-by Trips
Percent Entering
Volume Entering
Percent Exiting
Volume Exiting
Net PM Passby Trips

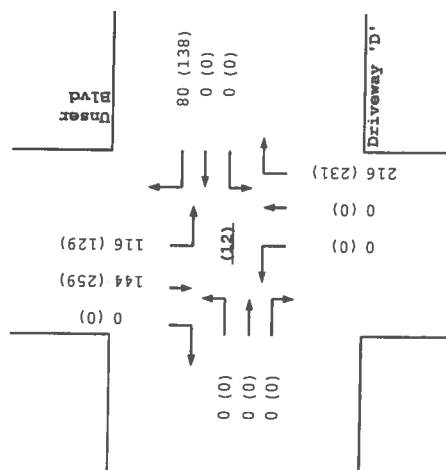
Eastbound (Driveway 'D')			Westbound (Driveway 'D')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-36.00%	36.00%	28.00%	-28.00%	0.00%
0	0	0	0	0	0	0	-96	96	75	-75	0
0.00%	0.00%	0.00%	0.00%	0.00%	54.00%	0.00%	0.00%	0.00%	0.00%	28.00%	0.00%
0	0	0	0	0	157	0	0	0	0	81	0

Entering 0
Exiting 0 AM
287 290 PM

2010
BUILD

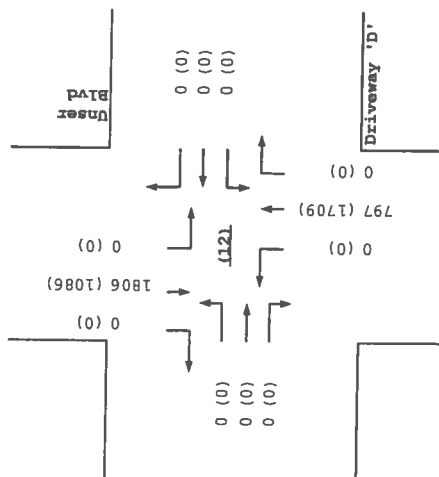


Trips



Driveway 'D' / Unser Blvd

2010
NO BUILD



Timings

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	199	460	587	688	196	163	704	376	125	1355	105
Volume (vph)	199	460	587	688	196	163	704	376	125	1355	105
Turn Type	pm+pt	pm+ov	pm+ov	Prot	Prot	pm+ov	pm+ov	Prot	pm+ov	pm+ov	pm+ov
Permitted Phases	4	4	5	3	8	5	2	3	1	6	7
Detector Phases	7	4	5	4	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	21.0	10.0	10.0	10.0	21.0	10.0	10.0
Total Split (s)	19.0	21.0	10.0	30.0	32.0	10.0	48.0	30.0	11.0	49.0	19.0
Total Split (%)	17.3%	19.1%	9.1%	27.3%	29.1%	8.1%	43.6%	27.3%	10.0%	44.5%	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	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimizes?	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 Effect Green (s)	32.9	18.0	28.0	27.0	30.1	7.0	45.0	75.0	8.0	46.0	63.9
Actuated g/C Ratio	0.30	0.16	0.25	0.25	0.27	0.06	0.41	0.68	0.07	0.42	0.58
v/c Ratio	0.58	0.92	0.96	1.04	0.42	0.89	0.59	0.41	0.57	1.04	0.12
Control Delay	28.2	68.4	66.3	82.9	21.5	89.8	27.1	8.5	58.8	66.2	2.1
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	28.2	68.4	66.3	82.9	21.5	89.8	27.1	8.5	58.8	66.2	2.1
LOS	C	E	E	F	C	F	C	A	E	E	A
Approach Delay	61.0	E	E	E	E	E	E	E	E	E	E
Approach LOS	E	E	E	E	E	E	E	E	E	E	E

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 84 (76%), Referenced to phase 2:NBT and 6:SET, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 53.8
 Intersection Capacity Utilization 87.9%
 Analysis Period (min) 15

Splits and Phases: 2: Ladera Dr & Unser Blvd



HCM Signalized Intersection Capacity Analysis

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1800	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1800	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	0.95	0.88	0.97	0.95	0.97	0.95	0.97	0.95	0.97	0.95
Frt	1.00	1.00	0.85	1.00	0.94	1.00	1.00	0.85	1.00	0.94	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	3505	2760	3400	3286	3400	3505	1568	3400	3505	1568
Flt Permitted	0.50	1.00	1.00	0.95	1.00	0.95	1.00	0.85	1.00	0.95	1.00
Satd. Flow (perm)	930	3505	2760	3400	3286	3400	3505	1568	3400	3505	1568
Volume (vph)	198	460	597	688	196	163	704	376	125	1355	105
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)	229	529	688	868	248	177	192	828	442	140	1522
RTOR Reduction (vph)	0	0	10	0	117	0	0	0	10	0	53
Lane Group Flow (vph)	229	529	678	868	306	0	192	828	432	140	1522
Turn Type	pm+pt	pm+ov	pm+ov	Prot	Prot	pm+ov	pm+ov	Prot	pm+ov	pm+ov	pm+ov
Protected Phases	7	4	5	3	8	5	2	3	1	6	7
Permitted Phases	4	4	5	3	8	5	2	3	1	6	7
Actuated Green, G (s)	28.9	18.0	21.0	25.0	28.1	5.0	43.0	68.0	6.0	44.0	56.9
Effective Green, g (s)	32.9	18.0	25.0	27.0	30.1	7.0	45.0	72.0	8.0	46.0	60.9
Actuated g/C Ratio	0.30	0.16	0.23	0.25	0.27	0.06	0.41	0.65	0.07	0.42	0.55
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)	389	574	703	835	899	216	1434	1069	247	1466	911
v/s Ratio Prot	0.08	0.15	0.08	0.26	0.09	0.06	0.24	0.10	0.04	0.43	0.01
v/s Ratio Perm	0.10	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
v/c Ratio	0.58	0.92	0.96	1.04	0.34	0.88	0.58	0.40	0.57	1.04	0.07
Uniform Delay, d1	31.1	45.3	42.0	41.5	32.0	51.1	25.1	8.9	49.3	32.0	11.4
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	2.3	20.4	24.7	41.9	0.2	32.6	1.7	0.3	3.0	34.0	11.4
Delay (s)	33.4	65.7	66.7	83.4	32.3	83.7	26.8	9.2	52.3	66.0	11.4
Level of Service	C	E	E	F	C	F	C	A	D	E	B
Approach Delay (s)	81.0	E	E	E	E	E	E	E	E	E	E
Approach LOS	E	E	E	E	E	E	E	E	E	E	E

Intersection Summary





















HCM Average Control Delay 54.5 HCM Level of Service D
 HCM Volume to Capacity ratio 0.98
 Actuated Cycle Length (s) 110.0 Sum of lost time (s) 6.0
 Intersection Capacity Utilization 87.9% ICU Level of Service E
 Analysis Period (min) 15
 Critical Lane Group

2010 AM Peak BUILD Conditions - MITIGATED Case L - Right-in, right-out, left-in access at Intersection 12
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2010 AM Peak BUILD Conditions - MITIGATED Case L - Right-in, right-out, left-in access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 7: Ladera Dr & Market Rd

Terry O. Brown, P.E.
12/29/2007

												
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)	0	489	34	201	398	0	284	0	136	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.79	0.79	0.79	0.86	0.86	0.86	0.85	0.85	0.85
Hourly flow rate (vph)	0	556	39	254	504	0	330	0	158	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)								Raised			Raised	
Upstream signal (ft)		888						1			1	
pX, platoon unblocked												
vC, conflicting volume	504			594			1336	1588	297	1449	1607	252
vC1, stage 1 conf vol							575	575		1013	1013	
vC2, stage 2 conf vol							761	1013		436	594	
vCu, unblocked vol	504			594			1336	1588	297	1449	1607	252
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			74			0	100	77	100	99	100
cM capacity (veh/h)	1050			971			191	173	696	110	141	745
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	0	370	224	254	336	168	330	158	1			
Volume Left	0	0	0	254	0	0	330	0	0			
Volume Right	0	0	39	0	0	0	0	158	0			
cSH	1700	1700	1700	971	1700	1700	191	696	141			
Volume to Capacity	0.00	0.22	0.13	0.26	0.20	0.10	1.73	0.23	0.01			
Queue Length 95th (ft)	0	0	0	26	0	0	572	22	1			
Control Delay (s)	0.0	0.0	0.0	10.0	0.0	0.0	393.5	11.7	30.8			
Lane LOS				B			F	B	D			
Approach Delay (s)	0.0			3.4			269.9		30.8			
Approach LOS							F		D			
Intersection Summary												
Average Delay			72.9									
Intersection Capacity Utilization			58.1%			ICU Level of Service			B			
Analysis Period (min)			15									

2010 AM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 9: Ladera Dr & 'A'

Terry O. Brown, P.E.
12/29/2007










	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	526	33	0	637	0	65
Peak Hour Factor	0.79	0.79	0.79	0.79	0.85	0.85
Hourly flow rate (vph)	666	42	0	806	0	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	481					
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			708		1090	354
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			585		1004	198
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			894		216	737
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	444	264	403	403	76	
Volume Left	0	0	0	0	0	
Volume Right	0	42	0	0	76	
cSH	1700	1700	1700	1700	737	
Volume to Capacity	0.26	0.16	0.24	0.24	0.10	
Queue Length 95th (ft)	0	0	0	0	9	
Control Delay (s)	0.0	0.0	0.0	0.0	10.4	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		10.4	
Approach LOS					B	
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			26.3%		ICU Level of Service	A
Analysis Period (min)			15			

2010 AM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 10: 'B' & Market Rd

Terry O. Brown, P.E.
12/29/2007

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	231	3	5	189	48	187
Peak Hour Factor	0.85	0.85	0.85	0.85	0.86	0.86
Hourly flow rate (vph)	272	4	6	222	56	217
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	399	165	273			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	399	165	273			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	55	100	100			
cM capacity (veh/h)	602	877	1284			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	275	228	273			
Volume Left	272	6	0			
Volume Right	4	0	217			
cSH	605	1284	1700			
Volume to Capacity	0.46	0.00	0.16			
Queue Length 95th (ft)	59	0	0			
Control Delay (s)	15.8	0.2	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.8	0.2	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		5.7				
Intersection Capacity Utilization		33.7%		ICU Level of Service	A	
Analysis Period (min)		15				

2010 AM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 11: Hanover Rd & 'C'

Terry O. Brown, P.E.
12/29/2007














Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	0	11	7	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	13	8	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13				6	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				6	6
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)	1599				1012	1073
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	0	13	8			
Volume Left	0	0	8			
Volume Right	0	13	0			
cSH	1700	1700	1012			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.6			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

2010 AM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 12: 'D' & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

										
Movement	WBL	WBR	NBT	NBR	SBL	SBT				
Lane Configurations										
Sign Control	Stop		Free			Free				
Grade	0%		0%			0%				
Volume (veh/h)	0	80	797	216	116	1950				
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85				
Hourly flow rate (vph)	0	94	938	254	136	2294				
Pedestrians										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	Raised									
Median storage (veh)	1									
Upstream signal (ft)							970			
pX, platoon unblocked										
vC, conflicting volume	1975	313			1192					
vC1, stage 1 conf vol	938									
vC2, stage 2 conf vol	1038									
vCu, unblocked vol	1975	313			1192					
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	86			76					
cM capacity (veh/h)	143	680			576					
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4	
Volume Total	94	313	313	313	254	136	765	765	765	
Volume Left	0	0	0	0	0	136	0	0	0	
Volume Right	94	0	0	0	254	0	0	0	0	
cSH	680	1700	1700	1700	1700	576	1700	1700	1700	
Volume to Capacity	0.14	0.18	0.18	0.18	0.15	0.24	0.45	0.45	0.45	
Queue Length 95th (ft)	12	0	0	0	0	23	0	0	0	
Control Delay (s)	11.1	0.0	0.0	0.0	0.0	13.2	0.0	0.0	0.0	
Lane LOS	B						B			
Approach Delay (s)	11.1	0.0				0.7				
Approach LOS	B									
Intersection Summary										
Average Delay			0.8							
Intersection Capacity Utilization			41.0%		ICU Level of Service		A			
Analysis Period (min)			15							

2010 AM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12
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Timings

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	192	334	369	634	496	607	1524	708	290	1169	333
Volume (vph)	192	334	369	634	496	607	1524	708	290	1169	333
Turn Type	pm+pt	pm+ov	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	pm+ov	pm+ov
Protected Phases	7	4	5	3	8	5	2	3	1	6	7
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Detector Phases	7	4	5	3	8	5	2	3	1	6	7
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	21.0	10.0	10.0	10.0	21.0	10.0	10.0
Total Split (s)	17.0	21.0	23.0	34.0	38.0	23.0	53.0	34.0	12.0	42.0	17.0
Total Split (%)	14.2%	17.5%	19.2%	28.3%	31.7%	19.2%	44.2%	28.3%	10.0%	35.0%	14.2%
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	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimiza?											
Recall Mode	Min	Min	Min	Min	Min	Min	Max	Min	Min	Max	Min
Act Effect Green (s)	31.0	17.3	40.3	31.0	34.6	20.0	50.0	84.0	9.0	39.0	55.7
Actuated g/C Ratio	0.26	0.15	0.34	0.26	0.29	0.17	0.42	0.70	0.08	0.33	0.47
v/c Ratio	0.78	0.71	0.42	1.14	0.81	1.12	1.09	0.67	1.18	1.08	0.45
Control Delay	51.6	57.0	31.3	115.7	42.2	120.5	86.4	13.2	160.2	83.9	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	57.0	31.3	115.7	42.2	120.5	86.4	13.2	160.2	83.9	19.2
LOS	D	E	C	F	D	F	F	B	F	F	B
Approach Delay	45.2				82.4		75.5			84.2	
Approach LOS	D				F		E			F	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 119.3
Natural Cycle: 130
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 75.5
Intersection Capacity Utilization 99.6%
Analysis Period (min) 15

Splits and Phases: 2: Ladera Dr & Unser Blvd



HCM Signalized Intersection Capacity Analysis

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

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	0.95	0.88	0.97	0.95	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.95	1.00	0.85	1.00	0.95	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.85	1.00	0.95	1.00	0.85	1.00	0.95	1.00
Satd. Flow (prot)	1752	3505	2760	3400	3316	3400	3505	1588	3400	3505	1588
Flt Permitted	0.23	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	427	3505	2760	3400	3316	3400	3505	1588	3400	3505	1588
Volume (vph)	192	334	369	634	496	607	1524	708	290	1169	333
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)	208	359	397	1004	533	300	839	1804	745	302	1218
RTOR Reduction (vph)	0	0	7	0	65	0	0	0	0	0	38
Lane Group Flow (vph)	208	359	390	1004	768	0	639	1804	736	302	1218
Turn Type	pm+pt	pm+pt	pm+ov	Prot	Prot	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	7	4	5	3	8	5	2	3	1	6	7
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	27.0	15.3	33.3	29.0	32.6	18.0	48.0	77.0	7.0	37.0	48.7
Effective Green, g (s)	31.0	17.3	37.3	31.0	34.6	20.0	50.0	81.0	9.0	39.0	52.7
Actuated g/C Ratio	0.28	0.15	0.31	0.26	0.28	0.17	0.42	0.88	0.08	0.33	0.44
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)	263	508	932	883	962	570	1469	1104	256	1146	732
v/s Ratio Prot	0.09	0.10	0.07	0.30	0.23	0.19	0.46	0.17	0.09	0.36	0.05
v/s Ratio Perm	0.11		0.07			0.30				0.15	
v/c Ratio	0.78	0.71	0.42	1.14	0.80	1.12	1.09	0.87	1.18	1.06	0.42
Uniform Delay, d1	37.3	48.6	32.4	44.1	39.1	49.6	34.6	11.2	55.2	40.2	22.9
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	14.1	4.5	0.3	75.5	4.7	75.6	52.8	1.5	113.7	45.0	0.4
Delay (s)	51.4	53.0	32.7	119.6	43.8	125.2	87.4	12.7	168.8	85.1	23.2
Level of Service	D	D	C	F	D	F	F	B	F	F	C
Approach Delay (s)	44.3				85.2		78.9			87.2	
Approach LOS	D				F		E			F	

Intersection Summary

HCM Average Control Delay	77.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	119.3	Sum of lost time (s)	6.0
Intersection Capacity Utilization	99.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group




















2010 PM Peak BUILD Conditions - MITIGATED

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2010 PM Peak BUILD Conditions - MITIGATED Case L - Right-in, right-out, left-in access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 7: Ladera Dr & Market Rd

Terry O. Brown, P.E.
12/29/2007

												
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Sign Control		Free			Stop			Stop		Free		
Grade		0%			0%			0%		0%		
Volume (veh/h)	1	669	176	388	1	146	1	1	1	260	505	1
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.85	0.85	0.85	0.80	0.80	0.80
Hourly flow rate (vph)	1	719	189	441	1	166	1	1	1	325	631	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type					Raised			Raised				
Median storage veh					1			1				
Upstream signal (ft)		888										
pX, platoon unblocked												
vC, conflicting volume	632			1784	2099	454	1810	2193	316	909		
vC1, stage 1 conf vol				816	816		1282	1282				
vC2, stage 2 conf vol				967	1282		528	911				
vCu, unblocked vol	632			1784	2099	454	1810	2193	316	909		
tC, single (s)	4.2			7.6	6.6	7.0	7.6	6.6	7.0	4.2		
tC, 2 stage (s)				6.6	5.6		6.6	5.6				
tF (s)	2.2			3.5	4.0	3.3	3.5	4.0	3.3	2.2		
p0 queue free %	100			0	99	70	95	95	100	56		
cM capacity (veh/h)	939			106	98	550	22	25	677	739		
Direction, Lane #	EB 1	EB 2	EB 3	NB 1	NB 2	SB 1	SW 1	SW 2	SW 3			
Volume Total	1	480	429	441	167	4	325	421	212			
Volume Left	1	0	0	441	0	1	325	0	0			
Volume Right	0	0	189	0	166	1	0	0	1			
cSH	939	1700	1700	106	533	34	739	1700	1700			
Volume to Capacity	0.00	0.28	0.25	4.15	0.31	0.10	0.44	0.25	0.12			
Queue Length 95th (ft)	0	0	0	Err	33	8	56	0	0			
Control Delay (s)	8.8	0.0	0.0	Err	14.8	121.3	13.6	0.0	0.0			
Lane LOS	A			F	B	F	B					
Approach Delay (s)	0.0			7255.7		121.3	4.6					
Approach LOS				F		F						

Intersection Summary

Average Delay	1781.6		
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

2010 PM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12

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HCM Unsignalized Intersection Capacity Analysis
9: Ladera Dr & 'A'

Terry O. Brown, P.E.
12/29/2007










	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	664	85	0	1049	0	163
Peak Hour Factor	0.93	0.93	0.93	0.93	0.85	0.85
Hourly flow rate (vph)	714	91	0	1128	0	192
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)	481					
pX, platoon unblocked						
vC, conflicting volume			805		1324	403
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			805		1324	403
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	68
cM capacity (veh/h)			808		146	594
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	476	329	564	564	192	
Volume Left	0	0	0	0	0	
Volume Right	0	91	0	0	192	
cSH	1700	1700	1700	1700	594	
Volume to Capacity	0.28	0.19	0.33	0.33	0.32	
Queue Length 95th (ft)	0	0	0	0	35	
Control Delay (s)	0.0	0.0	0.0	0.0	13.9	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		13.9	
Approach LOS					B	
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			37.8%		ICU Level of Service	A
Analysis Period (min)			15			

2010 PM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 10: 'B' & Market Rd

Terry O. Brown, P.E.
12/29/2007

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	490	5	6	126	210	257
Peak Hour Factor	0.85	0.85	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	576	6	7	143	239	292
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	541	385	531			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	541	385	531			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	99	99			
cM capacity (veh/h)	497	661	1032			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	582	150	531			
Volume Left	576	7	0			
Volume Right	6	0	292			
cSH	498	1032	1700			
Volume to Capacity	1.17	0.01	0.31			
Queue Length 95th (ft)	524	0	0			
Control Delay (s)	122.9	0.4	0.0			
Lane LOS	F	A				
Approach Delay (s)	122.9	0.4	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		56.7				
Intersection Capacity Utilization		60.9%		ICU Level of Service		B
Analysis Period (min)		15				

2010 PM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 11: Hanover Rd & 'C'

Terry O. Brown, P.E.
12/29/2007









Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	0	11	12	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	13	14	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13				6	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				6	6
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)	1599				1012	1073
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	0	13	14			
Volume Left	0	0	14			
Volume Right	0	13	0			
cSH	1700	1700	1012			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.6			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay		4.5				
Intersection Capacity Utilization		13.3%		ICU Level of Service	A	
Analysis Period (min)		15				

2010 PM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 12: 'D' & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

										
Movement	WBL	WBR	NBT	NBR	SBL	SBT				
Lane Configurations		↗	↑↑↑	↗	↖	↑↑↑				
Sign Control	Stop		Free			Free				
Grade	0%		0%			0%				
Volume (veh/h)	0	295	1613	327	204	1351				
Peak Hour Factor	0.85	0.85	0.95	0.95	0.95	0.95				
Hourly flow rate (vph)	0	347	1698	344	215	1422				
Pedestrians										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	Raised									
Median storage veh	1									
Upstream signal (ft)							935			
pX, platoon unblocked										
vC, conflicting volume	2601	566			2042					
vC1, stage 1 conf vol	1698									
vC2, stage 2 conf vol	904									
vCu, unblocked vol	2601	566			2042					
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	25			20					
cM capacity (veh/h)	44	465			269					
Direction, Lane.#	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4	
Volume Total	347	566	566	566	344	215	474	474	474	
Volume Left	0	0	0	0	0	215	0	0	0	
Volume Right	347	0	0	0	344	0	0	0	0	
cSH	465	1700	1700	1700	1700	269	1700	1700	1700	
Volume to Capacity	0.75	0.33	0.33	0.33	0.20	0.80	0.28	0.28	0.28	
Queue Length 95th (ft)	155	0	0	0	0	155	0	0	0	
Control Delay (s)	32.2	0.0	0.0	0.0	0.0	56.0	0.0	0.0	0.0	
Lane LOS	D						F			
Approach Delay (s)	32.2	0.0				7.4				
Approach LOS	D									
Intersection Summary										
Average Delay			5.8							
Intersection Capacity Utilization			56.1%		ICU Level of Service		B			
Analysis Period (min)			15							

2010 PM Peak BUILD Conditions - MITIGATED

Case L - Right-in, right-out, left-in access at Intersection 12
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Analysis of
2010 BUILD Conditions

CASE "R"
(Right-in, Right-out Access Driveway on Unser Blvd.)

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements SUMMARY PROPOSED DEVELOPMENT (2010) - 100% Development

Case R - RI, RO only at Intersection 12

INTERSECTION: Summary

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	385	317	105	44	48	429	224	45	906	58	
199	446	557	542	186	123	134	653	376	99	1,279	105	
199	498	557	686	196	140	163	704	376	201	1,279	105	

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	284	107	288	860	372	94	547	184	
192	319	322	594	480	249	560	1,433	708	263	1,087	333	
192	381	322	934	496	279	607	1,524	708	372	1,087	333	

Ladera Dr / Market Rd

(7)
3.0% Truck
Existing (2007)
2010 (NO BUILD - A.M.)
2010 (BUILD - A.M.)

0.88			0.79			0.86			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	425	28	14	365	0	113	0	72	0	0	0	
0	425	28	15	398	0	113	0	72	0	0	0	
0	489	39	201	398	0	284	0	136	0	1	0	

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

0.93			0.80			0.88			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	513	156	48	483	0	83	0	36	0	0	0	
0	559	170	52	505	0	83	0	36	0	0	0	
0	669	182	260	505	0	388	0	146	0	1	0	

Ladera Dr / Driveway 'A'

(9)
3.0% Truck
Existing (2007)
2010 (NO BUILD - A.M.)
2010 (BUILD - A.M.)

0.79			0.79			0.85			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	520	0	0	466	0	0	0	0	0	0	0	
0	520	0	0	466	0	0	0	0	0	0	0	
0	531	144	0	637	0	0	0	65	0	0	0	

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

0.93			0.93			0.85			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	848	0	0	652	0	0	0	0	0	0	0	
0	706	0	0	711	0	0	0	0	0	0	0	
0	595	282	0	1,049	0	0	0	163	0	0	0	

Driveway 'B' / Market Rd

(10)
3.0% Truck
Existing (2007)
2010 (NO BUILD - A.M.)
2010 (BUILD - A.M.)

0.85			0.85			0.86			0.86			PHF
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	185	0	0	42	0	
0	0	0	0	0	0	0	185	0	0	42	0	
231	0	3	0	0	0	5	189	0	0	53	187	

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

0.85			0.85			0.88			0.88			PHF
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	119	0	0	204	0	
0	0	0	0	0	0	0	119	0	0	204	0	
490	0	5	0	0	0	6	126	0	0	216	257	

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)
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:

	0.88%			6.77%			4.58%			3.66%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	175	251	385	317	105	44	48	429	224	45	906	58
Background Traffic Growth	4	5	7	64	21	9	7	59	31	5	100	6
Subtotal	179	256	372	381	126	53	55	488	255	50	1,006	64
I-40 / Unser Development	0	0	43	161	0	0	32	32	121	0	42	0
Ladera Business Park	0	0	0	0	0	3	0	28	0	5	47	0
Previous Development from below	20	190	142	0	60	67	47	105	0	44	184	41
Subtotal (NO BUILD - A.M.)	199	446	557	542	186	123	134	653	376	99	1,279	105
Percent Commercial Trips Generated(Entering)	0.00%	18.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	17.48%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	38.91%	2.53%	4.37%	7.59%	13.11%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	3.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	21.33%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	46.95%	0.90%	5.33%	2.69%	16.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	52	0	144	10	17	29	51	0	102	0	0
Total AM Peak Hour BUILD Volumes	199	498	557	686	196	140	163	704	376	201	1,279	105

	3.98%			2.50%			4.15%			3.12%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	140	182	138	281	264	107	288	880	372	94	547	184
Background Traffic Growth	17	22	16	21	20	8	36	107	46	9	51	17
Subtotal	157	204	154	302	284	115	324	987	418	103	598	201
I-40 / Unser Development	0	0	78	292	0	0	77	77	290	0	77	0
Ladera Business Park	0	0	0	0	0	14	0	123	0	23	204	0
Previous Development from below	35	115	90	0	196	120	159	266	0	137	208	132
Subtotal (NO BUILD - P.M.)	192	319	322	594	480	249	560	1,433	708	263	1,087	333
Percent Commercial Trips Generated(Entering)	0.00%	18.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	17.48%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	38.91%	2.53%	4.37%	7.59%	13.11%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	3.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	21.33%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	46.95%	0.90%	5.33%	2.69%	16.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	62	0	259	16	30	47	91	0	109	0	0
Subtotal PM Peak Hour BUILD Volumes	192	381	322	853	496	279	607	1,524	708	372	1,087	333
Pass-by Trip Adjustments	0	0	0	81	0	0	0	0	0	0	0	0
Total PM Peak Hour BUILD Volumes	192	381	322	934	496	279	607	1,524	708	372	1,087	333

Number of Commercial Trips Generated: Entering 499, Exiting 378, A.M. 100% Commercial Development
 Number of Office Trips Generated: Entering 602, Exiting 580, P.M. 100% Office Development
 Entering 68, Exiting 9, A.M. 100% Office Development
 Entering 20, Exiting 96, P.M.

Previous Developments - AM Peak Hour Volumes

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Watershed Residential & Retail	0	78	0	0	24	0	0	6	0	0	17	0
Storm Cloud Dev. w/ others	0	112	142	0	36	0	47	44	0	0	131	28
98th / Unser Development	20	0	0	0	0	67	0	55	0	44	36	13
Subtotal	20	190	142	0	60	67	47	105	0	44	184	41

Previous Developments - PM Peak Hour Volumes

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Watershed Residential & Retail	0	44	0	0	78	0	0	19	0	0	12	0
Storm Cloud Dev. w/ others	0	71	90	0	118	0	159	149	0	0	83	91
98th / Unser Development	35	0	0	0	0	120	0	98	0	137	113	41
Subtotal	35	115	90	0	196	120	159	266	0	137	208	132

MRCOG Forecast Volumes Worksheet

Based on 2007 Traffic Count

2007 AM Link Volume: 791, 466, 701, 1,009
 2007 PM Link Volume: 460, 882, 1,520, 825

Based on MRCOG Model (2030 Data Set)

2030 AM Link Volume: 914, 1192, 1440, 1859
 2030 PM Link Volume: 881, 1027, 2970, 1417

Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates: 0.88%, 6.77%, 4.58%, 3.66%
 2007-2030 PM Growth Rates: 3.98%, 2.50%, 4.15%, 3.12%

Pass-by Trip Calculations:

AM Pass-by Trips

Percent Entering

Volume Entering

Percent Exiting

Volume Exiting

Net AM Passby Trips

Percent Entering

Volume Entering

Percent Exiting

Volume Exiting

Net PM Passby Trips

Percent Entering

Volume Entering

Percent Exiting

Volume Exiting

Net PM Passby Trips

Percent Entering

Volume Entering

Percent Exiting

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Percent Entering

Volume Entering

Percent Exiting

Volume Exiting

Net PM Passby Trips

Percent Entering

Volume Entering

Percent Exiting

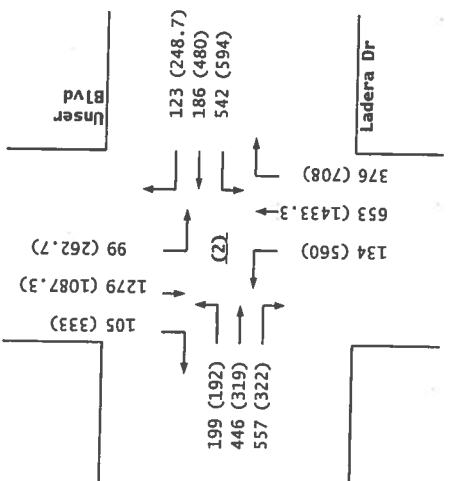
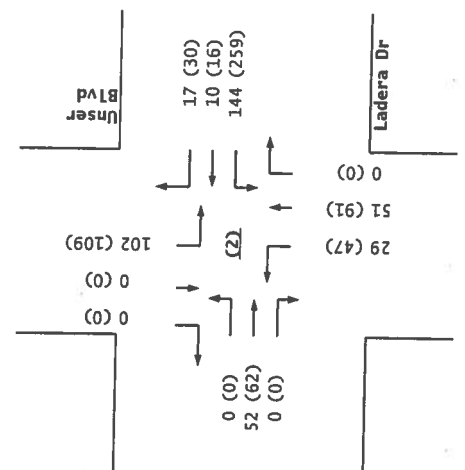
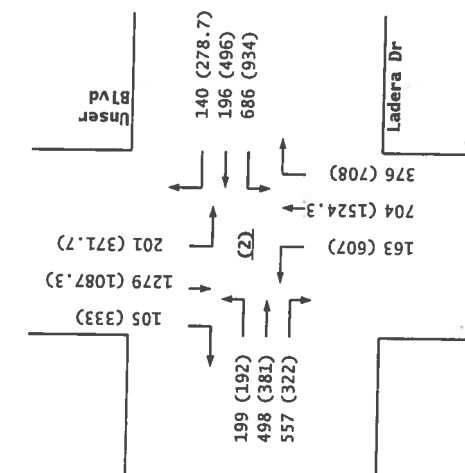
Volume Exiting

Net PM Passby Trips

2010
BUILD

Trips

2010
NO BUILD



Ladera Dr / Unser Blvd

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Ladera Dr / Market Rd

INTERSECTION: E-W Street: Ladera Dr (7)

N-S Street: Market Rd

Year of Existing Counts 2007

Implementation Year 2010

Growth Rates

	0.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	425	28	14	365	0	113	0	72	0	0	0
Background Traffic Growth	0	0	0	1	33	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	425	28	15	398	0	113	0	72	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	2.00%	33.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%
Percent Commercial Trips Generated(Exiting)	0.08%	16.75%	0.00%	0.00%	0.00%	0.00%	43.81%	0.07%	16.76%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	2.00%	27.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%
Percent Office Trips Generated(Exiting)	0.02%	13.79%	0.00%	0.00%	0.00%	0.00%	53.18%	0.02%	13.78%	0.00%	0.00%	0.00%
Total Trips Generated	0	64	11	186	0	0	171	0	64	0	1	0
Total AM Peak Hour BUILD Volumes	0	489	39	201	398	0	284	0	136	0	1	0

	3.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	513	156	48	463	0	83	0	36	0	0	0
Background Traffic Growth	0	46	14	4	42	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	559	170	52	505	0	83	0	36	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	2.00%	33.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%
Percent Commercial Trips Generated(Exiting)	0.08%	16.75%	0.00%	0.00%	0.00%	0.00%	43.81%	0.07%	16.76%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	2.00%	27.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%
Percent Office Trips Generated(Exiting)	0.02%	13.79%	0.00%	0.00%	0.00%	0.00%	53.18%	0.02%	13.78%	0.00%	0.00%	0.00%
Total Trips Generated	0	110	12	208	0	0	305	0	110	0	1	0
Total PM Peak Hour BUILD Volumes	0	669	182	260	505	0	388	0	146	0	1	0

	Entering	Exiting		
Number of Commercial Trips Generated	499	378	A.M.	100% Commercial Development
	602	580	P.M.	
Number of Office Trips Generated	68	9	A.M.	100% Office Development
	20	98	P.M.	

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	0	425	28	14	365	0	113	0	72	0	0	0
2007 PM Peak Hr. Volumes	0	513	156	48	463	0	83	0	36	0	0	0

MRCOG Forecast Volumes Worksheet

Based on 2007 Traffic Count

2007 AM Link Volume	453	379	185	0
2007 PM Link Volume	669	511	119	0

Based on MRCOG Model (2030 Data Set)

2005 AM Link Volume	355	355	0	0
2005 PM Link Volume	261	261	0	0
2030 AM Link Volume	452	1202	30	0
2030 PM Link Volume	1062	1042	47	0

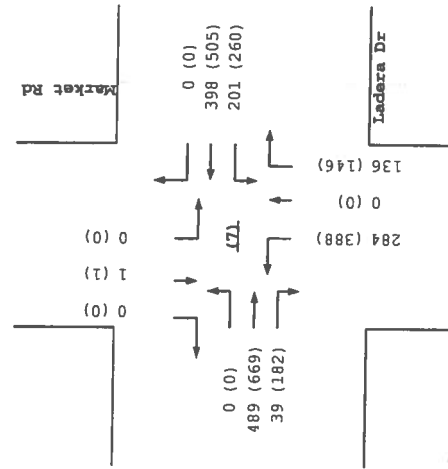
Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	-0.01%	9.44%	-3.64%	#DIV/0!
2007-2030 PM Growth Rates	2.56%	4.62%	-2.63%	#DIV/0!

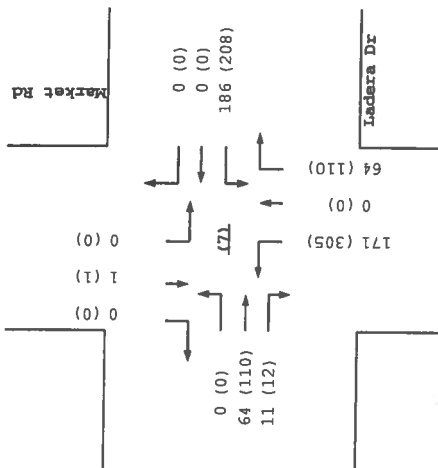
Growth Rate to Apply to 2005 Model Volumes to Match 2030 Forecasts

2005-2030 AM Growth Rates	1.09%	9.54%	#DIV/0!	#DIV/0!
2005-2030 PM Growth Rates	12.28%	11.97%	#DIV/0!	#DIV/0!

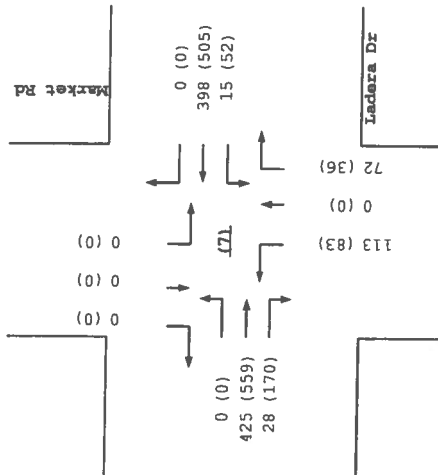
2010
BUILD



Trips



2010
NO BUILD



Heritage Neighborhood Center (Ladera Dr / Unser Blvd)
Projected Turning Movements Worksheet
Ladera Dr / Driveway 'A'

INTERSECTION: E-W Street: **Ladera Dr** (9)
 N-S Street: **Driveway 'A'**
 Year of Existing Counts: **2007**
 Implementation Year: **2010**
 Growth Rates

	0.00%			0.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	520	0	0	466	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	520	0	0	466	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	2.00%	25.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	43.81%	0.00%	0.00%	0.00%	18.83%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	2.00%	22.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	53.18%	0.00%	0.00%	0.00%	13.81%	0.00%	0.00%	0.00%
Total Trips Generated	0	11	144	0	171	0	0	0	65	0	0	0
Total AM Peak Hour BUILD Volumes	0	531	144	0	637	0	0	0	65	0	0	0

	3.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	648	0	0	652	0	0	0	0	0	0	0
Background Traffic Growth	0	58	0	0	59	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	706	0	0	711	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	2.00%	25.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	43.81%	0.00%	0.00%	0.00%	18.83%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	2.00%	22.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	53.18%	0.00%	0.00%	0.00%	13.81%	0.00%	0.00%	0.00%
Total Trips Generated	0	12	159	0	305	0	0	0	111	0	0	0
Subtotal PM Pk Hr. BUILD Volumes	0	718	159	0	1,016	0	0	0	111	0	0	0
Pass-by Trip Adjustments	0	-123	123	0	33	0	0	0	52	0	0	0
Total PM Peak Hour BUILD Volumes	0	595	282	0	1,049	0	0	0	163	0	0	0

Number of Commercial Trips Generated: Entering 499, Exiting 378, A.M. 100% Commercial Development
 Number of Office Trips Generated: Entering 602, Exiting 580, P.M. 100% Office Development
 Entering 68, Exiting 9, A.M. 100% Office Development
 Entering 20, Exiting 96, P.M.

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
2007 AM Peak Hr. Volumes	0	520	0	0	466	0	0	0	0	0	0	0
2007 PM Peak Hr. Volumes	0	648	0	0	652	0	0	0	0	0	0	0

MRCOG Forecast Volumes Worksheet

Based on 2007 Traffic Count

2007 AM Link Volume	520	466	0	0
2007 PM Link Volume	648	652	0	0

Based on MRCOG Model (2030 Data Set)

2005 AM Link Volume	370	327	1248	1049
2005 PM Link Volume	313	1024	1058	1246
2030 AM Link Volume	1458	848	1609	777
2030 PM Link Volume	923	1753	1389	1534

Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	7.93%	3.56%	#DIV/0!	#DIV/0!
2007-2030 PM Growth Rates	1.85%	7.34%	#DIV/0!	#DIV/0!

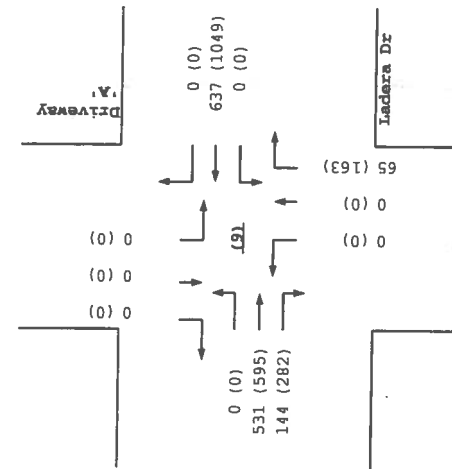
Growth Rate to Apply to 2005 Model Volumes to Match 2030 Forecasts

2005-2030 AM Growth Rates	11.87%	6.37%	1.16%	-1.04%
2005-2030 PM Growth Rates	7.80%	2.85%	1.25%	0.92%

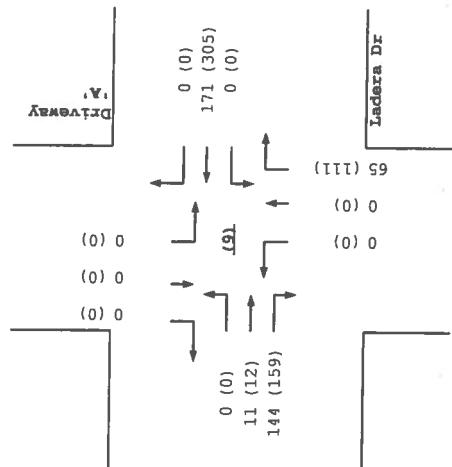
Pass-by Trip Calculations:

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
PM Pass-by Trips	0.00%	-46.00%	46.00%	0.00%	-18.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Entering	0	-123	123	0	-48	0	0	0	0	0	0	0
Volume Entering	0.00%	0.00%	0.00%	0.00%	28.00%	0.00%	0.00%	0.00%	18.00%	0.00%	0.00%	0.00%
Percent Exiting	0	0	0	0	81	0	0	0	52	0	0	0
Volume Exiting	0	-123	123	0	33	0	0	0	52	0	0	0
Net PM Passby Trips	0	-123	123	0	33	0	0	0	52	0	0	0
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0
0 AM	267	290	PM									

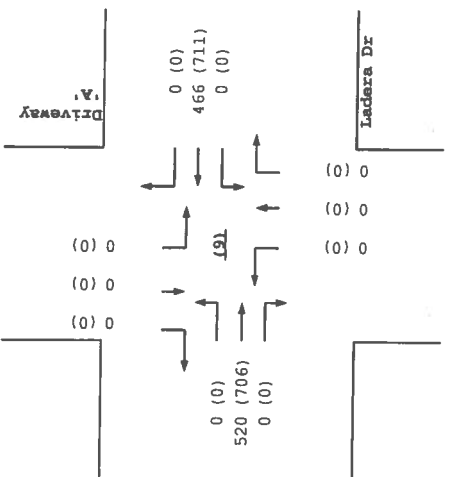
2010
BUILD



Trips



2010
NO BUILD



Ladera Dr / Driveway 'A'

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Driveway 'B' / Market Rd

INTERSECTION :

E-W Street: Driveway 'B'

(10)

N-S Street: Market Rd

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)

Percent Office Trips Generated(Entering)

Percent Office Trips Generated(Exiting)

Total Trips Generated

Total AM Peak Hour BUILD Volumes

0.00%			0.00%			0.00%			0.00%		
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	185	0	0	42	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	185	0	0	42	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.92%	0.00%	0.00%	0.00%	2.00%	33.66%
59.64%	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	2.00%	27.61%
65.98%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
231	0	3	0	0	0	5	4	0	0	11	187
231	0	3	0	0	0	5	189	0	0	53	187

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Percent Office Trips Generated(Entering)

Percent Office Trips Generated(Exiting)

Total Trips Generated

Subtotal PM Pk Hr. BUILD Volumes

Pass-by Trip Adjustments

Total PM Peak Hour BUILD Volumes

0.00%			0.00%			0.00%			0.00%		
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	119	0	0	204	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	119	0	0	204	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.92%	0.00%	0.00%	0.00%	2.00%	33.66%
59.64%	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	2.00%	27.61%
65.98%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
409	0	5	0	0	0	6	7	0	0	12	209
409	0	5	0	0	0	6	126	0	0	216	209
81	0	0	0	0	0	0	0	0	0	0	48
490	0	5	0	0	0	6	126	0	0	216	257

Number of Commercial Trips Generated

Entering Exiting

499 378 A.M.

100% Commercial Development

Number of Office Trips Generated

602 580 P.M.

100% Office Development

68 9 A.M.

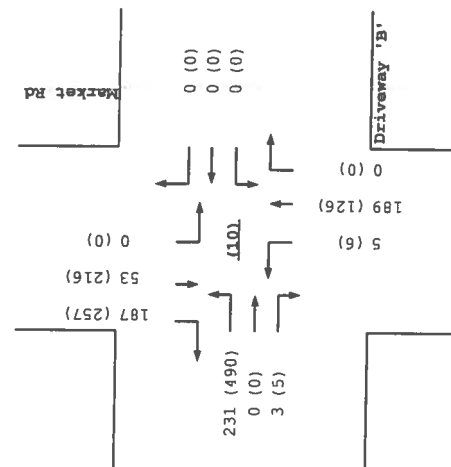
20 96 P.M.

2007 AM Peak Hr. Volumes

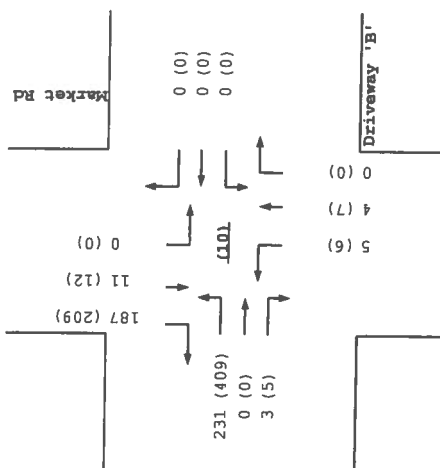
2007 PM Peak Hr. Volumes

0.00%			0.00%			0.00%			0.00%		
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	185	0	0	42	0
0	0	0	0	0	0	0	119	0	0	204	0

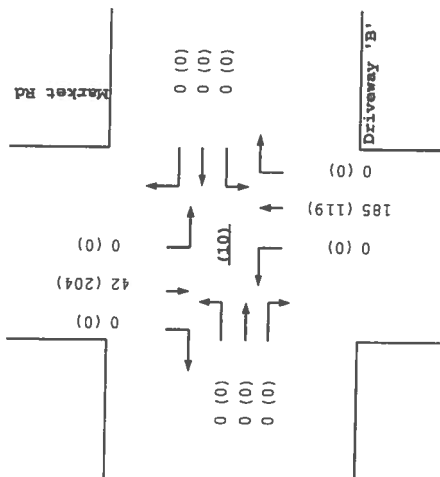
2010
BUILD



Trips



2010
NO BUILD



Driveway 'B' / Market Rd

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements SUMMARY

PROPOSED DEVELOPMENT (2010) - 100% Development

Case R - RI, RO only at Intersection 12

INTERSECTION:

Summary

Hanover Rd / Driveway 'C'

(11)

3.0% Truck

Existing (2007)

2010 (NO BUILD - A.M.)

2010 (BUILD - A.M.)

0.85			0.85			0.85			0.85			PHF
Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	11	0	0	0	7	0	0	0

Existing (2007)

2010 (NO BUILD - P.M.)

2010 (BUILD - P.M.)

0.85			0.85			0.85			0.85			PHF
Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	11	0	0	0	12	0	0	0

Driveway 'D' / Unser Blvd

(12)

3.0% Truck

Existing (2007)

2010 (NO BUILD - A.M.)

2010 (BUILD - A.M.)

0.85			0.85			0.85			0.85			PHF
Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	701	0	0	1,588	0	0
0	0	0	0	0	0	0	797	0	0	1,806	0	0
0	0	0	0	0	80	0	797	216	0	1,950	0	0

Existing (2007)

2010 (NO BUILD - P.M.)

2010 (BUILD - P.M.)

0.85			0.85			0.95			0.95			PHF
Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	1,520	0	0	966	0	0
0	0	0	0	0	0	0	1,709	0	0	1,086	0	0
0	0	0	0	0	295	0	1,613	327	0	1,426	0	0

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Hanover Rd / Driveway 'C'

INTERSECTION:

E-W Street: Hanover Rd

(11)

N-S Street: Driveway 'C'

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

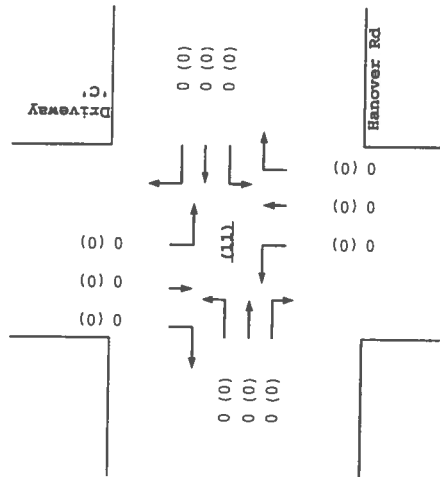
	0.00%			0.00%			0.00%			0.00%		
	Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	0	0	0	0	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.91%	0.00%	0.00%	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%	1.91%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%
- Total Trips Generated	0	0	0	0	0	11	0	0	0	7	0	0
Total AM Peak Hour BUILD Volumes	0	0	0	0	0	11	0	0	0	7	0	0

	Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	0	0	0	0	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.91%	0.00%	0.00%	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%	1.91%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%
Total Trips Generated	0	0	0	0	0	11	0	0	0	12	0	0
Total PM Peak Hour BUILD Volumes	0	0	0	0	0	11	0	0	0	12	0	0

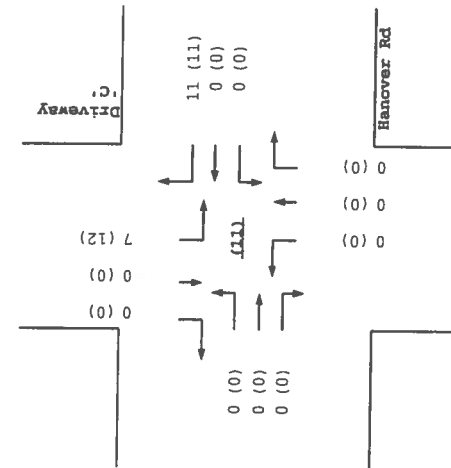
	Entering	Exiting		
Number of Commercial Trips Generated	499	378	A.M.	100% Commercial Development
	602	580	P.M.	
Number of Office Trips Generated	68	9	A.M.	100% Office Development
	20	98	P.M.	

	Eastbound (Hanover Rd)			Westbound (Hanover Rd)			Northbound (Driveway 'C')			Southbound (Driveway 'C')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2007 PM Peak Hr. Volumes	0	0	0	0	0	0	0	0	0	0	0	0

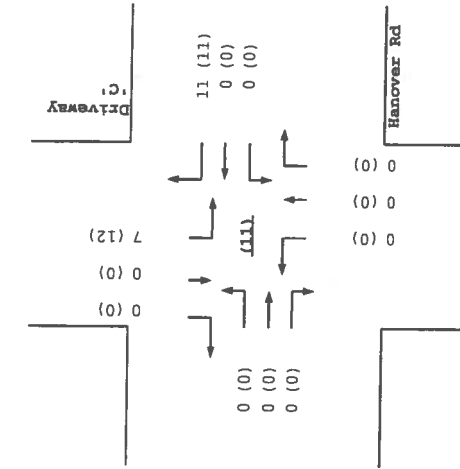
2010
NO BUILD



Trips



2010
BUILD



Hanover Rd / Driveway 'C'

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements Worksheet

Driveway 'D' / Unser Blvd

INTERSECTION :

E-W Street: Driveway 'D'

(12)

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)

Percent Office Trips Generated(Entering)

Percent Office Trips Generated(Exiting)

Total Trips Generated

Total AM Peak Hour BUILD Volumes

0.00%			0.00%			4.58%			4.58%		
Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	701	0	0	1,588	0
0	0	0	0	0	0	0	96	0	0	218	0
0	0	0	0	0	0	0	797	0	0	1,806	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.91%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	20.70%	0.00%	0.00%	0.00%	0.00%	36.91%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.95%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	18.69%	0.00%	0.00%	0.00%	0.00%	46.95%	0.00%
0	0	0	0	0	80	0	0	216	0	144	0
0	0	0	0	0	80	0	797	216	0	1,950	0

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Percent Office Trips Generated(Entering)

Percent Office Trips Generated(Exiting)

Total Trips Generated

Subtotal PM Pk Hr. BUILD Volumes

Pass-by Trip Adjustments

Total PM Peak Hour BUILD Volumes

0.00%			0.00%			4.15%			4.15%		
Eastbound (Driveway 'D')			Westbound (Driveway 'D')			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	1,520	0	0	966	0
0	0	0	0	0	0	0	189	0	0	120	0
0	0	0	0	0	0	0	1,709	0	0	1,086	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.91%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	20.70%	0.00%	0.00%	0.00%	0.00%	36.91%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.95%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	18.69%	0.00%	0.00%	0.00%	0.00%	46.95%	0.00%
0	0	0	0	0	138	0	0	231	0	259	0
0	0	0	0	0	138	0	1,709	231	0	1,345	0
0	0	0	0	0	157	0	-96	96	0	81	0
0	0	0	0	0	295	0	1,613	327	0	1,426	0

Number of Commercial Trips Generated

Entering 499

Exiting 378

A.M.

100% Commercial Development

Number of Office Trips Generated

602

580

P.M.

68

9

A.M.

100% Office Development

20

96

P.M.

2007 AM Peak Hr. Volumes

2007 PM Peak Hr. Volumes

Eastbound (Driveway 'D')			Westbound (Driveway 'D')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
0	0	0	0	0	0	0	701	0	0	1,588	0
0	0	0	0	0	0	0	1,520	0	0	966	0

Pass-by Trip Calculations:

PM Pass-by Trips

Percent Entering

Volume Entering

Percent Exiting

Volume Exiting

Net PM Passby Trips

Eastbound (Driveway 'D')			Westbound (Driveway 'D')			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-36.00%	36.00%	0.00%	0.00%	0.00%
0	0	0	0	0	0	0	-96	96	0	0	0
0.00%	0.00%	0.00%	0.00%	0.00%	54.00%	0.00%	0.00%	0.00%	0.00%	28.00%	0.00%
0	0	0	0	0	157	0	0	0	0	81	0
0	0	0	0	0	157	0	-96	96	0	81	0
Entering		Exiting									
0		0									
267		290									

Pass-by Trips

0

0

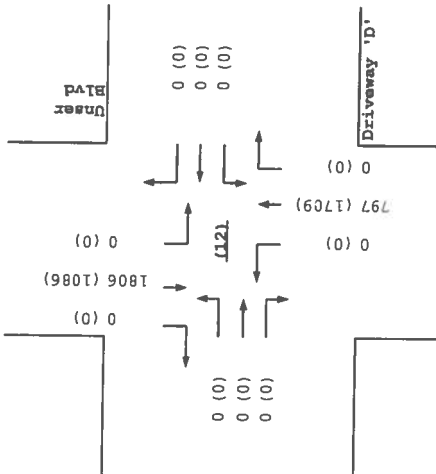
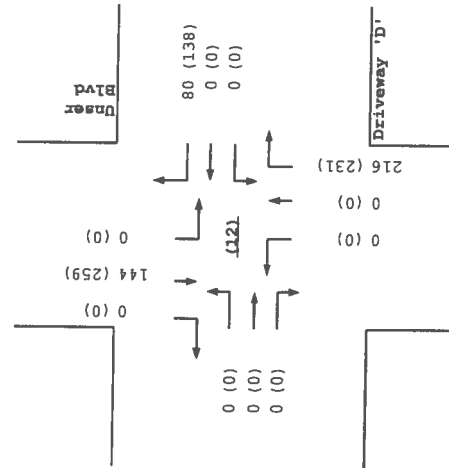
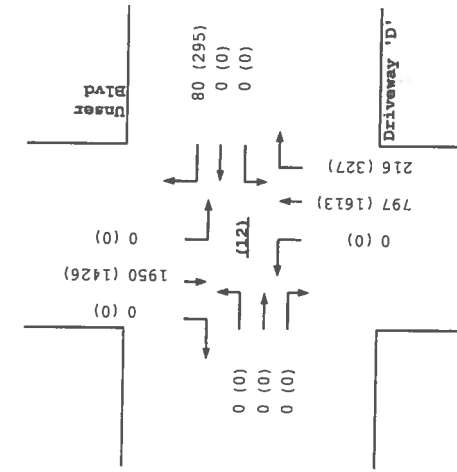
AM

PM

2010
BUILD

Trips

2010
NO BUILD



Driveway 'D' / Unser Blvd

Timings

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	189	488	557	688	186	163	704	378	201	1278	105
Volume (vph)	189	488	557	688	186	163	704	378	201	1278	105
Turn Type	pm-pt	pm+ov	pm+ov	pm+ov	Prot	pm+ov	pm+ov	Prot	pm+ov	pm+ov	pm+ov
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Detector Phases	7	4	5	3	8	5	2	3	1	6	7
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	21.0	10.0	10.0	21.0	10.0
Total Split (s)	19.0	21.0	10.0	31.0	33.0	10.0	43.0	31.0	15.0	48.0	19.0
Total Split (%)	17.3%	19.1%	9.1%	28.2%	30.0%	9.1%	38.1%	28.2%	13.8%	43.8%	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	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimized?											
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	32.9	18.0	28.0	31.1	7.0	40.2	71.2	11.8	45.0	62.9	62.9
Actuated g/c Ratio	0.30	0.16	0.25	0.25	0.28	0.06	0.37	0.65	0.11	0.41	0.57
Vehicle Ratio	0.99	1.00	0.90	1.00	0.41	0.89	0.85	0.43	0.82	1.00	0.12
Control Delay	27.7	83.3	55.4	72.9	20.8	89.8	31.9	10.6	54.9	57.3	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	83.3	55.4	72.9	20.8	89.8	31.9	10.6	54.9	57.3	2.2
LOS	C	F	E	E	C	F	C	B	D	E	A
Approach Delay	62.1										
Approach LOS	E										
Intersection Summary											
Cycle Length: 110											
Actuated Cycle Length: 110											
Natural Cycle: 110											
Control Type: Semi Act-Uncoord											
Minimum v/c Ratio: 1.00											
Intersection Signal Delay: 51.0											
Intersection Capacity Utilization 88.7%											
Analysis Period (min) 15											

Splits and Phases: 2: Ladera Dr & Unser Blvd



HCM Signalized Intersection Capacity Analysis

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/29/2007





















Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	189	488	557	688	186	163	704	378	201	1278	105
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
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	0.96	0.88	0.97	0.96	0.87	0.85	1.00	0.97	0.96	1.00
Fit Protected	1.00	1.00	0.85	1.00	0.94	1.00	0.85	1.00	0.85	1.00	1.00
Satd. Flow (prot)	1752	3505	2760	3400	3286	3400	3505	1568	3400	3505	1568
Fit Permitted	0.50	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	930	3505	2760	3400	3286	3400	3505	1568	3400	3505	1568
Volume (vph)	189	488	557	688	186	163	704	378	201	1278	105
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)	229	572	640	868	248	177	828	442	226	1437	118
RTOR Reduction (vph)	0	0	12	0	117	0	0	0	0	0	0
Lane Group Flow (vph)	229	572	628	868	308	0	828	433	228	1437	54
Turn Type	pm-pt	pm+ov	pm+ov	pm+ov	Prot	pm+ov	pm+ov	Prot	pm+ov	pm+ov	pm+ov
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	28.9	16.0	21.0	26.0	28.1	5.0	38.2	64.2	9.8	43.0	55.9
Effective Green, g (s)	32.9	18.0	25.0	28.0	31.1	7.0	40.2	66.2	11.8	45.0	59.9
Actuated g/c Ratio	0.30	0.16	0.23	0.25	0.28	0.06	0.37	0.62	0.11	0.41	0.54
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)	389	574	703	865	929	216	1281	1015	365	1434	897
v/s Ratio Prot	0.08	c0.18	c0.06	c0.28	0.09	0.06	0.24	0.11	c0.07	c0.41	0.01
v/c Ratio	0.56	1.00	0.89	1.00	0.33	0.89	0.65	0.43	0.62	1.00	0.07
Uniform Delay, d1	31.1	46.0	41.2	41.0	31.2	51.1	29.0	10.8	47.0	32.5	11.9
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	2.3	36.4	13.7	31.4	0.2	32.6	2.5	0.3	24.3	0.0	0.0
Delay (s)	33.4	82.4	54.9	72.4	31.4	83.7	31.5	11.1	50.1	56.8	11.9
Level of Service	C	F	D	E	C	F	C	B	D	E	B
Approach Delay (s)	62.4										
Approach LOS	E										
Intersection Summary											
HCM Average Control Delay	51.4										
HCM Volume to Capacity ratio	0.98										
Actuated Cycle Length (s)	110.0										
Intersection Capacity Utilization	88.7%										
Analysis Period (min)	15										
c Critical Lane Group											

2010 AM Peak BUILD Conditions - MITIGATED Case R - Right-in, right-out access at Intersection 12
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2010 AM Peak BUILD Conditions - MITIGATED Case R - Right-in, right-out access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 7: Ladera Dr & Market Rd

Terry O. Brown, P.E.
12/29/2007

												
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)	0	489	39	201	398	0	284	0	136	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.79	0.79	0.79	0.86	0.86	0.86	0.85	0.85	0.85
Hourly flow rate (vph)	0	556	44	254	504	0	330	0	158	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)		888										
pX, platoon unblocked												
vC, conflicting volume	504			600			1339	1590	300	1449	1613	252
vC1, stage 1 conf vol							578	578		1013	1013	
vC2, stage 2 conf vol							761	1013		436	600	
vCu, unblocked vol	504			600			1339	1590	300	1449	1613	252
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			74			0	100	77	100	99	100
cM capacity (veh/h)	1050			966			190	173	693	110	140	745
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	0	370	230	254	336	168	330	158	1			
Volume Left	0	0	0	254	0	0	330	0	0			
Volume Right	0	0	44	0	0	0	0	158	0			
cSH	1700	1700	1700	966	1700	1700	190	693	140			
Volume to Capacity	0.00	0.22	0.14	0.26	0.20	0.10	1.74	0.23	0.01			
Queue Length 95th (ft)	0	0	0	26	0	0	573	22	1			
Control Delay (s)	0.0	0.0	0.0	10.1	0.0	0.0	395.9	11.7	31.0			
Lane LOS				B			F	B	D			
Approach Delay (s)	0.0			3.4			271.5		31.0			
Approach LOS							F		D			
Intersection Summary												
Average Delay			73.2									
Intersection Capacity Utilization			58.3%				ICU Level of Service			B		
Analysis Period (min)			15									

2010 AM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12

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HCM Unsignalized Intersection Capacity Analysis 9: Ladera Dr & 'A'

Terry O. Brown, P.E.
12/29/2007










	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	531	144	0	637	0	65
Peak Hour Factor	0.79	0.79	0.79	0.79	0.85	0.85
Hourly flow rate (vph)	672	182	0	806	0	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)	481					
pX, platoon unblocked			0.88		0.88	0.88
vC, conflicting volume			854		1166	427
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			702		1056	218
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	89
cM capacity (veh/h)			781		193	691
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	448	406	403	403	76	
Volume Left	0	0	0	0	0	
Volume Right	0	182	0	0	76	
cSH	1700	1700	1700	1700	691	
Volume to Capacity	0.26	0.24	0.24	0.24	0.11	
Queue Length 95th (ft)	0	0	0	0	9	
Control Delay (s)	0.0	0.0	0.0	0.0	10.9	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		10.9	
Approach LOS					B	
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			30.0%		ICU Level of Service	A
Analysis Period (min)			15			

2010 AM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 10: 'B' & Market Rd

Terry O. Brown, P.E.
12/29/2007










						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	231	3	5	189	53	187
Peak Hour Factor	0.85	0.85	0.85	0.85	0.86	0.86
Hourly flow rate (vph)	272	4	6	222	62	217
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	404	170	279			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	404	170	279			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	55	100	100			
cM capacity (veh/h)	598	871	1278			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	275	228	279			
Volume Left	272	6	0			
Volume Right	4	0	217			
cSH	600	1278	1700			
Volume to Capacity	0.46	0.00	0.16			
Queue Length 95th (ft)	60	0	0			
Control Delay (s)	16.0	0.2	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.0	0.2	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		5.7				
Intersection Capacity Utilization		34.0%		ICU Level of Service		A
Analysis Period (min)		15				

2010 AM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 11: Hanover Rd & 'C'

Terry O. Brown, P.E.
12/29/2007







						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	0	11	7	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	13	8	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13				6	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				6	6
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)	1599				1012	1073
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	0	13	8			
Volume Left	0	0	8			
Volume Right	0	13	0			
cSH	1700	1700	1012			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.6			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay		3.3				
Intersection Capacity Utilization		13.3%	ICU Level of Service	A		
Analysis Period (min)		15				

2010 AM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 12: 'D' & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations		↗	↑↑↑	↗		↑↑↑		
Sign Control	Stop		Free			Free		
Grade	0%		0%			0%		
Volume (veh/h)	0	80	797	216	0	1950		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85		
Hourly flow rate (vph)	0	94	938	254	0	2294		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	Raised							
Median storage veh	1							
Upstream signal (ft)						970		
pX, platoon unblocked								
vC, conflicting volume	1702	313			1192			
vC1, stage 1 conf vol	938							
vC2, stage 2 conf vol	765							
vCu, unblocked vol	1702	313			1192			
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	86			100			
cM capacity (veh/h)	208	680			576			
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	94	313	313	313	254	765	765	765
Volume Left	0	0	0	0	0	0	0	0
Volume Right	94	0	0	0	254	0	0	0
cSH	680	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.14	0.18	0.18	0.18	0.15	0.45	0.45	0.45
Queue Length 95th (ft)	12	0	0	0	0	0	0	0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B							
Approach Delay (s)	11.1	0.0				0.0		
Approach LOS	B							
Intersection Summary								
Average Delay		0.3						
Intersection Capacity Utilization		41.0%		ICU Level of Service			A	
Analysis Period (min)		15						

2010 AM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12
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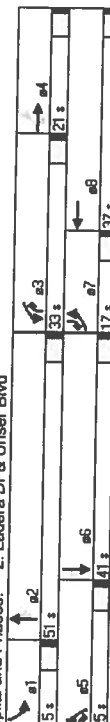
Timings

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	192	381	322	934	496	607	1524	708	372	1087	333
Volume (vph)	pm+pt	7	4	5	3	8	5	2	3	1	6
Turn Type	pm+ov	7	4	5	3	8	5	2	3	1	6
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Detector Phases	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
Minimum Split (s)	10.0	21.0	10.0	10.0	21.0	10.0	10.0	10.0	21.0	10.0	10.0
Total Split (s)	17.0	21.0	25.0	33.0	37.0	25.0	51.0	33.0	15.0	41.0	17.0
Total Split (%)	14.2%	17.5%	20.8%	27.5%	30.8%	20.8%	42.5%	27.5%	12.5%	34.2%	14.2%
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	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimizes?	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
Recall Mode	31.4	17.7	42.7	30.0	34.0	22.0	48.0	81.0	12.0	38.0	54.7
Act Effect Green (s)	0.26	0.15	0.36	0.25	0.28	0.18	0.40	0.68	0.10	0.32	0.46
Actuated g/C Ratio	0.78	0.79	0.35	1.18	0.83	1.02	1.14	0.70	1.14	1.02	0.46
Control Delay	51.1	61.2	28.5	132.3	43.8	90.2	106.6	16.0	139.9	72.1	20.5
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	51.1	61.2	28.5	132.3	43.8	90.2	106.6	16.0	139.9	72.1	20.5
LOS	D	E	C	F	D	F	F	F	B	F	C
Approach Delay	47.3	D	92.2	F	80.5	F	F	F	76.6	E	E
Approach LOS	D	D	F	F	F	F	F	F	F	E	E

Splits and Phases: 2: Ladera Dr & Unser Blvd



HCM Signalized Intersection Capacity Analysis

2: Ladera Dr & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	192	381	322	934	496	607	1524	708	372	1087	333
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	0.85	0.88	0.97	0.95	0.97	0.85	1.00	0.97	0.85	1.00
Fit	1.00	1.00	0.85	1.00	0.95	1.00	1.00	0.85	1.00	0.95	1.00
Fit 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	3505	2760	3400	3316	3400	3505	1568	3400	3505	1568
Fit Permitted	0.23	1.00	1.00	0.95	1.00	0.85	1.00	0.85	1.00	0.85	1.00
Satd. Flow (perm)	417	3505	2760	3400	3316	3400	3505	1568	3400	3505	1568
Volume (vph)	192	381	322	934	496	607	1524	708	372	1087	333
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.96	0.96	0.96
Adj. Flow (vph)	206	410	346	1004	533	300	638	1804	745	388	1132
RTOR Reduction (vph)	0	0	7	0	65	0	0	0	0	0	35
Lane Group Flow (vph)	206	410	339	1004	768	0	638	1804	739	388	1132
Turn Type	pm+pt	7	4	5	3	8	5	2	3	1	6
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	27.4	15.7	35.7	28.0	32.0	20.0	48.0	74.0	10.0	36.0	47.7
Effective Green, g (s)	31.4	17.7	39.7	30.0	34.0	22.0	48.0	78.0	12.0	38.0	51.7
Actuated g/C Ratio	0.26	0.16	0.33	0.25	0.28	0.18	0.40	0.65	0.10	0.32	0.43
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)	262	518	985	852	942	625	1406	1061	341	1113	717
v/s Ratio Prot	0.08	0.12	0.06	0.30	0.23	0.19	0.46	0.17	0.11	0.32	0.05
v/s Ratio Perm	0.12	0.06	0.06	0.30	0.23	0.19	0.46	0.17	0.11	0.32	0.05
v/c Ratio	0.79	0.79	0.34	1.18	0.82	1.02	1.14	0.70	1.14	1.02	0.44
Uniform Delay, d1	37.3	49.2	30.2	44.8	38.9	48.9	35.8	13.3	53.8	40.8	23.8
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	14.3	8.1	0.2	92.4	5.5	41.8	72.4	2.0	91.5	31.3	0.4
Delay (s)	51.6	57.3	30.4	137.3	45.4	90.6	108.3	15.3	145.4	72.2	24.2
Level of Service	D	E	C	F	D	F	F	B	F	E	C
Approach Delay (s)	46.4	D	95.6	F	81.3	F	F	78.5	E	E	E
Approach LOS	D	D	F	F	F	F	F	F	F	E	E

Intersection Summary

HCM Average Control Delay	79.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	119.7	Sum of lost time (s)	6.0
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group





















2010 PM Peak BUILD Conditions - MITIGATED Case R - Right-in, right-out access at Intersection 12
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2010 PM Peak BUILD Conditions - MITIGATED Case R - Right-in, right-out access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis

7: Ladera Dr & Market Rd

Terry O. Brown, P.E.
12/29/2007

												
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)	1	669	182	260	505	1	388	1	146	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.80	0.80	0.80	0.88	0.88	0.88	0.85	0.85	0.85
Hourly flow rate (vph)	1	719	196	325	631	1	441	1	166	1	1	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage (veh)								1			1	
Upstream signal (ft)		888										
pX, platoon unblocked												
vC, conflicting volume	632			915			1787	2102	458	1810	2199	316
vC1, stage 1 conf vol							819	819		1282	1282	
vC2, stage 2 conf vol							967	1282		528	917	
vCu, unblocked vol	632			915			1787	2102	458	1810	2199	316
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)							6.6	5.6		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			56			0	99	70	95	95	100
cM capacity (veh/h)	939			735			106	97	547	22	24	677
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	1	480	435	325	421	212	441	167	4			
Volume Left	1	0	0	325	0	0	441	0	1			
Volume Right	0	0	196	0	0	1	0	166	1			
cSH	939	1700	1700	735	1700	1700	106	531	34			
Volume to Capacity	0.00	0.28	0.26	0.44	0.25	0.12	4.17	0.31	0.10			
Queue Length 95th (ft)	0	0	0	57	0	0	Err	33	8			
Control Delay (s)	8.8	0.0	0.0	13.7	0.0	0.0	Err	14.9	122.5			
Lane LOS	A			B			F	B	F			
Approach Delay (s)	0.0			4.7			7255.7		122.5			
Approach LOS							F		F			
Intersection Summary												
Average Delay		1777.0										
Intersection Capacity Utilization		76.9%		ICU Level of Service						D		
Analysis Period (min)		15										

2010 PM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis
9: Ladera Dr & 'A'

Terry O. Brown, P.E.
12/29/2007










	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	595	282	0	1049	0	163
Peak Hour Factor	0.93	0.93	0.93	0.93	0.85	0.85
Hourly flow rate (vph)	640	303	0	1128	0	192
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)	481					
pX, platoon unblocked			0.96		0.96	0.96
vC, conflicting volume			943		1355	472
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			897		1327	405
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	66
cM capacity (veh/h)			715		139	568
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	427	516	564	564	192	
Volume Left	0	0	0	0	0	
Volume Right	0	303	0	0	192	
cSH	1700	1700	1700	1700	568	
Volume to Capacity	0.25	0.30	0.33	0.33	0.34	
Queue Length 95th (ft)	0	0	0	0	37	
Control Delay (s)	0.0	0.0	0.0	0.0	14.5	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		14.5	
Approach LOS					B	
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			42.2%		ICU Level of Service	A
Analysis Period (min)			15			

2010 PM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 10: 'B' & Market Rd

Terry O. Brown, P.E.
12/29/2007










						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	490	5	6	126	216	257
Peak Hour Factor	0.85	0.85	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	576	6	7	143	245	292
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	548	391	538			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	548	391	538			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	99	99			
cM capacity (veh/h)	492	655	1026			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	582	150	538			
Volume Left	576	7	0			
Volume Right	6	0	292			
cSH	493	1026	1700			
Volume to Capacity	1.18	0.01	0.32			
Queue Length 95th (ft)	534	1	0			
Control Delay (s)	127.1	0.4	0.0			
Lane LOS	F	A				
Approach Delay (s)	127.1	0.4	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay			58.4			
Intersection Capacity Utilization	61.2%		ICU Level of Service		B	
Analysis Period (min)	15					

2010 PM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12
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HCM Unsignalized Intersection Capacity Analysis 11: Hanover Rd & 'C'

Terry O. Brown, P.E.
12/29/2007

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	0	11	12	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	13	14	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13				6	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				6	6
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)	1599				1012	1073
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	0	13	14			
Volume Left	0	0	14			
Volume Right	0	13	0			
cSH	1700	1700	1012			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.6			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay		4.5				
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				







2010 PM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12
D:\ATOB\PROJECTS\Heritage_Neighborhood_Marketplace_Ladera_Unser\CaseR\2010PB_Mit_R.sy7

HCM Unsignalized Intersection Capacity Analysis

12: 'D' & Unser Blvd

Terry O. Brown, P.E.
12/29/2007

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations		↑	↑↑↑	↑		↑↑↑		
Sign Control	Stop		Free			Free		
Grade	0%		0%			0%		
Volume (veh/h)	0	295	1613	327	0	1426		
Peak Hour Factor	0.85	0.85	0.95	0.95	0.95	0.95		
Hourly flow rate (vph)	0	347	1698	344	0	1501		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	Raised							
Median storage (veh)	1							
Upstream signal (ft)						935		
pX, platoon unblocked								
vC, conflicting volume	2198	566			2042			
vC1, stage 1 conf vol	1698							
vC2, stage 2 conf vol	500							
vCu, unblocked vol	2198	566			2042			
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	25			100			
cM capacity (veh/h)	108	465			269			
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	347	566	566	566	344	500	500	500
Volume Left	0	0	0	0	0	0	0	0
Volume Right	347	0	0	0	344	0	0	0
cSH	465	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.75	0.33	0.33	0.33	0.20	0.29	0.29	0.29
Queue Length 95th (ft)	155	0	0	0	0	0	0	0
Control Delay (s)	32.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	D							
Approach Delay (s)	32.2	0.0				0.0		
Approach LOS	D							
Intersection Summary								
Average Delay		2.9						
Intersection Capacity Utilization		56.1%			ICU Level of Service		B	
Analysis Period (min)		15						

2010 PM Peak BUILD Conditions - MITIGATED

Case R - Right-in, right-out access at Intersection 12
D:\ATOB\PROJECTS\Heritage_Neighborhood_Marketplace_Ladera_Unser\CaseR\2010PB_Mit_R.sy7

Analysis of
2010 BUILD Conditions
CASE "N"
(No Access Driveway on Unser Blvd.)

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)

Projected Turning Movements SUMMARY PROPOSED DEVELOPMENT (2010) - 100% Development

Case N - no driveway at Intersection 12

INTERSECTION:

Summary

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	908	58	
199	446	557	542	186	123	134	653	376	99	1,279	105	
199	498	557	686	224	191	134	653	592	201	1,279	105	

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	284	107	288	860	372	94	547	184	
192	319	322	594	480	249	560	1,433	708	263	1,087	333	
192	381	322	934	542	527	560	1,433	939	372	1,087	333	

Ladera Dr / Market Rd

(7)
3.0% Truck
Existing (2007)
2010 (NO BUILD - A.M.)
2010 (BUILD - A.M.)

0.88			0.79			0.86			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	425	28	14	365	0	113	0	72	0	0	0	
0	425	28	15	398	0	113	0	72	0	0	0	
0	489	39	201	398	0	363	0	136	0	1	0	

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

0.93			0.80			0.88			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	513	158	48	463	0	83	0	36	0	0	0	
0	559	170	52	505	0	83	0	36	0	0	0	
0	669	182	260	505	0	526	0	146	0	1	0	

Ladera Dr / Driveway 'A'

(9)
3.0% Truck
Existing (2007)
2010 (NO BUILD - A.M.)
2010 (BUILD - A.M.)

0.79			0.79			0.85			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	520	0	0	466	0	0	0	0	0	0	0	
0	520	0	0	466	0	0	0	0	0	0	0	
0	531	307	0	716	0	0	0	65	0	0	0	

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

0.93			0.93			0.85			0.85			PHF
Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	648	0	0	652	0	0	0	0	0	0	0	
0	706	0	0	711	0	0	0	0	0	0	0	
0	499	548	0	1,344	0	0	0	163	0	0	0	

Driveway 'B' / Market Rd

(10)
3.0% Truck
Existing (2007)
2010 (NO BUILD - A.M.)
2010 (BUILD - A.M.)

0.85			0.85			0.86			0.86			PHF
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	185	0	0	42	0	
0	0	0	0	0	0	0	185	0	0	42	0	
312	0	3	0	0	0	5	189	0	0	53	187	

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

0.85			0.85			0.88			0.88			PHF
Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)			
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
0	0	0	0	0	0	0	119	0	0	204	0	
0	0	0	0	0	0	0	119	0	0	204	0	
785	0	5	0	0	0	6	126	0	0	216	257	

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)
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

	0.68%			6.77%			4.58%			3.66%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	175	251	385	317	105	44	48	429	224	45	908	58
Background Traffic Growth	4	5	7	64	21	9	7	59	31	5	100	6
Subtotal	179	256	372	381	126	53	55	488	255	50	1,006	64
I-40 / Unser Development	0	0	43	161	0	0	32	32	121	0	42	0
Ladera Business Park	0	0	0	0	0	3	0	28	0	5	47	0
Previous Development from below	20	190	142	0	60	67	47	105	0	44	184	41
Subtotal (NO BUILD - A.M.)	199	446	557	542	186	123	134	653	378	99	1,279	105
Percent Commercial Trips Generated(Entering)	0.00%	10.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.91%	17.48%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	38.91%	10.12%	17.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	3.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	48.95%	21.33%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	48.95%	3.59%	21.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	52	0	144	39	68	0	0	216	102	0	0
Total AM Peak Hour BUILD Volumes	199	498	557	686	224	191	134	653	592	201	1,279	105

	3.98%			2.50%			4.15%			3.12%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	140	182	138	281	264	107	288	860	372	94	547	184
Background Traffic Growth	17	22	16	21	20	8	36	107	46	9	51	17
Subtotal	157	204	154	302	284	115	324	967	418	103	598	201
I-40 / Unser Development	0	0	78	292	0	0	77	77	290	0	77	0
Ladera Business Park	0	0	0	0	0	14	0	123	0	23	204	0
Previous Development from below	35	115	90	0	196	120	159	266	0	137	208	132
Subtotal (NO BUILD - P.M.)	192	319	322	594	480	249	560	1,433	708	263	1,087	333
Percent Commercial Trips Generated(Entering)	0.00%	10.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.91%	17.48%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	38.91%	10.12%	17.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	3.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	48.95%	21.33%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	48.95%	3.59%	21.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	82	0	259	62	121	0	0	231	109	0	0
Subtotal PM Peak Hour BUILD Volumes	192	381	322	853	542	370	560	1,433	939	372	1,087	333
Pass-by Trip Adjustments	0	0	0	81	0	157	0	0	0	0	0	0
Total PM Peak Hour BUILD Volumes	192	381	322	934	542	527	560	1,433	939	372	1,087	333

Number of Commercial Trips Generated
 499 378 A.M. 100% Commercial Development
 602 580 P.M.
 Number of Office Trips Generated
 68 9 A.M. 100% Office Development
 20 98 P.M.

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	175	251	385	317	105	44	48	429	224	45	908	58
2007 PM Peak Hr. Volumes	140	182	138	281	264	107	288	860	372	94	547	184

Previous Developments - AM Peak Hour Volumes

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Watershed Residential & Retail	0	78	0	0	24	0	0	6	0	0	17	0
Storm Cloud Dev. w/ others	0	112	142	0	36	0	47	44	0	0	131	28
98th / Unser Development	20	0	0	0	0	67	0	55	0	44	36	13
Subtotal	20	190	142	0	60	67	47	105	0	44	184	41

Previous Developments - PM Peak Hour Volumes

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Unser Blvd)			Southbound (Unser Blvd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Watershed Residential & Retail	0	44	0	0	78	0	0	19	0	0	12	0
Storm Cloud Dev. w/ others	0	71	90	0	118	0	159	149	0	0	83	91
98th / Unser Development	35	0	0	0	0	120	0	98	0	137	113	41
Subtotal	35	115	90	0	196	120	159	266	0	137	208	132

MRCOG Forecast Volumes Worksheet

Based on 2007 Traffic Count

2007 AM Link Volume	791	468	701	1,009
2007 PM Link Volume	480	652	1,520	825

Based on MRCOG Model (2030 Data Set)

2005 AM Link Volume	299	355	530	1626
2005 PM Link Volume	270	281	2016	1163
2030 AM Link Volume	914	1192	1440	1859
2030 PM Link Volume	881	1027	2970	1417

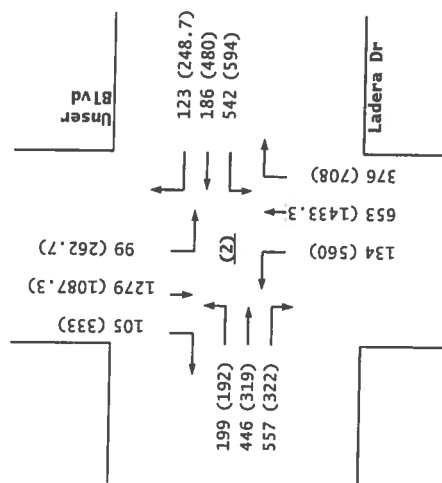
Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	0.68%	6.77%	4.58%	3.66%
2007-2030 PM Growth Rates	3.98%	2.50%	4.15%	3.12%

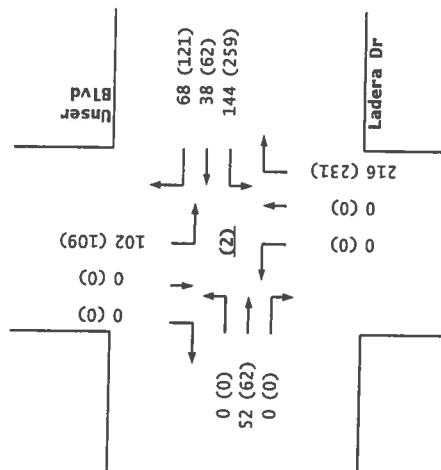
Growth Rate to Apply to 2005 Model Volumes to Match 2025 Forecasts

2005-2030 AM Growth Rates	8.23%	9.43%	8.87%	0.87%
2005-2030 PM Growth Rates	9.05%	11.74%	1.89%	0.87%

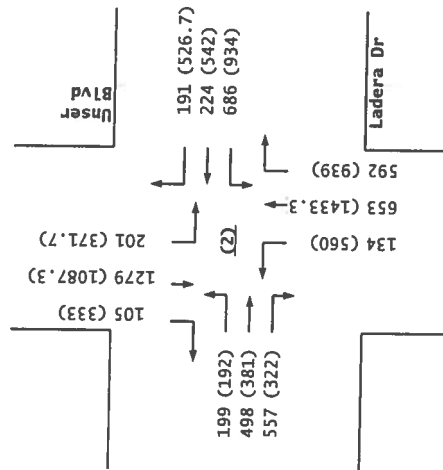
2010
NO BUILD



Trips



2010
BUILD



Ladera Dr / Unser Blvd

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)
Projected Turning Movements Worksheet
Ladera Dr / Market Rd

INTERSECTION :E-W Street: **Ladera Dr**

(7)

N-S Street: **Market Rd**

Year of Existing Counts

2007

Implementation Year

2010

Growth Rates

	0.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	425	28	14	365	0	113	0	72	0	0	0
Background Traffic Growth	0	0	0	1	33	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	425	28	15	398	0	113	0	72	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	2.00%	33.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%
Percent Commercial Trips Generated(Exiting)	0.08%	16.75%	0.00%	0.00%	0.00%	0.00%	64.51%	0.07%	16.76%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	2.00%	27.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%
Percent Office Trips Generated(Exiting)	0.02%	13.79%	0.00%	0.00%	0.00%	0.00%	71.87%	0.02%	13.78%	0.00%	0.00%	0.00%
Total Trips Generated	0	64	11	186	0	0	250	0	64	0	1	0
Total AM Peak Hour BUILD Volumes	0	489	39	201	398	0	363	0	136	0	1	0

	3.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	513	156	48	463	0	83	0	36	0	0	0
Background Traffic Growth	0	46	14	4	42	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	559	170	52	505	0	83	0	36	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	2.00%	33.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%
Percent Commercial Trips Generated(Exiting)	0.08%	16.75%	0.00%	0.00%	0.00%	0.00%	64.51%	0.07%	16.76%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	2.00%	27.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%
Percent Office Trips Generated(Exiting)	0.02%	13.79%	0.00%	0.00%	0.00%	0.00%	71.87%	0.02%	13.78%	0.00%	0.00%	0.00%
Total Trips Generated	0	110	12	208	0	0	443	0	110	0	1	0
Total PM Peak Hour BUILD Volumes	0	669	182	260	505	0	526	0	146	0	1	0

Number of Commercial Trips Generated	Entering	Exiting	A.M.	100% Commercial Development
	499	378		
Number of Office Trips Generated	602	580	P.M.	100% Office Development
	68	9	A.M.	
	20	96	P.M.	

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	0	425	28	14	365	0	113	0	72	0	0	0
2007 PM Peak Hr. Volumes	0	513	156	48	463	0	83	0	36	0	0	0

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

2007 AM Link Volume	453	379	185	0
2007 PM Link Volume	669	511	119	0

Based on MRCOG Model (2030 Data Set)

2005 AM Link Volume	355	355	0	0
2005 PM Link Volume	261	261	0	0
2030 AM Link Volume	452	1202	30	0
2030 PM Link Volume	1062	1042	47	0

Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	-0.01%	9.44%	-3.64%	#DIV/0!
2007-2030 PM Growth Rates	2.56%	4.52%	-2.63%	#DIV/0!

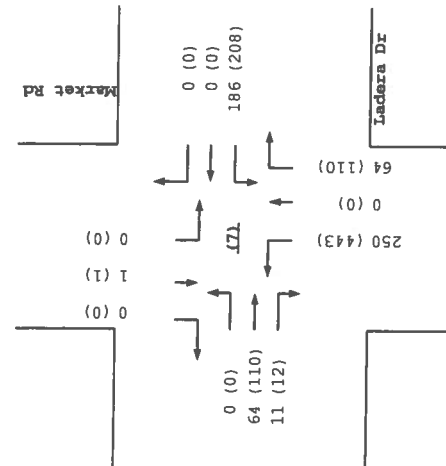
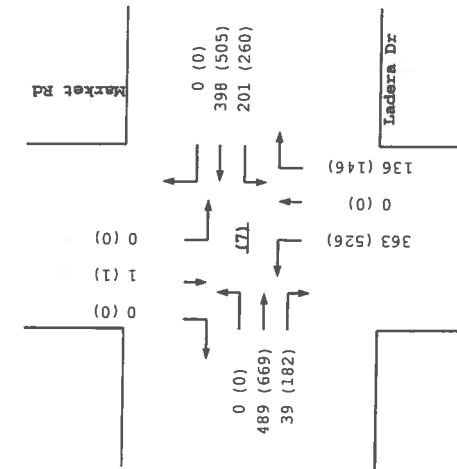
Growth Rate to Apply to 2005 Model Volumes to Match 2030 Forecasts

2005-2030 AM Growth Rates	1.09%	9.54%	#DIV/0!	#DIV/0!
2005-2030 PM Growth Rates	12.28%	11.97%	#DIV/0!	#DIV/0!

2010
BUILD

Trips

2010
NO BUILD



Ladera Dr / Market Rd

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)
Projected Turning Movements Worksheet
Ladera Dr / Driveway 'A'

INTERSECTION : E-W Street: Ladera Dr (9)
 N-S Street: Driveway 'A'
 Year of Existing Counts 2007
 Implementation Year 2010
 Growth Rates

	0.00%			0.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	520	0	0	466	0	0	0	0	0	0	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	520	0	0	466	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	2.00%	52.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	64.51%	0.00%	0.00%	0.00%	16.83%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	2.00%	67.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	71.87%	0.00%	0.00%	0.00%	13.81%	0.00%	0.00%	0.00%
Total Trips Generated	0	11	307	0	250	0	0	0	65	0	0	0
Total AM Peak Hour BUILD Volumes	0	531	307	0	716	0	0	0	65	0	0	0

	3.00%			3.00%			0.00%			0.00%		
	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	648	0	0	652	0	0	0	0	0	0	0
Background Traffic Growth	0	58	0	0	59	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	706	0	0	711	0	0	0	0	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	2.00%	52.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	64.51%	0.00%	0.00%	0.00%	16.83%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	2.00%	67.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	71.87%	0.00%	0.00%	0.00%	13.81%	0.00%	0.00%	0.00%
Total Trips Generated	0	12	329	0	443	0	0	0	111	0	0	0
Subtotal PM Pk Hr. BUILD Volumes	0	718	329	0	1,154	0	0	0	111	0	0	0
Pass-by Trip Adjustments	0	-219	219	0	190	0	0	0	52	0	0	0
Total PM Peak Hour BUILD Volumes	0	499	548	0	1,344	0	0	0	163	0	0	0

Number of Commercial Trips Generated
 499 378 A.M. 100% Commercial Development
 602 580 P.M.
 Number of Office Trips Generated
 68 9 A.M. 100% Office Development
 20 96 P.M.

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
2007 AM Peak Hr. Volumes	0	520	0	0	466	0	0	0	0	0	0	0
2007 PM Peak Hr. Volumes	0	648	0	0	652	0	0	0	0	0	0	0

MRCOG Forecast Volumes Worksheet

Based on 2007 Traffic Count

2007 AM Link Volume	520	466	0	0
2007 PM Link Volume	648	652	0	0

Based on MRCOG Model (2030 Data Set)

2005 AM Link Volume	370	327	1248	1049
2005 PM Link Volume	313	1024	1058	1246
2030 AM Link Volume	1458	848	1609	777
2030 PM Link Volume	923	1753	1389	1534

Growth Rate to Apply to Existing Counts to Match 2030 Forecasts

2007-2030 AM Growth Rates	7.93%	3.56%	#DIV/0!	#DIV/0!
2007-2030 PM Growth Rates	1.85%	7.34%	#DIV/0!	#DIV/0!

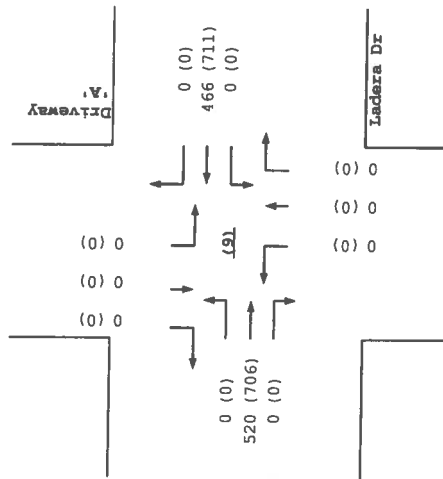
Growth Rate to Apply to 2005 Model Volumes to Match 2030 Forecasts

2005-2030 AM Growth Rates	11.87%	6.37%	1.16%	-1.04%
2005-2030 PM Growth Rates	7.80%	2.85%	1.25%	0.92%

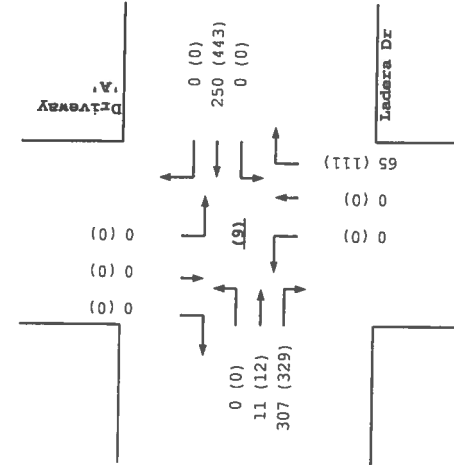
Pass-by Trip Calculations:

	Eastbound (Ladera Dr)			Westbound (Ladera Dr)			Northbound (Driveway 'A')			Southbound (Driveway 'A')		
	0.00%	-82.00%	82.00%	0.00%	-18.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Entering	0	-219	219	0	-48	0	0	0	0	0	0	0
Volume Entering	0	0	0	0	82.00%	0.00%	0.00%	0.00%	18.00%	0.00%	0.00%	0.00%
Percent Exiting	0	0	0	0	238	0	0	0	52	0	0	0
Volume Exiting	0	-219	219	0	190	0	0	0	52	0	0	0
Net PM Passby Trips	0	-219	219	0	190	0	0	0	52	0	0	0
Pass-by Trips	Entering	Exiting		Entering	Exiting							
	0	0 AM		0	0 PM							
	267	290 PM										

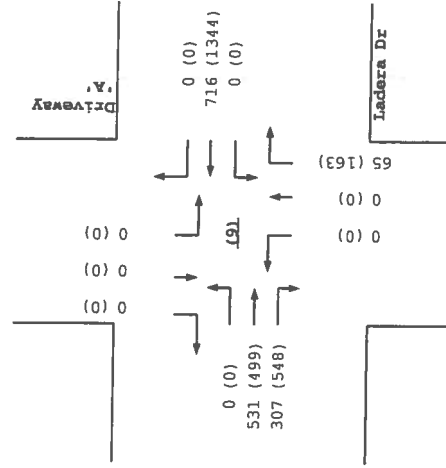
2010
NO BUILD



Trips



2010
BUILD



Ladera Dr / Driveway 'A'

Heritage Neighborhood Center (Ladera Dr / Unser Blvd)
Projected Turning Movements Worksheet
Driveway 'B' / Market Rd

INTERSECTION: E-W Street: Driveway 'B' (10)
 N-S Street: Market Rd
 Year of Existing Counts: 2007
 Implementation Year: 2010
 Growth Rates:

	0.00%			0.00%			0.00%			0.00%		
	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	185	0	0	42	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - A.M.)	0	0	0	0	0	0	0	185	0	0	42	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.92%	0.00%	0.00%	0.00%	2.00%	33.66%
Percent Commercial Trips Generated(Exiting)	80.34%	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	2.00%	27.61%
Percent Office Trips Generated(Exiting)	84.67%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	312	0	3	0	0	0	5	4	0	0	11	187
Total AM Peak Hour BUILD Volumes	312	0	3	0	0	0	5	189	0	0	53	187

	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	119	0	0	204	0
Background Traffic Growth	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (NO BUILD - P.M.)	0	0	0	0	0	0	0	119	0	0	204	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.92%	0.00%	0.00%	0.00%	2.00%	33.66%
Percent Commercial Trips Generated(Exiting)	80.34%	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Percent Office Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	2.00%	27.61%
Percent Office Trips Generated(Exiting)	84.67%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	547	0	5	0	0	0	6	7	0	0	12	209
Subtotal PM Pk Hr. BUILD Volumes	547	0	5	0	0	0	6	126	0	0	216	209
Pass-by Trip Adjustments	238	0	0	0	0	0	0	0	0	0	0	48
Total PM Peak Hour BUILD Volumes	785	0	5	0	0	0	6	126	0	0	216	257

	Entering	Exiting		
Number of Commercial Trips Generated	499	378	A.M.	100% Commercial Development
	602	580	P.M.	
Number of Office Trips Generated	68	9	A.M.	100% Office Development
	20	96	P.M.	

	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Market Rd)			Southbound (Market Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2007 AM Peak Hr. Volumes	0	0	0	0	0	0	0	185	0	0	42	0
2007 PM Peak Hr. Volumes	0	0	0	0	0	0	0	119	0	0	204	0