



BOHANNAN HUSTON

Courtyard One

7500 JEFFERSON NE

Albuquerque

NEW MEXICO 87109

voice 505.823.1000

fax 505.821.0892

# ANALYSIS OF UNSER & LADERA INTERSECTION FOR PAINTED SKY SUBDIVISION

**SEPTEMBER 2000**



**PREPARED FOR:**

**WESTLAND DEVELOPMENT COMPANY, INC.  
401 COORS BLVD, NW  
ALBUQUERQUE, NM 87121**

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## I. INTRODUCTION

Westland Development Company, Inc proposes to build a subdivision called Painted Sky between Interstate 40 and Ladera Drive and west of Unser Blvd. Access to this site will be through the Unser and Ladera intersection. See Figure 1 for the vicinity map.

### A. Study Purpose

This study will identify the traffic impacts of the development on the Unser and Ladera Intersection and any required street improvements at that intersection.

### B. Study Procedure

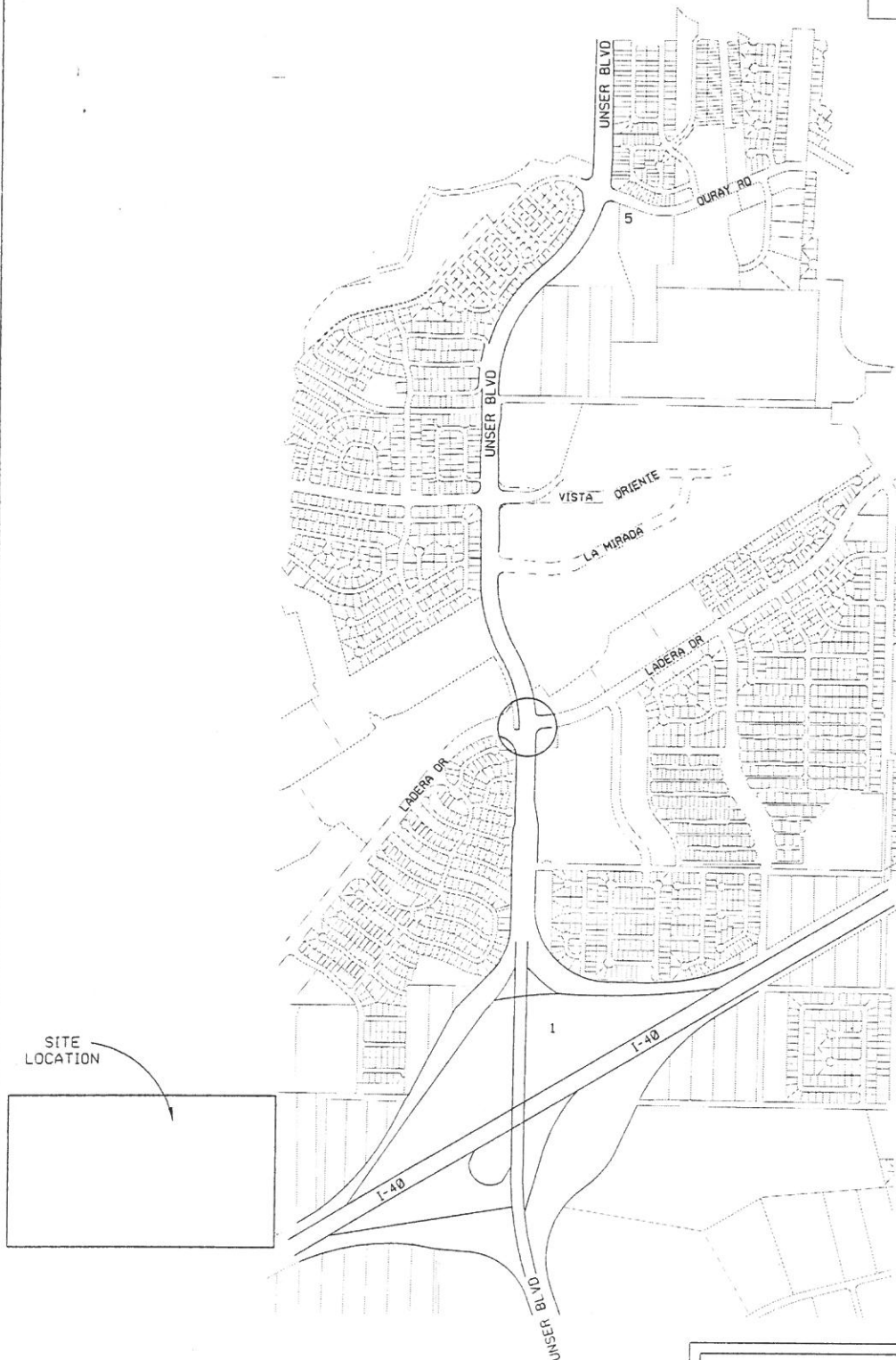
The Painted Sky Subdivision is proposed to be completely built out by 2005. This will be considered the build year. The following analysis included Existing, No Build in Year 2005 and Build in Year 2005. A scoping meeting was held with the City of Albuquerque. The Scoping letter is shown in Appendix A.

A previous traffic study was prepared in 1998 for the Westside Suntran Facility & Ladera Industrial Park. This site, which was located north and west of the Unser and Ladera Intersection, is no longer going to be constructed. In the industrial park study the intersections of Unser / I-40, Unser / Ladera, Unser / Vista Oriente, and Unser / Ouray were analyzed. All of these intersections had a level of service of A or B with full build out of the industrial park except for Unser / Ladera. Since the industrial park generated more trips than the Painted Sky Subdivision only the Unser / Ladera Intersection will be analyzed in this study.





NOT TO SCALE



○ - INTERSECTIONS OF STUDY

**FIGURE 1  
VICINITY MAP**

## II. EXISTING AREA CHARACTERISTICS

### A. Existing Geometry

The existing Unser and Ladera Intersection has 2 through lanes and a left turn lane on the north approach. The south approach has 2 through lanes, a left and a right turn lane. The west approach has 2 through lanes and 2 left turn lanes, one of which is striped out. The east approach has 1 through lane and 2 left turn lanes.

A third southbound through lane picks up south of the intersection and drops at the westbound I-40 on-ramp. The Unser overpass over I-40 has two through lanes in each direction.

### B. Existing Traffic Volumes

The City of Albuquerque Transportation Development Department provided existing traffic counts for the Unser/Ladera Intersection. The traffic count was performed in May 2000. Figure 2 on page 4 summarizes the a.m. and p.m. peak hour counts. The complete traffic count can be found in Appendix B.

### C. Existing Levels of Service

The existing intersection traffic volumes were analyzed using the signalized intersection methodology from the Highway Capacity Manual (HCM). Teapac software was used to perform the analysis. The individual runs for the a.m. and p.m. peak hours are included in Appendix C. The results are summarized in the following table.

| TABLE 1 – YEAR 2000 EXISTING CAPACITY ANALYSIS RESULTS |                   |     |                   |     |
|--------------------------------------------------------|-------------------|-----|-------------------|-----|
| INTERSECTION                                           | 2000 AM PEAK HOUR |     | 2000 PM PEAK HOUR |     |
|                                                        | DELAY             | LOS | DELAY             | LOS |
| Unser/Ladera                                           | 43.8              | D   | 18.2              | B   |

### III. 2005 BACKGROUND TRAFFIC PROJECTIONS

#### A. 2005 No-Build Traffic Projections

The Westside Suntran Facility & Ladera Industrial Park Traffic Impact Study analyzed the 1992 through 1996 Middle Rio Grande Council of Governments (MRGCOG) traffic flow maps to estimate the background traffic growth rate at 11%. A growth rate of 11% was not considered unreasonable given the rapid development of the area. The same growth rate was used for this analysis. The No-Build background traffic volumes are summarized in Figure 3, page 5.

#### B. 2005 No Build Intersection Capacity Analysis

The intersections within the study area were analyzed using the Highway Capacity Software (HCS). The following table is a summary of the results. The HCS output is included in Appendix D.

| TABLE 2 – YEAR 2005 NO-BUILD CAPACITY ANALYSIS RESULTS |                   |     |                   |     |
|--------------------------------------------------------|-------------------|-----|-------------------|-----|
| INTERSECTION                                           | 2005 AM PEAK HOUR |     | 2005 PM PEAK HOUR |     |
|                                                        | DELAY             | LOS | DELAY             | LOS |
| Unser/Ladera                                           | 111.1             | F   | 56.5              | E   |
| Scenario 1                                             | 47.2              | D   | 37.8              | D   |
| Scenario 2                                             | 47.9              | D   | 32.7              | C   |
| Scenario 3                                             | 43.1              | D   | 47.8              | D   |

PROVIDE  
SKETCH  
OR  
TABLE

With the existing geometry the intersection operates at a level of service F in the a.m. peak hour and a level of service of E in the p.m. peak hour.

Scenario 1 in order to achieve a level of service of D for the intersection is to add a southbound through lane, restripe one of the eastbound through lanes to be a right turn only and add a northbound left turn lane. The dual northbound left turn lanes need to operate as permissive lefts in order for this alternative to work.

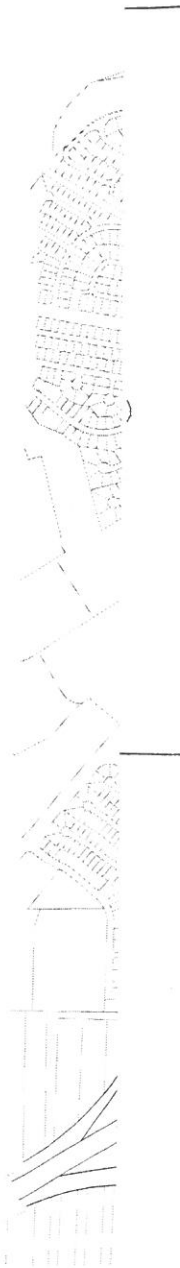
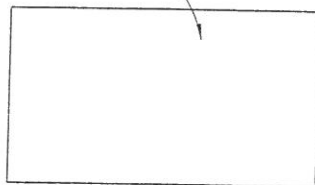
Scenario 2 using protected left turn movements only requires two additional southbound through lanes. One of the eastbound through lanes would still be redesignated as a right-turn only. This configuration gives a LOS of D in the AM Peak Hour and C in the PM Peak Hour.

Scenario 3 is to add one southbound through lane, one westbound left turn lane, to redesignate one of the eastbound through lanes as a right-turn only and to add an eastbound right turn bay. This gives a LOS of D in the AM Peak Hour and D in the PM Peak Hour.



NOT TO SCALE

SITE  
LOCATION



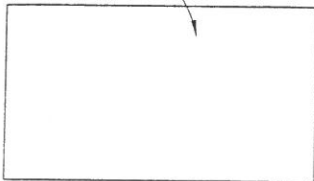
TURNING MOVEMENT COUNTS  
PEAK HOUR  
AM(PM)

PAINTED SKY SUBDIVISION  
2000 TRAFFIC VOLUMES  
FIGURE 2



NOT TO SCALE

SITE  
LOCATION



TURNING MOVEMENT COUNTS  
PEAK HOUR  
AM(PM)

PAINTED SKY SUBDIVISION  
2005 NO BUILD  
FIGURE 3

#### IV. PROPOSED SITE CHARACTERISTICS

##### A. Trip Generation

The proposed Painted Sky Subdivision consists of 290 homes located south of Ladera and west of Unser Blvd. Projected trips for the proposed development were calculated from data in the Institute of Transportation Engineers (ITE) Trip Generation, 6<sup>th</sup> Edition, 1997. Trips were generated for 290 dwelling units of Single Family Detached Housing. The trip generation, which is summarized in the following table, can be found in Appendix E.

| TABLE 3 – TRIP GENERATION |      |              |              |      |              |      |
|---------------------------|------|--------------|--------------|------|--------------|------|
| Land use                  | Size | 24 hr Volume | AM Peak Hour |      | PM Peak Hour |      |
|                           |      | 2 way volume | Enter        | Exit | Enter        | Exit |
| Single Family Homes       | 290  | 2775         | 55           | 162  | 189          | 104  |

##### B. Trip Distribution and Assignment

The trip distribution calculated for the Westside Suntran Facility & Ladera Industrial Park Traffic Impact Study was used for the Painted Sky Subdivision. The trip percentages going to the industrial park were redistributed to the subdivision. The trip distribution for the Painted Sky Subdivision is shown in Figure 4 on page 8. The trip assignment volumes are shown in Figure 5 on page 9.

## V. 2005 BUILD TRAFFIC ANALYSIS

### A. 2005 Build Traffic Volumes

The trip assignments for the Painted Sky Subdivision were added to the 2005 No-Build Traffic Volumes to determine the 2005 Build Traffic Volumes. The Traffic Volumes are shown in Figure 6, page 10.

### B. 2005 Build Capacity Analysis

Using the HCM signalized intersection methodology, HCS and Teapac a capacity analysis was run for the Unser and Ladera intersection. The proposed geometry scenarios given for the No-Build were used as the starting point. The results are shown in Table 4 below.

| TABLE 4 – YEAR 2005 BUILD CAPACITY ANALYSIS RESULTS |                   |     |                   |     |
|-----------------------------------------------------|-------------------|-----|-------------------|-----|
| INTERSECTION                                        | 2005 AM PEAK HOUR |     | 2005 PM PEAK HOUR |     |
|                                                     | DELAY             | LOS | DELAY             | LOS |
| Unser/Ladera                                        |                   |     |                   |     |
| Scenario 1                                          | 48.8              | D   | 38.1              | D   |
| Scenario 2                                          | 47.7              | D   | 35.3              | D   |
| Scenario 3                                          | 49.2              | D   | 28.2              | C   |

Scenario 1 - One alternative for the No-Build was to add one southbound through lane, a northbound left turn lane, and redesignate one of the eastbound through lanes as a right turn only. In the Build condition an additional EB left turn is needed also. If the left turn movements are allowed to operate permissively then a level of service of D is achieved.

Scenario 2 - Another No-Build alternative was to add two southbound through lanes and to redesignate one of the two eastbound through lanes as a right-turn only. In the Build condition an additional NB through lane is also needed in order to achieve a LOS of D. One northbound through lane could be picked up where the I-40 westbound off-ramp merges with Unser and carried through the intersection. One southbound through lane could be carried through the intersection and tied to the existing three southbound lanes south of the intersection. One of these lanes drops at the I-40 westbound on-ramp. A fourth southbound through lane seems impractical given the existing geometry. In order for the lane to carry any traffic, the I-40 Unser Overpass would need to be widened to accommodate three lanes southbound.

Scenario 3 - A third No-Build alternative is to add one southbound through lane, one westbound left turn lane and to redesignate one of the eastbound through lanes as a right-turn

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only. In the Build condition an additional eastbound right turn lane is needed in order to achieve a LOS of D.

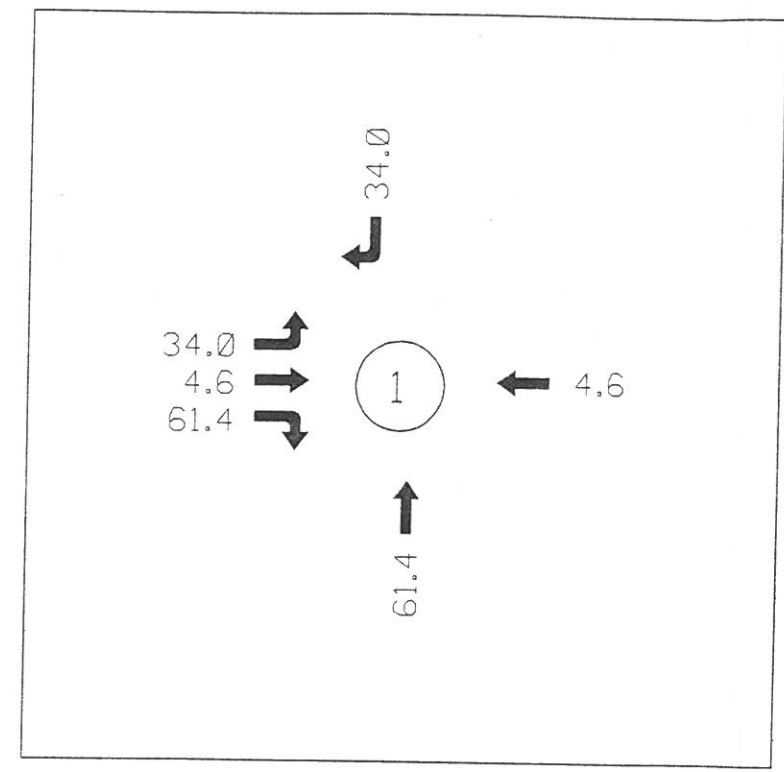
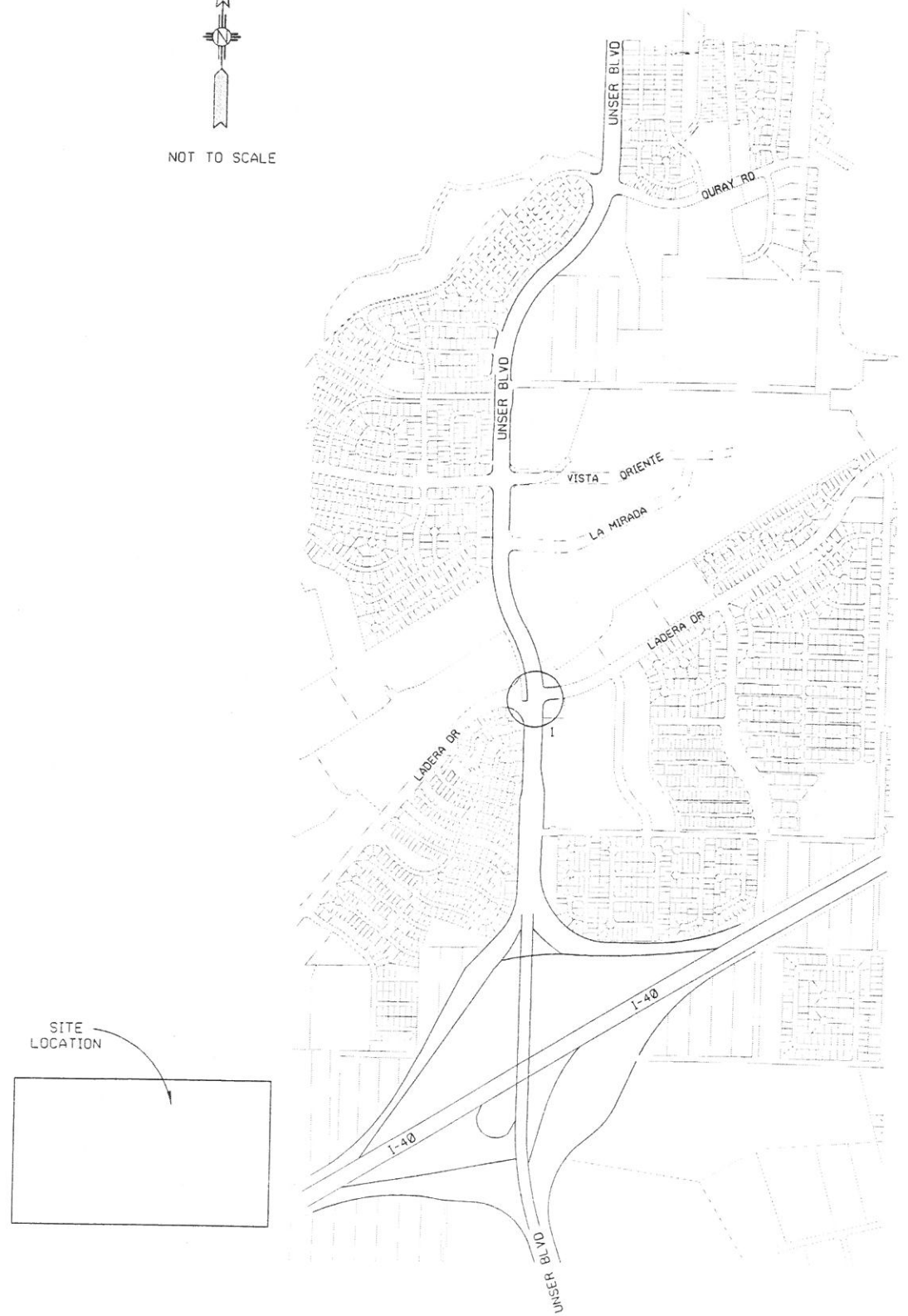
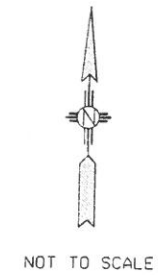
The capacity analysis can be found in Appendix F.

### C. Queuing Analysis

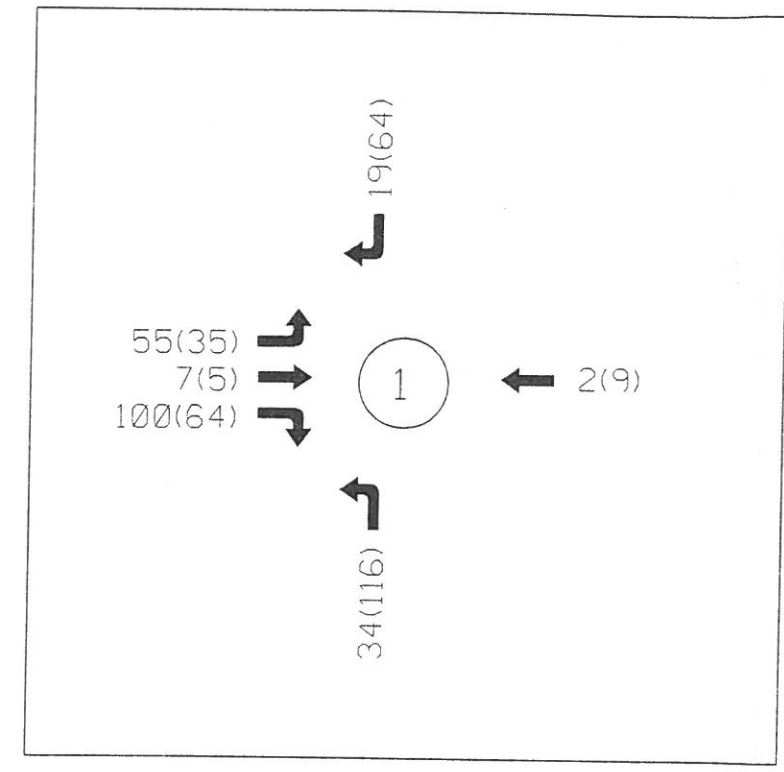
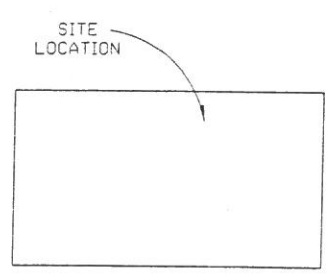
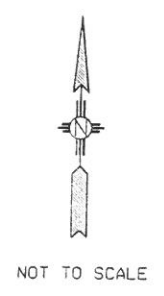
A queuing analysis of the Unser and Ladera Intersection was conducted. This analysis utilized a Poisson distribution with a 95% service rate to determine the length of queue required at each intersection. The queue length recommendations contained in the following table should be included in the final design of the intersection. The worst case condition (a.m. or p.m. peak hour) was evaluated to determine the necessary length of turning bay. The full analysis can be found in Appendix G.

| TABLE 5 – QUEUING DISTANCES SCENARIO 1 |                 |
|----------------------------------------|-----------------|
| INTERSECTION                           | 2005-BUILD (ft) |
| Unser/Ladera                           |                 |
| Dual EB LT                             | 50              |
| SB LT                                  | 100             |
| Dual WB LT                             | 250             |
| Dual NB LT                             | 138             |

| TABLE 6 – QUEUING DISTANCES SCENARIO 3 |                 |
|----------------------------------------|-----------------|
| INTERSECTION                           | 2005-BUILD (ft) |
| Unser/Ladera                           |                 |
| EB LT                                  | 100             |
| SB LT                                  | 100             |
| Triple WB LT                           | 260             |
| NB LT                                  | 150             |

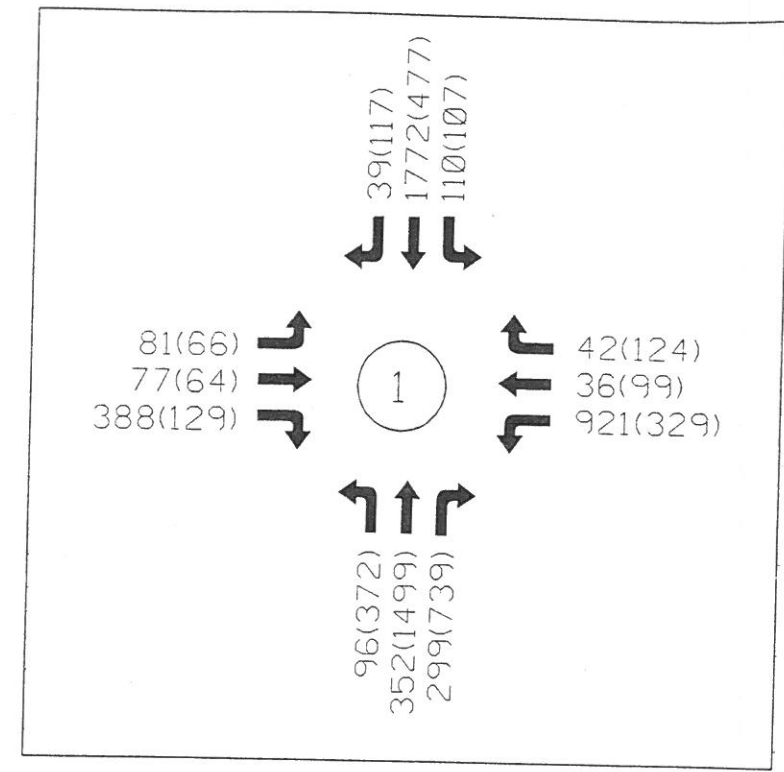
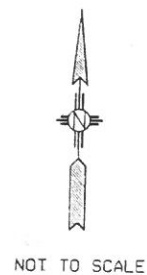


PAINTED SKY SUBDIVISION  
 TRIP DISTRIBUTION PERCENTAGES  
 FIGURE 4



TURNING MOVEMENT COUNTS  
 PEAK HOUR  
 AM(PM)

PAINTED SKY SUBDIVISION  
 TRIP ASSIGNMENT VOLUMES  
 FIGURE 5



TURNING MOVEMENT COUNTS  
 PEAK HOUR  
 AM(PM)

PAINTED SKY SUBDIVISION  
 2005 BUILD  
 FIGURE 6

## VI. CONCLUSIONS AND RECOMMENDATIONS

In the existing condition the intersection of Unser and Ladera operates at a D in the a.m. peak hour and B in the p.m. peak hour.

The results of the 2005 No-Build capacity analysis indicate that the intersection will fail. The traffic volume exceeds the capacity available with the existing laneage. Three scenarios were developed for additional laneage at the intersections.

In Scenario 1 an additional southbound through lane and northbound left turn lane are required, as well as, signing one of the eastbound through lanes as a right turn only lane. If the left turn movements are allowed to operate permissively then a level of service of D is achieved.

In Scenario 2 two additional southbound through lanes are needed, as well as, signing one of the eastbound through lanes as a right turn only lane.

In Scenario 3 one additional southbound through lane and one additional westbound left turn lane are needed, as well as, signing one of the eastbound through lanes as a right turn only lane.

In the Build condition the additional capacity needed in order to operate at a LOS of D is as follows:

In Scenario 1 an additional eastbound left turn is needed. The pavement for an additional left turn is already in place. Only striping and removal of the existing markings would be required. This left turn movement, as well as, the northbound left turn would need to operate permissively in order to achieve a LOS of D. There is at least one other case of permissive and protected double left turns in Albuquerque at the intersection of Wyoming and Academy which seems to work fine. Since the median on Unser is wide, it would be possible to move the northbound left turn bay over in order to improve the sight distance where the opposite through movements are heavy.

In Scenario 2 an additional northbound through lane is needed. This scenario is not recommended because although the northbound through lane could be easily constructed, only one southbound through lane makes sense with the existing road network.

In Scenario 3 an additional eastbound right turn bay is needed. This scenario involves installing a triple left westbound. While there is no existing triple left turn in Albuquerque, the New Mexico State Highway & Transportation Department is in the process of designing one at the intersection of Paseo del Norte and Pan American East.

CLARIFY  
SKETCH  
OR  
TABLE

**APPENDIX A**  
**SCOPING LETTER**

**STANDARD LETTER**  
**SCOPE OF TRAFFIC IMPACT STUDY (TIS)**

**TO:** Jeanette Walther  
 Bohannon-Huston, Inc.  
 Courtyard One  
 7500 Jefferson St. NE  
 Albuquerque, New Mexico 87109

**MEETING DATE:** August 8, 2000

**ATTENDEES:** Jeanette Walther & Kevin Patton, Bohannon-Huston; Tony Loyd, Transportation Development, COA.

**PROJECT:** Painted Sky Development

**REQUESTED CITY ACTION:** \_\_\_Zone Change \_\_\_x\_Site Development Plan

\_\_\_Subdivision \_\_\_Building Permit \_\_\_Sector Plan \_\_\_Sector Plan Amendment

\_\_\_Curb Cut Permit \_\_\_Conditional Use \_\_\_Annexation \_\_\_Site Plan Amendment

**ASSOCIATED APPLICATION:** 290 single family du development.

The Traffic Impact Study should follow the standard report format which is outlined in the DPM. The following supplemental information is provided for the preparation of this specific study. As each item identified in the scoping letter is completed, check the appropriate ☐ (box).

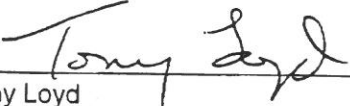
- ☐ 1. Trip Generation - Use Trip Generation Manual, 6th Edition.  
Consultant to provide.
- ☐ 2. Appropriate study area:  
Signalized Intersections: Ladera/Unser;  
  
Unsignalized Intersections: n/a;  
  
Driveway Intersections: n/a.
- ☐ 3. Intersection turning movement counts.  
Intersections provided: signalized intersections above;  
  
Intersections which need to be counted by developer: unsignalized.
- ☐ 4. Existing traffic signal timing and synchronization.  
Intersections provided: signalized intersections above.
- ☐ 5. Type of intersection progression and factors to be used.  
Type III arrival type (see HCM Special Report 209) unless otherwise justified, peak hour factors and % heavy commercial should be taken directly from the MRGCOG turning movement data provided and the lost time factor should be 5.0 seconds for all phases (a possible reduction may be taken for five to eight phase operations).
- ☐ 6. Boundaries of area to be used for trip distribution.  
City Wide - residential.

Painted Sky Development

Page 3 of 3

- ☐ 14. Items to be included in the study:
- a. Intersection analysis.
  - b. Recommended street, intersection and signal improvements.
  - c. Site design features such as turning lanes, median cuts, queuing requirements and site circulation, including driveway signalization and visibility.
  - d. Transportation system impacts.
  - e. Other mitigating measures.
- ☐ 15. Number of copies of report required   1    
Executive Summary Required     yes   x  no  
(12 copies if required)

The Traffic Impact Study for this development proposal, Painted Sky Development, shall be performed in accordance with the above criteria. If there are any questions regarding the above items, please contact me at 924-3994.

  
\_\_\_\_\_  
Tony Loyd  
Transportation Development Section

August 16, 2000  
Date

cc: TIS Task Force attendees  
file

**APPENDIX B**  
**EXISTING TRAFFIC COUNT**

MIDDLE RIO GRANDE COUNCIL OF GOVERNMENTS  
INTERSECTION TURNING MOVEMENT COUNT

MIDDLE RIO GRANDE COG  
Two Vehicle Analysis with Right on Red

Page: 1  
Date: 5/19/2000

\*\*\*\*\*  
Location: 025650 Starts : 05/15/00 at 06:45:00  
Notes : LADERA DR - UNSER BD Ends : 05/15/00 at 18:00:00  
Study ID: 00 Interval : 15 min Intervals: 45  
Operator: CM 168 S/N : 168 Type: C,Tr,Ped-rt/red  
Weather : BERNALILLO Correction: 1.00  
\*\*\*\*\*

|               |       | From North |      |      |       | From South |      |      |       | From East |      |      |       | From West |      |      |       | Interval |
|---------------|-------|------------|------|------|-------|------------|------|------|-------|-----------|------|------|-------|-----------|------|------|-------|----------|
|               |       | -----      |      |      |       | -----      |      |      |       | -----     |      |      |       | -----     |      |      |       |          |
| Begins        |       | RtRed      | Left | Thru | Right | RtRed      | Left | Thru | Right | RtRed     | Left | Thru | Right | RtRed     | Left | Thru | Right | Total    |
| -----         |       |            |      |      |       |            |      |      |       |           |      |      |       |           |      |      |       |          |
| Mon 5/15/2000 |       |            |      |      |       |            |      |      |       |           |      |      |       |           |      |      |       |          |
| 6:45          | Auto  | 0          | 8    | 182  | 2     | 30         | 7    | 41   | 16    | 1         | 87   | 2    | 1     | 18        | 1    | 5    | 12    | 413 <    |
|               | Truck | 0          | 1    | 2    | 0     | 0          | 2    | 2    | 0     | 0         | 2    | 0    | 0     | 0         | 0    | 0    | 0     | 9        |
| 7:00          | Auto  | 0          | 17   | 235  | 3     | 13         | 9    | 42   | 18    | 4         | 163  | 4    | 1     | 16        | 2    | 8    | 23    | 558 <    |
|               | Truck | 0          | 0    | 2    | 1     | 1          | 1    | 1    | 2     | 0         | 0    | 2    | 1     | 1         | 0    | 0    | 1     | 13       |
| 7:15          | Auto  | 1          | 20   | 306  | 2     | 31         | 9    | 65   | 21    | 2         | 136  | 6    | 5     | 24        | 5    | 13   | 31    | 677 <    |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 1    | 0     | 0         | 2    | 1    | 0     | 0         | 0    | 0    | 0     | 4        |
| 7:30          | Auto  | 0          | 17   | 328  | 2     | 10         | 9    | 57   | 37    | 2         | 152  | 3    | 3     | 11        | 5    | 12   | 46    | 694 <    |
|               | Truck | 0          | 1    | 2    | 0     | 0          | 1    | 6    | 0     | 0         | 4    | 0    | 0     | 0         | 0    | 0    | 0     | 14       |
| 7:45          | Auto  | 0          | 16   | 269  | 3     | 15         | 11   | 54   | 41    | 4         | 134  | 6    | 5     | 12        | 5    | 10   | 20    | 605 <    |
|               | Truck | 0          | 0    | 1    | 1     | 0          | 0    | 1    | 4     | 0         | 3    | 0    | 0     | 0         | 0    | 2    | 1     | 13       |
| 8:00          | Auto  | 0          | 17   | 214  | 7     | 14         | 17   | 61   | 21    | 2         | 109  | 1    | 2     | 19        | 8    | 5    | 26    | 523 <    |
|               | Truck | 0          | 1    | 0    | 0     | 3          | 1    | 4    | 3     | 0         | 2    | 1    | 0     | 0         | 0    | 0    | 0     | 15       |
| 8:15          | Auto  | 0          | 16   | 128  | 5     | 19         | 27   | 50   | 34    | 2         | 71   | 10   | 4     | 7         | 3    | 6    | 1     | 383 <    |
|               | Truck | 0          | 0    | 4    | 0     | 2          | 2    | 4    | 3     | 0         | 1    | 1    | 0     | 0         | 0    | 0    | 0     | 17       |
| 8:30          | Auto  | 1          | 9    | 88   | 9     | 28         | 41   | 55   | 26    | 5         | 70   | 9    | 6     | 16        | 5    | 2    | 13    | 383 <    |
|               | Truck | 0          | 0    | 2    | 3     | 3          | 8    | 2    | 0     | 0         | 0    | 3    | 0     | 4         | 0    | 1    | 2     | 28       |
| 8:45          | Auto  | 7          | 5    | 57   | 6     | 18         | 27   | 48   | 5     | 1         | 57   | 4    | 4     | 4         | 0    | 8    | 4     | 255 <    |
|               | Truck | 0          | 1    | 0    | 1     | 2          | 0    | 3    | 4     | 0         | 1    | 0    | 0     | 0         | 0    | 0    | 1     | 13       |
| 9:00          | Auto  | 1          | 9    | 75   | 2     | 16         | 18   | 43   | 9     | 5         | 38   | 5    | 1     | 2         | 6    | 11   | 9     | 250 <    |
|               | Truck | 0          | 0    | 1    | 0     | 1          | 0    | 1    | 1     | 0         | 0    | 1    | 0     | 0         | 0    | 2    | 0     | 7        |
| 9:15          | Auto  | 1          | 8    | 45   | 4     | 12         | 12   | 32   | 4     | 3         | 28   | 12   | 4     | 3         | 0    | 3    | 0     | 171 <    |
|               | Truck | 0          | 0    | 3    | 0     | 1          | 0    | 2    | 0     | 0         | 1    | 1    | 0     | 0         | 0    | 1    | 0     | 9        |
| 9:30          | Auto  | 0          | 9    | 50   | 0     | 16         | 10   | 35   | 6     | 7         | 43   | 8    | 2     | 8         | 4    | 4    | 1     | 203 <    |
|               | Truck | 0          | 0    | 1    | 0     | 1          | 0    | 1    | 1     | 0         | 0    | 1    | 0     | 0         | 0    | 0    | 0     | 5        |
| 9:45          | Auto  | 0          | 0    | 5    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 5 <      |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0        |
| 10:00         | Auto  | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0 <      |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0        |
| 10:15         | Auto  | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0 <      |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0        |
| 10:30         | Auto  | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0 <      |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0        |
| 10:45         | Auto  | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0 <      |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0        |
| 11:00         | Auto  | 0          | 10   | 38   | 0     | 22         | 17   | 45   | 16    | 5         | 28   | 4    | 3     | 4         | 4    | 5    | 2     | 203 <    |
|               | Truck | 0          | 0    | 1    | 0     | 2          | 0    | 1    | 0     | 0         | 3    | 0    | 0     | 0         | 0    | 0    | 0     | 7        |
| 11:15         | Auto  | 1          | 9    | 42   | 2     | 19         | 10   | 49   | 12    | 5         | 33   | 5    | 1     | 6         | 2    | 7    | 3     | 206 <    |
|               | Truck | 0          | 0    | 3    | 0     | 1          | 3    | 1    | 3     | 0         | 3    | 0    | 0     | 0         | 0    | 0    | 0     | 14       |
| 11:30         | Auto  | 2          | 10   | 53   | 5     | 20         | 16   | 52   | 24    | 6         | 33   | 13   | 3     | 4         | 3    | 4    | 2     | 250 <    |
|               | Truck | 0          | 1    | 0    | 1     | 1          | 1    | 3    | 2     | 0         | 0    | 1    | 0     | 0         | 0    | 0    | 1     | 11       |

MIDDLE RIO GRANDE COG  
Two Vehicle Analysis with Right on Red

Page: 2  
Date: 5/19/2000

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Location: 025650 Starts : 05/15/00 at 06:45:0  
Notes : LADERA DR - UNSER BD Ends : 05/15/00 at 18:00:0  
Study ID: 00 Interval : 15 min Intervals: 45  
Operator: CM 168 S/N : 168 Type: C,Tr,Ped-rt/red  
Weather : BERNALILLO Correction: 1.00  
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|               |       | From North |      |      |       | From South |      |      |       | From East |      |      |       | From West |      |      |       | Interval |
|---------------|-------|------------|------|------|-------|------------|------|------|-------|-----------|------|------|-------|-----------|------|------|-------|----------|
|               |       | -----      |      |      |       | -----      |      |      |       | -----     |      |      |       | -----     |      |      |       |          |
| Begins        |       | RtRed      | Left | Thru | Right | RtRed      | Left | Thru | Right | RtRed     | Left | Thru | Right | RtRed     | Left | Thru | Right | Total    |
| -----         |       |            |      |      |       |            |      |      |       |           |      |      |       |           |      |      |       |          |
| Mon 5/15/2000 |       |            |      |      |       |            |      |      |       |           |      |      |       |           |      |      |       |          |
| 11:45         | Auto  | 1          | 11   | 45   | 1     | 24         | 11   | 49   | 20    | 5         | 50   | 9    | 5     | 7         | 4    | 10   | 7     | 259 <    |
|               | Truck | 0          | 0    | 2    | 0     | 4          | 0    | 0    | 4     | 0         | 1    | 1    | 0     | 0         | 1    | 1    | 0     | 14       |
| 12:00         | Auto  | 0          | 11   | 51   | 2     | 27         | 22   | 52   | 31    | 4         | 46   | 7    | 1     | 10        | 3    | 7    | 2     | 276 <    |
|               | Truck | 0          | 1    | 1    | 0     | 1          | 0    | 2    | 3     | 0         | 5    | 1    | 0     | 0         | 0    | 0    | 1     | 15       |
| 12:15         | Auto  | 0          | 10   | 40   | 3     | 21         | 22   | 55   | 17    | 5         | 33   | 9    | 7     | 6         | 2    | 6    | 3     | 239 <    |
|               | Truck | 0          | 0    | 0    | 0     | 2          | 0    | 2    | 3     | 0         | 3    | 2    | 0     | 0         | 1    | 0    | 0     | 13       |
| 12:30         | Auto  | 0          | 10   | 39   | 4     | 25         | 20   | 57   | 26    | 4         | 47   | 6    | 3     | 9         | 7    | 3    | 8     | 268 <    |
|               | Truck | 0          | 0    | 2    | 2     | 1          | 1    | 2    | 2     | 1         | 1    | 0    | 0     | 0         | 2    | 1    | 1     | 16       |
| 12:45         | Auto  | 0          | 10   | 59   | 6     | 20         | 12   | 57   | 23    | 3         | 46   | 10   | 4     | 7         | 2    | 6    | 3     | 268 <    |
|               | Truck | 0          | 0    | 3    | 0     | 0          | 0    | 0    | 2     | 0         | 3    | 1    | 1     | 0         | 0    | 0    | 0     | 10       |
| 13:00         | Auto  | 0          | 14   | 51   | 1     | 28         | 14   | 61   | 16    | 3         | 41   | 4    | 1     | 11        | 4    | 5    | 5     | 259 <    |
|               | Truck | 0          | 0    | 1    | 1     | 4          | 0    | 3    | 0     | 0         | 1    | 1    | 0     | 1         | 0    | 0    | 0     | 12       |
| 13:15         | Auto  | 0          | 7    | 39   | 1     | 18         | 15   | 57   | 20    | 6         | 35   | 6    | 2     | 7         | 4    | 6    | 3     | 226 <    |
|               | Truck | 0          | 1    | 0    | 0     | 0          | 0    | 1    | 1     | 0         | 3    | 2    | 0     | 1         | 0    | 1    | 0     | 10       |
| 13:30         | Auto  | 1          | 7    | 45   | 3     | 24         | 9    | 57   | 27    | 5         | 40   | 5    | 4     | 11        | 0    | 7    | 2     | 247 <    |
|               | Truck | 0          | 0    | 0    | 1     | 3          | 0    | 4    | 2     | 1         | 1    | 0    | 0     | 1         | 0    | 0    | 0     | 13       |
| 13:45         | Auto  | 0          | 15   | 35   | 4     | 29         | 13   | 78   | 30    | 2         | 38   | 2    | 4     | 9         | 3    | 1    | 2     | 265 <    |
|               | Truck | 0          | 0    | 2    | 0     | 0          | 0    | 1    | 1     | 0         | 1    | 0    | 1     | 0         | 0    | 0    | 1     | 7        |
| 14:00         | Auto  | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0 <      |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0        |
| 14:15         | Auto  | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0 <      |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0        |
| 14:30         | Auto  | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0 <      |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0        |
| 14:45         | Auto  | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0 <      |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0        |
| 15:00         | Auto  | 1          | 11   | 55   | 3     | 22         | 31   | 83   | 51    | 9         | 35   | 8    | 0     | 9         | 3    | 4    | 2     | 327 <    |
|               | Truck | 0          | 0    | 4    | 0     | 0          | 1    | 1    | 0     | 0         | 2    | 0    | 0     | 0         | 0    | 0    | 0     | 8        |
| 15:15         | Auto  | 1          | 18   | 63   | 11    | 49         | 40   | 132  | 56    | 6         | 46   | 12   | 2     | 13        | 4    | 3    | 0     | 456 <    |
|               | Truck | 1          | 0    | 2    | 0     | 0          | 3    | 1    | 3     | 2         | 2    | 2    | 0     | 1         | 1    | 0    | 0     | 18       |
| 15:30         | Auto  | 0          | 6    | 51   | 8     | 28         | 35   | 156  | 52    | 12        | 58   | 8    | 2     | 34        | 22   | 13   | 8     | 493 <    |
|               | Truck | 0          | 2    | 3    | 0     | 0          | 5    | 2    | 3     | 0         | 0    | 1    | 0     | 3         | 1    | 0    | 2     | 22       |
| 15:45         | Auto  | 0          | 13   | 60   | 4     | 36         | 28   | 131  | 42    | 17        | 84   | 6    | 1     | 11        | 7    | 17   | 24    | 481 <    |
|               | Truck | 0          | 0    | 4    | 0     | 0          | 0    | 1    | 1     | 0         | 5    | 2    | 0     | 3         | 1    | 2    | 1     | 20       |
| 16:00         | Auto  | 0          | 15   | 80   | 3     | 36         | 31   | 130  | 61    | 14        | 48   | 5    | 2     | 11        | 2    | 6    | 0     | 444 <    |
|               | Truck | 0          | 0    | 4    | 0     | 1          | 0    | 2    | 4     | 0         | 1    | 1    | 0     | 2         | 0    | 0    | 0     | 15       |
| 16:15         | Auto  | 0          | 8    | 56   | 0     | 33         | 24   | 178  | 68    | 10        | 45   | 16   | 7     | 5         | 3    | 6    | 3     | 462 <    |
|               | Truck | 0          | 0    | 2    | 0     | 0          | 0    | 2    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 4        |
| 16:30         | Auto  | 0          | 14   | 84   | 3     | 47         | 35   | 184  | 74    | 7         | 53   | 11   | 8     | 15        | 7    | 8    | 3     | 553 <    |
|               | Truck | 0          | 0    | 0    | 0     | 1          | 0    | 1    | 1     | 0         | 1    | 0    | 0     | 0         | 0    | 0    | 0     | 4        |
| 16:45         | Auto  | 1          | 13   | 76   | 7     | 51         | 37   | 199  | 59    | 7         | 67   | 11   | 3     | 9         | 8    | 4    | 1     | 553 <    |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 4    | 2     | 0         | 2    | 0    | 0     | 0         | 1    | 0    | 0     | 9        |

MIDDLE RIO GRANDE COG  
Two Vehicle Analysis with Right on Red

Page: 3  
Date: 5/19/2000

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Location: 025650 Starts : 05/15/00 at 06:45:00  
Notes : LADERA DR - UNSER BD Ends : 05/15/00 at 18:00:00  
Study ID: 00 Interval : 15 min Intervals: 45  
Operator: CM 168 S/N : 168 Type: C,Tr,Ped-rt/red  
Weather : BERNALILLO Correction: 1.00  
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|               |       | From North |      |      |       | From South |      |      |       | From East |      |      |       | From West |      |      |       | Interval |
|---------------|-------|------------|------|------|-------|------------|------|------|-------|-----------|------|------|-------|-----------|------|------|-------|----------|
|               |       | RtRed      | Left | Thru | Right | RtRed      | Left | Thru | Right | RtRed     | Left | Thru | Right | RtRed     | Left | Thru | Right | Total    |
| Begins        |       |            |      |      |       |            |      |      |       |           |      |      |       |           |      |      |       |          |
| Mon 5/15/2000 |       |            |      |      |       |            |      |      |       |           |      |      |       |           |      |      |       |          |
| 17:00         | Auto  | 0          | 16   | 78   | 9     | 43         | 37   | 221  | 82    | 10        | 42   | 16   | 7     | 18        | 5    | 9    | 0     | 593 <    |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 1         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 1        |
| 17:15         | Auto  | 1          | 15   | 79   | 5     | 44         | 38   | 297  | 54    | 8         | 52   | 9    | 12    | 2         | 7    | 13   | 3     | 639 <    |
|               | Truck | 0          | 0    | 2    | 0     | 1          | 0    | 2    | 0     | 0         | 2    | 0    | 0     | 0         | 0    | 0    | 0     | 7        |
| 17:30         | Auto  | 0          | 23   | 86   | 13    | 48         | 48   | 205  | 80    | 10        | 72   | 13   | 9     | 9         | 5    | 7    | 1     | 629 <    |
|               | Truck | 1          | 0    | 1    | 0     | 1          | 0    | 1    | 0     | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 4        |
| 17:45         | Auto  | 1          | 15   | 62   | 4     | 49         | 41   | 241  | 74    | 17        | 43   | 20   | 6     | 8         | 3    | 9    | 1     | 594 <    |
|               | Truck | 0          | 0    | 0    | 0     | 0          | 1    | 0    | 1     | 0         | 1    | 0    | 0     | 0         | 0    | 0    | 0     | 3        |

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Date: 5/19/200

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Location: 025650                               Starts : 05/15/00 at 06:45:0
Notes : LADERA DR - UNSER BD                   Ends : 05/15/00 at 18:00:0
Study ID: 00                                   Interval : 15 min Intervals: 45
Operator: CM 168                               S/N : 168 Type: C,Tr,Ped-rt/red
Weather : BERNALILLO                           Correction: 1.00

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|            | From North |      |      |       | From South |      |      |       | From East |      |      |       | From West |      |      |       | Total  |
|------------|------------|------|------|-------|------------|------|------|-------|-----------|------|------|-------|-----------|------|------|-------|--------|
|            | RtRed      | Left | Thru | Right | RtRed      | Left | Thru | Right | RtRed     | Left | Thru | Right | RtRed     | Left | Thru | Right |        |
| Grand      |            |      |      |       |            |      |      |       |           |      |      |       |           |      |      |       |        |
| Total Auto | 21         | 442  | 3349 | 147   | 985        | 803  | 3409 | 1253  | 218       | 2203 | 285  | 135   | 375       | 158  | 253  | 274   | 14310  |
| %          | 0.1        | 3.0  | 22.8 | 1.0   | 6.7        | 5.5  | 23.2 | 8.5   | 1.5       | 15.0 | 1.9  | 0.9   | 2.5       | 1.1  | 1.7  | 1.9   | 97.3%  |
| Truck      | 2          | 9    | 55   | 11    | 37         | 30   | 65   | 56    | 5         | 57   | 26   | 3     | 17        | 8    | 11   | 12    | 404    |
| %          | 0.0        | 0.1  | 0.4  | 0.1   | 0.3        | 0.2  | 0.4  | 0.4   | 0.0       | 0.4  | 0.2  | 0.0   | 0.1       | 0.1  | 0.1  | 0.1   | 2.7%   |
| All        | 23         | 451  | 3404 | 158   | 1022       | 833  | 3474 | 1309  | 223       | 2260 | 311  | 138   | 392       | 166  | 264  | 286   | 14714  |
| %          | 0.2        | 3.1  | 23.1 | 1.1   | 6.9        | 5.7  | 23.6 | 8.9   | 1.5       | 15.4 | 2.1  | 0.9   | 2.7       | 1.1  | 1.8  | 1.9   | 100.0% |

.....

[illegible]

|            |               |        |       |      |           |               |
|------------|---------------|--------|-------|------|-----------|---------------|
|            |               |        |       | 223  | Rt/Red    |               |
|            |               | 181    |       | 138  | Right     |               |
|            | Depart 1325   |        |       | 311  | Thru      | Approach 2932 |
|            |               | 833    |       | 2260 | Left      |               |
|            |               |        | N     |      |           |               |
| Total 2433 |               |        | W + E |      |           | Total 5978    |
|            | From West     |        | S     |      | From East |               |
|            |               |        |       |      |           |               |
|            |               | Left   |       | 451  |           |               |
|            |               | 166    |       |      |           |               |
|            | Approach 1108 | Thru   |       | 264  |           | Depart 3046   |
|            |               | 264    |       |      |           |               |
|            |               | Right  |       | 2331 |           |               |
|            |               | 286    |       |      |           |               |
|            |               | Rt/Red |       |      |           |               |
|            |               | 392    |       |      |           |               |

|        |       |       |   |          |      |       |        |
|--------|-------|-------|---|----------|------|-------|--------|
| 678    | 3404  | 2260  | . | 833      | 3474 | 1309  | 1022   |
|        |       |       | . | Left     | Thru | Right | Rt/Red |
|        |       |       | . |          |      |       |        |
| Depart | 6342  |       | . | Approach | 6638 |       |        |
|        | Total | 12980 |   |          |      |       |        |
|        |       |       | . |          |      |       |        |
|        | From  | South |   |          |      |       |        |

MIDDLE RIO GRANDE COG  
Two Vehicle Analysis with Red on Red

Page: 5  
Date: 5/19/200

\*\*\*\*\*  
Location: 025650 Starts : 05/15/00 at 06:45:0  
Notes : LADERA DR - UNSER BD Ends : 05/15/00 at 18:00:0  
Study ID: 00 Interval : 15 min Intervals: 45  
Operator: CM 168 S/N : 168 Type: C,Tr,Ped-rt/red  
Weather : BERNALILLO Correction: 1.00  
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TOTAL INTERSECTION PEAK HOUR ANALYSIS  
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Total Intersection Peak is: Mon May 15 07:00:00 2000

| DIRECTION  | VOLUME |        |      |      |       |       | Peak Factor | PERCENTS |       |       |       |        |
|------------|--------|--------|------|------|-------|-------|-------------|----------|-------|-------|-------|--------|
|            | Peds   | Rt/Red | Left | Thru | Right | Total |             | Rt/Red   | Left  | Thru  | Right | Total  |
| From North | 0      | 1      | 71   | 1143 | 12    | 1227  | 0.88        | 0.1%     | 5.8%  | 93.2% | 1.0%  | 100.0% |
| From South | 0      | 70     | 40   | 227  | 123   | 460   | 0.91        | 15.2%    | 8.7%  | 49.3% | 26.7% | 100.0% |
| From East  | 0      | 12     | 594  | 22   | 15    | 643   | 0.92        | 1.9%     | 92.4% | 3.4%  | 2.3%  | 100.0% |
| From West  | 0      | 64     | 17   | 45   | 122   | 248   | 0.84        | 25.8%    | 6.9%  | 18.1% | 49.2% | 100.0% |
| Totals     | 0      | 147    | 722  | 1437 | 272   | 2578  | 0.91        | 5.7%     | 28.0% | 55.7% | 10.6% | 100.0% |

From North

Total 1498

Approach 1227

Depart 271

Rt/red Right Thru Left

1 12 1143 71 17 227 27

12 Rt/Red

13

15 Right

Depart 75

22

22 Thru Approach 643

40

594 Left

N

W + E

S

Total 323

From West

Total 952

From East

Left 17

71

Approach 248

Thru 45

45

Depart 309

Right 122

193

Rt/Red 64

186 1143 594 40 227 123 70  
Left Thru Right Rt/Red

Depart 1923

Approach 460

Total 2383

From South

MIDDLE RIO GRANDE COG  
Two Vehicle Analysis with Right on Red

Page: 2  
Date: 5/19/200

\*\*\*\*\*  
Location: 025650 Starts : 05/15/00 at 06:45:0  
Notes : LADERA DR - UNSER BD Ends : 05/15/00 at 18:00:0  
Study ID: 00 Interval : 15 min Intervals: 45  
Operator: CM 168 S/N : 168 Type: C,Tr,Ped-rt/red  
Weather : BERNALILLO Correction: 1.00  
\*\*\*\*\*

TOTAL INTERSECTION PEAK HOUR ANALYSIS

Total Intersection Peak is: Mon May 15 12:00:00 2000

| DIRECTION  | VOLUME |        |      |      |       |       | Peak Factor | PERCENTS |       |       |       |        |
|------------|--------|--------|------|------|-------|-------|-------------|----------|-------|-------|-------|--------|
|            | Peds   | Rt/Red | Left | Thru | Right | Total |             | Rt/Red   | Left  | Thru  | Right | Total  |
| From North | 0      | 0      | 42   | 195  | 17    | 254   | 0.81        | 0.0%     | 16.5% | 76.8% | 6.7%  | 100.0% |
| From South | 0      | 97     | 77   | 227  | 107   | 508   | 0.92        | 19.1%    | 15.2% | 44.7% | 21.1% | 100.0% |
| From East  | 0      | 17     | 184  | 36   | 16    | 253   | 0.93        | 6.7%     | 72.7% | 14.2% | 6.3%  | 100.0% |
| From West  | 0      | 32     | 17   | 23   | 18    | 90    | 0.73        | 35.6%    | 18.9% | 25.6% | 20.0% | 100.0% |
| Totals     | 0      | 146    | 320  | 481  | 158   | 1105  | 0.95        | 13.2%    | 29.0% | 43.5% | 14.3% | 100.0% |

From North

Total 531

Approach 254

Depart 277

Rt/red Right Thru Left

0 17 195 42 17 227 33

17 Rt/Red

16 Right

Depart 130

36

36 Thru Approach 253

77

184 Left

N

W + E

S

Total 220

From West

From East

Total 522

Left 17

42

Approach 90

Thru 23

23

Depart 269

Right 18

204

Rt/Red 32

50 195 184 77 227 107 97  
Left Thru Right Rt/Red

Depart 429

Approach 508

Total 937

From South

MIDDLE RIO GRANDE COG  
Two Vehicle Analysis with Right on Red

Page: 2  
Date: 5/19/2000

Location: 025650  
Notes : LADERA DR - UNSER BD  
Study ID: 00  
Operator: CM 168  
Weather : BERNALILLO

Starts : 05/15/00 at 06:45:00  
Ends : 05/15/00 at 18:00:00  
Interval : 15 min Intervals: 45  
S/N : 168 Type: C,Tr,Ped-rt/red  
Correction: 1.00

TOTAL INTERSECTION PEAK HOUR ANALYSIS

Total Intersection Peak is: Mon May 15 17:00:00 2000

| DIRECTION  | VOLUME |        |      |      |       |       | Peak Factor | PERCENTS |       |       |       |        |
|------------|--------|--------|------|------|-------|-------|-------------|----------|-------|-------|-------|--------|
|            | Peds   | Rt/Red | Left | Thru | Right | Total |             | Rt/Red   | Left  | Thru  | Right | Total  |
| From North | 0      | 3      | 69   | 308  | 31    | 411   | 0.83        | 0.7%     | 16.8% | 74.9% | 7.5%  | 100.0% |
| From South | 0      | 186    | 165  | 967  | 291   | 1609  | 0.92        | 11.6%    | 10.3% | 60.1% | 18.1% | 100.0% |
| From East  | 0      | 46     | 212  | 58   | 34    | 350   | 0.84        | 13.1%    | 60.6% | 16.6% | 9.7%  | 100.0% |
| From West  | 0      | 37     | 20   | 38   | 5     | 100   | 0.78        | 37.0%    | 20.0% | 38.0% | 5.0%  | 100.0% |
| Totals     | 0      | 272    | 466  | 1371 | 361   | 2470  | 0.96        | 11.0%    | 18.9% | 55.5% | 14.6% | 100.0% |

From North

Total 1478

Approach 411

Depart 1067

Rt/red Right Thru Left  
3 31 308 69

20 967 80

46 Rt/Red

34 Right

34

58 Thru Approach 350

Depart 257

58

212 Left

165

N

W + E

S

From East

Total 934

Total 357

From West

Left 20

69

Approach 100

Thru 38

38

Depart 584

Right 5

477

Rt/Red 37

42 308 212 165 967 291 186  
Left Thru Right Rt/Red

Depart 562

Approach 1609

Total 2171

From South

**APPENDIX C**  
**YEAR 2000 CAPACITY ANALYSIS**

Unser / Ladera Intersection  
Painted Sky Subdivision

08/10/00  
14:12:29

SIGNAL97/TEAPAC[Ver 1.02.10] - Capacity Analysis Summary

Intersection Averages for Int # 1 - .

Degree of Saturation (v/c) 0.81 Vehicle Delay 43.8 Level of Service D+

| Sq 12<br>**/** | Phase 1                                         | Phase 2                                         | Phase 3                                                      |
|----------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------|
| / \            | + + +<br>+ + +<br><+ + +><br>v                  | ^<br>++++<br><++++<br>++++<br>v                 | ^<br>++++<br><++++<br>^<br>++++<br>+>++++><br>+ +++++<br>+ v |
| North          | <+ + +><br>+ + +<br>+ + +                       | +><br>+<br>+                                    | ++++<br>++++<br>v                                            |
|                | G/C=0.410<br>G= 28.7"<br>Y+R= 5.0"<br>OFF= 0.0% | G/C=0.244<br>G= 17.1"<br>Y+R= 5.0"<br>OFF=48.1% | G/C=0.131<br>G= 9.2"<br>Y+R= 5.0"<br>OFF=79.7%               |

C= 70 sec G= 55.0 sec = 78.6% Y=15.0 sec = 21.4% Ped= 0.0 sec = 0.0%

| Lane<br>Group | Width/<br>Lanes | g/C<br>Reqd Used | Service Rate<br>@C (vph) | Adj<br>@E | Volume<br>v/c | HCM<br>Delay | L<br>S | 90% Max<br>Queue |
|---------------|-----------------|------------------|--------------------------|-----------|---------------|--------------|--------|------------------|
|---------------|-----------------|------------------|--------------------------|-----------|---------------|--------------|--------|------------------|

N Approach

50.8 D

|       |      |       |       |      |      |      |       |      |   |        |
|-------|------|-------|-------|------|------|------|-------|------|---|--------|
| TH+RT | 24/2 | 0.396 | 0.367 | 1201 | 1285 | 1313 | 1.022 | 52.9 | D | 411 ft |
| LT    | 12/1 | 0.160 | 0.367 | 324  | 405  | 81   | 0.200 | 16.2 | B | 51 ft  |

S Approach

13.2 B+

|    |      |       |       |      |      |     |       |      |   |       |
|----|------|-------|-------|------|------|-----|-------|------|---|-------|
| RT | 12/1 | 0.160 | 0.683 | 1056 | 1071 | 135 | 0.126 | 4.1  | A | 42 ft |
| TH | 24/2 | 0.121 | 0.367 | 1203 | 1287 | 249 | 0.193 | 15.4 | B | 78 ft |
| LT | 12/1 | 0.239 | 0.367 | 56   | 93   | 44  | 0.419 | 28.4 | C | 28 ft |

E Approach

48.3 D

|       |      |       |       |     |     |     |       |      |    |        |
|-------|------|-------|-------|-----|-----|-----|-------|------|----|--------|
| TH+RT | 12/1 | 0.082 | 0.404 | 623 | 701 | 40  | 0.057 | 12.9 | B+ | 25 ft  |
| LT    | 24/2 | 0.231 | 0.201 | 534 | 685 | 646 | 0.943 | 50.5 | D  | 255 ft |

W Approach

44.7 D+

|       |      |       |       |     |     |     |       |      |   |       |
|-------|------|-------|-------|-----|-----|-----|-------|------|---|-------|
| TH+RT | 24/2 | 0.116 | 0.089 | 119 | 271 | 199 | 0.718 | 45.9 | D | 90 ft |
| LT    | 12/1 | 0.068 | 0.089 | 31  | 101 | 20  | 0.168 | 32.5 | C | 25 ft |

Unser / Ladera Intersection  
 Painted Sky Subdivision  
 EXISTING PM PEAK HOUR

08/10/00  
 14:25:00

SIGNAL97/TEAPAC[Ver 1.02.10] - Capacity Analysis Summary

Intersection Averages for Int # 1 - .  
 Degree of Saturation (v/c) 0.50 Vehicle Delay 18.2 Level of Service B

| Sq 12<br>**/** | Phase 1   | Phase 2   | Phase 3   |
|----------------|-----------|-----------|-----------|
| .              | +         | ^         | ^         |
| / \            | +         | ++++      | ++++      |
|                | <+ + +>   | <++++     | <++++     |
|                | v         | ++++      | ^         |
|                | ^         | v         | ++++      |
| North          | <+ + +>   | +> ++++>  |           |
|                | +         | +         | ++++      |
|                | +         | +         | v         |
| -----          |           |           |           |
|                | G/C=0.541 | G/C=0.139 | G/C=0.106 |
|                | G= 37.9"  | G= 9.7"   | G= 7.4"   |
|                | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" |
|                | OFF= 0.0% | OFF=61.3% | OFF=82.3% |

C= 70 sec G= 55.0 sec = 78.6% Y=15.0 sec = 21.4% Ped= 0.0 sec = 0.0%

| Lane Group | Width/<br>Lanes | g/C   |       | Service Rate |      | Adj    |       | HCM   | L    | 90% Max |
|------------|-----------------|-------|-------|--------------|------|--------|-------|-------|------|---------|
|            |                 | Reqd  | Used  | @C (vph)     | @E   | Volume | v/c   | Delay | S    | Queue   |
| N Approach |                 |       |       |              |      |        |       |       | 11.7 | B+      |
| TH+RT      | 24/2            | 0.170 | 0.499 | 1690         | 1721 | 422    | 0.245 | 10.4  | B+   | 105 ft  |
| LT         | 12/1            | 0.363 | 0.499 | 144          | 195  | 85     | 0.434 | 18.1  | B    | 42 ft   |
| S Approach |                 |       |       |              |      |        |       |       | 11.7 | B+      |
| RT         | 12/1            | 0.324 | 0.709 | 1102         | 1111 | 413    | 0.372 | 5.0   | A    | 119 ft  |
| TH         | 24/2            | 0.329 | 0.499 | 1717         | 1747 | 1051   | 0.602 | 14.1  | B+   | 261 ft  |
| LT         | 12/1            | 0.285 | 0.499 | 405          | 465  | 179    | 0.385 | 13.3  | B+   | 89 ft   |
| E Approach |                 |       |       |              |      |        |       |       | 46.5 | D       |
| TH+RT      | 12/1            | 0.168 | 0.273 | 357          | 464  | 165    | 0.356 | 22.6  | C+   | 119 ft  |
| LT         | 24/2            | 0.135 | 0.096 | 156          | 323  | 290    | 0.892 | 60.1  | E+   | 130 ft  |
| W Approach |                 |       |       |              |      |        |       |       | 34.4 | C       |
| TH+RT      | 24/2            | 0.057 | 0.063 | 65           | 200  | 52     | 0.244 | 33.9  | C    | 25 ft   |
| LT         | 12/1            | 0.066 | 0.063 | 20           | 86   | 22     | 0.210 | 35.6  | D+   | 25 ft   |

**APPENDIX D**  
**YEAR 2005 NO-BUILD CAPACITY ANALYSIS**

# HCS: Signals Release 3.1a

Inter: UNSER/LADERA  
Analyst: JAW  
Date: 8/10/00  
E/W St: LADERA

City/St: ALBUQUERQUE, NM  
Proj #:  
Period: 2005 AM PEAK HOUR no build  
N/S St: UNSER

## SIGNALIZED INTERSECTION SUMMARY

|            | Eastbound |      |     | Westbound |      |    | Northbound |      |      | Southbound |      |    |
|------------|-----------|------|-----|-----------|------|----|------------|------|------|------------|------|----|
|            | L         | T    | R   | L         | T    | R  | L          | T    | R    | L          | T    | R  |
| No. Lanes  | 1         | 2    | 0   | 2         | 1    | 0  | 1          | 2    | 1    | 1          | 2    | 0  |
| LGConfig   | L         | TR   |     | L         | TR   |    | L          | T    | R    | L          | TR   |    |
| Volume     | 26        | 70   | 288 | 921       | 34   | 42 | 62         | 352  | 299  | 110        | 1772 | 20 |
| Lane Width | 12.0      | 12.0 |     | 12.0      | 12.0 |    | 12.0       | 12.0 | 12.0 | 12.0       | 12.0 |    |
| RTOR Vol   |           |      | 100 |           |      | 10 |            |      | 100  |            |      | 2  |

Duration 0.25 Area Type: All other areas

### Signal Operations

| Phase Combination |       | 1    | 2    | 3 | 4 | 5  | 6     | 7    | 8 |
|-------------------|-------|------|------|---|---|----|-------|------|---|
| EB                | Left  | P    | P    |   |   | NB | Left  | P    |   |
|                   | Thru  |      | P    |   |   |    | Thru  | P    |   |
|                   | Right |      | P    |   |   |    | Right | P    |   |
|                   | Peds  |      | X    |   |   |    | Ped   | X    |   |
| WB                | Left  | P    | P    |   |   | SB | Left  | P    |   |
|                   | Thru  |      | P    |   |   |    | Thru  | P    |   |
|                   | Right |      | P    |   |   |    | Right | P    |   |
|                   | Peds  |      | X    |   |   |    | Ped   | X    |   |
| NB                | Right | P    |      |   |   | EB | Right |      |   |
| SB                | Right |      |      |   |   | WB | Right |      |   |
| Green             |       | 17.0 | 14.0 |   |   |    |       | 44.0 |   |
| Yellow            |       | 5.0  | 5.0  |   |   |    |       | 5.0  |   |
| All Red           |       | 0.0  | 0.0  |   |   |    |       | 0.0  |   |
| Cycle Length:     |       | 90.0 | secs |   |   |    |       |      |   |

# Intersection Performance Summary

| Appr/<br>Lane<br>Grp | Lane<br>Group<br>Capacity | Adj Sat<br>Flow Rate<br>(s) | Ratios |     | Lane Group |     | Approach |     |
|----------------------|---------------------------|-----------------------------|--------|-----|------------|-----|----------|-----|
|                      |                           |                             | v/c    | g/C | Delay      | LOS | Delay    | LOS |

## Eastbound

|    |     |      |      |       |      |   |      |   |
|----|-----|------|------|-------|------|---|------|---|
| L  | 503 |      | 0.06 | 0.368 | 18.6 | B |      |   |
| TR | 382 | 3122 | 0.75 | 0.122 | 51.0 | D | 48.0 | D |

## Westbound

|    |     |      |      |       |       |   |       |   |
|----|-----|------|------|-------|-------|---|-------|---|
| L  | 823 |      | 1.24 | 0.367 | 149.1 | F |       |   |
| TR | 209 | 1710 | 0.35 | 0.122 | 40.9  | D | 141.8 | F |

## Northbound

|   |      |      |      |       |      |   |      |   |
|---|------|------|------|-------|------|---|------|---|
| L | 82   | 180  | 0.84 | 0.456 | 83.9 | F |      |   |
| T | 1597 | 3505 | 0.24 | 0.456 | 15.4 | B | 19.0 | B |
| R | 1098 | 1568 | 0.20 | 0.700 | 5.1  | A |      |   |

## Southbound

|    |      |      |      |       |       |   |       |   |
|----|------|------|------|-------|-------|---|-------|---|
| L  | 438  | 961  | 0.28 | 0.456 | 16.9  | B |       |   |
| TR | 1594 | 3500 | 1.25 | 0.456 | 141.4 | F | 134.2 | F |

Intersection Delay = 111.1 (sec/veh)      Intersection LOS = F

HCS: Signals Release 3.1a

Jeanette Walther  
Bohannon-Huston, Inc.

Phone:  
E-Mail:

Fax:

## OPERATIONAL ANALYSIS

|                          |                            |
|--------------------------|----------------------------|
| Intersection:            | UNSER/LADERA               |
| City/State:              | ALBUQUERQUE, NM            |
| Analyst:                 | JAW                        |
| Project No:              |                            |
| Time Period Analyzed:    | 2005 AM PEAK HOUR no build |
| Date:                    | 8/10/00                    |
| East/West Street Name:   | LADERA                     |
| North/South Street Name: | UNSER                      |

# HCS: Signals Release 3.1a

Inter: UNSER/LADERA  
Analyst: JAW  
Date: 8/10/00  
E/W St: LADERA

City/St: ALBUQUERQUE, NM  
Proj #:  
Period: 2005 PM PEAK HOUR no build  
N/S St: UNSER

## SIGNALIZED INTERSECTION SUMMARY

|            | Eastbound |      |    | Westbound |      |     | Northbound |      |      | Southbound |      |    |
|------------|-----------|------|----|-----------|------|-----|------------|------|------|------------|------|----|
|            | L         | T    | R  | L         | T    | R   | L          | T    | R    | L          | T    | R  |
| No. Lanes  | 1         | 2    | 0  | 2         | 1    | 0   | 1          | 2    | 1    | 1          | 2    | 0  |
| LGConfig   | L         | TR   |    | L         | TR   |     | L          | T    | R    | L          | TR   |    |
| Volume     | 31        | 59   | 65 | 329       | 90   | 124 | 256        | 1499 | 789  | 107        | 477  | 53 |
| Lane Width | 12.0      | 12.0 |    | 12.0      | 12.0 |     | 12.0       | 12.0 | 12.0 | 12.0       | 12.0 |    |
| RTOR Vol   |           |      | 20 |           |      | 30  |            |      | 300  |            |      | 15 |

Duration 0.25 Area Type: All other areas

### Signal Operations

| Phase Combination |       | 1    | 2    | 3 | 4 | 5  | 6     | 7 | 8 |
|-------------------|-------|------|------|---|---|----|-------|---|---|
| EB                | Left  |      | P    |   |   | NB | Left  | P |   |
|                   | Thru  |      | P    |   |   |    | Thru  | P |   |
|                   | Right |      | P    |   |   |    | Right | P |   |
|                   | Peds  |      | X    |   |   |    | Ped   | X |   |
| WB                | Left  | P    | P    |   |   | SB | Left  | P |   |
|                   | Thru  |      | P    |   |   |    | Thru  | P |   |
|                   | Right |      | P    |   |   |    | Right | P |   |
|                   | Peds  |      | X    |   |   |    | Ped   | X |   |
| NB                | Right | P    |      |   |   | EB | Right |   |   |
| SB                | Right |      |      |   |   | WB | Right |   |   |
| Green             |       | 17.0 | 14.0 |   |   |    | 44.0  |   |   |
| Yellow            |       | 5.0  | 5.0  |   |   |    | 5.0   |   |   |
| All Red           |       | 0.0  | 0.0  |   |   |    | 0.0   |   |   |
| Cycle Length:     |       | 90.0 | secs |   |   |    |       |   |   |

# Intersection Performance Summary

| Appr/<br>Lane<br>Grp | Lane<br>Group<br>Capacity | Adj Sat<br>Flow Rate<br>(s) | Ratios |       | Lane Group |     | Approach |     |
|----------------------|---------------------------|-----------------------------|--------|-------|------------|-----|----------|-----|
|                      |                           |                             | v/c    | g/C   | Delay      | LOS | Delay    | LOS |
|                      |                           |                             |        |       |            |     |          |     |
| Eastbound            |                           |                             |        |       |            |     |          |     |
| L                    | 394                       |                             | 0.09   | 0.368 | 19.3       | B   |          |     |
| TR                   | 401                       | 3278                        | 0.29   | 0.122 | 37.8       | D   | 33.6     | C   |
| Westbound            |                           |                             |        |       |            |     |          |     |
| L                    | 844                       |                             | 0.43   | 0.367 | 21.9       | C   |          |     |
| TR                   | 208                       | 1704                        | 0.98   | 0.122 | 97.0       | F   | 48.8     | D   |
| Northbound           |                           |                             |        |       |            |     |          |     |
| L                    | 356                       | 782                         | 0.80   | 0.456 | 37.8       | D   |          |     |
| T                    | 1597                      | 3505                        | 1.04   | 0.456 | 59.2       | E   | 45.6     | D   |
| R                    | 1098                      | 1568                        | 0.49   | 0.700 | 7.8        | A   |          |     |
| Southbound           |                           |                             |        |       |            |     |          |     |
| L                    | 82                        | 180                         | 1.45   | 0.456 | 283.0      | F   |          |     |
| TR                   | 1579                      | 3466                        | 0.36   | 0.456 | 16.6       | B   | 62.5     | E   |

Intersection Delay = 48.6 (sec/veh)      Intersection LOS = D

HCS: Signals Release 3.1a

Jeanette Walther  
Bohannon-Huston, Inc.

Phone:  
E-Mail:

Fax:

## OPERATIONAL ANALYSIS

Intersection: UNSER/LADERA  
City/State: ALBUQUERQUE, NM  
Analyst: JAW  
Project No:  
Time Period Analyzed: 2005 PM PEAK HOUR no build  
Date: 8/10/00  
East/West Street Name: LADERA  
North/South Street Name: UNSER

VOLUME DATA

|             | Eastbound |      |      | Westbound |      |      | Northbound |      |      | Southbound |      |      |
|-------------|-----------|------|------|-----------|------|------|------------|------|------|------------|------|------|
|             | L         | T    | R    | L         | T    | R    | L          | T    | R    | L          | T    | R    |
| Volume      | 31        | 59   | 65   | 329       | 90   | 124  | 256        | 1499 | 789  | 107        | 477  | 53   |
| PHF         | 0.90      | 0.90 | 0.90 | 0.90      | 0.90 | 0.90 | 0.90       | 0.90 | 0.90 | 0.90       | 0.90 | 0.90 |
| PK 15 Vol   | 9         | 16   | 18   | 91        | 25   | 34   | 71         | 416  | 219  | 30         | 133  | 15   |
| Hi Ln Vol   |           |      |      |           |      |      |            |      |      |            |      |      |
| % Grade     |           | 0    |      |           | 0    |      |            | 0    |      |            | 0    |      |
| Ideal Sat   | 1900      | 1900 |      | 1900      | 1900 |      | 1900       | 1900 | 1900 | 1900       | 1900 |      |
| ParkExist   |           |      |      |           |      |      |            |      |      |            |      |      |
| NumPark     |           |      |      |           |      |      |            |      |      |            |      |      |
| % Heavy Veh | 3         | 3    | 3    | 3         | 3    | 3    | 3          | 3    | 3    | 3          | 3    | 3    |
| No. Lanes   | 1         | 2    | 0    | 2         | 1    | 0    | 1          | 2    | 1    | 1          | 2    | 0    |
| LGConfig    | L         | TR   |      | L         | TR   |      | L          | T    | R    | L          | TR   |      |
| Lane Width  | 12.0      | 12.0 |      | 12.0      | 12.0 |      | 12.0       | 12.0 | 12.0 | 12.0       | 12.0 |      |
| RTOR Vol    |           |      | 20   |           |      | 30   |            |      | 300  |            |      | 15   |
| Adj Flow    | 34        | 116  |      | 366       | 204  |      | 284        | 1666 | 543  | 119        | 572  |      |
| %InSharedLn |           |      |      |           |      |      |            |      |      |            |      |      |
| Prop Turns  |           |      | 0.43 |           |      | 0.51 |            |      |      |            |      | 0.07 |
| NumPeds     |           |      | 0    |           |      | 0    |            |      | 0    |            |      | 0    |
| NumBus      | 0         | 0    |      | 0         | 0    |      | 0          | 0    | 0    | 0          | 0    |      |

Duration 0.25 Area Type: All other areas

# OPERATING PARAMETERS

|             | Eastbound |       |   |  | Westbound |       |   |  | Northbound |       |     |  | Southbound |       |   |
|-------------|-----------|-------|---|--|-----------|-------|---|--|------------|-------|-----|--|------------|-------|---|
|             | L         | T     | R |  | L         | T     | R |  | L          | T     | R   |  | L          | T     | R |
| Init Unmet  | 0.0       | 0.0   |   |  | 0.0       | 0.0   |   |  | 0.0        | 0.0   | 0.0 |  | 0.0        | 0.0   |   |
| Arriv. Type | 3         | 3     |   |  | 3         | 3     |   |  | 3          | 3     | 3   |  | 3          | 3     |   |
| Unit Ext.   | 3.0       | 3.0   |   |  | 3.0       | 3.0   |   |  | 3.0        | 3.0   | 3.0 |  | 3.0        | 3.0   |   |
| I Factor    |           | 1.000 |   |  |           | 1.000 |   |  |            | 1.000 |     |  |            | 1.000 |   |
| Lost Time   | 5.0       | 5.0   |   |  | 5.0       | 5.0   |   |  | 5.0        | 5.0   | 5.0 |  | 5.0        | 5.0   |   |
| Ext of g    | 2.1       | 2.0   |   |  | 2.0       | 2.0   |   |  | 2.0        | 2.0   | 2.0 |  | 2.0        | 2.0   |   |
| Ped Min g   |           | 0.0   |   |  |           | 0.0   |   |  |            | 0.0   |     |  |            | 0.0   |   |

## PHASE DATA

| Phase Combination |       | 1    | 2    | 3 | 4 |  | 5  | 6     | 7 | 8 |
|-------------------|-------|------|------|---|---|--|----|-------|---|---|
| EB                | Left  |      | P    | P |   |  | NB | Left  | P |   |
|                   | Thru  |      |      | P |   |  |    | Thru  | P |   |
|                   | Right |      |      | P |   |  |    | Right | P |   |
|                   | Peds  |      |      | X |   |  |    | Ped   | X |   |
| WB                | Left  |      | P    | P |   |  | SB | Left  | P |   |
|                   | Thru  |      |      | P |   |  |    | Thru  | P |   |
|                   | Right |      |      | P |   |  |    | Right | P |   |
|                   | Peds  |      |      | X |   |  |    | Ped   | X |   |
| NB                | Right |      | P    |   |   |  | EB | Right |   |   |
| SB                | Right |      |      |   |   |  | WB | Right |   |   |
| Green             |       | 17.0 | 14.0 |   |   |  |    | 44.0  |   |   |
| Yellow            |       | 5.0  | 5.0  |   |   |  |    | 5.0   |   |   |
| All Red           |       | 0.0  | 0.0  |   |   |  |    | 0.0   |   |   |
| Cycle Length:     |       | 90.0 | secs |   |   |  |    |       |   |   |

# Intersection Performance Summary

| Intersection Performance Summary |                           |                             |        |       |            |     |          |     |
|----------------------------------|---------------------------|-----------------------------|--------|-------|------------|-----|----------|-----|
| Appr/<br>Lane<br>Grp             | Lane<br>Group<br>Capacity | Adj Sat<br>Flow Rate<br>(s) | Ratios |       | Lane Group |     | Approach |     |
|                                  |                           |                             | v/c    | g/C   | Delay      | LOS | Delay    | LOS |
| Eastbound                        |                           |                             |        |       |            |     |          |     |
| L                                | 209                       | 1315                        | 0.14   | 0.159 | 33.2       | C   | 42.4     | D   |
| T                                | 294                       | 1845                        | 0.27   | 0.159 | 34.7       | C   |          |     |
| R                                | 249                       | 1568                        | 0.66   | 0.159 | 47.6       | D   |          |     |
| Westbound                        |                           |                             |        |       |            |     |          |     |
| L                                | 1012                      |                             | 1.01   | 0.432 | 61.5       | E   | 58.6     | E   |
| TR                               | 744                       | 1723                        | 0.09   | 0.432 | 15.0       | B   |          |     |
| Northbound                       |                           |                             |        |       |            |     |          |     |
| L                                | 721                       | 1866                        | 0.10   | 0.386 | 17.5       | B   | 15.5     | B   |
| T                                | 1354                      | 3505                        | 0.29   | 0.386 | 19.2       | B   |          |     |
| R                                | 1033                      | 1568                        | 0.16   | 0.659 | 6.1        | A   |          |     |
| Southbound                       |                           |                             |        |       |            |     |          |     |
| L                                | 371                       | 961                         | 0.33   | 0.386 | 21.3       | C   | 51.4     | D   |
| TR                               | 1943                      | 5029                        | 1.02   | 0.386 | 53.2       | D   |          |     |

Intersection Delay = 47.2 (sec/veh) Intersection LOS = D

HCS: Signals Release 3.1a

Jeanette Walther  
Bohannon-Huston, Inc.

Phone:  
E-Mail:

Fax:

## OPERATIONAL ANALYSIS

Intersection:  
City/State:  
Analyst:  
Project No:  
Time Period Analyzed: AM 2005 NO BUILD  
Date: 8/10/00  
East/West Street Name: LADERA  
North/South Street Name: UNSER

# VOLUME DATA

|             | Eastbound |      |      | Westbound |      |      | Northbound |      |      | Southbound |      |      |
|-------------|-----------|------|------|-----------|------|------|------------|------|------|------------|------|------|
|             | L         | T    | R    | L         | T    | R    | L          | T    | R    | L          | T    | R    |
| Volume      | 26        | 70   | 288  | 921       | 34   | 42   | 62         | 352  | 299  | 110        | 1772 | 20   |
| PHF         | 0.90      | 0.90 | 0.90 | 0.90      | 0.90 | 0.90 | 0.90       | 0.90 | 0.90 | 0.90       | 0.90 | 0.90 |
| PK 15 Vol   | 7         | 19   | 80   | 256       | 9    | 12   | 17         | 98   | 83   | 31         | 492  | 6    |
| Hi Ln Vol   |           |      |      |           |      |      |            |      |      |            |      |      |
| % Grade     |           | 0    |      |           | 0    |      |            | 0    |      |            | 0    |      |
| Ideal Sat   | 1900      | 1900 | 1900 | 1900      | 1900 |      | 1900       | 1900 | 1900 | 1900       | 1900 |      |
| ParkExist   |           |      |      |           |      |      |            |      |      |            |      |      |
| NumPark     |           |      |      |           |      |      |            |      |      |            |      |      |
| % Heavy Veh | 3         | 3    | 3    | 3         | 3    | 3    | 3          | 3    | 3    | 3          | 3    | 3    |
| No. Lanes   | 1         | 1    | 1    | 2         | 1    | 0    | 2          | 2    | 1    | 1          | 3    | 0    |
| LGConfig    | L         | T    | R    | L         | TR   |      | L          | T    | R    | L          | TR   |      |
| Lane Width  | 12.0      | 12.0 | 12.0 | 12.0      | 12.0 |      | 12.0       | 12.0 | 12.0 | 12.0       | 12.0 |      |
| RTOR Vol    |           |      | 140  |           |      | 15   |            |      | 150  |            |      | 5    |
| Adj Flow    | 29        | 78   | 164  | 1023      | 68   |      | 69         | 391  | 166  | 122        | 1986 |      |
| %InSharedLn |           |      |      |           |      |      |            |      |      |            |      |      |
| Prop Turns  |           |      |      |           |      | 0.44 |            |      |      |            |      | 0.01 |
| NumPeds     |           |      | 0    |           |      | 0    |            |      | 0    |            |      | 0    |
| NumBus      | 0         | 0    | 0    | 0         | 0    |      | 0          | 0    | 0    | 0          | 0    |      |

Duration 0.25 Area Type: All other areas

# OPERATING PARAMETERS

|             | Eastbound |       |     | Westbound |       |   | Northbound |       |     | Southbound |       |   |
|-------------|-----------|-------|-----|-----------|-------|---|------------|-------|-----|------------|-------|---|
|             | L         | T     | R   | L         | T     | R | L          | T     | R   | L          | T     | R |
| Init Unmet  | 0.0       | 0.0   | 0.0 | 0.0       | 0.0   |   | 0.0        | 0.0   | 0.0 | 0.0        | 0.0   |   |
| Arriv. Type | 3         | 3     | 3   | 3         | 3     |   | 3          | 3     | 3   | 3          | 3     |   |
| Unit Ext.   | 3.0       | 3.0   | 3.0 | 3.0       | 3.0   |   | 3.0        | 3.0   | 3.0 | 3.0        | 3.0   |   |
| I Factor    |           | 1.000 |     |           | 1.000 |   |            | 1.000 |     |            | 1.000 |   |
| Lost Time   | 5.0       | 5.0   | 5.0 | 5.0       | 5.0   |   | 5.0        | 5.0   | 5.0 | 5.0        | 5.0   |   |
| Ext of g    | 2.0       | 2.0   | 2.0 | 2.0       | 2.0   |   | 2.0        | 2.0   | 2.0 | 2.0        | 2.0   |   |
| Ped Min g   |           | 0.0   |     |           | 0.0   |   |            | 0.0   |     |            | 0.0   |   |

## PHASE DATA

| Phase Combination |       | 1    | 2    | 3 | 4 | 5  | 6     | 7 | 8 |
|-------------------|-------|------|------|---|---|----|-------|---|---|
| EB                | Left  |      | P    |   |   | NB | Left  | P |   |
|                   | Thru  |      | P    |   |   |    | Thru  | P |   |
|                   | Right |      | P    |   |   |    | Right | P |   |
|                   | Peds  |      | X    |   |   |    | Ped   | X |   |
| WB                | Left  |      | P    | P |   | SB | Left  | P |   |
|                   | Thru  |      | P    | P |   |    | Thru  | P |   |
|                   | Right |      | P    | P |   |    | Right | P |   |
|                   | Peds  |      |      | X |   |    | Ped   | X |   |
| NB                | Right |      | P    |   |   | EB | Right |   |   |
| SB                | Right |      |      |   |   | WB | Right |   |   |
| Green             |       | 19.0 | 17.0 |   |   |    |       |   |   |
| Yellow            |       | 5.0  | 5.0  |   |   |    | 37.0  |   |   |
| All Red           |       | 0.0  | 0.0  |   |   |    | 5.0   |   |   |
|                   |       |      |      |   |   |    | 0.0   |   |   |

Cycle Length: 88.0 secs

## SCENARIO 2

HCS: Signals Release 3.1a

Inter:  
 Analyst:  
 Date: 8/10/00  
 E/W St: LADERA

City/St:  
 Proj #:  
 Period: PM 2005 NO BUILD  
 N/S St: UNSER

## SIGNALIZED INTERSECTION SUMMARY

|            | Eastbound |      |      | Westbound |      |     | Northbound |      |      | Southbound |      |    |
|------------|-----------|------|------|-----------|------|-----|------------|------|------|------------|------|----|
|            | L         | T    | R    | L         | T    | R   | L          | T    | R    | L          | T    | R  |
| No. Lanes  | 1         | 1    | 1    | 2         | 1    | 0   | 2          | 2    | 1    | 1          | 3    | 0  |
| LGConfig   | L         | T    | R    | L         | TR   |     | L          | T    | R    | L          | TR   |    |
| Volume     | 31        | 59   | 65   | 329       | 90   | 124 | 256        | 1499 | 789  | 107        | 477  | 53 |
| Lane Width | 12.0      | 12.0 | 12.0 | 12.0      | 12.0 |     | 12.0       | 12.0 | 12.0 | 12.0       | 12.0 |    |
| RTOR Vol   |           |      | 30   |           |      | 20  |            |      | 300  |            |      | 5  |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination |       | 1     | 2    | 3 | 4 | 5        | 6    | 7    | 8 |
|-------------------|-------|-------|------|---|---|----------|------|------|---|
| EB                | Left  |       | P    |   |   | NB Left  | P    | P    |   |
|                   | Thru  |       | P    |   |   | Thru     |      | P    |   |
|                   | Right |       | P    |   |   | Right    |      | P    |   |
|                   | Peds  |       | X    |   |   | Ped      |      | X    |   |
| WB                | Left  | P     | P    |   |   | SB Left  | P    | P    |   |
|                   | Thru  | P     | P    |   |   | Thru     |      | P    |   |
|                   | Right | P     | P    |   |   | Right    |      | P    |   |
|                   | Peds  |       | X    |   |   | Ped      |      | X    |   |
| NB                | Right | P     |      |   |   | EB Right |      |      |   |
| SB                | Right |       |      |   |   | WB Right |      |      |   |
| Green             |       | 10.0  | 15.0 |   |   |          | 10.0 | 55.0 |   |
| Yellow            |       | 5.0   | 5.0  |   |   |          | 5.0  | 5.0  |   |
| All Red           |       | 0.0   | 0.0  |   |   |          | 0.0  | 0.0  |   |
| Cycle Length:     |       | 110.0 | secs |   |   |          |      |      |   |

# Intersection Performance Summary

| Appr/<br>Lane<br>Grp | Lane<br>Group<br>Capacity | Adj Sat<br>Flow Rate<br>(s) | Ratios |       | Lane Group |     | Approach |     |
|----------------------|---------------------------|-----------------------------|--------|-------|------------|-----|----------|-----|
|                      |                           |                             | v/c    | g/C   | Delay      | LOS | Delay    | LOS |
|                      |                           |                             |        |       |            |     |          |     |
| Eastbound            |                           |                             |        |       |            |     |          |     |
| L                    | 125                       | 1149                        | 0.27   | 0.109 | 50.3       | D   |          |     |
| T                    | 201                       | 1845                        | 0.33   | 0.109 | 49.6       | D   | 49.3     | D   |
| R                    | 171                       | 1568                        | 0.23   | 0.109 | 47.9       | D   |          |     |
| Westbound            |                           |                             |        |       |            |     |          |     |
| L                    | 496                       |                             | 0.74   | 0.245 | 48.0       | D   |          |     |
| TR                   | 416                       | 1696                        | 0.52   | 0.245 | 40.5       | D   | 45.2     | D   |
| Northbound           |                           |                             |        |       |            |     |          |     |
| L                    | 527                       |                             | 0.54   | 0.609 | 13.5       | B   |          |     |
| T                    | 1657                      | 3505                        | 1.01   | 0.473 | 52.4       | D   | 39.9     | D   |
| R                    | 955                       | 1568                        | 0.57   | 0.609 | 15.3       | B   |          |     |
| Southbound           |                           |                             |        |       |            |     |          |     |
| L                    | 178                       |                             | 0.67   | 0.609 | 41.4       | D   |          |     |
| TR                   | 2348                      | 4967                        | 0.25   | 0.473 | 17.6       | B   | 21.6     | C   |

Intersection Delay = 37.8 (sec/veh) Intersection LOS = D

HCS: Signals Release 3.1a

Jeanette Walther  
Bohannon-Huston, Inc.

Phone:  
E-Mail:

Fax:

## OPERATIONAL ANALYSIS

Intersection:  
City/State:  
Analyst:  
Project No:  
Time Period Analyzed: PM 2005 NO BUILD  
Date: 8/10/00  
East/West Street Name: LADERA  
North/South Street Name: UNSER

## \_VOLUME DATA

[illegible]

# OPERATING PARAMETERS

|             | Eastbound |       |     | Westbound |       |   | Northbound |       |     | Southbound |       |   |
|-------------|-----------|-------|-----|-----------|-------|---|------------|-------|-----|------------|-------|---|
|             | L         | T     | R   | L         | T     | R | L          | T     | R   | L          | T     | R |
| Init Unmet  | 0.0       | 0.0   | 0.0 | 0.0       | 0.0   |   | 0.0        | 0.0   | 0.0 | 0.0        | 0.0   |   |
| Arriv. Type | 3         | 3     | 3   | 3         | 3     |   | 3          | 3     | 3   | 3          | 3     |   |
| Unit Ext.   | 3.0       | 3.0   | 3.0 | 3.0       | 3.0   |   | 3.0        | 3.0   | 3.0 | 3.0        | 3.0   |   |
| I Factor    |           | 1.000 |     |           | 1.000 |   |            | 1.000 |     |            | 1.000 |   |
| Lost Time   | 5.0       | 5.0   | 5.0 | 5.0       | 5.0   |   | 5.0        | 5.0   | 5.0 | 5.0        | 5.0   |   |
| Ext of g    | 2.0       | 2.0   | 2.0 | 2.0       | 2.0   |   | 2.0        | 2.0   | 2.0 | 2.0        | 2.0   |   |
| Ped Min g   |           | 0.0   |     |           | 0.0   |   |            | 0.0   |     |            | 0.0   |   |

## PHASE DATA

| Phase Combination |       | 1    | 2    | 3 | 4 | 5  | 6     | 7    | 8    |
|-------------------|-------|------|------|---|---|----|-------|------|------|
| EB                | Left  |      | P    |   |   | NB | Left  | P    | P    |
|                   | Thru  |      | P    |   |   |    | Thru  |      | P    |
|                   | Right |      | P    |   |   |    | Right |      | P    |
|                   | Peds  |      | X    |   |   |    | Ped   |      | X    |
| WB                | Left  |      | P    | P |   | SB | Left  | P    | P    |
|                   | Thru  |      | P    | P |   |    | Thru  |      | P    |
|                   | Right |      | P    | P |   |    | Right |      | P    |
|                   | Peds  |      |      | X |   |    | Ped   |      | X    |
| NB                | Right |      | P    |   |   | EB | Right |      |      |
| SB                | Right |      |      |   |   | WB | Right |      |      |
| Green             |       | 10.0 | 15.0 |   |   |    |       | 10.0 | 55.0 |
| Yellow            |       | 5.0  | 5.0  |   |   |    |       | 5.0  | 5.0  |
| All Red           |       | 0.0  | 0.0  |   |   |    |       | 0.0  | 0.0  |

Cycle Length: 110.0 secs

Unser / Ladera Intersection  
 Painted Sky Subdivision  
 YEAR 2005 AM PEAK HOUR - NO-BUILD

09/25/00  
 11:31:28

SIGNAL97/TEAPAC[Ver 1.02.14] - Capacity Analysis Summary

Intersection Averages for Int # 1 - Unser & Ladera  
 Degree of Saturation (v/c) 0.79 Vehicle Delay 47.9 Level of Service D

| Sq 44<br>**/** | Phase 1   | Phase 2   | Phase 3   | Phase 4   |
|----------------|-----------|-----------|-----------|-----------|
| .              | +         | * * +     |           | ^         |
| / \            | +         | * * +     |           | ++++      |
|                | >         | <* * +>   |           | <++++     |
|                |           | v         | ^         | ^         |
| North          | <+        | <+ + +>   | ++++ v    | ++++      |
|                | **** +    | + + +     | +>        | ++++>     |
|                | v +       | + + +     | + +       | ****      |
|                |           |           |           | v         |
|                | G/C=0.045 | G/C=0.338 | G/C=0.351 | G/C=0.099 |
|                | G= 5.4"   | G= 40.6"  | G= 42.1"  | G= 11.9"  |
|                | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" |
|                | OFF= 0.0% | OFF= 8.6% | OFF=46.6% | OFF=85.9% |

C=120 sec G=100.0 sec = 83.3% Y=20.0 sec = 16.7% Ped= 0.0 sec = 0.0%

| Lane  | Width/ | g/C  |      | Service Rate |    | Adj    |     | HCM   | L | 90% Max |
|-------|--------|------|------|--------------|----|--------|-----|-------|---|---------|
| Group | Lanes  | Reqd | Used | @C (vph)     | @E | Volume | v/c | Delay | S | Queue   |

N Approach

49.2 D

|       |      |       |       |      |      |      |       |      |    |        |
|-------|------|-------|-------|------|------|------|-------|------|----|--------|
| TH+RT | 48/4 | 0.381 | 0.313 | 1127 | 2101 | 1980 | 0.942 | 50.2 | *D | 577 ft |
| LT    | 12/1 | 0.010 | 0.020 | 153  | 307  | 122  | 0.382 | 31.7 | C  | 124 ft |

S Approach

27.6 C

|    |      |       |       |      |      |     |       |      |    |        |
|----|------|-------|-------|------|------|-----|-------|------|----|--------|
| RT | 12/1 | 0.319 | 0.706 | 1063 | 1107 | 216 | 0.195 | 6.4  | A  | 108 ft |
| TH | 24/2 | 0.290 | 0.313 | 539  | 1098 | 383 | 0.349 | 32.6 | C  | 223 ft |
| LT | 12/1 | 0.052 | 0.020 | 28   | 75   | 67  | 0.698 | 66.9 | E+ | 68 ft  |

E Approach

53.1 D

|       |      |       |       |     |      |      |       |      |    |        |
|-------|------|-------|-------|-----|------|------|-------|------|----|--------|
| TH+RT | 24/2 | 0.246 | 0.074 | 1   | 200  | 66   | 0.270 | 55.2 | E+ | 52 ft  |
| LT    | 24/2 | 0.399 | 0.326 | 600 | 1108 | 1023 | 0.923 | 52.9 | *D | 585 ft |

W Approach

65.8 E+

|    |      |       |       |     |     |     |       |      |    |        |
|----|------|-------|-------|-----|-----|-----|-------|------|----|--------|
| RT | 12/1 | 0.313 | 0.161 | 1   | 219 | 202 | 0.802 | 71.5 | *E | 288 ft |
| TH | 12/1 | 0.259 | 0.074 | 1   | 96  | 75  | 0.547 | 68.4 | E  | 118 ft |
| LT | 12/1 | 0.106 | 0.326 | 591 | 732 | 28  | 0.038 | 17.4 | B  | 25 ft  |

Add 2 SB Thru - Re-stripe West Approach  
PM Peak - No Build

09/06/00  
16:53:23

SIGNAL97/TEAPAC[Ver 1.02.14] - Capacity Analysis Summary

Intersection Averages for Int # 1 - Unser & Ladera

Degree of Saturation (v/c) 0.70 Vehicle Delay 32.7 Level of Service C

| Sq 48<br>**/** | Phase 1   | Phase 2   | Phase 3   | Phase 4   | Phase 5   |
|----------------|-----------|-----------|-----------|-----------|-----------|
| .              | *         | +         | ^         | ^         |           |
| / \            | *         | +         | ++++      | ++++      |           |
|                | *>        | <+ + +>   | <++++     | <++++     |           |
|                |           | v         | ****      | ^         | ^         |
| North          | <+        | <+ * +>   | v         | ++++      | ****      |
|                | ++++ +    | + * +     | +>        | ****>     | ++++>     |
|                | v +       | + * +     | +         | ++++      | ++++      |
|                |           |           | +         | v         | v         |
|                | G/C=0.059 | G/C=0.502 | G/C=0.166 | G/C=0.021 | G/C=0.044 |
|                | G= 7.1"   | G= 60.2"  | G= 19.9"  | G= 2.5"   | G= 5.3"   |
|                | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" |
|                | OFF= 0.0% | OFF=10.1% | OFF=64.4% | OFF=85.1% | OFF=91.4% |

C=120 sec G= 95.0 sec = 79.2% Y=25.0 sec = 20.8% Ped= 0.0 sec = 0.0%

| Lane  | Width/ | g/C  |      | Service Rate |    | Adj    |     | HCM   | L | 90% Max |
|-------|--------|------|------|--------------|----|--------|-----|-------|---|---------|
| Group | Lanes  | Reqd | Used | @C (vph)     | @E | Volume | v/c | Delay | S | Queue   |

N Approach

22.3 C+

|       |      |       |       |      |      |     |       |      |    |        |
|-------|------|-------|-------|------|------|-----|-------|------|----|--------|
| TH+RT | 48/4 | 0.276 | 0.502 | 3119 | 3317 | 589 | 0.178 | 16.5 | B  | 125 ft |
| LT    | 12/1 | 0.089 | 0.059 | 81   | 147  | 119 | 0.726 | 51.3 | *D | 96 ft  |

S Approach

30.6 C

|    |      |       |       |      |      |      |       |      |     |        |
|----|------|-------|-------|------|------|------|-------|------|-----|--------|
| RT | 12/1 | 0.557 | 0.709 | 1069 | 1112 | 766  | 0.689 | 13.4 | B+  | 378 ft |
| TH | 24/2 | 0.520 | 0.502 | 1582 | 1758 | 1666 | 0.948 | 40.6 | *D+ | 705 ft |
| LT | 12/1 | 0.003 | 0.059 | 416  | 485  | 284  | 0.586 | 17.7 | B   | 192 ft |

E Approach

51.0 D

|       |      |       |       |   |     |     |       |      |    |        |
|-------|------|-------|-------|---|-----|-----|-------|------|----|--------|
| TH+RT | 12/1 | 0.319 | 0.229 | 1 | 365 | 238 | 0.618 | 48.8 | D  | 311 ft |
| LT    | 24/2 | 0.290 | 0.166 | 1 | 545 | 366 | 0.649 | 52.5 | *D | 259 ft |

W Approach

52.7 D

|    |      |       |       |   |     |    |       |      |    |        |
|----|------|-------|-------|---|-----|----|-------|------|----|--------|
| RT | 12/1 | 0.237 | 0.208 | 1 | 301 | 1  | 0.003 | 37.7 | D+ | 25 ft  |
| TH | 12/1 | 0.257 | 0.107 | 1 | 158 | 66 | 0.335 | 54.2 | *D | 100 ft |
| LT | 12/1 | 0.184 | 0.044 | 1 | 170 | 34 | 0.162 | 50.4 | *D | 52 ft  |

ADD 1 SB THRU  
1 EB RIGHT

Unser / Ladera Intersection  
Painted Sky Subdivision NO  
YEAR 2005 AM PEAK HOUR - BUILD

09/20/00  
17:06:54

SIGNAL97/TEAPAC[Ver 1.02.14] - Capacity Analysis Summary

Intersection Averages for Int # 1 - Unser & Ladera  
Degree of Saturation (v/c) 0.77 Vehicle Delay 43.1 Level of Service D+

| Sq 35<br>**/** | Phase 1                                        | Phase 2                                         | Phase 3                                        | Phase 4                                         | Phase 5                                         |
|----------------|------------------------------------------------|-------------------------------------------------|------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| / \            |                                                | * * +<br>* * +<br>< * * + ><br>v                |                                                | ^<br>++++<br><++++<br>****                      | ^<br>++++<br><++++                              |
| North          | ^<br>< * + + ><br>++++ * + +<br>v * + +        | ^<br>< + + + ><br>+ + +<br>+ + +                | ^<br>++++<br>v                                 | v<br>+ ><br>+<br>+                              | ^<br>++++<br>**** ><br>+<br>++++<br>v           |
|                | G/C=0.048<br>G= 5.3"<br>Y+R= 5.0"<br>OFF= 0.0% | G/C=0.438<br>G= 48.2"<br>Y+R= 5.0"<br>OFF= 9.3% | G/C=0.048<br>G= 5.3"<br>Y+R= 5.0"<br>OFF=57.7% | G/C=0.145<br>G= 15.9"<br>Y+R= 5.0"<br>OFF=67.0% | G/C=0.094<br>G= 10.3"<br>Y+R= 5.0"<br>OFF=86.0% |

C=110 sec G= 85.0 sec = 77.3% Y=25.0 sec = 22.7% Ped= 0.0 sec = 0.0%

| Lane  | Width/ | g/C       | Service Rate | Adj    |     | HCM   | L | 90% Max |
|-------|--------|-----------|--------------|--------|-----|-------|---|---------|
| Group | Lanes  | Reqd Used | @C (vph) @E  | Volume | v/c | Delay | S | Queue   |

N Approach

42.3 D+

|       |      |       |       |      |      |      |       |      |     |        |
|-------|------|-------|-------|------|------|------|-------|------|-----|--------|
| TH+RT | 36/3 | 0.438 | 0.411 | 1800 | 2069 | 1980 | 0.957 | 43.4 | *D+ | 604 ft |
| LT    | 12/1 | 0.302 | 0.411 | 267  | 398  | 122  | 0.307 | 23.8 | C+  | 112 ft |

S Approach

15.1 B

|    |      |       |       |      |      |     |       |      |    |        |
|----|------|-------|-------|------|------|-----|-------|------|----|--------|
| RT | 12/1 | 0.296 | 0.788 | 1225 | 1235 | 216 | 0.175 | 3.2  | A  | 71 ft  |
| TH | 24/2 | 0.262 | 0.504 | 1635 | 1768 | 383 | 0.217 | 15.4 | B  | 148 ft |
| LT | 12/1 | 0.039 | 0.020 | 43   | 86   | 67  | 0.650 | 51.2 | *D | 52 ft  |

E Approach

59.3 E+

|       |      |       |       |     |      |      |       |      |     |        |
|-------|------|-------|-------|-----|------|------|-------|------|-----|--------|
| TH+RT | 12/1 | 0.228 | 0.257 | 143 | 438  | 66   | 0.149 | 32.3 | C   | 76 ft  |
| LT    | 36/3 | 0.309 | 0.211 | 86  | 1074 | 1023 | 0.953 | 61.0 | *E+ | 419 ft |

W Approach

51.9 D

|    |      |       |       |   |     |     |       |      |    |        |
|----|------|-------|-------|---|-----|-----|-------|------|----|--------|
| RT | 24/2 | 0.245 | 0.160 | 1 | 425 | 202 | 0.457 | 45.2 | D  | 132 ft |
| TH | 12/1 | 0.229 | 0.067 | 1 | 88  | 75  | 0.610 | 70.4 | *E | 109 ft |
| LT | 12/1 | 0.147 | 0.020 | 1 | 91  | 28  | 0.226 | 50.7 | *D | 40 ft  |

**APPENDIX E**  
**TRIP GENERATION**

painted

Summary of Trip Generation Calculation  
For 290 Dwelling Units of Single Family Detached Housing  
August 10, 2000

|                            | Average<br>Rate | Standard<br>Deviation | Adjustment<br>Factor | Driveway<br>Volume |
|----------------------------|-----------------|-----------------------|----------------------|--------------------|
| Avg. Weekday 2-Way Volume  | 9.57            | 3.69                  | 1.00                 | 2775               |
| 7-9 AM Peak Hour Enter     | 0.19            | 0.00                  | 1.00                 | 55                 |
| 7-9 AM Peak Hour Exit      | 0.56            | 0.00                  | 1.00                 | 162                |
| 7-9 AM Peak Hour Total     | 0.75            | 0.90                  | 1.00                 | 218                |
| 4-6 PM Peak Hour Enter     | 0.65            | 0.00                  | 1.00                 | 189                |
| 4-6 PM Peak Hour Exit      | 0.36            | 0.00                  | 1.00                 | 104                |
| 4-6 PM Peak Hour Total     | 1.01            | 1.05                  | 1.00                 | 293                |
| AM Pk Hr, Generator, Enter | 0.19            | 0.00                  | 1.00                 | 55                 |
| AM Pk Hr, Generator, Exit  | 0.58            | 0.00                  | 1.00                 | 168                |
| AM Pk Hr, Generator, Total | 0.77            | 0.91                  | 1.00                 | 223                |
| PM Pk Hr, Generator, Enter | 0.65            | 0.00                  | 1.00                 | 189                |
| PM Pk Hr, Generator, Exit  | 0.37            | 0.00                  | 1.00                 | 107                |
| PM Pk Hr, Generator, Total | 1.02            | 1.05                  | 1.00                 | 296                |
| Saturday 2-Way Volume      | 10.09           | 3.67                  | 1.00                 | 2926               |
| Saturday Peak Hour Enter   | 0.51            | 0.00                  | 1.00                 | 148                |
| Saturday Peak Hour Exit    | 0.43            | 0.00                  | 1.00                 | 125                |
| Saturday Peak Hour Total   | 0.94            | 0.99                  | 1.00                 | 273                |
| Sunday 2-Way Volume        | 8.78            | 3.33                  | 1.00                 | 2546               |
| Sunday Peak Hour Enter     | 0.46            | 0.00                  | 1.00                 | 133                |
| Sunday Peak Hour Exit      | 0.40            | 0.00                  | 1.00                 | 116                |
| Sunday Peak Hour Total     | 0.86            | 0.95                  | 1.00                 | 249                |

Note: A zero indicates no data available.  
Source: Institute of Transportation Engineers  
Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

**APPENDIX F**  
**YEAR 2005 BUILD CAPACITY ANALYSIS**

# SCENARIO 1

HCS: Signals Release 3.1a

Inter:  
Analyst:  
Date: 8/10/00  
E/W St: LADERA

City/St:  
Proj #:  
Period: AM 2005 BUILD  
N/S St: UNSER

## SIGNALIZED INTERSECTION SUMMARY

|            | Eastbound |      |      | Westbound |      |    | Northbound |      |      | Southbound |      |    |
|------------|-----------|------|------|-----------|------|----|------------|------|------|------------|------|----|
|            | L         | T    | R    | L         | T    | R  | L          | T    | R    | L          | T    | R  |
| No. Lanes  | 1         | 1    | 1    | 2         | 1    | 0  | 2          | 2    | 1    | 1          | 3    | 0  |
| LGConfig   | L         | T    | R    | L         | TR   |    | L          | T    | R    | L          | TR   |    |
| Volume     | 81        | 77   | 388  | 921       | 36   | 42 | 96         | 352  | 299  | 110        | 1772 | 39 |
| Lane Width | 12.0      | 12.0 | 12.0 | 12.0      | 12.0 |    | 12.0       | 12.0 | 12.0 | 12.0       | 12.0 |    |
| RTOR Vol   |           |      | 150  |           |      | 5  |            |      | 60   |            |      | 5  |

Duration 0.25 Area Type: All other areas

### Signal Operations

| Phase Combination |       | 1     | 2    | 3 | 4 | 5  | 6     | 7 | 8 |
|-------------------|-------|-------|------|---|---|----|-------|---|---|
| EB                | Left  |       | P    |   |   | NB | Left  | P |   |
|                   | Thru  |       | P    |   |   |    | Thru  | P |   |
|                   | Right |       | P    |   |   |    | Right | P |   |
|                   | Peds  |       | X    |   |   |    | Ped   | X |   |
| WB                | Left  | P     | P    |   |   | SB | Left  | P |   |
|                   | Thru  | P     | P    |   |   |    | Thru  | P |   |
|                   | Right | P     | P    |   |   |    | Right | P |   |
|                   | Peds  |       | X    |   |   |    | Ped   | X |   |
| NB                | Right | P     |      |   |   | EB | Right |   |   |
| SB                | Right |       |      |   |   | WB | Right |   |   |
| Green             |       | 21.8  | 29.0 |   |   |    | 49.2  |   |   |
| Yellow            |       | 5.0   | 5.0  |   |   |    | 5.0   |   |   |
| All Red           |       | 0.0   | 0.0  |   |   |    | 0.0   |   |   |
| Cycle Length:     |       | 115.0 | secs |   |   |    |       |   |   |

# Intersection Performance Summary

| Appr/<br>Lane<br>Grp | Lane<br>Group<br>Capacity | Adj Sat<br>Flow Rate<br>(s) | Ratios |       | Lane Group |     | Approach |     |
|----------------------|---------------------------|-----------------------------|--------|-------|------------|-----|----------|-----|
|                      |                           |                             | v/c    | g/C   | Delay      | LOS | Delay    | LOS |
| Eastbound            |                           |                             |        |       |            |     |          |     |
| L                    | 294                       | 1299                        | 0.31   | 0.226 | 39.7       | D   |          |     |
| T                    | 417                       | 1845                        | 0.21   | 0.226 | 37.2       | D   | 48.2     | D   |
| R                    | 355                       | 1568                        | 0.74   | 0.226 | 54.6       | D   |          |     |
| Westbound            |                           |                             |        |       |            |     |          |     |
| L                    | 1017                      |                             | 1.01   | 0.459 | 68.3       | E   |          |     |
| TR                   | 783                       | 1705                        | 0.10   | 0.459 | 17.9       | B   | 64.6     | E   |
| Northbound           |                           |                             |        |       |            |     |          |     |
| L                    | 692                       | 1723                        | 0.15   | 0.402 | 22.4       | C   |          |     |
| T                    | 1408                      | 3505                        | 0.28   | 0.402 | 23.7       | C   | 18.7     | B   |
| R                    | 995                       | 1568                        | 0.27   | 0.635 | 9.9        | A   |          |     |
| Southbound           |                           |                             |        |       |            |     |          |     |
| L                    | 382                       | 951                         | 0.32   | 0.402 | 25.8       | C   |          |     |
| TR                   | 2018                      | 5022                        | 0.99   | 0.402 | 53.1       | D   | 51.5     | D   |

Intersection Delay = 48.8 (sec/veh) Intersection LOS = D

HCS: Signals Release 3.1a

Jeanette Walther  
Bohannon-Huston, Inc.

Phone: Fax:  
E-Mail:

## OPERATIONAL ANALYSIS

Intersection:  
City/State:  
Analyst:  
Project No:  
Time Period Analyzed: AM 2005 BUILD  
Date: 8/10/00  
East/West Street Name: LADERA  
North/South Street Name: UNSER

# VOLUME DATA

|             | Eastbound |      |      | Westbound |      |      | Northbound |      |      | Southbound |      |      |
|-------------|-----------|------|------|-----------|------|------|------------|------|------|------------|------|------|
|             | L         | T    | R    | L         | T    | R    | L          | T    | R    | L          | T    | R    |
| Volume      | 81        | 77   | 388  | 921       | 36   | 42   | 96         | 352  | 299  | 110        | 1772 | 39   |
| PHF         | 0.90      | 0.90 | 0.90 | 0.90      | 0.90 | 0.90 | 0.90       | 0.90 | 0.90 | 0.90       | 0.90 | 0.90 |
| PK 15 Vol   | 23        | 21   | 108  | 256       | 10   | 12   | 27         | 98   | 83   | 31         | 492  | 11   |
| Hi Ln Vol   |           |      |      |           |      |      |            |      |      |            |      |      |
| % Grade     |           | 0    |      |           | 0    |      |            | 0    |      |            | 0    |      |
| Ideal Sat   | 1900      | 1900 | 1900 | 1900      | 1900 |      | 1900       | 1900 | 1900 | 1900       | 1900 |      |
| ParkExist   |           |      |      |           |      |      |            |      |      |            |      |      |
| NumPark     |           |      |      |           |      |      |            |      |      |            |      |      |
| % Heavy Veh | 3         | 3    | 3    | 3         | 3    | 3    | 3          | 3    | 3    | 3          | 3    | 3    |
| No. Lanes   | 1         | 1    | 1    | 2         | 1    | 0    | 2          | 2    | 1    | 1          | 3    | 0    |
| LGConfig    | L         | T    | R    | L         | TR   |      | L          | T    | R    | L          | TR   |      |
| Lane Width  | 12.0      | 12.0 | 12.0 | 12.0      | 12.0 |      | 12.0       | 12.0 | 12.0 | 12.0       | 12.0 |      |
| RTOR Vol    |           |      | 150  |           |      | 5    |            |      | 60   |            |      | 5    |
| Adj Flow    | 90        | 86   | 264  | 1023      | 81   |      | 107        | 391  | 266  | 122        | 2007 |      |
| %InSharedLn |           |      |      |           |      |      |            |      |      |            |      |      |
| Prop Turns  |           |      |      |           |      | 0.51 |            |      |      |            |      | 0.02 |
| NumPeds     |           |      | 0    |           |      | 0    |            |      | 0    |            |      | 0    |
| NumBus      | 0         | 0    | 0    | 0         | 0    |      | 0          | 0    | 0    | 0          | 0    |      |

Duration 0.25 Area Type: All other areas

# OPERATING PARAMETERS

|             | Eastbound |       |     | Westbound |       |   | Northbound |       |     | Southbound |       |   |
|-------------|-----------|-------|-----|-----------|-------|---|------------|-------|-----|------------|-------|---|
|             | L         | T     | R   | L         | T     | R | L          | T     | R   | L          | T     | R |
| Init Unmet  | 0.0       | 0.0   | 0.0 | 0.0       | 0.0   |   | 0.0        | 0.0   | 0.0 | 0.0        | 0.0   |   |
| Arriv. Type | 3         | 3     | 3   | 3         | 3     |   | 3          | 3     | 3   | 3          | 3     |   |
| Unit Ext.   | 3.0       | 3.0   | 3.0 | 3.0       | 3.0   |   | 3.0        | 3.0   | 3.0 | 3.0        | 3.0   |   |
| I Factor    |           | 1.000 |     |           | 1.000 |   |            | 1.000 |     |            | 1.000 |   |
| Lost Time   | 5.0       | 5.0   | 5.0 | 5.0       | 5.0   |   | 5.0        | 5.0   | 5.0 | 5.0        | 5.0   |   |
| Ext of g    | 2.0       | 2.0   | 2.0 | 2.0       | 2.0   |   | 2.0        | 2.0   | 2.0 | 2.0        | 2.0   |   |
| Ped Min g   |           | 0.0   |     |           | 0.0   |   |            | 0.0   |     |            | 0.0   |   |

## PHASE DATA

| Phase Combination |       | 1    | 2    | 3 | 4 | 5  | 6     | 7 | 8 |
|-------------------|-------|------|------|---|---|----|-------|---|---|
| EB                | Left  |      | P    |   |   | NB | Left  | P |   |
|                   | Thru  |      | P    |   |   |    | Thru  | P |   |
|                   | Right |      | P    |   |   |    | Right | P |   |
|                   | Peds  |      | X    |   |   |    | Ped   | X |   |
| WB                | Left  |      | P    | P |   | SB | Left  | P |   |
|                   | Thru  |      | P    | P |   |    | Thru  | P |   |
|                   | Right |      | P    | P |   |    | Right | P |   |
|                   | Peds  |      |      | X |   |    | Ped   | X |   |
| NB                | Right |      | P    |   |   | EB | Right |   |   |
| SB                | Right |      |      |   |   | WB | Right |   |   |
| Green             |       | 21.8 | 29.0 |   |   |    | 49.2  |   |   |
| Yellow            |       | 5.0  | 5.0  |   |   |    | 5.0   |   |   |
| All Red           |       | 0.0  | 0.0  |   |   |    | 0.0   |   |   |

Cycle Length: 115.0 secs

## HCS: Signalized Intersections Release 3.2

Inter: UNSER/LADERA  
 Analyst: JAW  
 Date: 9/25/00  
 E/W St: LADERA

City/St: ALBUQUERQUE, NM  
 Proj #:  
 Period: 2005 PM PEAK HOUR build  
 N/S St: UNSER

## SIGNALIZED INTERSECTION SUMMARY

|            | Eastbound |      |      | Westbound |      |     | Northbound |      |      | Southbound |      |     |
|------------|-----------|------|------|-----------|------|-----|------------|------|------|------------|------|-----|
|            | L         | T    | R    | L         | T    | R   | L          | T    | R    | L          | T    | R   |
| No. Lanes  | 2         | 1    | 1    | 2         | 1    | 0   | 2          | 2    | 1    | 1          | 3    | 0   |
| LGConfig   | L         | T    | R    | L         | TR   |     | L          | T    | R    | L          | TR   |     |
| Volume     | 66        | 64   | 129  | 329       | 99   | 124 | 372        | 1499 | 739  | 107        | 477  | 117 |
| Lane Width | 12.0      | 12.0 | 12.0 | 12.0      | 12.0 |     | 12.0       | 12.0 | 12.0 | 12.0       | 12.0 |     |
| RTOR Vol   |           |      | 40   |           |      | 46  |            |      | 186  |            |      | 3   |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination |       | 1     | 2    | 3 | 4 | 5        | 6    | 7    | 8 |
|-------------------|-------|-------|------|---|---|----------|------|------|---|
| EB                | Left  |       | P    |   |   | NB Left  | P    |      |   |
|                   | Thru  |       | P    |   |   | Thru     | P    |      |   |
|                   | Right |       | P    |   |   | Right    | P    |      |   |
|                   | Peds  |       |      |   |   | Peds     |      |      |   |
| WB                | Left  | P     | P    |   |   | SB Left  | P    | P    |   |
|                   | Thru  | P     | P    |   |   | Thru     | P    | P    |   |
|                   | Right | P     | P    |   |   | Right    | P    | P    |   |
|                   | Peds  |       |      |   |   | Peds     |      |      |   |
| NB                | Right | P     |      |   |   | EB Right | P    |      |   |
| SB                | Right |       |      |   |   | WB Right | P    |      |   |
| Green             |       | 10.0  | 15.0 |   |   |          | 10.0 | 55.0 |   |
| Yellow            |       | 5.0   | 5.0  |   |   |          | 5.0  | 5.0  |   |
| All Red           |       | 0.0   | 0.0  |   |   |          | 0.0  | 0.0  |   |
| Cycle Length:     |       | 110.0 | secs |   |   |          |      |      |   |

# Intersection Performance Summary

| Intersection Performance Summary |                           |                             |        |       |            |     |          |     |
|----------------------------------|---------------------------|-----------------------------|--------|-------|------------|-----|----------|-----|
| Appr/<br>Lane<br>Grp             | Lane<br>Group<br>Capacity | Adj Sat<br>Flow Rate<br>(s) | Ratios |       | Lane Group |     | Approach |     |
|                                  |                           |                             | v/c    | g/C   | Delay      | LOS | Delay    | LOS |
| Eastbound                        |                           |                             |        |       |            |     |          |     |
| L                                | 198                       | 1797                        | 0.39   | 0.110 | 51.3       | D   |          |     |
| T                                | 201                       | 1845                        | 0.37   | 0.109 | 50.7       | D   | 43.5     | D   |
| R                                | 428                       | 1568                        | 0.25   | 0.273 | 32.5       | C   |          |     |
| Westbound                        |                           |                             |        |       |            |     |          |     |
| L                                | 448                       |                             | 0.82   | 0.245 | 54.3       | D   |          |     |
| TR                               | 423                       | 1722                        | 0.47   | 0.245 | 39.0       | D   | 48.9     | D   |
| Northbound                       |                           |                             |        |       |            |     |          |     |
| L                                | 507                       |                             | 0.81   | 0.609 | 24.1       | C   |          |     |
| T                                | 1657                      | 3505                        | 1.01   | 0.473 | 52.4       | D   | 40.0     | D   |
| R                                | 955                       | 1568                        | 0.64   | 0.609 | 17.1       | B   |          |     |
| Southbound                       |                           |                             |        |       |            |     |          |     |
| L                                | 178                       |                             | 0.67   | 0.609 | 42.2       | D   |          |     |
| TR                               | 2312                      | 4890                        | 0.28   | 0.473 | 18.0       | B   | 21.7     | C   |

Intersection Delay = 38.1 (sec/veh) Intersection LOS = D

HCS: Signalized Intersections Release 3.2

Jeanette Walther  
Bohannon-Huston, Inc.

Phone: Fax:  
E-Mail:

## OPERATIONAL ANALYSIS

Intersection: UNSER/LADERA  
City/State: ALBUQUERQUE, NM  
Analyst: JAW  
Project No:  
Time Period Analyzed: 2005 PM PEAK HOUR build  
Date: 9/25/00  
East/West Street Name: LADERA  
North/South Street Name: UNSER

## VOLUME DATA

[illegible]

# OPERATING PARAMETERS

|             | Eastbound |       |     | Westbound |       |   | Northbound |       |     | Southbound |       |   |
|-------------|-----------|-------|-----|-----------|-------|---|------------|-------|-----|------------|-------|---|
|             | L         | T     | R   | L         | T     | R | L          | T     | R   | L          | T     | R |
| Init Unmet  | 0.0       | 0.0   | 0.0 | 0.0       | 0.0   |   | 0.0        | 0.0   | 0.0 | 0.0        | 0.0   |   |
| Arriv. Type | 3         | 3     | 3   | 3         | 3     |   | 3          | 3     | 3   | 3          | 3     |   |
| Unit Ext.   | 3.0       | 3.0   | 3.0 | 3.0       | 3.0   |   | 3.0        | 3.0   | 3.0 | 3.0        | 3.0   |   |
| I Factor    |           | 1.000 |     |           | 1.000 |   |            | 1.000 |     |            | 1.000 |   |
| Lost Time   | 5.0       | 5.0   | 2.0 | 5.0       | 5.0   |   | 5.0        | 5.0   | 5.0 | 5.0        | 5.0   |   |
| Ext of g    | 2.1       | 2.0   | 2.0 | 2.0       | 2.0   |   | 2.0        | 2.0   | 2.0 | 2.0        | 2.0   |   |
| Ped Min g   |           | 3.0   |     |           | 3.0   |   |            | 3.0   |     |            | 3.0   |   |

## PHASE DATA

| Phase Combination |       | 1    | 2    | 3 | 4 |  | 5  | 6     | 7    | 8 |
|-------------------|-------|------|------|---|---|--|----|-------|------|---|
| EB                | Left  |      | P    |   |   |  | NB | Left  | P    | P |
|                   | Thru  |      | P    |   |   |  |    | Thru  |      | P |
|                   | Right |      | P    |   |   |  |    | Right |      | P |
|                   | Peds  |      |      |   |   |  |    | Peds  |      |   |
| WB                | Left  | P    | P    |   |   |  | SB | Left  | P    | P |
|                   | Thru  | P    | P    |   |   |  |    | Thru  |      | P |
|                   | Right | P    | P    |   |   |  |    | Right |      | P |
|                   | Peds  |      |      |   |   |  |    | Peds  |      |   |
| NB                | Right | P    |      |   |   |  | EB | Right | P    |   |
| SB                | Right |      |      |   |   |  | WB | Right | P    |   |
|                   |       |      |      |   |   |  |    |       |      |   |
| Green             |       | 10.0 | 15.0 |   |   |  |    | 10.0  | 55.0 |   |
| Yellow            |       | 5.0  | 5.0  |   |   |  |    | 5.0   | 5.0  |   |
| All Red           |       | 0.0  | 0.0  |   |   |  |    | 0.0   | 0.0  |   |

Cycle Length: 110.0 secs

Add 2 SB Thru and 1 NB Thru - Re-stripe West Approach  
AM Peak - Build

09/06/00  
16:30:40

SIGNAL97/TEAPAC[Ver 1.02.14] - Capacity Analysis Summary

Intersection Averages for Int # 1 - Unser & Ladera

Degree of Saturation (v/c) 0.78 Vehicle Delay 47.7 Level of Service D

| Sq 44<br>**/** | Phase 1   | Phase 2   | Phase 3   | Phase 4   |
|----------------|-----------|-----------|-----------|-----------|
| .              | +         | * * +     |           | ^         |
| / \            | +         | * * +     |           | ++++      |
|                | +>        | <* * +>   |           | <++++     |
|                |           | v         | ^         | ^         |
|                |           |           | ****      |           |
| North          | <+        | <+ + +>   | ++++ v    | ++++      |
|                | **** +    | + + +     | +>        | ++++>     |
|                | v +       | + + +     | +         | ****      |
|                |           |           | +         | v         |
|                | G/C=0.070 | G/C=0.315 | G/C=0.322 | G/C=0.126 |
|                | G= 8.4"   | G= 37.8"  | G= 38.7"  | G= 15.1"  |
|                | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" |
|                | OFF= 0.0% | OFF=11.2% | OFF=46.8% | OFF=83.2% |

C=120 sec G=100.0 sec = 83.3% Y=20.0 sec = 16.7% Ped= 0.0 sec = 0.0%

| Lane  | Width/ | g/C  |      | Service Rate |    | Adj    |     | HCM   | L | 90% Max |
|-------|--------|------|------|--------------|----|--------|-----|-------|---|---------|
| Group | Lanes  | Reqd | Used | @C (vph)     | @E | Volume | v/c | Delay | S | Queue   |

N Approach

50.1 D

|       |      |       |       |      |      |      |       |      |    |        |
|-------|------|-------|-------|------|------|------|-------|------|----|--------|
| TH+RT | 48/4 | 0.384 | 0.315 | 1148 | 2108 | 2012 | 0.954 | 51.7 | *D | 585 ft |
| LT    | 12/1 | 0.011 | 0.070 | 274  | 404  | 122  | 0.302 | 23.4 | C+ | 119 ft |

S Approach

25.1 C+

|    |      |       |       |      |      |     |       |      |    |        |
|----|------|-------|-------|------|------|-----|-------|------|----|--------|
| RT | 12/1 | 0.321 | 0.679 | 1009 | 1064 | 221 | 0.208 | 7.6  | A  | 120 ft |
| TH | 36/3 | 0.272 | 0.315 | 835  | 1586 | 391 | 0.247 | 30.9 | C  | 151 ft |
| LT | 12/1 | 0.084 | 0.070 | 86   | 173  | 107 | 0.582 | 39.8 | D+ | 104 ft |

E Approach

54.7 D

|       |      |       |       |     |      |      |       |      |    |        |
|-------|------|-------|-------|-----|------|------|-------|------|----|--------|
| TH+RT | 12/1 | 0.266 | 0.126 | 1   | 177  | 87   | 0.407 | 53.9 | D  | 129 ft |
| LT    | 24/2 | 0.399 | 0.322 | 576 | 1095 | 1023 | 0.934 | 54.8 | *D | 588 ft |

W Approach

54.5 D

|    |      |       |       |     |     |     |       |      |     |        |
|----|------|-------|-------|-----|-----|-----|-------|------|-----|--------|
| RT | 12/1 | 0.360 | 0.238 | 5   | 354 | 320 | 0.858 | 65.5 | *E+ | 414 ft |
| TH | 12/1 | 0.263 | 0.126 | 1   | 196 | 86  | 0.369 | 52.5 | D   | 127 ft |
| LT | 12/1 | 0.109 | 0.322 | 606 | 725 | 90  | 0.124 | 16.9 | B   | 78 ft  |

Scenario 2  
SCENARIO 2

Add 2 SB Thru - Re-stripe West Approach  
PM Peak - Build

09/06/00  
16:55:09

SIGNAL97/TEAPAC[Ver 1.02.14] - Capacity Analysis Summary

Intersection Averages for Int # 1 - Unser & Ladera

Degree of Saturation (v/c) 0.71 Vehicle Delay 35.3 Level of Service D+

| Sq 48<br>**/** | Phase 1   | Phase 2   | Phase 3   | Phase 4   | Phase 5   |
|----------------|-----------|-----------|-----------|-----------|-----------|
| / \            | *         | +         | +         | +         |           |
|                | *         | +         | +         | +         |           |
|                | *>        | <+ + +>   | <++++     | <++++     |           |
| North          |           | v         | ^         | ^         |           |
|                | <+        | <+ * +>   | v         | ++++      | ****      |
|                | ++++ +    | + * +     | +>****    | ++++      | ++++>     |
|                | v +       | + * +     | + +       | v         | v         |
|                | G/C=0.059 | G/C=0.500 | G/C=0.165 | G/C=0.024 | G/C=0.044 |
|                | G= 7.1"   | G= 60.0"  | G= 19.8"  | G= 2.9"   | G= 5.3"   |
|                | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" |
|                | OFF= 0.0% | OFF=10.0% | OFF=64.2% | OFF=84.9% | OFF=91.4% |

C=120 sec G= 95.0 sec = 79.2% Y=25.0 sec = 20.8% Ped= 0.0 sec = 0.0%

| Lane  | Width/ | g/C       | Service Rate | Adj    | HCM | L     | 90% Max |
|-------|--------|-----------|--------------|--------|-----|-------|---------|
| Group | Lanes  | Reqd Used | @C (vph) @E  | Volume | v/c | Delay | S Queue |

N Approach

22.1 C+

|       |      |       |       |      |      |     |       |      |    |        |
|-------|------|-------|-------|------|------|-----|-------|------|----|--------|
| TH+RT | 48/4 | 0.282 | 0.500 | 3055 | 3256 | 660 | 0.203 | 16.9 | B  | 140 ft |
| LT    | 12/1 | 0.089 | 0.059 | 81   | 147  | 119 | 0.726 | 51.4 | *D | 96 ft  |

S Approach

34.4 C

|    |      |       |       |      |      |      |       |      |     |        |
|----|------|-------|-------|------|------|------|-------|------|-----|--------|
| RT | 12/1 | 0.530 | 0.707 | 1064 | 1108 | 710  | 0.641 | 12.3 | B+  | 353 ft |
| TH | 24/2 | 0.520 | 0.500 | 1573 | 1751 | 1666 | 0.951 | 41.4 | *D+ | 707 ft |
| LT | 12/1 | 0.072 | 0.059 | 384  | 452  | 413  | 0.914 | 44.5 | D+  | 280 ft |

E Approach

51.3 D

|       |      |       |       |   |     |     |       |      |    |        |
|-------|------|-------|-------|---|-----|-----|-------|------|----|--------|
| TH+RT | 12/1 | 0.323 | 0.231 | 1 | 371 | 248 | 0.636 | 49.3 | D  | 324 ft |
| LT    | 24/2 | 0.290 | 0.165 | 1 | 543 | 366 | 0.651 | 52.6 | *D | 259 ft |

W Approach

51.3 D

|    |      |       |       |   |     |    |       |      |    |        |
|----|------|-------|-------|---|-----|----|-------|------|----|--------|
| RT | 12/1 | 0.249 | 0.210 | 1 | 304 | 32 | 0.097 | 38.8 | D+ | 43 ft  |
| TH | 12/1 | 0.258 | 0.110 | 1 | 163 | 71 | 0.351 | 54.2 | *D | 107 ft |
| LT | 12/1 | 0.193 | 0.044 | 1 | 170 | 73 | 0.348 | 54.0 | *D | 110 ft |

Unser / Ladera Intersection  
 Painted Sky Subdivision  
 YEAR 2005 PM PEAK HOUR - BUILD

09/20/00  
 15:42:58

SIGNAL97/TEAPAC[Ver 1.02.14] - Capacity Analysis Summary

Intersection Averages for Int # 1 - Unser & Ladera  
 Degree of Saturation (v/c) 0.64 Vehicle Delay 28.2 Level of Service C

| Sq 32<br>**/** | Phase 1    | Phase 2   | Phase 3   | Phase 4   |
|----------------|------------|-----------|-----------|-----------|
| .              |            | + + *     | ^         | ^         |
| / \            |            | + + *     | ++++      | ++++      |
|                |            | <+ + *>   | <++++     | <++++     |
|                |            | v         | ****      | ^         |
| North          | ^          | ^         | v         | ****      |
|                | <* + +>    | <+ + +>   | +>        | ++++>     |
|                | ++++ * + + | + + +     | +         | ++++      |
|                | v * + +    | + + +     | +         | v         |
|                | G/C=0.205  | G/C=0.239 | G/C=0.127 | G/C=0.144 |
|                | G= 14.3"   | G= 16.7"  | G= 8.9"   | G= 10.1"  |
|                | Y+R= 5.0"  | Y+R= 5.0" | Y+R= 5.0" | Y+R= 5.0" |
|                | OFF= 0.0%  | OFF=27.6% | OFF=58.6% | OFF=78.4% |

C= 70 sec G= 50.0 sec = 71.4% Y=20.0 sec = 28.6% Ped= 0.0 sec = 0.0%

| Lane  | Width/ | g/C  |      | Service Rate | Adj         |     | HCM   | L | 90% Max |
|-------|--------|------|------|--------------|-------------|-----|-------|---|---------|
| Group | Lanes  | Reqd | Used | @C (vph)     | @E   Volume | v/c | Delay | S | Queue   |

N Approach

33.2 C

|       |      |       |       |     |     |     |       |      |    |        |
|-------|------|-------|-------|-----|-----|-----|-------|------|----|--------|
| TH+RT | 36/3 | 0.170 | 0.196 | 792 | 960 | 649 | 0.676 | 29.9 | C  | 172 ft |
| LT    | 12/1 | 0.245 | 0.196 | 80  | 151 | 119 | 0.730 | 51.2 | *D | 95 ft  |

S Approach

20.4 C+

|    |      |       |       |      |      |     |       |      |    |        |
|----|------|-------|-------|------|------|-----|-------|------|----|--------|
| RT | 12/1 | 0.482 | 0.670 | 1033 | 1051 | 695 | 0.661 | 10.1 | B+ | 227 ft |
| TH | 24/2 | 0.198 | 0.472 | 1613 | 1654 | 542 | 0.328 | 12.1 | B+ | 142 ft |
| LT | 12/1 | 0.181 | 0.162 | 368  | 420  | 404 | 0.962 | 49.2 | *D | 211 ft |

E Approach

40.2 D+

|       |      |       |       |     |     |     |       |      |    |        |
|-------|------|-------|-------|-----|-----|-----|-------|------|----|--------|
| TH+RT | 12/1 | 0.204 | 0.299 | 408 | 509 | 229 | 0.450 | 22.7 | C+ | 159 ft |
| LT    | 36/3 | 0.113 | 0.084 | 218 | 427 | 366 | 0.857 | 51.1 | *D | 111 ft |

W Approach

38.4 D+

|    |      |       |       |     |      |    |       |      |    |       |
|----|------|-------|-------|-----|------|----|-------|------|----|-------|
| RT | 24/2 | 0.053 | 0.377 | 959 | 1042 | 31 | 0.030 | 13.8 | B+ | 25 ft |
| TH | 12/1 | 0.101 | 0.101 | 70  | 174  | 69 | 0.369 | 34.9 | C  | 61 ft |
| LT | 12/1 | 0.147 | 0.101 | 32  | 97   | 71 | 0.617 | 52.5 | *D | 63 ft |

**APPENDIX G**  
**QUEUING ANALYSIS**

August 11, 2000

## UNSER AND LADERA INTERSECTION

SB LT

|                             | Variable input |
|-----------------------------|----------------|
| Tot vehicle turns (veh/hr)  | 110            |
| Cycle time (seconds)        | 60.8           |
| % of time capacity exceeded | 5.00%          |
| Avg vehicle length (feet)   | 25.00          |

Single Left Turn

AM PEAK HOUR

Number of average Arriving Vehicles =  $\lambda$  = 1.8578 ---> 2

| P(x) | Poisson Dist | Sum of Poisson Dist | Prob of at least "x" cars arriving | Are "x" automobiles serviced? | Total Queing Length (feet) |                           |
|------|--------------|---------------------|------------------------------------|-------------------------------|----------------------------|---------------------------|
| 0    | 0.156019     | 0.156019            | 84.40%                             | serviced                      | 0                          | <u>&lt;--- Que Length</u> |
| 1    | 0.289849     | 0.445868            | 55.41%                             | serviced                      | 25                         |                           |
| 2    | 0.269237     | 0.715105            | 28.49%                             | serviced                      | 50                         |                           |
| 3    | 0.166728     | 0.881832            | 11.82%                             | serviced                      | 75                         |                           |
| 4    | 0.077436     | 0.959268            | 4.07%                              | capacity exceeded             | 100                        |                           |
| 5    | 0.028772     | 0.988040            | 1.20%                              | capacity exceeded             | 125                        |                           |

# UNSER AND LADERA INTERSECTION

August 11, 2000

WB LT

|                             | Variable input |
|-----------------------------|----------------|
| Tot vehicle turns (veh/hr)  | 921            |
| Cycle time (seconds)        | 54.2           |
| % of time capacity exceeded | 5.00%          |
| Avg vehicle length (feet)   | 25.00          |

Single Left Turn

AM PEAK HOUR

Number of average Arriving Vehicles =  $\lambda$  = 13.8662 ---> 14

| P(x) | Poisson Dist | Sum of Poisson Dist | Prob of at least "x" cars arriving | Are "x" automobiles serviced? | Total Queing Length (feet) |                           |
|------|--------------|---------------------|------------------------------------|-------------------------------|----------------------------|---------------------------|
| 0    | 0.000001     | 0.000001            | 100.00%                            | serviced                      | 0                          |                           |
| 1    | 0.000013     | 0.000014            | 100.00%                            | serviced                      | 25                         |                           |
| 2    | 0.000091     | 0.000106            | 99.99%                             | serviced                      | 50                         |                           |
| 3    | 0.000422     | 0.000528            | 99.95%                             | serviced                      | 75                         |                           |
| 4    | 0.001464     | 0.001992            | 99.80%                             | serviced                      | 100                        |                           |
| 5    | 0.004061     | 0.006053            | 99.39%                             | serviced                      | 125                        |                           |
| 6    | 0.009384     | 0.015437            | 98.46%                             | serviced                      | 150                        |                           |
| 7    | 0.018589     | 0.034027            | 96.60%                             | serviced                      | 175                        |                           |
| 8    | 0.032220     | 0.066247            | 93.38%                             | serviced                      | 200                        |                           |
| 9    | 0.049642     | 0.115889            | 88.41%                             | serviced                      | 225                        |                           |
| 10   | 0.068834     | 0.184722            | 81.53%                             | serviced                      | 250                        |                           |
| 11   | 0.086769     | 0.271491            | 72.85%                             | serviced                      | 275                        |                           |
| 12   | 0.100263     | 0.371754            | 62.82%                             | serviced                      | 300                        |                           |
| 13   | 0.106943     | 0.478698            | 52.13%                             | serviced                      | 325                        |                           |
| 14   | 0.105921     | 0.584619            | 41.54%                             | serviced                      | 350                        |                           |
| 15   | 0.097914     | 0.682533            | 31.75%                             | serviced                      | 375                        |                           |
| 16   | 0.084856     | 0.767389            | 23.26%                             | serviced                      | 400                        |                           |
| 17   | 0.069214     | 0.836603            | 16.34%                             | serviced                      | 425                        |                           |
| 18   | 0.053318     | 0.889921            | 11.01%                             | serviced                      | 450                        |                           |
| 19   | 0.038911     | 0.928832            | 7.12%                              | serviced                      | 475                        |                           |
| 20   | 0.026978     | 0.955810            | 4.42%                              | capacity exceeded             | 500                        | <u>&lt;--- Que Length</u> |
| 21   | 0.017813     | 0.973623            | 2.64%                              | capacity exceeded             | 525                        |                           |
| 22   | 0.011227     | 0.984850            | 1.51%                              | capacity exceeded             | 550                        |                           |
| 23   | 0.006769     | 0.991619            | 0.84%                              | capacity exceeded             | 575                        |                           |

# UNSER AND LADERA INTERSECTION

August 11, 2000

NB LT

|                             | Variable input |
|-----------------------------|----------------|
| Tot vehicle turns (veh/hr)  | 372            |
| Cycle time (seconds)        | 60.8           |
| % of time capacity exceeded | 5.00%          |
| Avg vehicle length (feet)   | 25.00          |

Single Left Turn

AM PEAK HOUR

Number of average Arriving Vehicles = I =

6.2827 --> 7

| P(x) | Poisson Dist | Sum of Poisson Dist | Prob of at least "x" cars arriving | Are "x" automobiles serviced? | Total Queing Length (feet) |                           |
|------|--------------|---------------------|------------------------------------|-------------------------------|----------------------------|---------------------------|
| 0    | 0.001868     | 0.001868            | 99.81%                             | serviced                      | 0                          |                           |
| 1    | 0.011739     | 0.013607            | 98.64%                             | serviced                      | 25                         |                           |
| 2    | 0.036875     | 0.050482            | 94.95%                             | serviced                      | 50                         |                           |
| 3    | 0.077224     | 0.127706            | 87.23%                             | serviced                      | 75                         |                           |
| 4    | 0.121293     | 0.249000            | 75.10%                             | serviced                      | 100                        |                           |
| 5    | 0.152409     | 0.401409            | 59.86%                             | serviced                      | 125                        |                           |
| 6    | 0.159589     | 0.560998            | 43.90%                             | serviced                      | 150                        |                           |
| 7    | 0.143235     | 0.704234            | 29.58%                             | serviced                      | 175                        |                           |
| 8    | 0.112487     | 0.816721            | 18.33%                             | serviced                      | 200                        |                           |
| 9    | 0.078525     | 0.895246            | 10.48%                             | serviced                      | 225                        |                           |
| 10   | 0.049334     | 0.944580            | 5.54%                              | serviced                      | 250                        |                           |
| 11   | 0.028177     | 0.972757            | 2.72%                              | capacity exceeded             | 275                        | <u>&lt;--- Que Length</u> |
| 12   | 0.014752     | 0.987510            | 1.25%                              | capacity exceeded             | 300                        |                           |
| 13   | 0.007130     | 0.994639            | 0.54%                              | capacity exceeded             | 325                        |                           |
| 14   | 0.003199     | 0.997839            | 0.22%                              | capacity exceeded             | 350                        |                           |

# UNSER AND LADERA INTERSECTION

August 11, 2000

EB LT

|                             | Variable input |
|-----------------------------|----------------|
| Tot vehicle turns (veh/hr)  | 81             |
| Cycle time (seconds)        | 81             |
| % of time capacity exceeded | 5.00%          |
| Avg vehicle length (feet)   | 25.00          |

Single Left Turn

AM PEAK HOUR

Number of average Arriving Vehicles = I =

1.8225 ---> 2

| P(x) | Poisson Dist | Sum of Poisson Dist | Prob of at least "x" cars arriving | Are "x" automobiles serviced? | Total Queing Length (feet) |                           |
|------|--------------|---------------------|------------------------------------|-------------------------------|----------------------------|---------------------------|
| 0    | 0.161621     | 0.161621            | 83.84%                             | serviced                      | 0                          | <b>&lt;--- Que Length</b> |
| 1    | 0.294555     | 0.456176            | 54.38%                             | serviced                      | 25                         |                           |
| 2    | 0.268413     | 0.724589            | 27.54%                             | serviced                      | 50                         |                           |
| 3    | 0.163061     | 0.887650            | 11.24%                             | serviced                      | 75                         |                           |
| 4    | 0.074295     | 0.961944            | 3.81%                              | capacity exceeded             | 100                        |                           |
| 5    | 0.027080     | 0.989025            | 1.10%                              | capacity exceeded             | 125                        |                           |

September 20, 2000

## UNSER AND LADERA INTERSECTION

EB LT

|                             | Variable input |
|-----------------------------|----------------|
| Tot vehicle turns (veh/hr)  | 81             |
| Cycle time (seconds)        | 84.1           |
| % of time capacity exceeded | 5.00%          |
| Avg vehicle length (feet)   | 25.00          |

Single Left Turn

AM PEAK HOUR

Number of average Arriving Vehicles =  $\lambda =$  1.8923 ---> 2

| P(x) | Poisson Dist | Sum of Poisson Dist | Prob of at least "x" cars arriving | Are "x" automobiles serviced? | Total Queing Length (feet) |                           |
|------|--------------|---------------------|------------------------------------|-------------------------------|----------------------------|---------------------------|
| 0    | 0.150732     | 0.150732            | 84.93%                             | served                        | 0                          | <b>&lt;--- Que Length</b> |
| 1    | 0.285223     | 0.435955            | 56.40%                             | served                        | 25                         |                           |
| 2    | 0.269857     | 0.705812            | 29.42%                             | served                        | 50                         |                           |
| 3    | 0.170212     | 0.876024            | 12.40%                             | served                        | 75                         |                           |
| 4    | 0.080521     | 0.956545            | 4.35%                              | capacity exceeded             | 100                        |                           |
| 5    | 0.030473     | 0.987018            | 1.30%                              | capacity exceeded             | 125                        |                           |
| 6    | 0.009610     | 0.996629            | 0.34%                              | capacity exceeded             | 150                        |                           |
| 7    | 0.002598     | 0.999227            | 0.08%                              | capacity exceeded             | 175                        |                           |
| 8    | 0.000614     | 0.999841            | 0.02%                              | capacity exceeded             | 200                        |                           |
| 9    | 0.000129     | 0.999971            | 0.00%                              | capacity exceeded             | 225                        |                           |
| 10   | 0.000024     | 0.999995            | 0.00%                              | capacity exceeded             | 250                        |                           |
| 11   | 0.000004     | 0.999999            | 0.00%                              | capacity exceeded             | 275                        |                           |
| 12   | 0.000001     | 1.000000            | 0.00%                              | capacity exceeded             | 300                        |                           |
| 13   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 325                        |                           |
| 14   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 350                        |                           |
| 15   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 375                        |                           |
| 16   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 400                        |                           |
| 17   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 425                        |                           |
| 18   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 450                        |                           |
| 19   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 475                        |                           |
| 20   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 500                        |                           |
| 21   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 525                        |                           |
| 22   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 550                        |                           |
| 23   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 575                        |                           |
| 24   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 600                        |                           |
| 25   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 625                        |                           |
| 26   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 650                        |                           |
| 27   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 675                        |                           |
| 28   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 700                        |                           |
| 29   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 725                        |                           |
| 30   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 750                        |                           |
| 31   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 775                        |                           |

# UNSER AND LADERA INTERSECTION

September 20, 2000

SB LT

|                             | Variable input |
|-----------------------------|----------------|
| Tot vehicle turns (veh/hr)  | 110            |
| Cycle time (seconds)        | 57.8           |
| % of time capacity exceeded | 5.00%          |
| Avg vehicle length (feet)   | 25.00          |

Single Left Turn

AM PEAK HOUR

Number of average Arriving Vehicles =  $\lambda$  = 1.7661 ----> 2

| P(x) | Poisson Dist | Sum of Poisson Dist | Prob of at least "x" cars arriving | Are "x" automobiles serviced? | Total Queing Length (feet) |                           |
|------|--------------|---------------------|------------------------------------|-------------------------------|----------------------------|---------------------------|
| 0    | 0.170997     | 0.170997            | 82.90%                             | served                        | 0                          | <u>&lt;--- Que Length</u> |
| 1    | 0.301999     | 0.472996            | 52.70%                             | served                        | 25                         |                           |
| 2    | 0.266682     | 0.739678            | 26.03%                             | served                        | 50                         |                           |
| 3    | 0.156997     | 0.896675            | 10.33%                             | served                        | 75                         |                           |
| 4    | 0.069318     | 0.965993            | 3.40%                              | capacity exceeded             | 100                        |                           |
| 5    | 0.024485     | 0.990478            | 0.95%                              | capacity exceeded             | 125                        |                           |
| 6    | 0.007207     | 0.997685            | 0.23%                              | capacity exceeded             | 150                        |                           |
| 7    | 0.001818     | 0.999503            | 0.05%                              | capacity exceeded             | 175                        |                           |
| 8    | 0.000401     | 0.999905            | 0.01%                              | capacity exceeded             | 200                        |                           |
| 9    | 0.000079     | 0.999983            | 0.00%                              | capacity exceeded             | 225                        |                           |
| 10   | 0.000014     | 0.999997            | 0.00%                              | capacity exceeded             | 250                        |                           |
| 11   | 0.000002     | 1.000000            | 0.00%                              | capacity exceeded             | 275                        |                           |
| 12   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 300                        |                           |
| 13   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 325                        |                           |
| 14   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 350                        |                           |
| 15   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 375                        |                           |
| 16   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 400                        |                           |
| 17   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 425                        |                           |
| 18   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 450                        |                           |
| 19   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 475                        |                           |
| 20   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 500                        |                           |
| 21   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 525                        |                           |
| 22   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 550                        |                           |
| 23   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 575                        |                           |
| 24   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 600                        |                           |
| 25   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 625                        |                           |
| 26   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 650                        |                           |
| 27   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 675                        |                           |
| 28   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 700                        |                           |
| 29   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 725                        |                           |
| 30   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 750                        |                           |
| 31   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 775                        |                           |

# UNSER AND LADERA INTERSECTION

September 20, 2000

WB LT

|                             |                |
|-----------------------------|----------------|
|                             | Variable input |
| Tot vehicle turns (veh/hr)  | 921            |
| Cycle time (seconds)        | 89.5           |
| % of time capacity exceeded | 5.00%          |
| Avg vehicle length (feet)   | 25.00          |

Single Left Turn

AM PEAK HOUR

Number of average Arriving Vehicles =  $\lambda$  = 22.8971 ---> 23

| P(x) | Poisson Dist | Sum of Poisson Dist | Prob of at least "x" cars arriving | Are "x" automobiles serviced? | Total Queing Length (feet) |                 |
|------|--------------|---------------------|------------------------------------|-------------------------------|----------------------------|-----------------|
| 0    | 0.000000     | 0.000000            | 100.00%                            | serviced                      | 0                          |                 |
| 1    | 0.000000     | 0.000000            | 100.00%                            | serviced                      | 25                         |                 |
| 2    | 0.000000     | 0.000000            | 100.00%                            | serviced                      | 50                         |                 |
| 3    | 0.000000     | 0.000000            | 100.00%                            | serviced                      | 75                         |                 |
| 4    | 0.000001     | 0.000002            | 100.00%                            | serviced                      | 100                        |                 |
| 5    | 0.000006     | 0.000008            | 100.00%                            | serviced                      | 125                        |                 |
| 6    | 0.000023     | 0.000030            | 100.00%                            | serviced                      | 150                        |                 |
| 7    | 0.000074     | 0.000105            | 99.99%                             | serviced                      | 175                        |                 |
| 8    | 0.000213     | 0.000318            | 99.97%                             | serviced                      | 200                        |                 |
| 9    | 0.000542     | 0.000860            | 99.91%                             | serviced                      | 225                        |                 |
| 10   | 0.001242     | 0.002102            | 99.79%                             | serviced                      | 250                        |                 |
| 11   | 0.002584     | 0.004686            | 99.53%                             | serviced                      | 275                        |                 |
| 12   | 0.004931     | 0.009617            | 99.04%                             | serviced                      | 300                        |                 |
| 13   | 0.008685     | 0.018302            | 98.17%                             | serviced                      | 325                        |                 |
| 14   | 0.014205     | 0.032507            | 96.75%                             | serviced                      | 350                        |                 |
| 15   | 0.021683     | 0.054191            | 94.58%                             | serviced                      | 375                        |                 |
| 16   | 0.031030     | 0.085221            | 91.48%                             | serviced                      | 400                        |                 |
| 17   | 0.041794     | 0.127015            | 87.30%                             | serviced                      | 425                        |                 |
| 18   | 0.053165     | 0.180180            | 81.98%                             | serviced                      | 450                        |                 |
| 19   | 0.064070     | 0.244250            | 75.58%                             | serviced                      | 475                        |                 |
| 20   | 0.073350     | 0.317600            | 68.24%                             | serviced                      | 500                        |                 |
| 21   | 0.079977     | 0.397577            | 60.24%                             | serviced                      | 525                        |                 |
| 22   | 0.083238     | 0.480814            | 51.92%                             | serviced                      | 550                        |                 |
| 23   | 0.082865     | 0.563679            | 43.63%                             | serviced                      | 575                        |                 |
| 24   | 0.079057     | 0.642737            | 35.73%                             | serviced                      | 600                        |                 |
| 25   | 0.072407     | 0.715144            | 28.49%                             | serviced                      | 625                        |                 |
| 26   | 0.063766     | 0.778910            | 22.11%                             | serviced                      | 650                        |                 |
| 27   | 0.054076     | 0.832986            | 16.70%                             | serviced                      | 675                        |                 |
| 28   | 0.044221     | 0.877207            | 12.28%                             | serviced                      | 700                        |                 |
| 29   | 0.034915     | 0.912121            | 8.79%                              | serviced                      | 725                        |                 |
| 30   | 0.026648     | 0.938769            | 6.12%                              | serviced                      | 750                        |                 |
| 31   | 0.019683     | 0.958452            | 4.15%                              | capacity exceeded             | 775                        | <--- Que Length |

September 20, 2000

## UNSER AND LADERA INTERSECTION

NB LT

|                             | Variable input |
|-----------------------------|----------------|
| Tot vehicle turns (veh/hr)  | 372            |
| Red Cycle time (seconds)    | 27.7           |
| % of time capacity exceeded | 5.00%          |
| Avg vehicle length (feet)   | 25.00          |

Single Left Turn

PM PEAK HOUR

Number of average Arriving Vehicles = I =

2.8623 ---&gt; 3

| P(x) | Poisson Dist | Sum of Poisson Dist | Prob of at least "x" cars arriving | Are "x" automobiles serviced? | Total Queing Length (feet) |                           |
|------|--------------|---------------------|------------------------------------|-------------------------------|----------------------------|---------------------------|
| 0    | 0.057135     | 0.057135            | 94.29%                             | serviced                      | 0                          |                           |
| 1    | 0.163540     | 0.220676            | 77.93%                             | serviced                      | 25                         |                           |
| 2    | 0.234053     | 0.454729            | 54.53%                             | serviced                      | 50                         |                           |
| 3    | 0.223313     | 0.678042            | 32.20%                             | serviced                      | 75                         |                           |
| 4    | 0.159799     | 0.837841            | 16.22%                             | serviced                      | 100                        |                           |
| 5    | 0.091480     | 0.929320            | 7.07%                              | serviced                      | 125                        |                           |
| 6    | 0.043641     | 0.972961            | 2.70%                              | capacity exceeded             | 150                        | <b>&lt;--- Que Length</b> |
| 7    | 0.017845     | 0.990806            | 0.92%                              | capacity exceeded             | 175                        |                           |
| 8    | 0.006385     | 0.997191            | 0.28%                              | capacity exceeded             | 200                        |                           |
| 9    | 0.002031     | 0.999222            | 0.08%                              | capacity exceeded             | 225                        |                           |
| 10   | 0.000581     | 0.999803            | 0.02%                              | capacity exceeded             | 250                        |                           |
| 11   | 0.000151     | 0.999954            | 0.00%                              | capacity exceeded             | 275                        |                           |
| 12   | 0.000036     | 0.999990            | 0.00%                              | capacity exceeded             | 300                        |                           |
| 13   | 0.000008     | 0.999998            | 0.00%                              | capacity exceeded             | 325                        |                           |
| 14   | 0.000002     | 1.000000            | 0.00%                              | capacity exceeded             | 350                        |                           |
| 15   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 375                        |                           |
| 16   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 400                        |                           |
| 17   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 425                        |                           |
| 18   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 450                        |                           |
| 19   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 475                        |                           |
| 20   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 500                        |                           |
| 21   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 525                        |                           |
| 22   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 550                        |                           |
| 23   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 575                        |                           |
| 24   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 600                        |                           |
| 25   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 625                        |                           |
| 26   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 650                        |                           |
| 27   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 675                        |                           |
| 28   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 700                        |                           |
| 29   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 725                        |                           |
| 30   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 750                        |                           |
| 31   | 0.000000     | 1.000000            | 0.00%                              | capacity exceeded             | 775                        |                           |