SAWMILL MIXED USE DEVELOPMENT TRAFFIC IMPACT STUDY

FEBRUARY 1, 2007

Prepared for:

Pacificap Properties Group
420 SW Washington Street
Suite 401
Portland, OR 97204

Prepared by:

Bohannan ▲ Huston INC.

ENGINEERING ▲
SPATIAL DATA ▲
ADVANCED TECHNOLOGIES ▲

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TRAFFIC IMPACT STUDY

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TRAFFIC IMPACT STUDY
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I. INTRODUCTION

The Sawmill Mixed-Use development is a proposed live-work development with small amount of accompanying retail and service development in the Sawmill area. A vicinity map is shown in Figure 1 with a site plan shown in Figure 2.

A. Study Purpose

The purpose of the traffic study is to determine the transportation impacts of the proposed development on the existing roadway network in the project area and to recommend any mitigation measures that may be necessary to support the additional traffic generated by the proposed development.

B. Study Procedure

This study used established traffic engineering procedures. The City of Albuquerque Transportation Development staff determined the scope of this traffic study. The study analyzed the following intersections:

- Rio Grande Boulevard and Bellamah Avenue
- 18th Street and Mountain Avenue
- Two site driveways onto Bellamah

The intersection evaluations include analysis for the AM and PM peak hours for the following traffic conditions:

- Existing (2007) traffic
- 2010 - Completion Year without proposed development (No Build)
- 2010 - Completion Year with proposed development (Build)

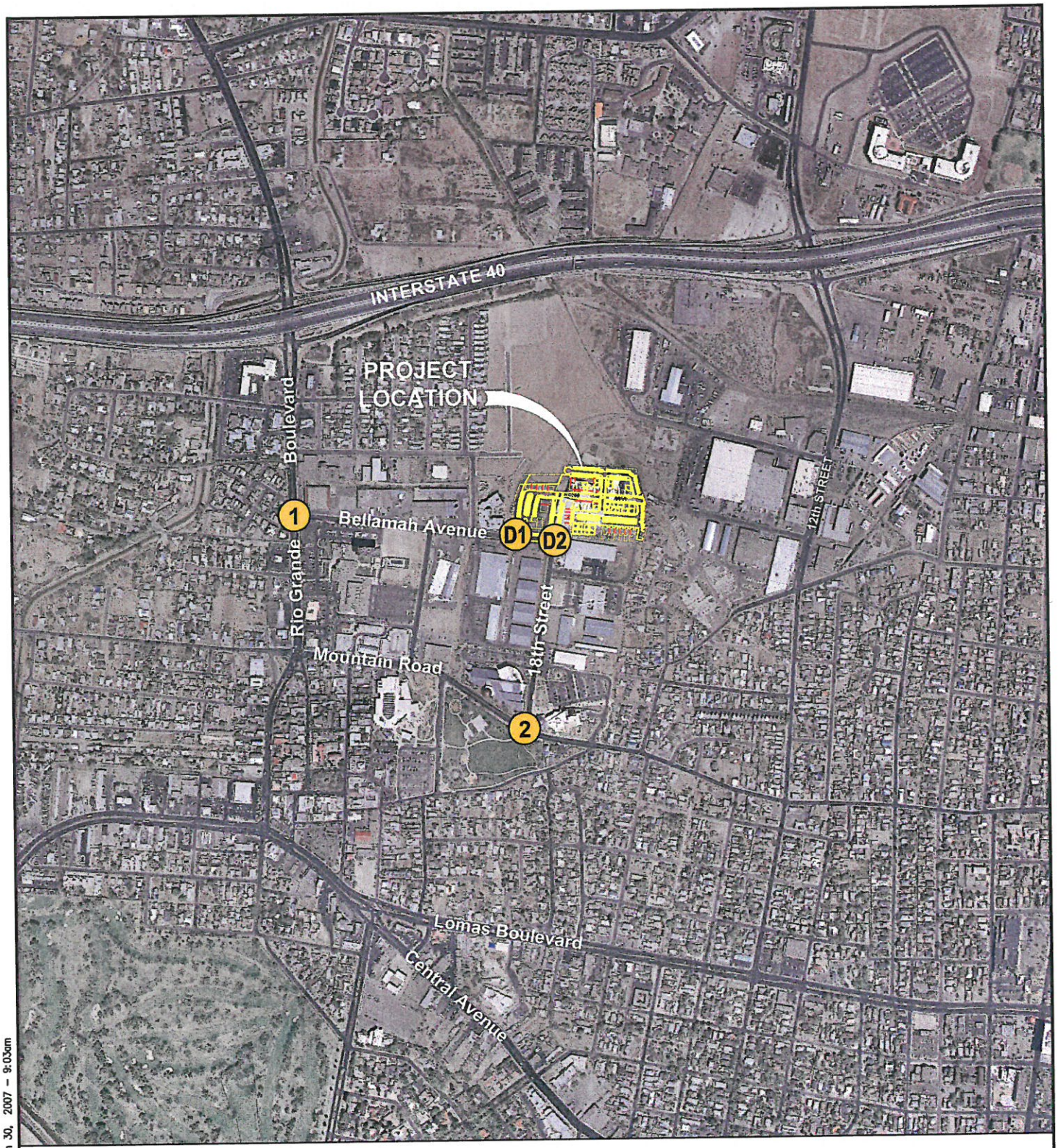

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FIGURE 1
VICINITY MAP

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FIGURE 2
SITE PLAN

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II. EXISTING AREA CHARACTERISTICS

A. General Area Characteristics

The proposed development is located north of the intersection of 18th Street and Bellamah Avenue. The surrounding area is a mix of uses, from older developed residential to new residential developments, as well as some lumber supply companies in addition to newer office/warehouse uses. There is also undeveloped land in the area that is proposed for redevelopment as residential uses. There has been considerable interest in redeveloping this area for affordable housing and providing opportunities for increased gross receipts taxes.

B. Area Street Network

Rio Grande Boulevard is a minor arterial that provides north-south access to Interstate 40 and Central Avenue. The 2005 MRCOG Traffic Flow Map shows that Rio Grande Boulevard carries approximately 27,300 vpd south of Interstate 40.

Mountain Road, a minor arterial/collector facility, provides east-west connectivity, with the most likely destination to be eastbound toward Downtown. The 2005 MRCOG Traffic Flow Map shows that Rio Grande Boulevard carries approximately 5,700 vpd south of the development site.

Bellamah Avenue and 18th Street are local streets that will provide direct access to the site.

C. Existing Traffic Volumes

Harwick Transportation Group collected peak hour traffic counts for the Rio Grande and Bellamah, and 18th Street and Mountain intersections on January 25, 2007.

Figure 3, on page 6 is a summary of the existing peak hour traffic volumes. The traffic counts completed in January 2007 are included in Appendix A.

D. Existing Levels of Service

The 2000 Highway Capacity Manual (HCM) defines Level of Service (LOS) for signalized and un-signalized intersections as follows:

Table 1 - LOS Definitions

Level of Service	Signalized (sec/veh)	Definition	Un-Signalized (sec/veh)
A	<10	Most vehicles do not stop.	<10
B	>10 and <20	Some vehicles stop.	>10 and <15
C	>20 and <35	Significant numbers of vehicles stop.	>15 and <25
D	>35 and <55	Many vehicles stop.	>25 and <35
E	>55 and <80	Limit of acceptable delay.	>35 and <50
F	>80	Unacceptable delay.	>50

LOS D is generally considered acceptable in urban areas and is the desirable base condition for the analyses completed for this traffic study.

Existing intersection traffic volumes were analyzed using intersection methodology from the 2000 Highway Capacity Manual (HCM). Synchro 6 was utilized to perform the analysis. Individual intersection output is included in Appendix C. The results are summarized in the following table:

Table 2 – 2007 Signalized Intersection Capacity Analysis Results

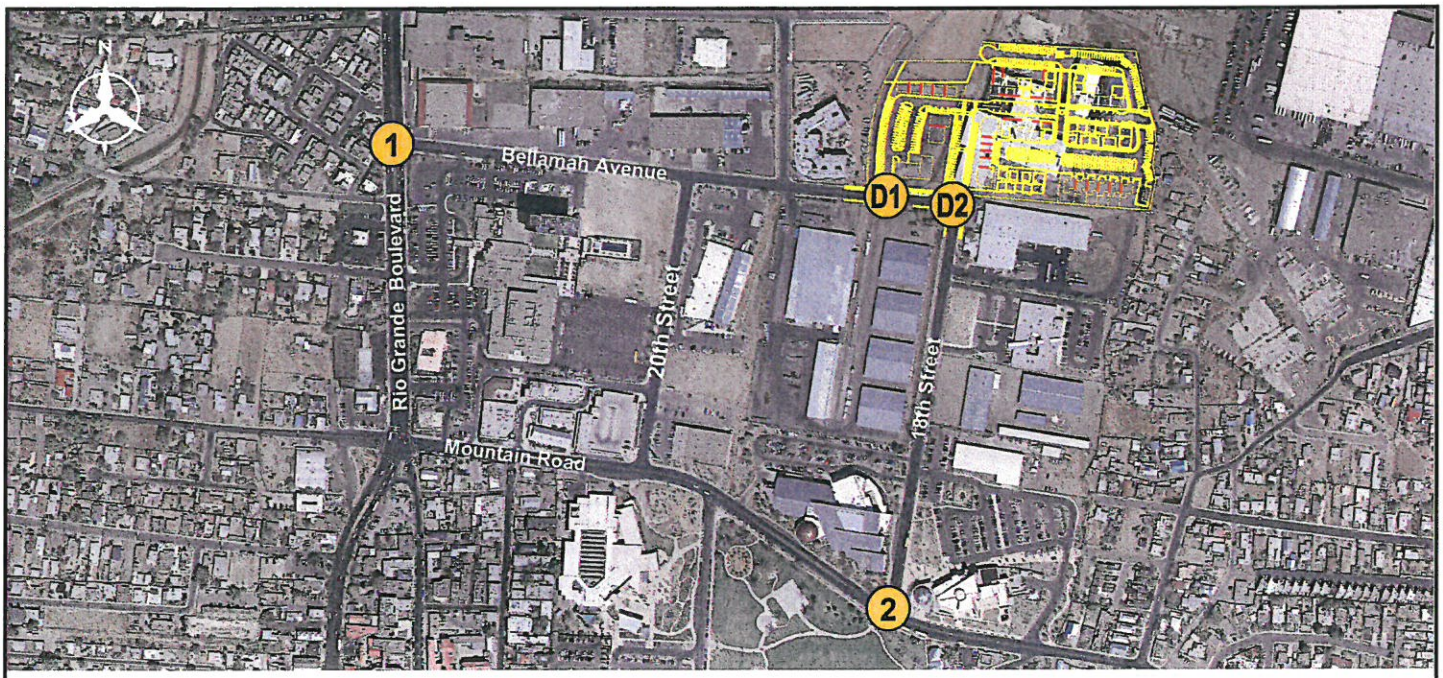
	AM Peak			PM Peak		
Intersection	**Delay (sec.)**	**v/c**	**LOS**	**Delay (sec.)**	**v/c**	**LOS**
Rio Grande & Bellamah	4.6	0.56	A*	16.3	0.79	B
* - some movements LOS E ** - some movements LOS F						

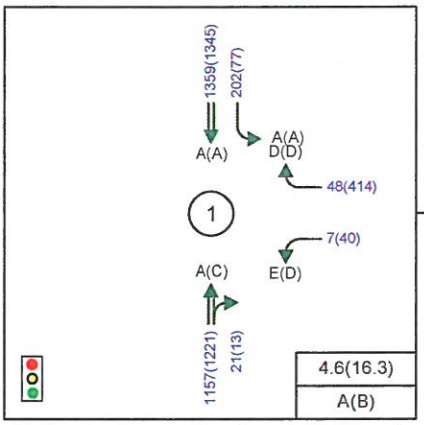
It can be seen that the overall level of service for Rio Grande & Bellamah is acceptable; however, the westbound left operates at LOS E under the evaluated, "optimal" timing plan. Small changes in the timing plan could alleviate this LOS E however; it would slightly increase the average delay for the major street, Rio Grande.

Table 3 – 2007 Unsignalized Intersection Capacity Analysis Results

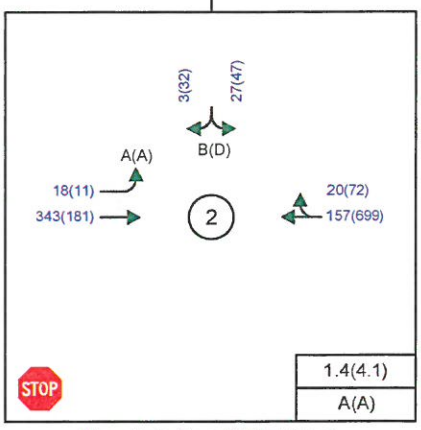
	AM Peak				PM Peak			
Movement	**Delay**	**v/c**	**Queue (ft)**	**LOS**	**Delay**	**v/c**	**Queue (ft)**	**LOS**
Mountain & 18th Street								
EB Left/Right	7.7	0.02	2	A	9.8	0.03	2	A
SB Left/Right	14.0	0.12	10	B	34.6	0.55	76	D

It can be seen from the analysis results shown in the table that all of the intersections operate at acceptable levels of service during the AM and PM Peak Hour periods based upon existing traffic volumes.





Bellamah Avenue/Rio Grande Boulevard



Mountain Road/18th Street

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FIGURE 3
EXISTING AM(PM)
PEAK HOUR VOLUMES

III. BACKGROUND TRAFFIC PROJECTIONS

A. 2010 No-Build Traffic Projections

Existing traffic counts have been projected out to the year 2010, which is anticipated to be the build-out year of the development. An analysis of the MRCOG Traffic Flow Maps show that traffic volumes near the project have been fairly steady with an actual slight decline in traffic levels since the Big I was reconstructed (see Appendix C). Therefore, an annual growth rate for background traffic of 3% is used to estimate background traffic in 2010. The 2010 No-Build Traffic projections for the peak hours are shown in Figure 4 on page 8.

1. 2010 No-Build Intersection Capacity Analysis

The intersections were analyzed using Synchro 6 for signalized and un-signalized intersections. Table 4 and Table 5 are a summary of the 2010 No-Build results. Synchro 6 output is included in Appendix D.

Table 4 – 2010 No Build Signalized Intersection Capacity Analysis Results

	AM Peak			PM Peak		
Intersection	Delay (sec.)	v/c	LOS	Delay (sec.)	v/c	LOS
Rio Grande & Bellamah	6.0	0.61	A*	19.1	0.86	B

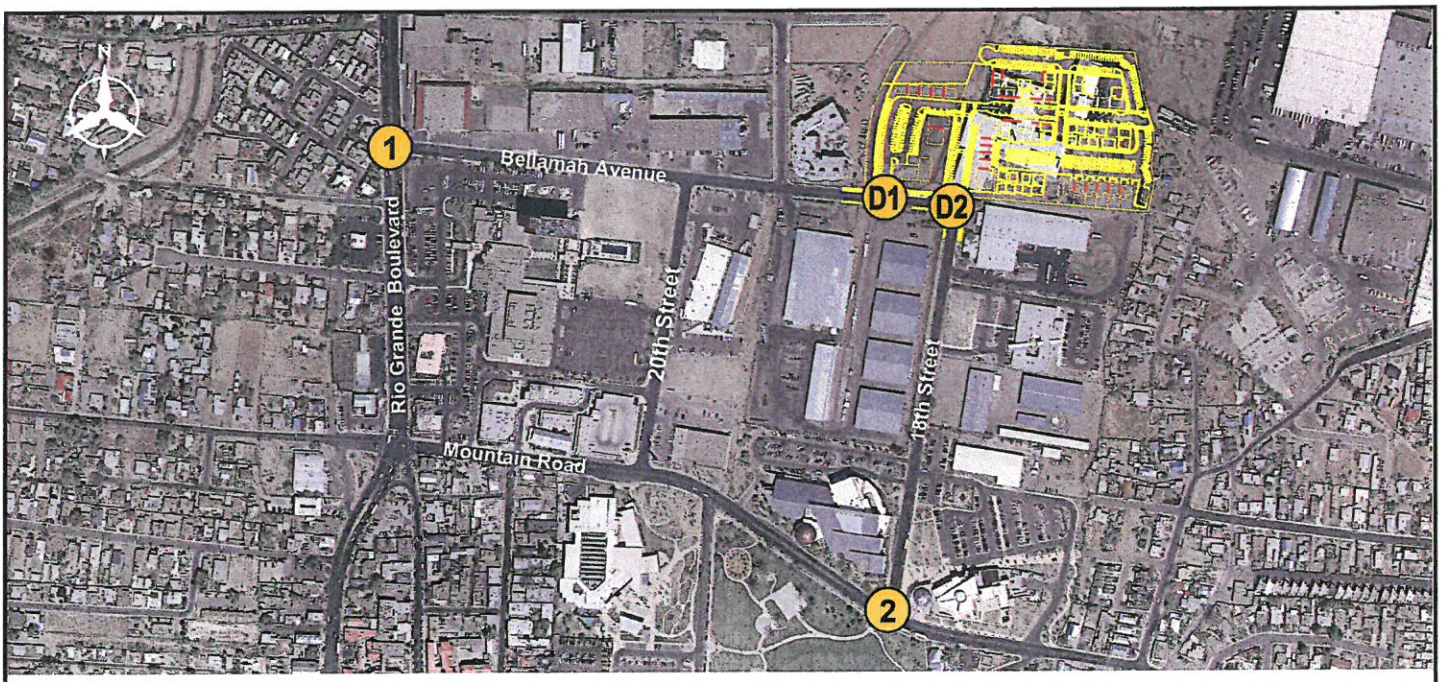
* - some movements LOS E
** - some movements LOS F

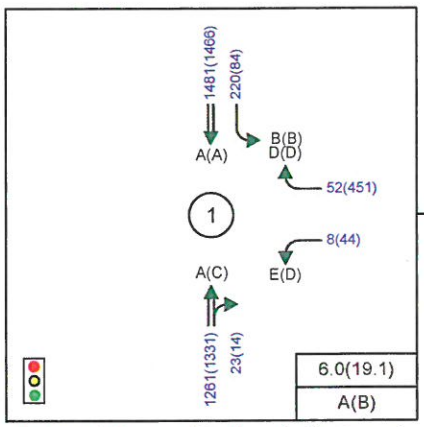
It can be seen from the signalized analysis the Rio Grande and Bellamah signalized intersection operates at an acceptable level of service during the AM and PM Peak Hour periods for the 2010 No Build scenario; however, the westbound left is still LOS E.

Table 5 – 2010 No Build Unsignalized Intersection Capacity Analysis Results

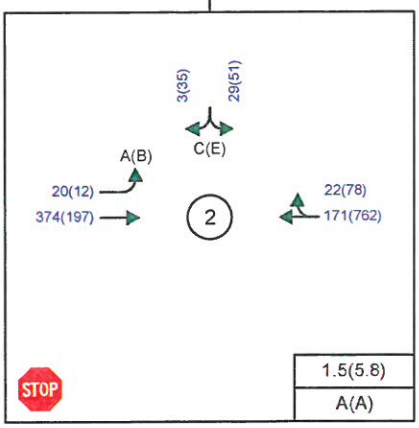
	AM Peak				PM Peak			
Movement	Delay	v/c	Queue (ft)	LOS	Delay	v/c	Queue (ft)	LOS
Mountain & 18th Street								
EB Left/Right	7.8	0.03	2	A	10.2	0.04	3	B
SB Left/Right	15.0	15.0	11	C	49.2	0.68	109	E

The unsignalized intersection at the Mountain Road and 18th Street intersection operates at an overall acceptable level of service for the 2010 No Build scenario; however, the southbound left onto Mountain operates at LOS E. This is considered acceptable due to the proximity of the traffic signal at 19th Street to provide gaps as well as the historical tendency of the unsignalized procedures to overstate the movement delay.





Bellamah Avenue/Rio Grande Boulevard



Mountain Road/18th Street

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FIGURE 4
2010 NO-BUILD AM (PM)
PEAK HOUR TRAFFIC VOLUMES

IV. PROPOSED SITE CHARACTERISTICS

A. Proposed Development

The proposed development will be comprised of a mixed-use, live-work development with accompanying retail development. For the purposes of this study, full occupancy of the development is anticipated to be complete in 2010.

B. Trip Generation

Generated trips are broken down into three types; 1) primary, 2) pass-by trips, and 3) diverted link. The Trip Generation report defines these trips as follows:

- **Primary Trips** - These trips are for the specific purpose of visiting the generator. The stop at that generator is the primary reason for the trip. For example, a home to shopping to home combination of trips is a primary trip set.
- **Pass-by Trips** - These trips are intermediate stops on the way from an origin to a primary trip generation. Pass-by trips are attracted from the traffic passing the site on an adjacent street that contains direct access to the generator site. These trips do not require a diversion from another roadway. For example, stopping at the store on the way home from work is an example of a pass-by trip. No pass-by trips are used in this analysis.
- **Diverted Linked Trips** - These trips are attracted from the traffic volume on the roadway within the vicinity of the generator, but which require a diversion from that roadway to another roadway to gain access to the site. The roadways could include streets or freeways adjacent to the generator, but without access to the generator. For this study, the diverted link trips have been included in with the primary trips.

Projected trips for the proposed development were calculated from data in the Institute of Transportation Engineers (ITE) Trip Generation, 7th Edition, 2003. As the specific mix of tenants and land uses for the live-work units are unknown at this time they were estimated as a mix of residential and general light industrial due to the anticipation of warehouse and artist uses. The land uses assumed were: High Turnover (Sit-Down Restaurant) (ITE Trip Land Use Code 932), Drinking Place (ITE Trip Land Use Code 936), Health Fitness Club (ITE Trip Land Use Code 492), General Offices (ITE Trip Land Use Code 710), Specialty Retail Center (ITE Trip Land Use Code 814), General Light Industrial (ITE Trip Land Use Code 110), and Residential Condominium/Townhouse (ITE Trip Land Use Code 230).

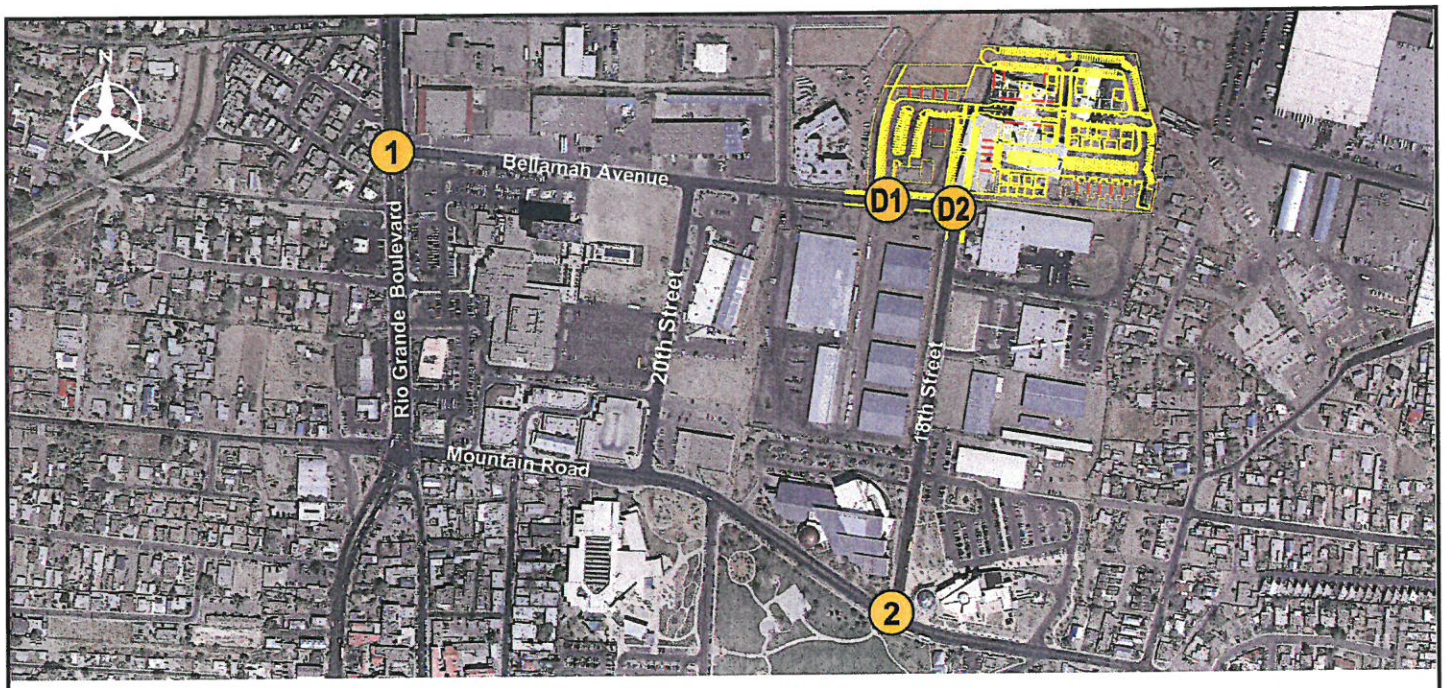
Trips generated for the proposed development, based upon land use, is summarized as follows:

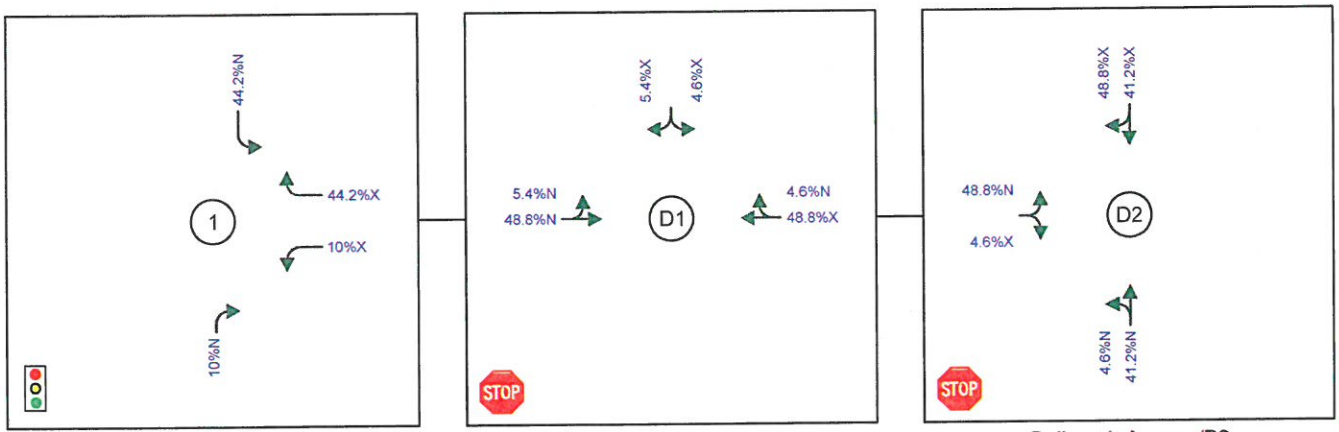
Table 6 - Trip Generation							
Land Use	ITE Land Use Code	Size	24 Hour Two-Way Volume	AM Peak Hour		PM Peak Hour	
				Enter	Exit	Enter	Exit
High Turnover Restaurant	932	4.5 Th. Sq. Ft.	572	27	25	30	19
Drinking Place	936	3.0 Th. Sq Ft.	0	0	0	22	12
Health/Fitness Club	492	3.0 Th. Sq Ft.	99	2	2	6	6
General Office	710	1.0 Th. Sq. Ft.	11	1	0	0	1
Specialty Retail Center	814	12.5 TGLA	554	0	0	15	19
General Light Industrial	110	14.0 Th. Sq Ft.	98	11	2	2	13
Residential Condominium/Townhouse	230	179 DU's	1,049	13	66	63	30
Total			2,383	54	95	138	99
Note: A zero indicates no available data							

C. Trip Distribution and Assignment

A modified gravity model was used to distribute the 2010 traffic. The model assumes distribution for the residential land use is directly proportional to employment and inversely proportional to distance from the place of employment. The commercial/retail trips use an inverse relationship based solely upon population within a 2-mile radius. Due to the small amount of office uses, the City also agreed to a 2-mile radius for the employment component. The 2010 populations for Sub-areas and DASZ's were determined by interpolating between 2000 and 2020 data. Population data for 2000 and 2025 for the Sub-areas and DASZ's were taken from the Mid Region Council of Governments (MRCOG) 2025 Socioeconomic Forecasts for Data Analysis Sub-zones for the Mid-Region of New Mexico (S-03-01).

Sub-areas and DASZ's were grouped based on the most likely existing major street(s) route to the tract. The trip distribution worksheets and associated maps of sub-areas and DASZ's are shown in Appendix E. The trip assignment percentages at each intersection are shown in Figure 5 (residential trips) and Figure 6 (retail and office trips). The trip distribution percentages were applied to the projected trips to determine individual traffic movements. The assignment of the total projected trips to the individual intersections is shown on Figure 7 (residential) on page 13 and Figure 8 (retail and office) on page 14.





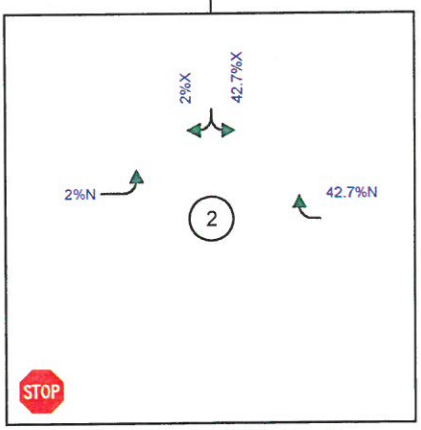


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FIGURE 5
RESIDENTIAL TRIP DISTRIBUTION & ASSIGNMENT PERCENTAGES

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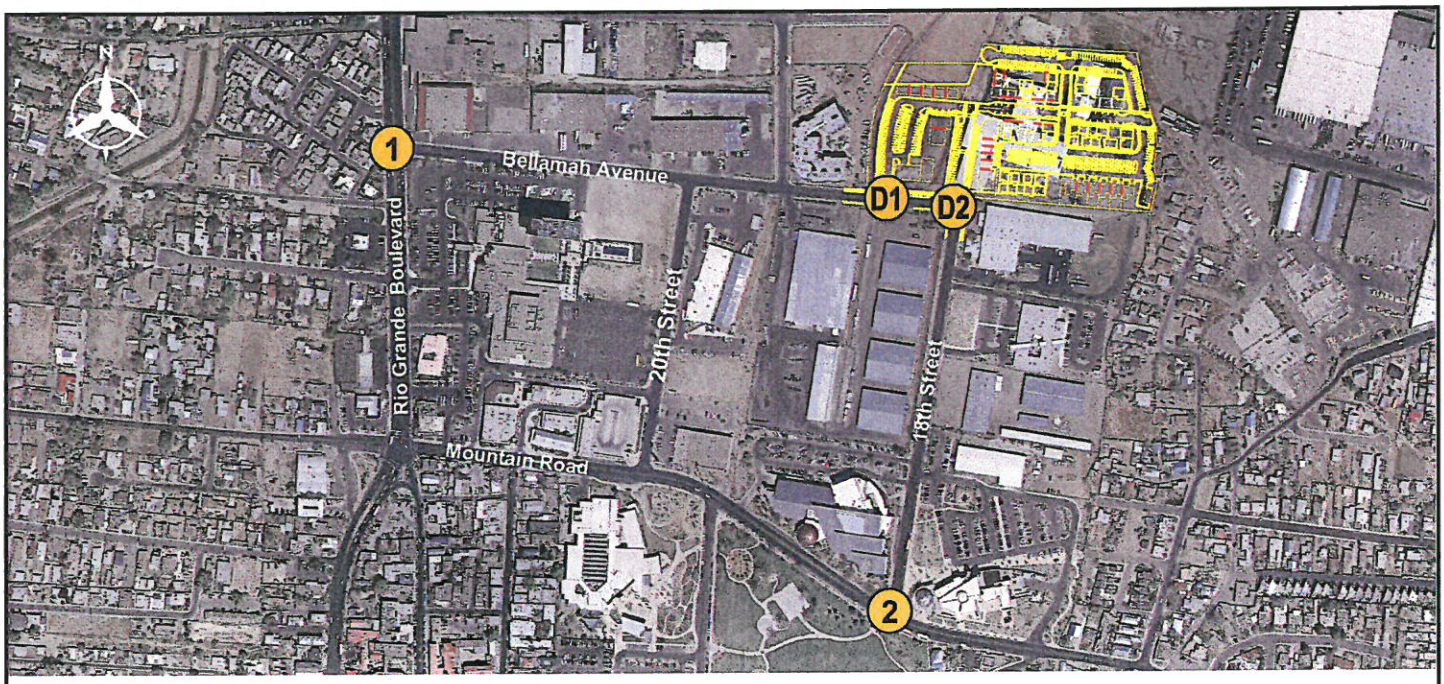
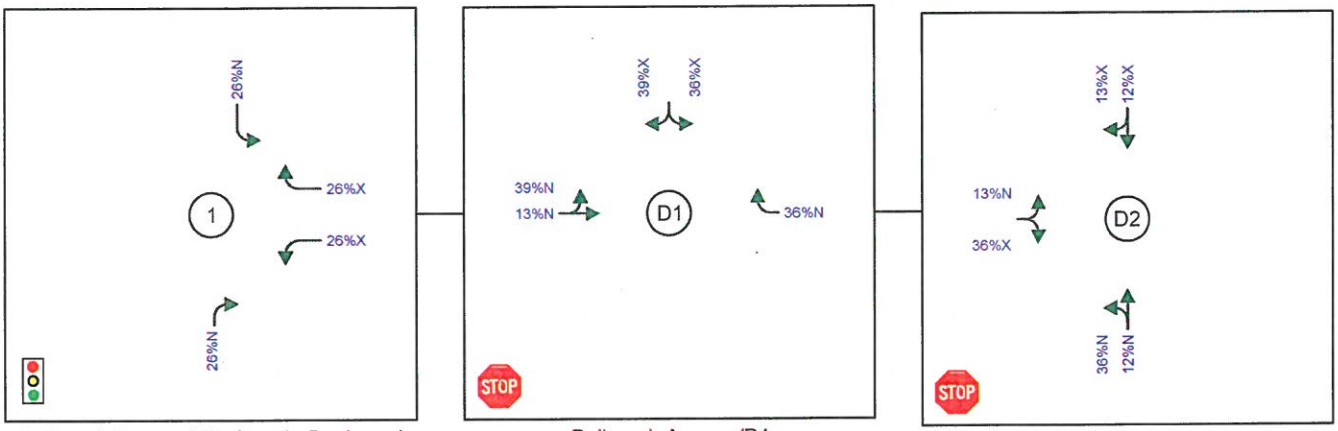
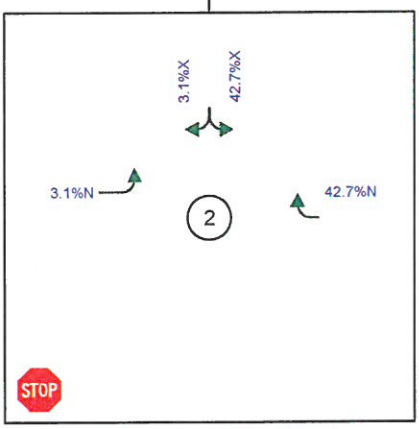




Bellamah Avenue/Rio Grande Boulevard

Bellamah Avenue/D1

Bellamah Avenue/D2



Mountain Road/18th Street

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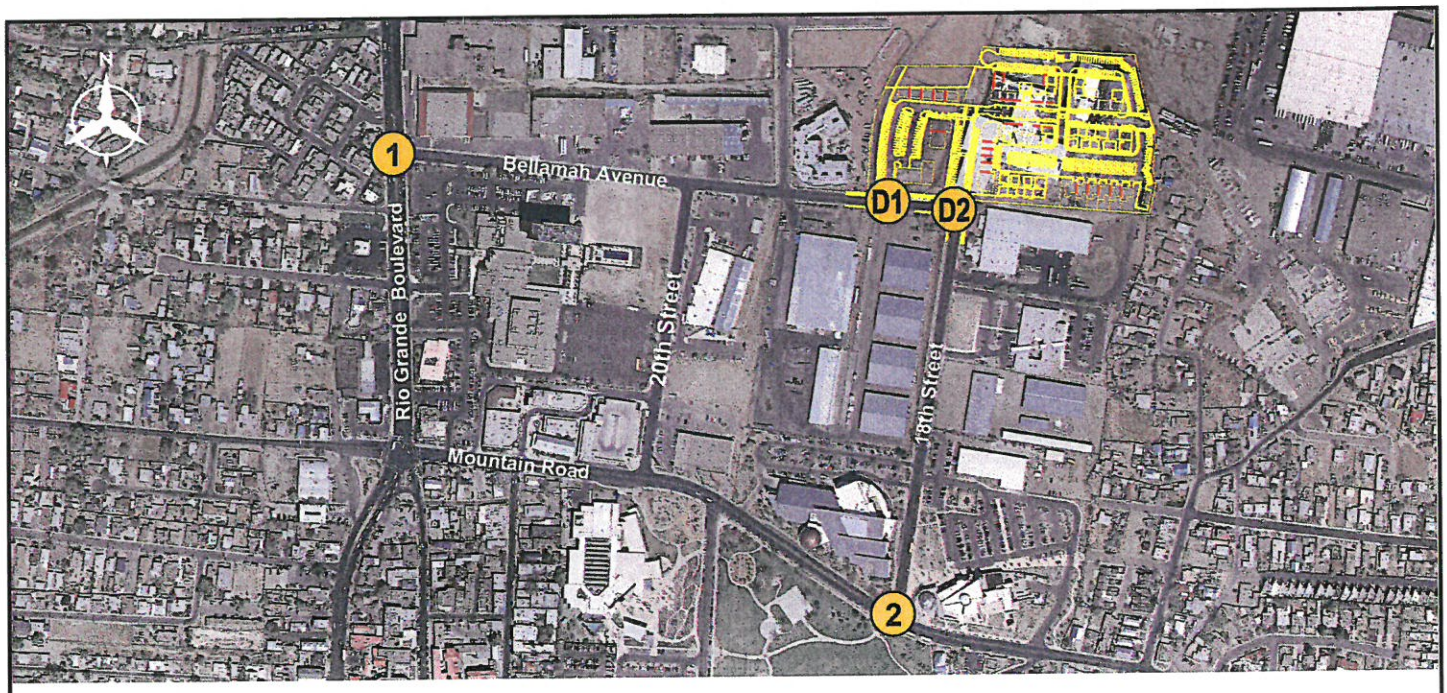
FIGURE 6
RETAIL/OFFICE TRIP DISTRIBUTION & ASSIGNMENT PERCENTAGES



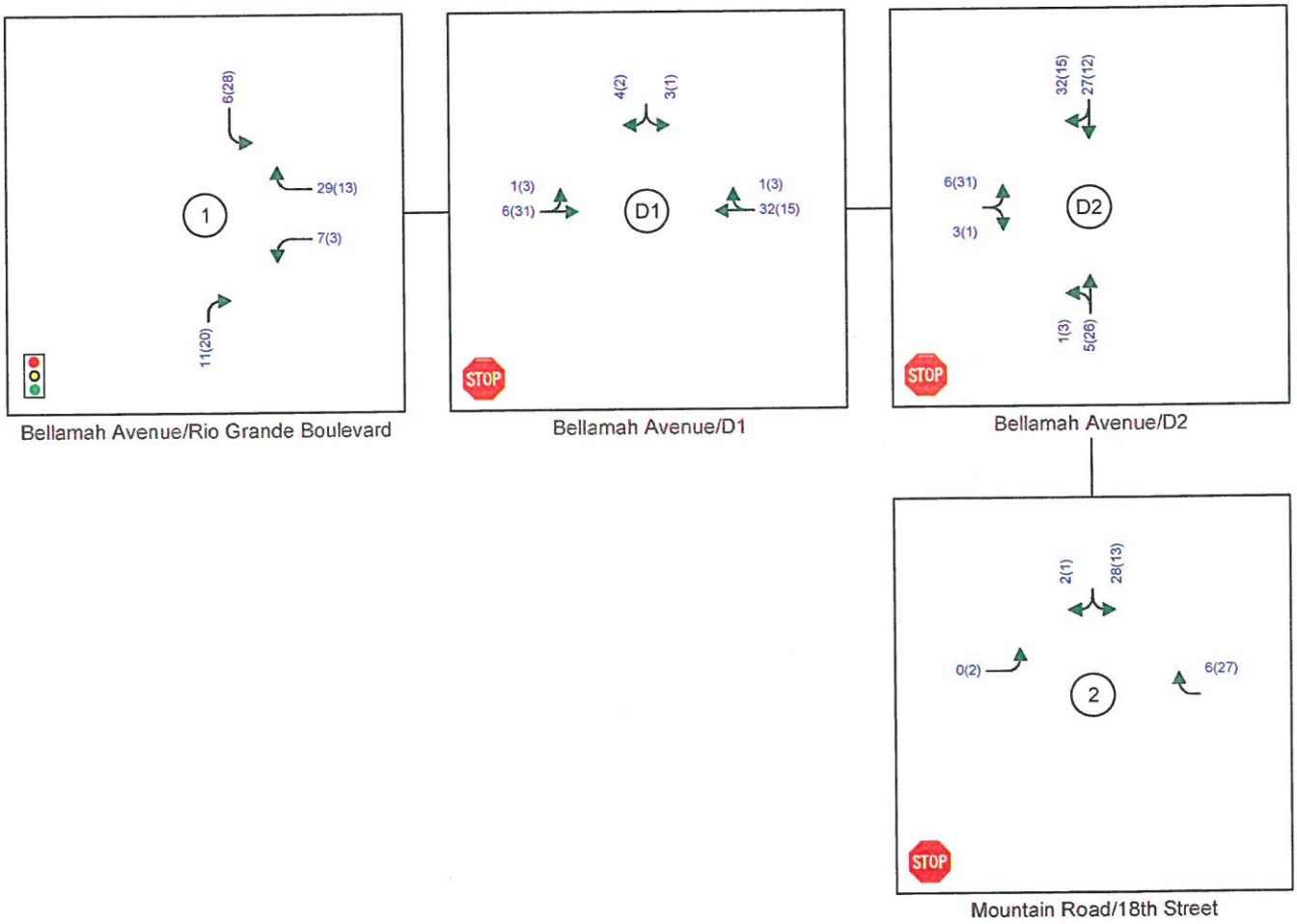


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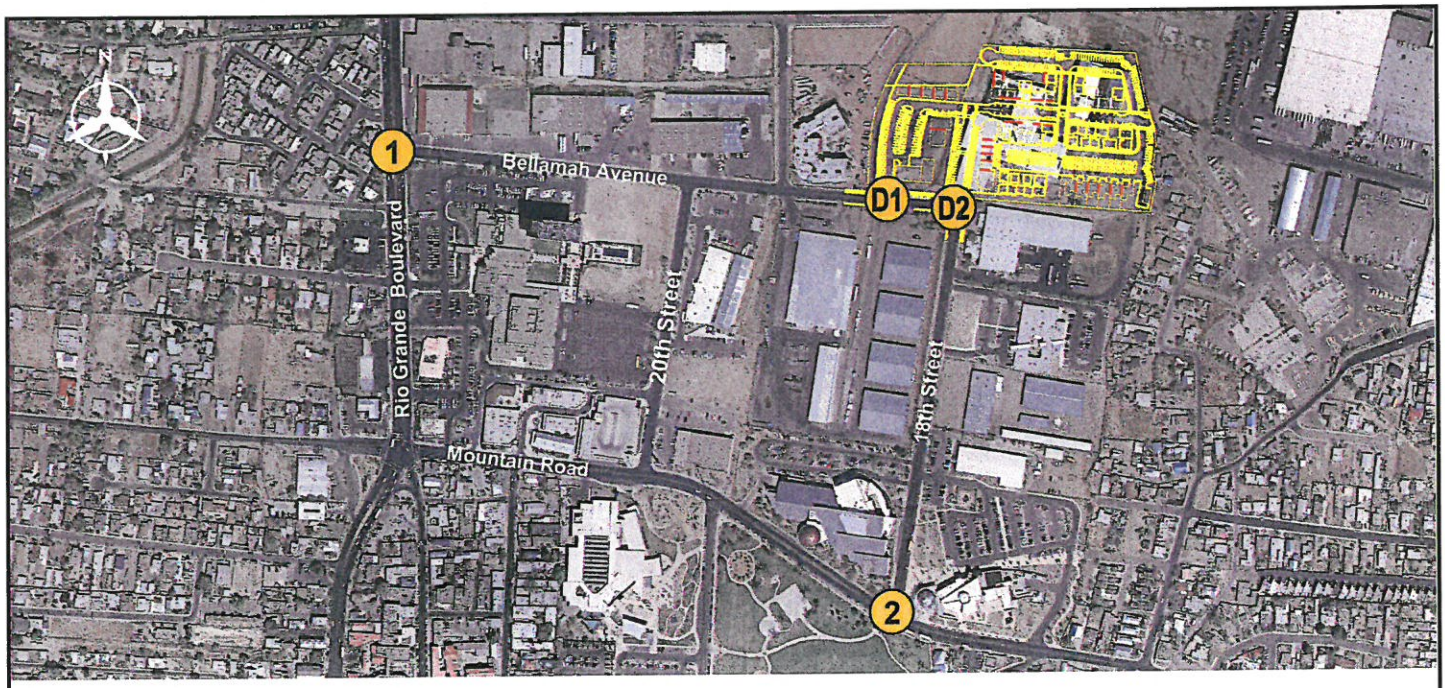
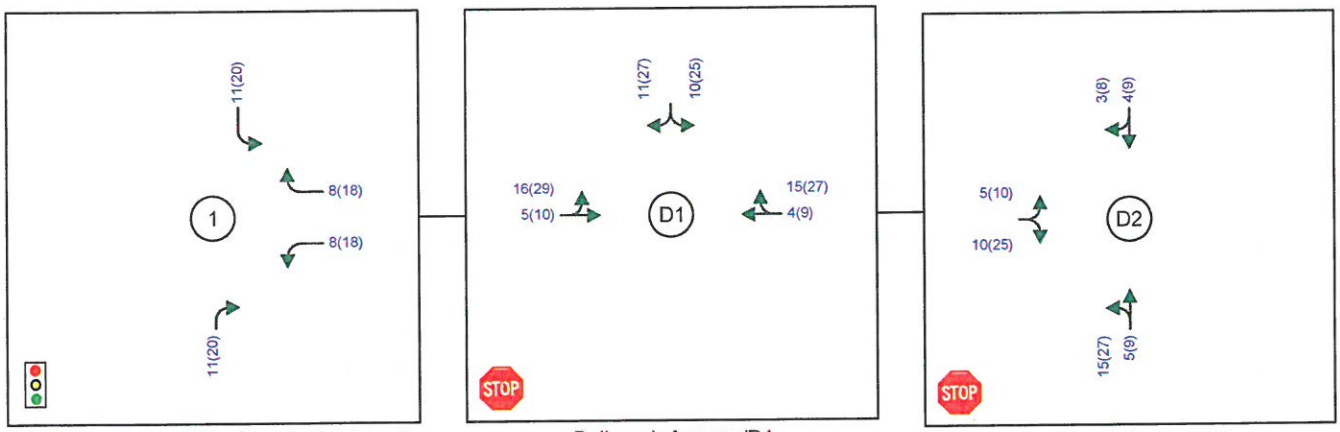
FIGURE 7
RESIDENTIAL TRIP DISTRIBUTION & ASSIGNMENT AM(PM) PEAK HOUR TRAFFIC VOLUMES

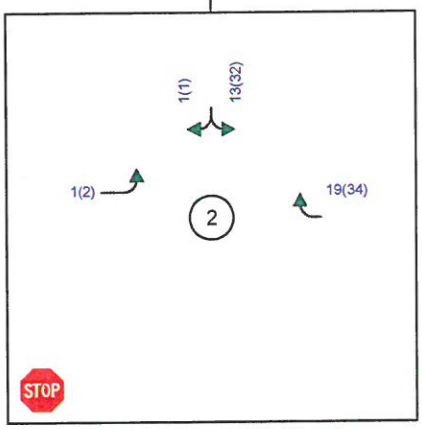




Bellamah Avenue/Rio Grande Boulevard

Bellamah Avenue/D1

Bellamah Avenue/D2



Mountain Road/18th Street

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FIGURE 8
RETAIL/OFFICE TRIP DISTRIBUTION & ASSIGNMENT AM(PM) PEAK HOUR TRAFFIC VOLUMES

V. 2010 BUILD TRAFFIC ANALYSIS

The following section will discuss the results of the build traffic analysis.

A. 2010 Build Traffic Volumes

Based on the trip distribution and assignments, the estimated traffic generated by the proposed development was then added to the 2010 No Build traffic projections. Details of the 2010 Build traffic volume computations for the Sawmill Mixed-Use development are included in Appendix E. Figure 9, shown on page 17, is a summary of the 2010 Build Peak hour traffic projections.

B. 2010 Build Intersection Capacity Analysis

The results for the 2010 Build scenario for signalized intersections are summarized in Table 7. The results for the 2010 Build scenario for unsignalized intersections are summarized in Figure 9, on page 16. The Synchro 6 output for the intersection analyses is included in Appendix F.

Table 7 – 2010 Build Signalized Intersection Capacity Analysis Results

	AM Peak			PM Peak		
Intersection	Delay (sec.)	v/c	LOS	Delay (sec.)	v/c	LOS
Rio Grande & Bellamah	7.8	0.61	A	19.6	0.86	B

* - some movements LOS E
** - some movements LOS F

As indicated in Table 7, the intersection continues to operate at overall acceptable levels of service. It can be seen from the table that with the addition of the build traffic the optimal timing plan has adjusted slightly so that the westbound left no longer operates at LOS E however; the overall operation still has an acceptable level of service.

Table 8 – 2010 Build Unsignalized Intersection Capacity Analysis Results

	AM Peak				PM Peak			
Movement	Delay	v/c	Queue (ft)	LOS	Delay	v/c	Queue (ft)	LOS
Mountain & 18th Street								
WB Left/Right	7.8	0.03	2	A	10.4	0.04	3	B
SB Left/Right	17.0	0.27	28	C	93.6	0.95	204	F

Table 8 indicates that the intersection of Mountain and 18th Street will continue to have difficulty with the southbound left movement, which now reports LOS F. Again, the traffic signal at 19th Street is expected ameliorate this performance somewhat due to the gaps being provided from that signal. Also as mentioned, the unsignalized procedures tend to overstate the delays for sidestreet movements. A peak hour traffic signal warrant analysis was performed and indicates that the peak hour traffic volume warrant is not satisfied in the Build condition (see Appendix F).

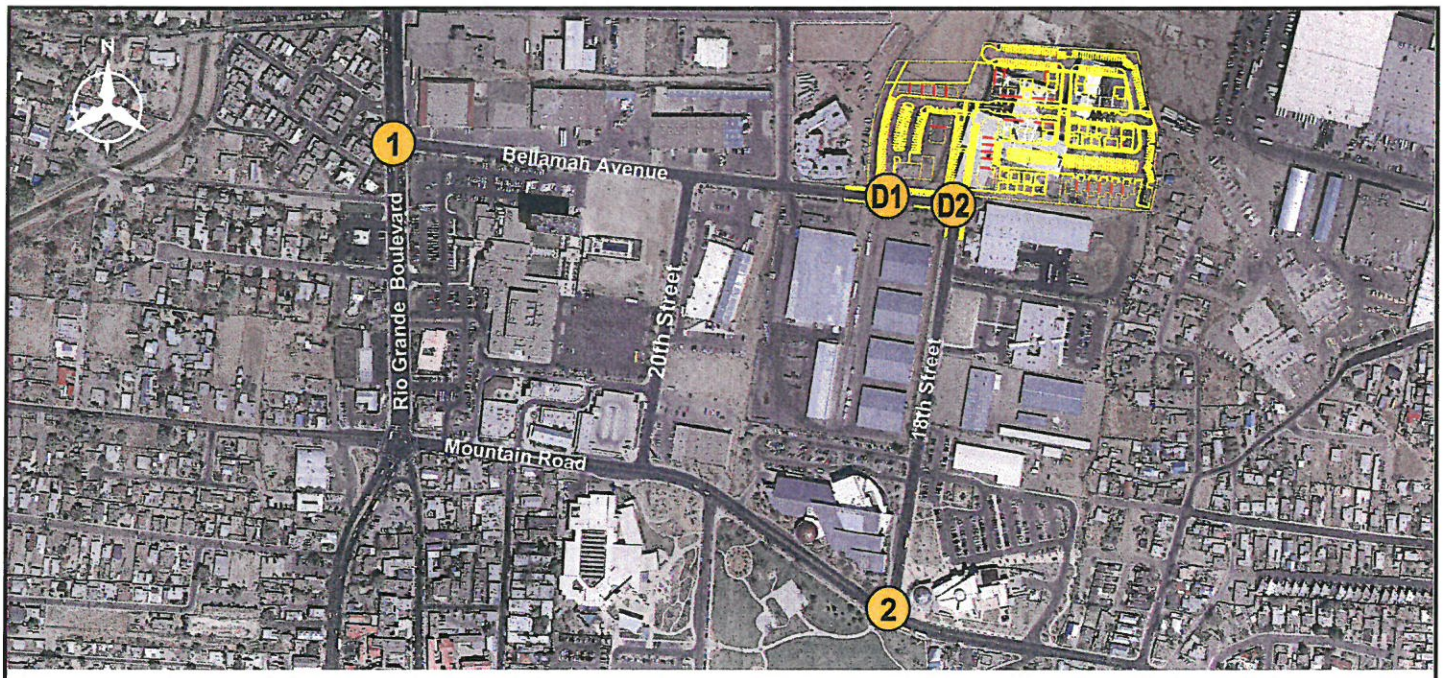
The proposed driveways to service the development are shown in Figure 2. Table 9 summarizes the operational output for all of the driveways in the Build scenario.

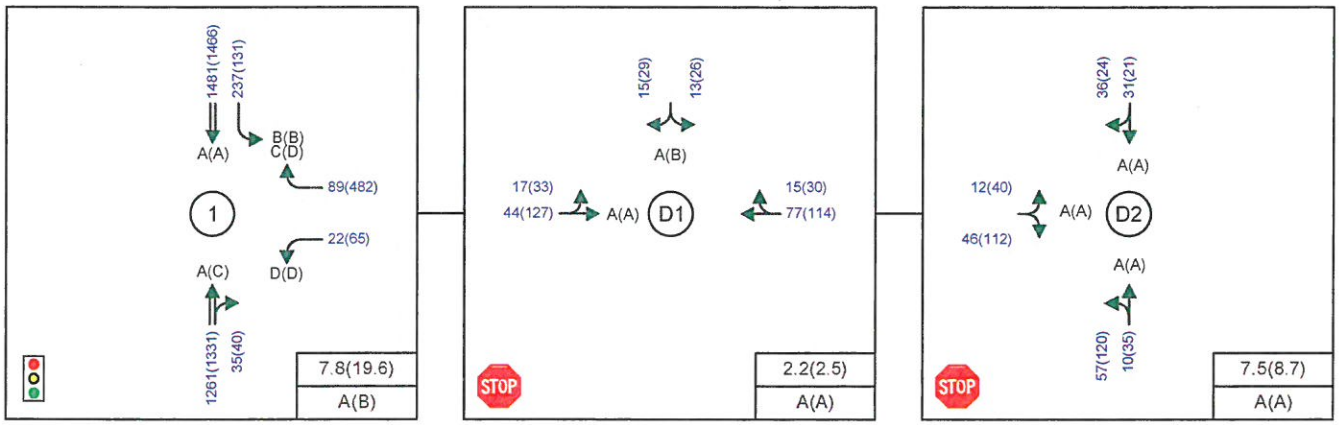
Table 9 – 2010 Build Unsignalized Driveway Capacity Analysis Results

Movement	AM Peak				PM Peak			
	Delay	v/c	Queue (ft)	LOS	Delay	v/c	Queue (ft)	LOS
Driveway 1 and Bellamah								
EB Left	2.2	0.02	1	A	1.8	0.03	2	A
SB Left/Right	9.4	0.04	3	A	10.8	0.11	9	B
Driveway 2 and Bellamah/18th Street								
EB Left/Right	7.2	0.08		A	8.5	0.24		A
NB Left/Thru	7.9	0.11	*	A	9.3	0.27	*	A
SB Left/Right	7.3	0.10		A	7.7	0.07		A

* - queue not reported for AWSC

It can be seen that the proposed driveways will operate at an acceptable level of service.





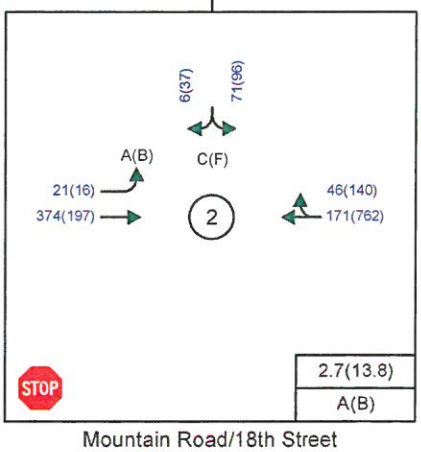


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FIGURE 9
2010 BUILD AM (PM)
PEAK HOUR TRAFFIC VOLUMES

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VI. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

All of the intersections in the study operate at acceptable levels of service except for the southbound left at Rio Grande and Bellamah in the existing and no build conditions, and the southbound left at Mountain and 18th Street in the No Build and Build condition.

At Rio Grande and Bellamah, the westbound left performance could return to acceptable levels if the timing was adjust slightly from optimal. As timing in the field is set by actuation and actual traffic volumes at the time, and is not as precise as that allowed in the analysis procedures, it is considered unlikely that poor performance of this movement happens frequently. In the Build condition, enough traffic is added to the movements where the "optimal" timing calculated by the analysis is adjusted to where the movement operates at acceptable LOS.

At Mountain and 18th Street, the southbound left performance begins to deteriorate in the No Build condition and is exacerbated in the Build scenario. Four conditions make this condition acceptable:

The traffic signal at 19th Street provides gaps to allow this movement to occur more frequently or in platoons when there is a red on Mountain.

The unsignalized procedures historically have overstated the delays for sidestreet movements.

The peak hour traffic volume warrant is not satisfied.

The proximity of the traffic signal at 19th Street makes 18th Street an inappropriate location for an additional traffic signal.

B. Recommendations

Traffic from the development does not result in the need for additional roadway improvements, therefore no off-site transportation mitigation consideration is required above any impact fees collected from the development.

Appendix A
Turning Movement Counts

Rio Grande @ Bellamah

Turning Movement Count Data

Date: 1/25/2007 **Day:** Thursday

E-W Street: **Bellamah Ave** **N-S-Street:** **Rio Grande Blvd**

AM Peak Period

	Eastbound					Westbound					Northbound					Southbound					
Time	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**Sum**
6:30-6:45					0					0					0					0	**0**
6:45-7:00					0	1		7	1	8		191	3	0	194	21	130		4	151	**353**
7:00-7:15					0	3		8	1	11		197	1	4	198	15	148		3	163	**372**
7:15-7:30					0	0		7	1	7		274	5	2	279	17	202		5	219	**505**
7:30-7:45					0	1		11	1	12		274	1	5	275	21	315		2	336	**623**
7:45-8:00					0	2		8	0	10		310	4	0	314	54	380		3	434	**758**
8:00-8:15					0	3		11	0	14		269	0	4	269	60	332		4	392	**675**
8:15-8:30					0	1		16	1	17		304	4	3	308	67	332		6	399	**724**
8:30-8:45					0	0		19	0	19		271	6	3	277	60	260		3	320	**616**
8:45-9:00					0					0					0					0	**0**
Peak Hour	0	0	0	0	**0**	7	0	46	2	**53**	0	1157	9	12	**1166**	202	1359	0	15	**1561**	**2780**
PHF	#####	#####	#####	#####	#####	0.58	#####	0.72	0.50	**0.78**	#####	0.93	0.56	0.60	**0.93**	0.75	0.89	#####	0.63	**0.90**	**0.92**
Trucks				0	#####				2	4%				12	1%				15	1%	**1%**

PM Peak Period

	Eastbound					Westbound					Northbound					Southbound					
Time	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**Sum**
4:00-4:15					0	5		34	0	39		310	1	3	311	14	325		3	339	**689**
4:15-4:30					0	5		50	2	55		290	4	2	294	22	362		4	384	**733**
4:30-4:45					0	9		101	2	110		285	2	0	287	15	384		7	399	**796**
4:45-5:00					0	12		127	2	139		345	4	1	349	22	305		3	327	**815**
5:00-5:15					0	14		130	0	144		301	0	0	301	18	294		1	312	**757**
5:15-5:30					0	7		80	1	87		316	1	0	317	19	285		1	304	**708**
5:30-5:45					0	5		80	1	85		307	4	1	311	20	290		3	310	**706**
5:45-6:00					0	6		47	2	53		294	2	0	296	8	321		2	329	**678**
6:00-6:15					0					0					0					0	**0**
6:15-6:30					0					0					0					0	**0**
Peak Hour	0	0	0	0	**0**	40	0	408	6	**448**	0	1221	10	3	**1231**	77	1345	0	15	**1422**	**3101**
PHF	#####	#####	#####	#####	#####	0.71	#####	0.78	0.75	**0.78**	#####	0.88	0.63	0.38	**0.88**	0.88	0.88	#####	0.54	**0.89**	**0.95**
Trucks				0	#####				6	1%				3	0%				15	1%	**1%**

Mountain @ 18th St

Turning Movement Count Data

Date: 1/25/2007 **Day:** Thursday

E-W Street: **Mountain Rd** **N-S-Street:** **18th St**

AM Peak Period

	Eastbound					Westbound					Northbound					Southbound					
Time	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**Sum**
6:30-6:45					0					0					0					0	**0**
6:45-7:00	1	32		1	33		7	1	0	8					0	2		0	0	2	**43**
7:00-7:15	1	43		1	44		15	1	1	16					0	3		0	0	3	**63**
7:15-7:30	2	45		0	47		14	5	1	19					0	5		0	0	5	**71**
7:30-7:45	4	63		0	67		27	5	0	32					0	5		1	0	6	**105**
7:45-8:00	8	99		0	107		29	9	0	38					0	6		2	0	8	**153**
8:00-8:15	6	101		0	107		42	4	1	46					0	11		0	0	11	**164**
8:15-8:30	4	78		0	82		44	4	0	48					0	5		0	0	5	**135**
8:30-8:45	0	65		1	65		42	2	0	44					0	5		1	0	6	**115**
8:45-9:00					0					0					0					0	**0**
Peak Hour	18	343	0	1	**361**	0	157	19	1	**176**	0	0	0	0	**0**	27	0	3	0	**30**	**567**
PHF	0.56	0.85	#####	0.25	**0.84**	#####	0.89	0.53	0.25	**0.92**	#####	#####	#####	#####	#####	0.61	#####	0.38	#####	**0.68**	**0.86**
Trucks				1	0%				1	1%				0	#####				0	0%	**0%**

PM Peak Period

	Eastbound					Westbound					Northbound					Southbound					
Time	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**LT**	**TH**	**RT**	**Tr**	**Sum**	**Sum**
4:00-4:15	3	72		0	75		94	6	0	100					0	13		10	0	23	**198**
4:15-4:30	2	39		0	41		91	13	0	104					0	8		3	0	11	**156**
4:30-4:45	1	52		0	53		100	12	0	112					0	15		10	0	25	**190**
4:45-5:00	3	39		0	42		157	12	0	169					0	8		8	0	16	**227**
5:00-5:15	6	53		0	59		157	21	1	178					0	24		12	0	36	**273**
5:15-5:30	0	46		1	46		186	21	0	207					0	10		7	0	17	**270**
5:30-5:45	2	43		0	45		199	15	2	214					0	5		5	0	10	**269**
5:45-6:00	1	36		0	37		130	8	0	138					0	14		10	0	24	**199**
6:00-6:15					0					0					0					0	**0**
6:15-6:30					0					0					0					0	**0**
Peak Hour	11	181	0	1	**192**	0	699	69	3	**768**	0	0	0	0	**0**	47	0	32	0	**79**	**1039**
PHF	0.46	0.85	#####	0.25	**0.81**	#####	0.88	0.82	0.38	**0.90**	#####	#####	#####	#####	#####	0.49	#####	0.67	#####	**0.55**	**0.95**
Trucks				1	1%				3	0%				0	#####				0	0%	**0%**

Appendix B
2007 Intersection Capacity Analysis

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3523		1770	3539
Flt Permitted	0.95	1.00	1.00		0.17	1.00
Satd. Flow (perm)	1770	1583	3523		321	3539
Volume (vph)	7	48	1157	21	202	1359
Peak-hour factor, PHF	0.58	0.72	0.93	0.56	0.75	0.89
Adj. Flow (vph)	12	67	1244	38	269	1527
RTOR Reduction (vph)	0	30	1	0	0	0
Lane Group Flow (vph)	12	37	1281	0	269	1527
Turn Type		pm+ov			pm+pt	
Protected Phases	8	1	2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	1.5	14.2	73.8		90.5	90.5
Effective Green, g (s)	1.5	14.2	73.8		90.5	90.5
Actuated g/C Ratio	0.02	0.14	0.74		0.90	0.90
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	27	288	2600		475	3203
v/s Ratio Prot	c0.01	0.02	0.36		c0.07	0.43
v/s Ratio Perm		0.01			c0.44	
v/c Ratio	0.44	0.13	0.49		0.57	0.48
Uniform Delay, d1	48.8	37.5	5.4		4.3	0.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	11.2	0.2	0.7		1.6	0.5
Delay (s)	60.1	37.7	6.1		5.8	1.3
Level of Service	E	D	A		A	A
Approach Delay (s)	41.1		6.1			2.0
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	4.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3531		1770	3539
Flt Permitted	0.95	1.00	1.00		0.07	1.00
Satd. Flow (perm)	1770	1583	3531		139	3539
Volume (vph)	40	414	1221	13	77	1345
Peak-hour factor, PHF	0.71	0.78	0.88	0.63	0.88	0.88
Adj. Flow (vph)	56	531	1388	21	88	1528
RTOR Reduction (vph)	0	13	1	0	0	0
Lane Group Flow (vph)	56	518	1408	0	88	1528
Turn Type		pm+ov			pm+pt	
Protected Phases	8	1	2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	7.4	36.3	51.7		84.6	84.6
Effective Green, g (s)	7.4	36.3	51.7		84.6	84.6
Actuated g/C Ratio	0.07	0.36	0.52		0.85	0.85
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	131	638	1826		589	2994
v/s Ratio Prot	0.03	c0.23	c0.40		0.04	0.43
v/s Ratio Perm		0.09			0.08	
v/c Ratio	0.43	0.81	0.77		0.15	0.51
Uniform Delay, d1	44.3	28.8	19.4		8.9	2.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.2	7.8	3.2		0.1	0.6
Delay (s)	46.5	36.6	22.6		9.0	2.7
Level of Service	D	D	C		A	A
Approach Delay (s)	37.5		22.6			3.1
Approach LOS	D		C			A

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	11	181	699	72	47	32
Peak Hour Factor	0.46	0.85	0.88	0.82	0.49	0.67
Hourly flow rate (vph)	24	213	794	88	96	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	882				1099	838
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	882				1099	838
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				58	87
cM capacity (veh/h)	767				228	366

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	24	213	882	144
Volume Left	24	0	0	96
Volume Right	0	0	88	48
cSH	767	1700	1700	261
Volume to Capacity	0.03	0.13	0.52	0.55
Queue Length 95th (ft)	2	0	0	76
Control Delay (s)	9.8	0.0	0.0	34.6
Lane LOS	A			D
Approach Delay (s)	1.0		0.0	34.6
Approach LOS				D

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

Sawmill Mixed Use
Growth Rate Determination

AWDT on Rio Grande
(North of Ladera)

Year	AWDT
2001	36,300
2002	30,400
2003	30,400
2004	28,100
2005	27,300

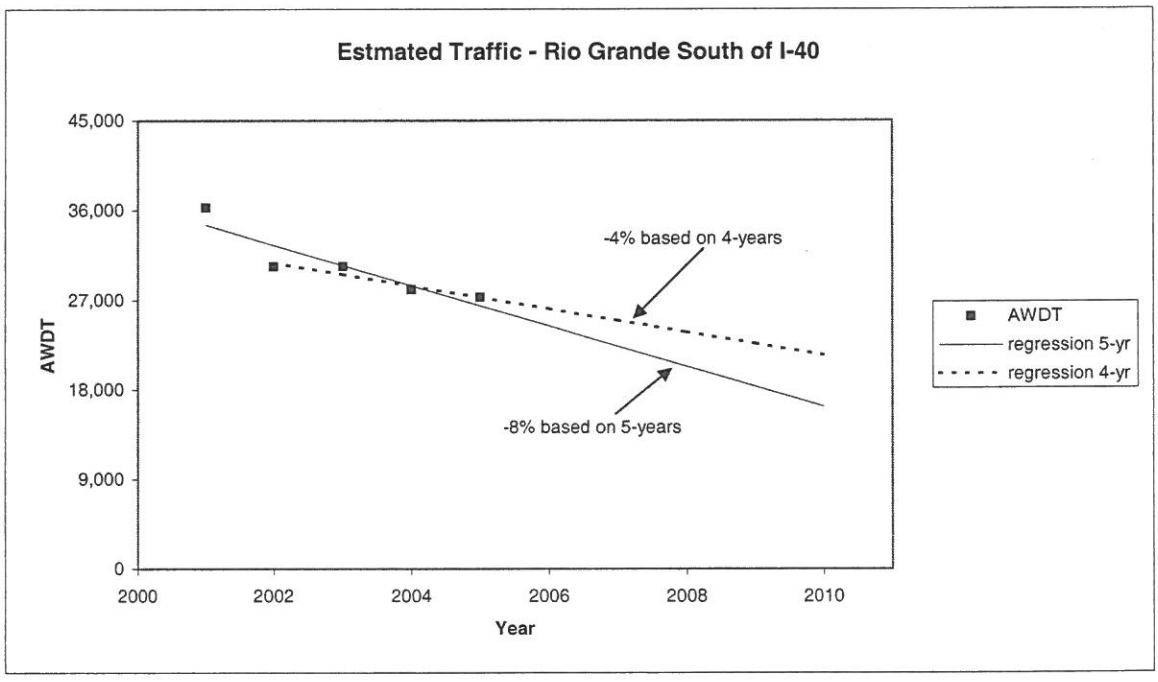
Linear Growth Rate = {[(27,300-36,300)/2]/27,300}x100= -16.48%

Projected AWDT	
2001	34,560
2002	32,530
2003	30,500
2004	28,470
2005	26,440
2006	24,410
2007	22,380
2008	20,350
2009	18,320
2010	16,290

Regression Output	
R Square	0.83
Standard Error	1.68E+03
Observations	5
Intercept	4,096,590
Std Err of Intercept	1.E+06
Coefficient	-2,030.00
Std Err of Coefficient	531

Regression Equation
AWDT = -2,030 x Year + 4,096,590

Estimated Annual Growth Rate
[(16,290-26,440)/26,440) x 100% = -40.33%
-40.33%/5 = -8.07%



Sawmill Mixed Use
Growth Rate Determination

AWDT on Mountain (South of Ladera)

Year	AWDT
2001	6,700
2002	6,700
2003	6,000
2004	5,900
2005	5,700

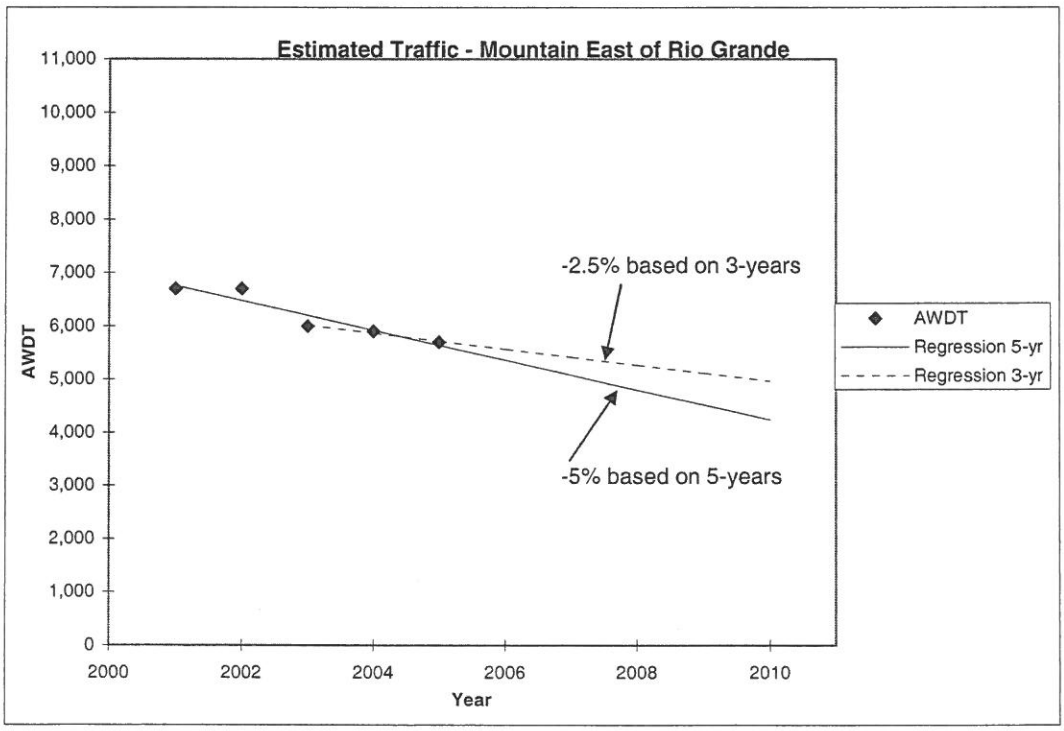
Linear Growth Rate = {[(5,700-6,700)/2]/5,700}x100= -8.77%

Regression Output	
R Square	0.891
Standard Error	1.79E+02
Observations	3
Intercept	567,040
Std Err of Intercept	1.13E+05
Coefficient	-280
Std Err of Coefficient	5.66E+01

Regression Equation
AWDT = -280 x Year + 567,040

Projected AWDT	
2001	6,760
2002	6,480
2003	6,200
2004	5,920
2005	5,640
2006	5,360
2007	5,080
2008	4,800
2009	4,520
2010	4,240

Estimated Annual Growth Rate
((4,240-5,640))/,5640) x 100% = -25.61%
-25.61%/5 = -5.12%



Appendix D
2010 No Build Intersection Capacity Analysis

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3524		1770	3539
Flt Permitted	0.95	1.00	1.00		0.14	1.00
Satd. Flow (perm)	1770	1583	3524		263	3539
Volume (vph)	8	52	1261	23	220	1481
Peak-hour factor, PHF	0.58	0.72	0.93	0.56	0.75	0.89
Adj. Flow (vph)	14	72	1356	41	293	1664
RTOR Reduction (vph)	0	23	1	0	0	0
Lane Group Flow (vph)	14	49	1396	0	293	1664
Turn Type		pm+ov			pm+pt	
Protected Phases	8	1	2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	1.5	16.9	71.1		90.5	90.5
Effective Green, g (s)	1.5	16.9	71.1		90.5	90.5
Actuated g/C Ratio	0.02	0.17	0.71		0.90	0.90
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	27	331	2506		470	3203
v/s Ratio Prot	c0.01	0.02	0.40		c0.10	0.47
v/s Ratio Perm		0.01			c0.47	
v/c Ratio	0.52	0.15	0.56		0.62	0.52
Uniform Delay, d1	48.9	35.4	6.9		11.1	0.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	15.8	0.2	0.9		2.6	0.6
Delay (s)	64.7	35.6	7.8		13.6	1.5
Level of Service	E	D	A		B	A
Approach Delay (s)	40.3		7.8			3.3
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3532		1770	3539
Flt Permitted	0.95	1.00	1.00		0.07	1.00
Satd. Flow (perm)	1770	1583	3532		139	3539
Volume (vph)	44	451	1331	14	84	1466
Peak-hour factor, PHF	0.71	0.78	0.88	0.63	0.88	0.88
Adj. Flow (vph)	62	578	1512	22	95	1666
RTOR Reduction (vph)	0	9	1	0	0	0
Lane Group Flow (vph)	62	569	1533	0	95	1666
Turn Type		pm+ov			pm+pt	
Protected Phases	8	1	2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	7.7	38.3	49.7		84.3	84.3
Effective Green, g (s)	7.7	38.3	49.7		84.3	84.3
Actuated g/C Ratio	0.08	0.38	0.50		0.84	0.84
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	136	670	1755		616	2983
v/s Ratio Prot	0.04	c0.26	c0.43		0.05	0.47
v/s Ratio Perm		0.10			0.08	
v/c Ratio	0.46	0.85	0.87		0.15	0.56
Uniform Delay, d1	44.1	28.2	22.4		11.3	2.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.4	9.8	6.4		0.1	0.8
Delay (s)	46.6	38.0	28.7		11.4	3.1
Level of Service	D	D	C		B	A
Approach Delay (s)	38.8		28.7			3.5
Approach LOS	D		C			A

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	374	171	22	29	3
Peak Hour Factor	0.56	0.85	0.89	0.53	0.61	0.38
Hourly flow rate (vph)	36	440	192	42	48	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	234				724	213
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234				724	213
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				88	99
cM capacity (veh/h)	1334				382	827

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	36	440	234	55
Volume Left	36	0	0	48
Volume Right	0	0	42	8
cSH	1334	1700	1700	414
Volume to Capacity	0.03	0.26	0.14	0.13
Queue Length 95th (ft)	2	0	0	11
Control Delay (s)	7.8	0.0	0.0	15.0
Lane LOS	A			C
Approach Delay (s)	0.6		0.0	15.0
Approach LOS				C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	12	197	762	78	51	35
Peak Hour Factor	0.46	0.85	0.88	0.82	0.49	0.67
Hourly flow rate (vph)	26	232	866	95	104	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	961				1197	913
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	961				1197	913
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				47	84
cM capacity (veh/h)	716				198	331

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	26	232	961	156
Volume Left	26	0	0	104
Volume Right	0	0	95	52
cSH	716	1700	1700	229
Volume to Capacity	0.04	0.14	0.57	0.68
Queue Length 95th (ft)	3	0	0	109
Control Delay (s)	10.2	0.0	0.0	49.2
Lane LOS	B			E
Approach Delay (s)	1.0		0.0	49.2
Approach LOS				E

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

Appendix E
Analysis Trip Distribution / Trip Assignment

SAWMILL AREA RESIDENTIAL TRIP DISTRIBUTION
EMPLOYMENT BY SUBAREA

SUBAREA	(Se) 2010	DISTANCE (D)	EMP./DIST. (Se/D) 2010	% 2010	Rio Grande - To/From North % Employment/ % Utilizing	Dist. Utilizing	EMP/Dist	Rio Grande - To/From South % Employment/ % Utilizing	Dist. Utilizing	EMP/Dist
1	9,341	32.0	292	0.43%	100%	0.43%	292		0.00%	0
2	17,121	20.0	856	1.27%	100%	1.27%	856		0.00%	0
3	1,091	18.0	61	0.09%	100%	0.09%	61		0.00%	0
4	3,608	30.0	120	0.18%	100%	0.18%	120		0.00%	0
5	16,418	13.0	1,263	1.87%	100%	1.87%	1,263		0.00%	0
6	2,546	22.0	116	0.17%	100%	0.17%	116		0.00%	0
7	10,904	6.0	1,817	2.69%	100%	2.69%	1,817		0.00%	0
8	8,899	6.0	1,483	2.20%		0.00%	0	25%	0.55%	371
9	1,586	34.0	47	0.07%	100%	0.07%	47		0.00%	0
10	4,069	13.0	313	0.46%		0.00%	0	75%	0.35%	235
11	6,868	10.0	687	1.02%		0.00%	0	50%	0.51%	343
12	7,695	11.0	700	1.04%	50%	0.52%	350		0.00%	0
13	44,733	12.0	3,728	5.52%	75%	4.14%	2,796		0.00%	0
14	42,828	16.0	2,677	3.96%	100%	3.96%	2,677		0.00%	0
15	18,516	4.0	4,629	6.85%	50%	3.43%	2,315		0.00%	0
16	70,988	12.0	5,916	8.76%	100%	8.76%	5,916		0.00%	0
17	40,512	1.5	27,008	39.98%	2%	0.77%	518	20%	7.93%	5,356
18	52,588	6.0	8,765	12.98%	50%	6.49%	4,382		0.00%	0
19	32,688	11.0	2,972	4.40%	90%	3.96%	2,674		0.00%	0
20	9,406	10.0	941	1.39%	50%	0.70%	470	50%	0.70%	470
21	480	14.0	34	0.05%	100%	0.05%	34		0.00%	0
22	25,006	12.0	2,084	3.09%	100%	3.09%	2,084		0.00%	0
23	3,161	28.0	113	0.17%	100%	0.17%	113		0.00%	0
24	2,652	24.0	111	0.16%	100%	0.16%	111		0.00%	0
25	208	30.0	7	0.01%	100%	0.01%	7		0.00%	0
26	17,991	34.0	529	0.78%	100%	0.78%	529		0.00%	0
27	7,070	38.0	186	0.28%	100%	0.28%	186		0.00%	0
28	5,326	56.0	95	0.14%	100%	0.14%	95		0.00%	0
TOTALS =	464,299		67,547	100.00%		44.16%			10.03%	

2010 EMPLOYMENT FROM 2025 SOCIOECONOMIC CHARACTERISTICS (S-03-01) - APPENDIX D

SAWMILL AREA RESIDENTIAL TRIP DISTRIBUTION
EMPLOYMENT BY SUBAREA

SUBAREA	(Se) 2010	DISTANCE (D)	EMP./DIST. (Se/D) 2010	% 2010	Mountain - To East % Utilizing	Mountain - To East % Employment/ Dist. Utilizing	Mountain - To East EMP/Dist	Mountain - To West % Utilizing	Mountain - To West % Employment/ Dist. Utilizing	Mountain - To West EMP/Dist
1	9,341	32.0	292	0.43%		0.00%	0		0.00%	0
2	17,121	20.0	856	1.27%		0.00%	0		0.00%	0
3	1,091	18.0	61	0.09%		0.00%	0		0.00%	0
4	3,608	30.0	120	0.18%		0.00%	0		0.00%	0
5	16,418	13.0	1,263	1.87%		0.00%	0		0.00%	0
6	2,546	22.0	116	0.17%		0.00%	0		0.00%	0
7	10,904	6.0	1,817	2.69%		0.00%	0		0.00%	0
8	8,899	6.0	1,483	2.20%		0.00%	0	75%	1.65%	1,112
9	1,586	34.0	47	0.07%		0.00%	0		0.00%	0
10	4,069	13.0	313	0.46%		0.00%	0	25%	0.12%	78
11	6,868	10.0	687	1.02%		0.00%	0	50%	0.51%	343
12	7,695	11.0	700	1.04%	50%	0.52%	350		0.00%	0
13	44,733	12.0	3,728	5.52%	25%	1.38%	932		0.00%	0
14	42,828	16.0	2,677	3.96%		0.00%	0		0.00%	0
15	18,516	4.0	4,629	6.85%	50%	3.43%	2,315		0.00%	0
16	70,988	12.0	5,916	8.76%		0.00%	0		0.00%	0
17	40,512	1.5	27,008	39.98%	76%	30.44%	20,563	2%	0.85%	571
18	52,588	6.0	8,765	12.98%	50%	6.49%	4,382		0.00%	0
19	32,688	11.0	2,972	4.40%	10%	0.44%	297		0.00%	0
20	9,406	10.0	941	1.39%		0.00%	0		0.00%	0
21	480	14.0	34	0.05%		0.00%	0		0.00%	0
22	25,006	12.0	2,084	3.09%		0.00%	0		0.00%	0
23	3,161	28.0	113	0.17%		0.00%	0		0.00%	0
24	2,652	24.0	111	0.16%		0.00%	0		0.00%	0
25	208	30.0	7	0.01%		0.00%	0		0.00%	0
26	17,991	34.0	529	0.78%		0.00%	0		0.00%	0
27	7,070	38.0	186	0.28%		0.00%	0		0.00%	0
28	5,326	56.0	95	0.14%		0.00%	0		0.00%	0
TOTALS =	464,299		67,547	100.00%		42.69%			3.12%	

2010 EMPLOYMENT FROM 2025 SOCIOECONOMIC CHARACTERISTICS (S-03-01) - APPENDIX D

SAWMILL AREA - RESIDENTIAL TRIP DISTRIBUTION - (SUBAREA 17)
EMPLOYMENT BY DASZ

SUBZONES WITHIN SUBAREA 17	2000 EMPLOYMENT	2025 EMPLOYMENT	2010 EMPLOYMENT	Distance (miles)	EMP/Dist (A)	2010 % (E=A/B)	(E * 39.98 %)	Rio Grande - To/From North			Rio Grande - To/From South		
								% Utilizing	% Employment/ Dist. Utilizing	EMP/Dist	% Utilizing	% Employment/ Dist. Utilizing	EMP/Dist
5001	2,268	2,771	2,469	1.00	2,469.2	7.18%	2.87%		0.00%	0	25%	0.72%	693
5002	26	311	140	1.00	140.0	0.41%	0.16%		0.00%	0	25%	0.04%	78
5003	4,052	4,104	4,073	1.00	4,072.8	11.84%	4.73%		0.00%	0	25%	1.18%	1,026
5004	299	347	318	1.00	318.2	0.93%	0.37%		0.00%	0	25%	0.09%	87
5005	374	432	397	1.00	397.2	1.15%	0.46%		0.00%	0	25%	0.12%	108
5006	1,294	1,536	1,391	1.00	1,390.8	4.04%	1.62%		0.00%	0	25%	0.40%	384
5007	615	753	670	1.00	670.2	1.95%	0.78%		0.00%	0	25%	0.19%	188
5008	231	510	343	1.00	342.6	1.00%	0.40%		0.00%	0	25%	0.10%	128
5009	1,337	1,572	1,431	1.00	1,431.0	4.16%	1.66%		0.00%	0	25%	0.42%	393
5011	217	289	246	1.00	245.8	0.71%	0.29%		0.00%	0	25%	0.07%	72
5012	389	735	527	1.00	527.4	1.53%	0.61%		0.00%	0	25%	0.15%	184
5101	366	385	374	1.00	373.6	1.09%	0.43%		0.00%	0	25%	0.11%	96
5102	77	102	87	1.00	87.0	0.25%	0.10%		0.00%	0	25%	0.03%	26
5103	500	513	505	1.00	505.2	1.47%	0.59%		0.00%	0	25%	0.15%	128
5121	1,151	1,398	1,250	1.00	1,249.8	3.63%	1.45%		0.00%	0	75%	1.09%	1,049
5131	227	282	249	1.00	249.0	0.72%	0.29%		0.00%	0	75%	0.22%	212
5132	769	765	767	1.00	767.4	2.23%	0.89%		0.00%	0	75%	0.67%	574
5141	140	140	140	1.00	140.0	0.41%	0.16%		0.00%	0	100%	0.16%	140
5142	276	298	285	1.00	284.8	0.83%	0.33%		0.00%	0	100%	0.33%	298
5143	61	72	65	1.00	65.4	0.19%	0.08%		0.00%	0	100%	0.08%	72
5151	164	171	167	1.00	166.8	0.48%	0.19%		0.00%	0	50%	0.10%	86
5152	617	586	605	1.00	604.6	1.76%	0.70%		0.00%	0	50%	0.35%	293
5161	264	270	266	1.00	266.4	0.77%	0.31%		0.00%	0	50%	0.15%	135
5162	407	411	409	1.00	408.6	1.19%	0.47%		0.00%	0		0.00%	0
5163	652	675	661	1.00	661.2	1.92%	0.77%		0.00%	0	25%	0.19%	169
5171	207	219	212	1.00	211.8	0.62%	0.25%		0.00%	0	75%	0.18%	164
5172	358	385	369	1.00	368.8	1.07%	0.43%		0.00%	0	75%	0.32%	289
5173	195	311	241	1.00	241.4	0.70%	0.28%		0.00%	0	25%	0.07%	78
5201	816	1,030	902	1.00	901.6	2.62%	1.05%	50%	0.52%	515		0.00%	0
5202	756	953	835	1.00	834.8	2.43%	0.97%	25%	0.24%	238	25%	0.24%	238
5211	86	94	89	1.00	89.2	0.26%	0.10%		0.00%	0		0.00%	0
5212	58	63	60	1.00	60.0	0.17%	0.07%		0.00%	0		0.00%	0
5213	993	1,022	1,005	1.00	1,004.6	2.92%	1.17%		0.00%	0		0.00%	0
5221	890	902	895	1.00	894.8	2.60%	1.04%		0.00%	0		0.00%	0
5231	1,151	1,549	1,310	1.00	1,310.2	3.81%	1.52%		0.00%	0		0.00%	0
5232	775	770	773	1.00	773.0	2.25%	0.90%		0.00%	0		0.00%	0
5241	143	1,146	544	1.00	544.2	1.58%	0.63%		0.00%	0		0.00%	0
5242	937	934	936	1.00	935.8	2.72%	1.09%		0.00%	0		0.00%	0
5251	1,900	2,119	1,988	1.00	1,987.6	5.78%	2.31%		0.00%	0		0.00%	0
5261	4,986	5,502	5,192	1.00	5,192.4	15.10%	6.04%		0.00%	0		0.00%	0
5262	920	1,652	1,213	1.00	1,212.8	3.53%	1.41%		0.00%	0		0.00%	0
5271	306	577	414	1.00	414.4	1.20%	0.48%		0.00%	0	25%	0.12%	144
5272	754	932	825	1.00	825.2	2.40%	0.96%		0.00%	0	25%	0.24%	233
5273	2,359	2,638	2,471	1.00	2,470.6	7.18%	2.87%		0.00%	0	25%	0.72%	660
TOTALS					34,398 (B)	100.00%	39.98%		0.77%			7.93%	

2010 EMPLOYMENT FROM WEB-BASED SOCIOECONOMIC FORECASTS

SAWMILL AREA - RESIDENTIAL TRIP DISTRIBUTION - (SUBAREA 17)
EMPLOYMENT BY DASZ

SUBZONES WITHIN SUBAREA 17	2000 EMPLOYMENT	2025 EMPLOYMENT	2010 EMPLOYMENT	Distance (miles)	EMP/Dist (A)	2010 % (E=A/B)	(E * 39.98 %)	Mountain - To East % Utilizing	Mountain - To East % Employment/ Dist. Utilizing	Mountain - To East EMP/Dist	Mountain - To West % Utilizing	Mountain - To West % Employment/ Dist. Utilizing	Mountain - To West EMP/Dist
5001	2,268	2,771	2,469	1.00	2,469.2	7.18%	2.87%	75%	2.15%	2,078		0.00%	0
5002	26	311	140	1.00	140.0	0.41%	0.16%	75%	0.12%	233		0.00%	0
5003	4,052	4,104	4,073	1.00	4,072.8	11.84%	4.73%	75%	3.55%	3,078		0.00%	0
5004	299	347	318	1.00	318.2	0.93%	0.37%	75%	0.28%	260		0.00%	0
5005	374	432	397	1.00	397.2	1.15%	0.46%	75%	0.35%	324		0.00%	0
5006	1,294	1,536	1,391	1.00	1,390.8	4.04%	1.62%	75%	1.21%	1,152		0.00%	0
5007	615	753	670	1.00	670.2	1.95%	0.78%	75%	0.58%	565		0.00%	0
5008	231	510	343	1.00	342.6	1.00%	0.40%	75%	0.30%	383		0.00%	0
5009	1,337	1,572	1,431	1.00	1,431.0	4.16%	1.66%	75%	1.25%	1,179		0.00%	0
5011	217	289	246	1.00	245.8	0.71%	0.29%	75%	0.21%	217		0.00%	0
5012	389	735	527	1.00	527.4	1.53%	0.61%	75%	0.46%	551		0.00%	0
5101	366	385	374	1.00	373.6	1.09%	0.43%	75%	0.33%	289		0.00%	0
5102	77	102	87	1.00	87.0	0.25%	0.10%	75%	0.08%	77		0.00%	0
5103	500	513	505	1.00	505.2	1.47%	0.59%	75%	0.44%	385		0.00%	0
5121	1,151	1,398	1,250	1.00	1,249.8	3.63%	1.45%	25%	0.36%	350		0.00%	0
5131	227	282	249	1.00	249.0	0.72%	0.29%	25%	0.07%	71		0.00%	0
5132	769	765	767	1.00	767.4	2.23%	0.89%	25%	0.22%	191		0.00%	0
5141	140	140	140	1.00	140.0	0.41%	0.16%		0.00%	0		0.00%	0
5142	276	298	285	1.00	284.8	0.83%	0.33%		0.00%	0		0.00%	0
5143	61	72	65	1.00	65.4	0.19%	0.08%		0.00%	0		0.00%	0
5151	164	171	167	1.00	166.8	0.48%	0.19%		0.00%	0	50%	0.10%	86
5152	617	586	605	1.00	604.6	1.76%	0.70%		0.00%	0	50%	0.35%	293
5161	264	270	266	1.00	266.4	0.77%	0.31%		0.00%	0	50%	0.15%	135
5162	407	411	409	1.00	408.6	1.19%	0.47%	100%	0.47%	411		0.00%	0
5163	652	675	661	1.00	661.2	1.92%	0.77%	75%	0.58%	506		0.00%	0
5171	207	219	212	1.00	211.8	0.62%	0.25%	25%	0.06%	55		0.00%	0
5172	358	385	369	1.00	368.8	1.07%	0.43%	25%	0.11%	96		0.00%	0
5173	195	311	241	1.00	241.4	0.70%	0.28%	75%	0.21%	233		0.00%	0
5201	816	1,030	902	1.00	901.6	2.62%	1.05%	50%	0.52%	515		0.00%	0
5202	756	953	835	1.00	834.8	2.43%	0.97%	25%	0.24%	238	25%	0.24%	238
5211	86	94	89	1.00	89.2	0.26%	0.10%	100%	0.10%	94		0.00%	0
5212	58	63	60	1.00	60.0	0.17%	0.07%	100%	0.07%	63		0.00%	0
5213	993	1,022	1,005	1.00	1,004.6	2.92%	1.17%	100%	1.17%	1,022		0.00%	0
5221	890	902	895	1.00	894.8	2.60%	1.04%	100%	1.04%	902		0.00%	0
5231	1,151	1,549	1,310	1.00	1,310.2	3.81%	1.52%	100%	1.52%	1,549		0.00%	0
5232	775	770	773	1.00	773.0	2.25%	0.90%	100%	0.90%	770		0.00%	0
5241	143	1,146	544	1.00	544.2	1.58%	0.63%	100%	0.63%	1,146		0.00%	0
5242	937	934	936	1.00	935.8	2.72%	1.09%	100%	1.09%	934		0.00%	0
5251	1,900	2,119	1,988	1.00	1,987.6	5.78%	2.31%	100%	2.31%	2,119		0.00%	0
5261	4,986	5,502	5,192	1.00	5,192.4	15.10%	6.04%	100%	6.04%	5,502		0.00%	0
5262	920	1,652	1,213	1.00	1,212.8	3.53%	1.41%	100%	1.41%	1,652		0.00%	0
5271	306	577	414	1.00	414.4	1.20%	0.48%	75%	0.36%	433		0.00%	0
5272	754	932	825	1.00	825.2	2.40%	0.96%	75%	0.72%	699		0.00%	0
5273	2,359	2,638	2,471	1.00	2,470.6	7.18%	2.87%	75%	2.15%	1,979		0.00%	0
TOTALS					34,398 (B)	100.00%	39.98%		30.44%			0.85%	

2010 EMPLOYMENT FROM WEB-BASED SOCIOECONOMIC FORECASTS

Sawmill Mixed Use Trip Distribution - Retail Trips - 2 mile radius
DASZ's within a 2-mile radius of site

	% of DASZ in Study Area	2010 Population In DASZ	2010 Population In Study Area	2010 Pop%	Rio Grande - To/From North % Utililizing	% Population/ Dist. Utilizing	Population	Rio Grande - To/From South % Utililizing	% Population/ Dist. Utilizing	Population
5001	100	0	0	0.00%				25%	0.00%	0
5002	100	0	0	0.00%				25%	0.00%	0
5003	100	3	3	0.01%				25%	0.00%	1
5004	100	129	129	0.23%				25%	0.06%	32
5005	100	481	481	0.84%				25%	0.21%	120
5006	100	22	22	0.04%				25%	0.01%	6
5007	100	2	2	0.00%				25%	0.00%	1
5008	100	15	15	0.03%				25%	0.01%	4
5009	100	173	173	0.30%				25%	0.08%	43
5011	100	100	100	0.17%				25%	0.04%	25
5012	100	21	21	0.04%				25%	0.01%	5
5101	100	1,855	1,855	3.24%				25%	0.81%	464
5102	100	543	543	0.95%				25%	0.24%	136
5103	100	783	783	1.37%				25%	0.34%	196
5121	100	2,939	2,939	5.13%				75%	3.85%	2,204
5131	100	169	169	0.30%				75%	0.22%	127
5132	100	1,714	1,714	2.99%				75%	2.24%	1,286
5141	100	189	189	0.33%				100%	0.33%	189
5142	100	292	292	0.51%				100%	0.51%	292
5143	100	954	954	1.67%				100%	1.67%	954
5151	100	592	592	1.03%				50%	0.52%	296
5152	100	1,162	1,162	2.03%				50%	1.01%	581
5161	100	711	711	1.24%				50%	0.62%	356
5162	100	536	536	0.94%						
5163	100	46	46	0.08%				25%	0.02%	12
5171	100	256	256	0.45%				75%	0.34%	192
5172	100	963	963	1.68%				75%	1.26%	722
5173	100	992	992	1.73%				25%	0.43%	248
5201	100	693	693	1.21%	50%	0.60%	347			
5202	100	0	0	0.00%	25%	0.00%	0	25%	0.00%	0
5211	100	786	786	1.37%						
5212	100	607	607	1.06%						
5213	100	288	288	0.50%						
5221	100	4	4	0.01%						
5231	100	1	1	0.00%						
5232	100	33	33	0.06%						
5241	100	494	494	0.86%						
5242	100	1,262	1,262	2.20%						
5251	100	255	255	0.45%						
5261	100	245	245	0.43%						
5262	100	109	109	0.19%						
5271	100	364	364	0.64%				25%	0.16%	91
5272	100	0	0	0.00%				25%	0.00%	0

Sawmill Mixed Use Trip Distribution - Retail Trips - 2 mile radius
DASZ's within a 2-mile radius of site

	% of DASZ in Study Area	2010 Population In DASZ	2010 Population In Study Area	2010 Pop%	Rio Grande - To/From North % Utililizing	% Population/ Dist. Utilizing	Population	Rio Grande - To/From South % Utililizing	% Population/ Dist. Utilizing	Population
5273	100	413	413	0.72%				25%	0.18%	103
5602	100	2,308	2,308	4.03%				100%	4.03%	2,308
5612	100	989	989	1.73%				100%	1.73%	989
5613	100	1,142	1,142	1.99%				100%	1.99%	1,142
5614	100	703	703	1.23%				100%	1.23%	703
5812	100	2,263	2,263	3.95%	100%	3.95%	2,263			
5821	100	2,088	2,088	3.65%	50%	1.82%	1,044	50%	1.82%	1,044
5822	100	1,035	1,035	1.81%	100%	1.81%	1,035			
6001	100	570	570	1.00%						
6002	100	1,367	1,367	2.39%						
6003	100	714	714	1.25%						
6004	100	353	353	0.62%						
6011	100	570	570	1.00%						
6012	100	1,059	1,059	1.85%						
6021	100	2,281	2,281	3.98%						
6022	100	1,141	1,141	1.99%						
6071	100	406	406	0.71%						
6072	100	232	232	0.41%						
6073	100	48	48	0.08%						
6101	100	2,002	2,002	3.50%	100%	3.50%	2,002			
6102	100	1,339	1,339	2.34%	100%	2.34%	1,339			
6112	100	972	972	1.70%	100%	1.70%	972			
6113	100	590	590	1.03%	50%	0.52%	295			
6113	100	590	590	1.03%	50%	0.52%	295			
6115	100	1,114	1,114	1.94%	50%	0.97%	557			
6116	100	683	683	1.19%	100%	1.19%	683			
6151	100	1,422	1,422	2.48%	50%	1.24%	711			
6152	100	739	739	1.29%	100%	1.29%	739			
6153	100	1,532	1,532	2.67%	50%	1.34%	766			
6251	100	1,862	1,862	3.25%	100%	3.25%	1,862			
8001	100	15	15	0.03%						
8002	100	413	413	0.72%						
8021	100	709	709	1.24%						
8022	100	1,072	1,072	1.87%						
8031	100	1,760	1,760	3.07%						
		57,279	57,279	100.00%		26.03%			25.96%	

* - DASZ Population from MRCOG Website data

Sawmill Mixed Use Trip Distribution - Retail Trips - 2 mile radius
DASZ's within a 2-mile radius of site

	% of DASZ in Study Area	2010 Population In DASZ	2010 Population In Study Area	2010 Pop%	Mountain - To East % Population/ % Utililizing	Dist. Utilizing	Population	Mountain - To West % Population/ % Utililizing	Dist. Utilizing	Population
5001	100	0	0	0.00%	75%	0.00%	0			
5002	100	0	0	0.00%	75%	0.00%	0			
5003	100	3	3	0.01%	75%	0.00%	2			
5004	100	129	129	0.23%	75%	0.17%	97			
5005	100	481	481	0.84%	75%	0.63%	361			
5006	100	22	22	0.04%	75%	0.03%	17			
5007	100	2	2	0.00%	75%	0.00%	2			
5008	100	15	15	0.03%	75%	0.02%	11			
5009	100	173	173	0.30%	75%	0.23%	130			
5011	100	100	100	0.17%	75%	0.13%	75			
5012	100	21	21	0.04%	75%	0.03%	16			
5101	100	1,855	1,855	3.24%	75%	2.43%	1,391			
5102	100	543	543	0.95%	75%	0.71%	407			
5103	100	783	783	1.37%	75%	1.03%	587			
5121	100	2,939	2,939	5.13%	25%	1.28%	735			
5131	100	169	169	0.30%	25%	0.07%	42			
5132	100	1,714	1,714	2.99%	25%	0.75%	429			
5141	100	189	189	0.33%						
5142	100	292	292	0.51%						
5143	100	954	954	1.67%						
5151	100	592	592	1.03%				50%	0.52%	296
5152	100	1,162	1,162	2.03%				50%	1.01%	581
5161	100	711	711	1.24%				50%	0.62%	356
5162	100	536	536	0.94%	100%	0.94%	536			
5163	100	46	46	0.08%	75%	0.06%	35			
5171	100	256	256	0.45%	25%	0.11%	64			
5172	100	963	963	1.68%	25%	0.42%	241			
5173	100	992	992	1.73%	75%	1.30%	744			
5201	100	693	693	1.21%	50%	0.60%	347			
5202	100	0	0	0.00%	25%	0.00%	0	25%	0.00%	0
5211	100	786	786	1.37%	100%	1.37%	786			
5212	100	607	607	1.06%	100%	1.06%	607			
5213	100	288	288	0.50%	100%	0.50%	288			
5221	100	4	4	0.01%	100%	0.01%	4			
5231	100	1	1	0.00%	100%	0.00%	1			
5232	100	33	33	0.06%	100%	0.06%	33			
5241	100	494	494	0.86%	100%	0.86%	494			
5242	100	1,262	1,262	2.20%	100%	2.20%	1,262			
5251	100	255	255	0.45%	100%	0.45%	255			
5261	100	245	245	0.43%	100%	0.43%	245			
5262	100	109	109	0.19%	100%	0.19%	109			
5271	100	364	364	0.64%	75%	0.48%	273			
5272	100	0	0	0.00%	75%	0.00%	0			

Sawmill Mixed Use Trip Distribution - Retail Trips - 2 mile radius
DASZ's within a 2-mile radius of site

	% of DASZ in Study Area	2010 Population In DASZ	2010 Population In Study Area	2010 Pop%	Mountain - To East % Population/ % Utililizing	Dist. Utilizing	Population	Mountain - To West % Population/ % Utililizing	Dist. Utilizing	Population
5273	100	413	413	0.72%	75%	0.54%	310			
5602	100	2,308	2,308	4.03%						
5612	100	989	989	1.73%						
5613	100	1,142	1,142	1.99%						
5614	100	703	703	1.23%						
5812	100	2,263	2,263	3.95%						
5821	100	2,088	2,088	3.65%						
5822	100	1,035	1,035	1.81%						
6001	100	570	570	1.00%	100%	1.00%	570			
6002	100	1,367	1,367	2.39%	100%	2.39%	1,367			
6003	100	714	714	1.25%	100%	1.25%	714			
6004	100	353	353	0.62%	100%	0.62%	353			
6011	100	570	570	1.00%	100%	1.00%	570			
6012	100	1,059	1,059	1.85%	100%	1.85%	1,059			
6021	100	2,281	2,281	3.98%	100%	3.98%	2,281			
6022	100	1,141	1,141	1.99%	100%	1.99%	1,141			
6071	100	406	406	0.71%	100%	0.71%	406			
6072	100	232	232	0.41%	100%	0.41%	232			
6073	100	48	48	0.08%	100%	0.08%	48			
6101	100	2,002	2,002	3.50%						
6102	100	1,339	1,339	2.34%						
6112	100	972	972	1.70%						
6113	100	590	590	1.03%	50%	0.52%	295			
6113	100	590	590	1.03%	50%	0.52%	295			
6115	100	1,114	1,114	1.94%	50%	0.97%	557			
6116	100	683	683	1.19%						
6151	100	1,422	1,422	2.48%	50%	1.24%	711			
6152	100	739	739	1.29%						
6153	100	1,532	1,532	2.67%	50%	1.34%	766			
6251	100	1,862	1,862	3.25%						
8001	100	15	15	0.03%	100%	0.03%	15			
8002	100	413	413	0.72%	100%	0.72%	413			
8021	100	709	709	1.24%	100%	1.24%	709			
8022	100	1,072	1,072	1.87%	100%	1.87%	1,072			
8031	100	1,760	1,760	3.07%	100%	3.07%	1,760			
		57,279	57,279	100.00%		45.86%				2.15%

* - DASZ Population from MRCOG Website data

SAWMILL MIXED USE
EXISTING & PROJECTED TURNING MOVEMENTS

INTERSECTION: Rio Grande & Bellamah (1)

AM Peak Hour

	Southbound Rio Grande			Westbound Bellamah			Northbound Rio Grande			Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2007)	**202**	**1,359**		**7**		**48**		**1,157**	**21**			
Background Growth (2007-2010)	18	122		1		4		104	2			
2010 No Build	**220**	**1,481**		**8**		**52**		**1,261**	**23**			
Residential Enter	6								1			
Residential Exit				7		29						
Shopping Enter	11								11			
Shopping Exit				8		8						
2010 Build	**237**	**1,481**		**22**		**89**		**1,261**	**35**			
PHF	*0.750*	*0.890*		*0.580*		*0.720*		*0.930*	*0.560*			

PM Peak Hour

	Southbound Rio Grande			Westbound Bellamah			Northbound Rio Grande			Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2007)	**77**	**1,345**		**40**		**414**		**1,221**	**13**			
Background Growth (2007-2010)	7	121		4		37		110	1			
2010 No Build	**84**	**1,466**		**44**		**451**		**1,331**	**14**			
Residential Enter	28								6			
Residential Exit				3		13						
Shopping Enter	20								20			
Shopping Exit				18		18						
2010 Build	**131**	**1,466**		**65**		**482**		**1,331**	**40**			
PHF	*0.880*	*0.880*		*0.710*		*0.780*		*0.880*	*0.630*			

growth rates	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Trip Distribution % Enter	44.2%								10.0%				Residential
Trip Distribution % Exit	0.0%	0.0%	0.0%	10.0%	0.0%	44.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Trip Distribution % Enter	26.0%								26.0%				Shopping
Trip Distribution % Exit	0.0%	0.0%	0.0%	26.0%	0.0%	26.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

SAWMILL MIXED USE
EXISTING & PROJECTED TURNING MOVEMENTS

INTERSECTION: 18th Street & Mountain (2)

AM Peak Hour

	Southbound 18th Street			Westbound Mountain			Northbound			Eastbound Mountain		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2007)	**27**		**3**		**157**	**20**				**18**	**343**	
Background Growth (2007-2010)	2		0		14	2				2	31	
2010 No Build	**29**		**3**		**171**	**22**				**20**	**374**	
Residential Enter						6				0		
Residential Exit	28		2									
Shopping Enter						19				1		
Shopping Exit	13		1									
2010 Build	**71**		**6**		**171**	**46**				**21**	**374**	
PHF	*0.610*		*0.380*		*0.890*	*0.530*				*0.560*	*0.850*	

PM Peak Hour

	Southbound 18th Street			Westbound Mountain			Northbound			Eastbound Mountain		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2007)	**47**		**32**		**699**	**72**				**11**	**181**	
Background Growth (2007-2010)	4		3		63	6				1	16	
2010 No Build	**51**		**35**		**762**	**78**				**12**	**197**	
Residential Enter						27				2		
Residential Exit	13		1									
Shopping Enter						34				2		
Shopping Exit	32		1									
2010 Build	**96**		**37**		**762**	**140**				**16**	**197**	
PHF	*0.490*		*0.670*		*0.880*	*0.820*				*0.460*	*0.850*	

growth rates	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Trip Distribution % Enter						42.7%				3.1%			Residential
Trip Distribution % Exit	42.7%	0.0%	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Trip Distribution % Enter						45.9%				2.1%			Shopping
Trip Distribution % Exit	45.9%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

SAWMILL MIXED USE
EXISTING & PROJECTED TURNING MOVEMENTS

INTERSECTION: Driveway 1 & Bellamah

AM Peak Hour

	Southbound Driveway 1			Westbound Bellamah			Northbound			Eastbound Bellamah		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2007)					**38**						**30**	
Background Growth (2007-2010)					3						3	
2010 No Build	**0**		**0**		**41**	**0**				**0**	**33**	
Residential Enter						1				1	6	
Residential Exit	3		4		32							
Shopping Enter						15				16	5	
Shopping Exit	10		11		4							
2010 Build	**13**		**15**		**77**	**15**				**17**	**44**	
PHF	*0.850*			*0.850*						*0.850*		

PM Peak Hour

	Southbound Driveway 1			Westbound Bellamah			Northbound			Eastbound Bellamah		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Existing Volumes (2007)					**83**						**79**	
Background Growth (2007-2010)					7						7	
2010 No Build	**0**		**0**		**90**	**0**				**0**	**86**	
Residential Enter						3				3	31	
Residential Exit	1		2		15							
Shopping Enter						27				29	10	
Shopping Exit	25		27		9							
2010 Build	**26**		**29**		**114**	**30**				**33**	**127**	
PHF	*0.850*			*0.850*						*0.850*		

* - Approved development from Diamond Ridge development TIA by Hartwick Transporation Group & estimate for Library & Aquatic Center

growth rates	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Trip Distribution % Enter						4.6%				5.4%	48.8%		Residential
Trip Distribution % Exit	4.6%	0.0%	5.4%	0.0%	48.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Trip Distribution % Enter						36.0%				39.0%	13.0%		Shopping
Trip Distribution % Exit	36.0%	0.0%	39.0%	0.0%	13.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

SAWMILL MIXED USE
EXISTING & PROJECTED TURNING MOVEMENTS

INTERSECTION: Driveway 2 & Bellamah/18th Street

AM Peak Hour

	Southbound Driveway 2			Westbound			Northbound 18th Street			Eastbound 0		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2007)							**38**					**30**
Background Growth (2007-2010)							3					3
2010 No Build		**0**	**0**				**41**	**0**		**0**		**33**
Residential Enter							1	5		6		
Residential Exit		27	32									3
Shopping Enter							15	5		5		
Shopping Exit		3	4									10
2010 Build		**31**	**36**				**57**	**10**		**12**		**46**
PHF	*0.850*						*0.850*			*0.850*		

PM Peak Hour

	Southbound Driveway 2			Westbound			Northbound 18th Street			Eastbound 0		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2007)							**83**					**79**
Background Growth (2007-2010)							7					7
2010 No Build		**0**	**0**				**90**	**0**		**0**		**86**
Residential Enter							3	26		31		
Residential Exit		12	15									1
Shopping Enter							27	9		10		
Shopping Exit		8	9									25
2010 Build		**21**	**24**				**120**	**35**		**40**		**112**
PHF	*0.850*						*0.850*			*0.850*		

* - Includes estimate of Library and Aquatic Center

growth rates	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Trip Distribution % Enter							4.6%	41.2%		48.8%			Residential
Trip Distribution % Exit	0.0%	41.2%	48.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.6%	
Trip Distribution % Enter							36.0%	12.0%		13.0%			Shopping
Trip Distribution % Exit	0.0%	12.0%	13.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	36.0%	

Appendix F
2010 Build Intersection Capacity Analysis

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3518		1770	3539
Flt Permitted	0.95	1.00	1.00		0.14	1.00
Satd. Flow (perm)	1770	1583	3518		252	3539
Volume (vph)	22	89	1261	35	237	1481
Peak-hour factor, PHF	0.70	0.80	0.95	0.65	0.82	0.92
Adj. Flow (vph)	31	111	1327	54	289	1610
RTOR Reduction (vph)	0	24	2	0	0	0
Lane Group Flow (vph)	31	87	1379	0	289	1610
Turn Type		pm+ov			pm+pt	
Protected Phases	8	1	2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	4.9	20.6	67.4		87.1	87.1
Effective Green, g (s)	4.9	20.6	67.4		87.1	87.1
Actuated g/C Ratio	0.05	0.21	0.67		0.87	0.87
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	87	389	2371		458	3082
v/s Ratio Prot	c0.02	0.04	0.39		c0.10	0.45
v/s Ratio Perm		0.02			c0.45	
v/c Ratio	0.36	0.22	0.58		0.63	0.52
Uniform Delay, d1	46.0	33.0	8.7		12.7	1.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.5	0.3	1.0		2.8	0.6
Delay (s)	48.5	33.3	9.8		15.5	2.2
Level of Service	D	C	A		B	A
Approach Delay (s)	36.7		9.8			4.2
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3519		1770	3539
Flt Permitted	0.95	1.00	1.00		0.08	1.00
Satd. Flow (perm)	1770	1583	3519		141	3539
Volume (vph)	65	482	1331	40	131	1466
Peak-hour factor, PHF	0.80	0.82	0.92	0.70	0.92	0.92
Adj. Flow (vph)	81	588	1447	57	142	1593
RTOR Reduction (vph)	0	10	3	0	0	0
Lane Group Flow (vph)	81	578	1501	0	142	1593
Turn Type		pm+ov			pm+pt	
Protected Phases	8	1	2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	8.6	39.0	49.0		83.4	83.4
Effective Green, g (s)	8.6	39.0	49.0		83.4	83.4
Actuated g/C Ratio	0.09	0.39	0.49		0.83	0.83
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	152	681	1724		613	2952
v/s Ratio Prot	0.05	c0.26	c0.43		0.07	0.45
v/s Ratio Perm		0.11			0.12	
v/c Ratio	0.53	0.85	0.87		0.23	0.54
Uniform Delay, d1	43.8	27.8	22.7		12.2	2.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.6	9.7	6.3		0.2	0.7
Delay (s)	47.3	37.5	29.0		12.4	3.2
Level of Service	D	D	C		B	A
Approach Delay (s)	38.7		29.0			4.0
Approach LOS	D		C			A

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	21	374	171	46	71	6
Peak Hour Factor	0.62	0.90	0.92	0.60	0.70	0.50
Hourly flow rate (vph)	34	416	186	77	101	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	263				708	224
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	263				708	224
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				74	99
cM capacity (veh/h)	1302				391	815

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	34	416	263	113
Volume Left	34	0	0	101
Volume Right	0	0	77	12
cSH	1302	1700	1700	414
Volume to Capacity	0.03	0.24	0.15	0.27
Queue Length 95th (ft)	2	0	0	28
Control Delay (s)	7.8	0.0	0.0	17.0
Lane LOS	A			C
Approach Delay (s)	0.6		0.0	17.0
Approach LOS				C

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	16	197	762	140	96	37
Peak Hour Factor	0.55	0.90	0.92	0.88	0.60	0.75
Hourly flow rate (vph)	29	219	828	159	160	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	987				1185	908
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	987				1185	908
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				20	85
cM capacity (veh/h)	700				200	334

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	29	219	987	209
Volume Left	29	0	0	160
Volume Right	0	0	159	49
cSH	700	1700	1700	221
Volume to Capacity	0.04	0.13	0.58	0.95
Queue Length 95th (ft)	3	0	0	204
Control Delay (s)	10.4	0.0	0.0	93.6
Lane LOS	B			F
Approach Delay (s)	1.2		0.0	93.6
Approach LOS				F

Intersection Summary			
Average Delay	13.8		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	17	44	77	15	13	15
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	23	59	103	20	17	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	123				217	113
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	123				217	113
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	98
cM capacity (veh/h)	1464				760	940

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	81	123	37
Volume Left	23	0	17
Volume Right	0	20	20
cSH	1464	1700	847
Volume to Capacity	0.02	0.07	0.04
Queue Length 95th (ft)	1	0	3
Control Delay (s)	2.2	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	2.2	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	33	127	114	30	26	29
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	44	169	152	40	35	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	192				429	172
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	192				429	172
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				94	96
cM capacity (veh/h)	1381				564	872

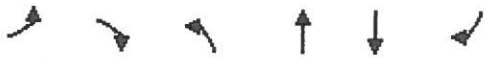
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	213	192	73
Volume Left	44	0	35
Volume Right	0	40	39
cSH	1381	1700	693
Volume to Capacity	0.03	0.11	0.11
Queue Length 95th (ft)	2	0	9
Control Delay (s)	1.8	0.0	10.8
Lane LOS	A		B
Approach Delay (s)	1.8	0.0	10.8
Approach LOS			B

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	12	46	57	10	31	36
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	16	61	76	13	41	48

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	77	89	89
Volume Left (vph)	16	76	0
Volume Right (vph)	61	0	48
Hadj (s)	-0.40	0.20	-0.29
Departure Headway (s)	3.9	4.3	3.9
Degree Utilization, x	0.08	0.11	0.10
Capacity (veh/h)	884	802	906
Control Delay (s)	7.2	7.9	7.3
Approach Delay (s)	7.2	7.9	7.3
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	40	112	120	35	21	24
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	53	149	160	47	28	32

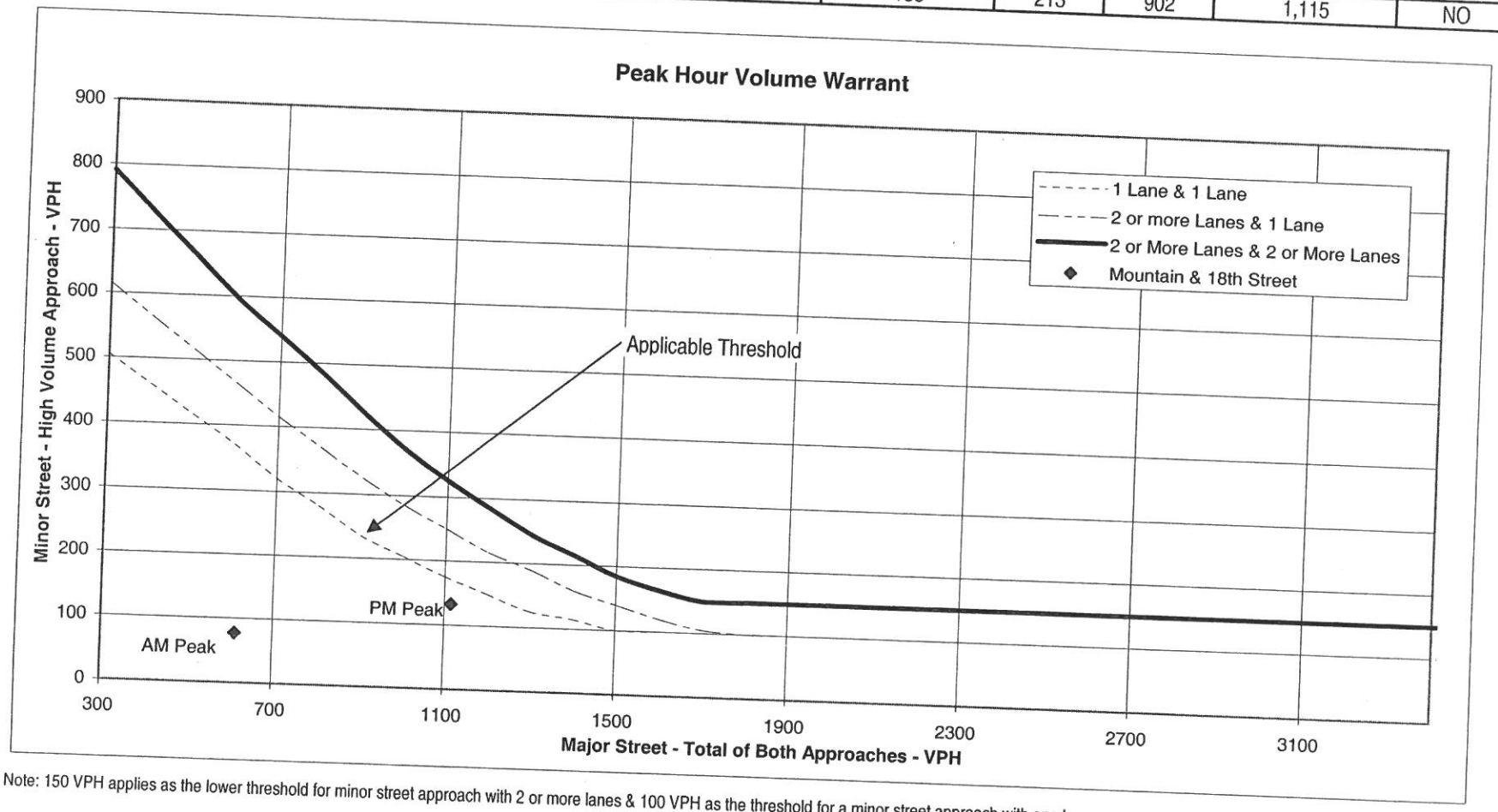
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	203	207	60
Volume Left (vph)	53	160	0
Volume Right (vph)	149	0	32
Hadj (s)	-0.36	0.19	-0.29
Departure Headway (s)	4.2	4.6	4.3
Degree Utilization, x	0.24	0.27	0.07
Capacity (veh/h)	808	747	777
Control Delay (s)	8.5	9.3	7.7
Approach Delay (s)	8.5	9.3	7.7
Approach LOS	A	A	A

Intersection Summary			
Delay	8.7		
HCM Level of Service	A		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Samill Mixed Use - 201 Build
Intersection: Mountain & 18th Street
Type: 1 Lane/1 Lane
Major Street (Orientation): Mountain (E/W)
Minor Street (Orientation): 18th Street (N/S)

	Minor Street Approach Volume			Major Street Approach Volume			Satisfies
Time	NB	SB	High Vol Approach	EB	WB	EB + WB	Warrant 11?
AM Peak	77	0	77	395	217	612	NO
PM Peak	133	0	133	213	902	1,115	NO



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane