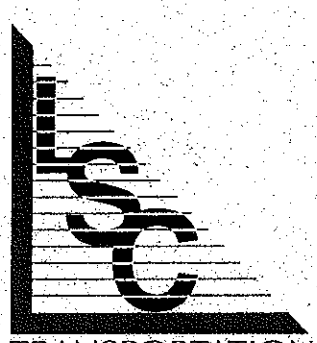
LANL Science Center
Traffic Impact and Access Analysis

November 15, 2005



LSC TRANSPORTATION CONSULTANTS, INC.

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TRANSPORTATION
CONSULTANTS, INC.

November 15, 2005

Mr. Kirt Anderson, ASLA, AICP
Urban Planner
Los Alamos National Laboratory
MS K773; TA 63, Building 111, Room 145
Los Alamos, NM 87545

RE: LANL Science Center
Los Alamos, New Mexico
LSC #056010

Dear Mr. Anderson:

We are pleased to present our traffic impact and access analysis regarding the LANL Science Center. We trust that this report will assist you in planning the LANL Science Center. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By _____
Albert T. Stoddard III, Ph.D., P.E.
Vice President

ATS:CSM:EJL:bjwb:rf

LANL Science Center
Traffic Impact and Access Analysis

November 15, 2005

Prepared for:

Mr. Kirt Anderson, ASLA, AICP
Los Alamos National Laboratory
MS K773; TA 63, Building 111, Room 145
Los Alamos, NM 87545
(505) 665-2335

Prepared by:

LSC Transportation Consultants, Inc.
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LSC #056010

November 15, 2005

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SECTION A

Introduction

In response to your request, LSC Transportation Consultants, Inc. (LSC) has prepared this traffic impact and access analysis report for the proposed Science Center to be located north of West Jemez Road across from the proposed Wellness Center. The site location and area roadways are shown in Figure 1. Access to the site is proposed to align with the western full-movement Wellness Center access.

REPORT CONTENTS

The analysis covered by the report includes the following:

- A review of the existing and planned roadway system including the roadway alignments, existing and proposed access points, traffic controls, lane configurations, intersection spacing, intersection alignments, intersection sight distances, and any improvement plans for the roadways in the vicinity of the site.

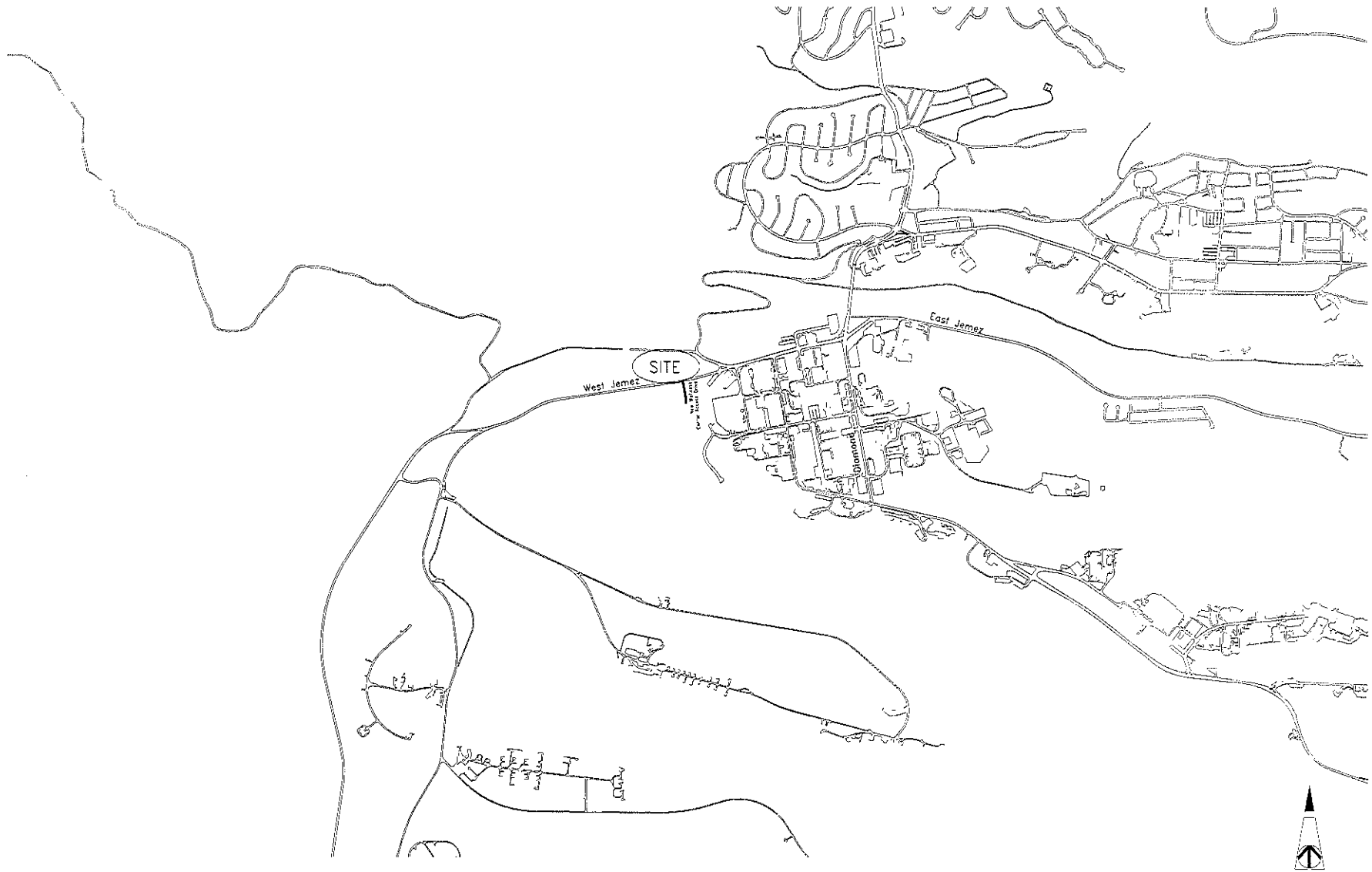
- A determination of the existing average weekday and peak-hour traffic volumes on the surrounding roadway system based on counts performed in 2004.

- A projection of the vehicle-trips to be generated by the Science Center. These projections are based on nationally published trip generation rates found in *Trip Generation, 7th Edition, 2003* by the Institute of Transportation Engineers (ITE).

- A site-generated traffic assignment to West Jemez Road. The vehicle-trips generated by the Science Center were distributed geographically and assigned to West Jemez Road in order to complete a level of service analysis at the site access intersection with West Jemez Road.

- A determination of the projected traffic impacts of the proposed Science Center on West Jemez Road, along with recommendations for any roadway improvements to mitigate these traffic impacts.

- An estimation of the amount of construction traffic that can be expected for the Science Center and any mitigation measures that may be required to accommodate the impacts of that traffic on the affected intersections.



Vicinity Map

LANL Science Center

Figure 1
LSC # 056010

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SECTION B

Site Development and Land Use

The site currently is vacant. The site is planned to be developed as a Science Center for the National Laboratory, with approximately 1,400 employees. Access to the site is proposed to align with the western full-movement Wellness Center access.

SECTION C

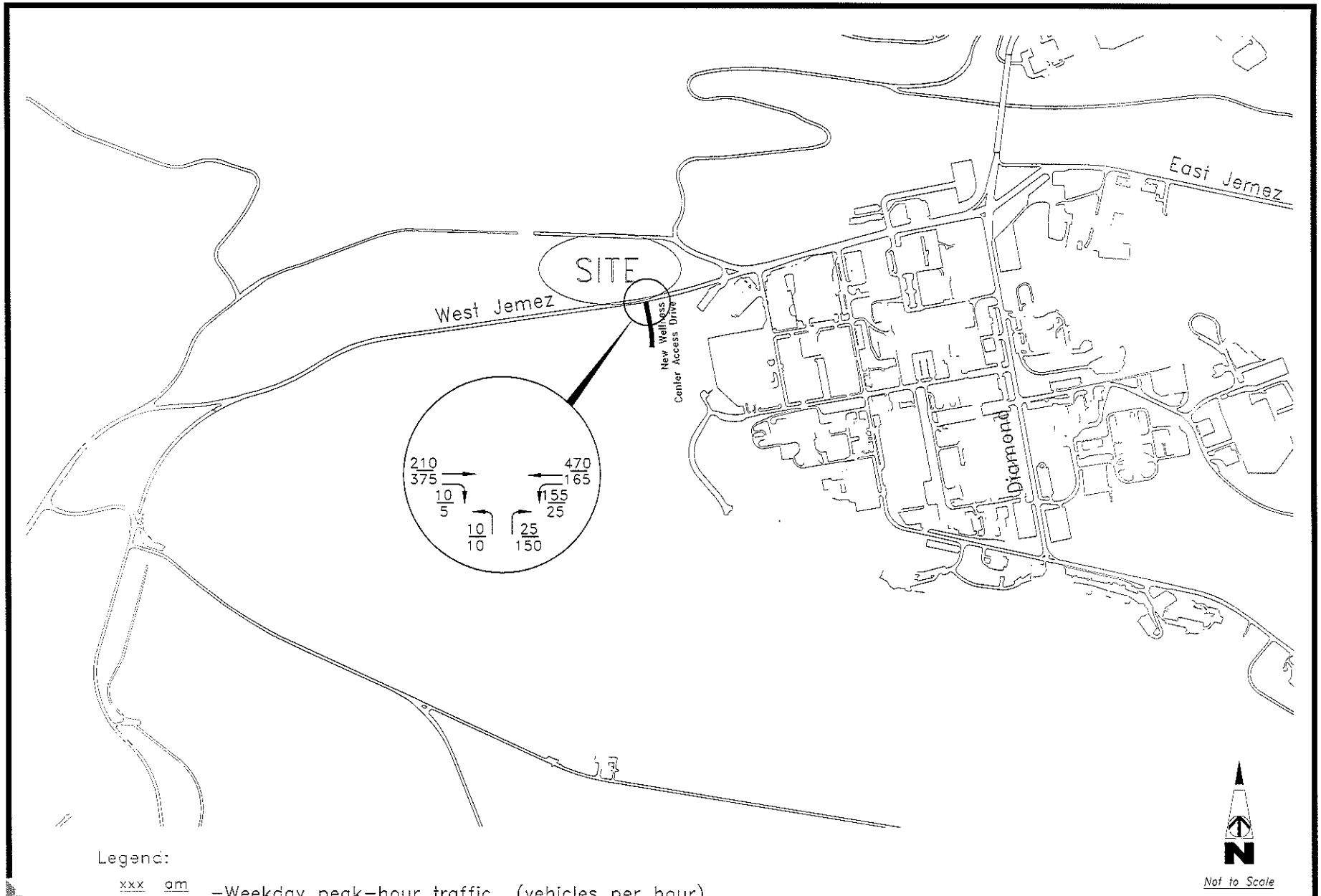
Roadway and Traffic Conditions

AREA ROADWAYS

The roadways in the vicinity of the site are identified below, followed by a brief description. The roadway system is shown in Figure 1.

- **West Jemez Road** is an existing two-lane east/west roadway north of the site which passes through the National Laboratory.

The short-term background traffic volumes are shown in Figure 2. The short-term background traffic volumes are the sum of the existing traffic volumes (counted in the fall of 2004) plus the traffic volumes estimated to be generated by the Wellness Center and adjacent development. The long-term background traffic volumes are shown in Figure 3 and represent an increase of 20 percent in the traffic volumes on West Jemez Road.



Short-Term Background Traffic
(Existing Traffic plus Wellness Center Build-out Traffic)

LANL Science Center

Figure 2
LSC # 056010

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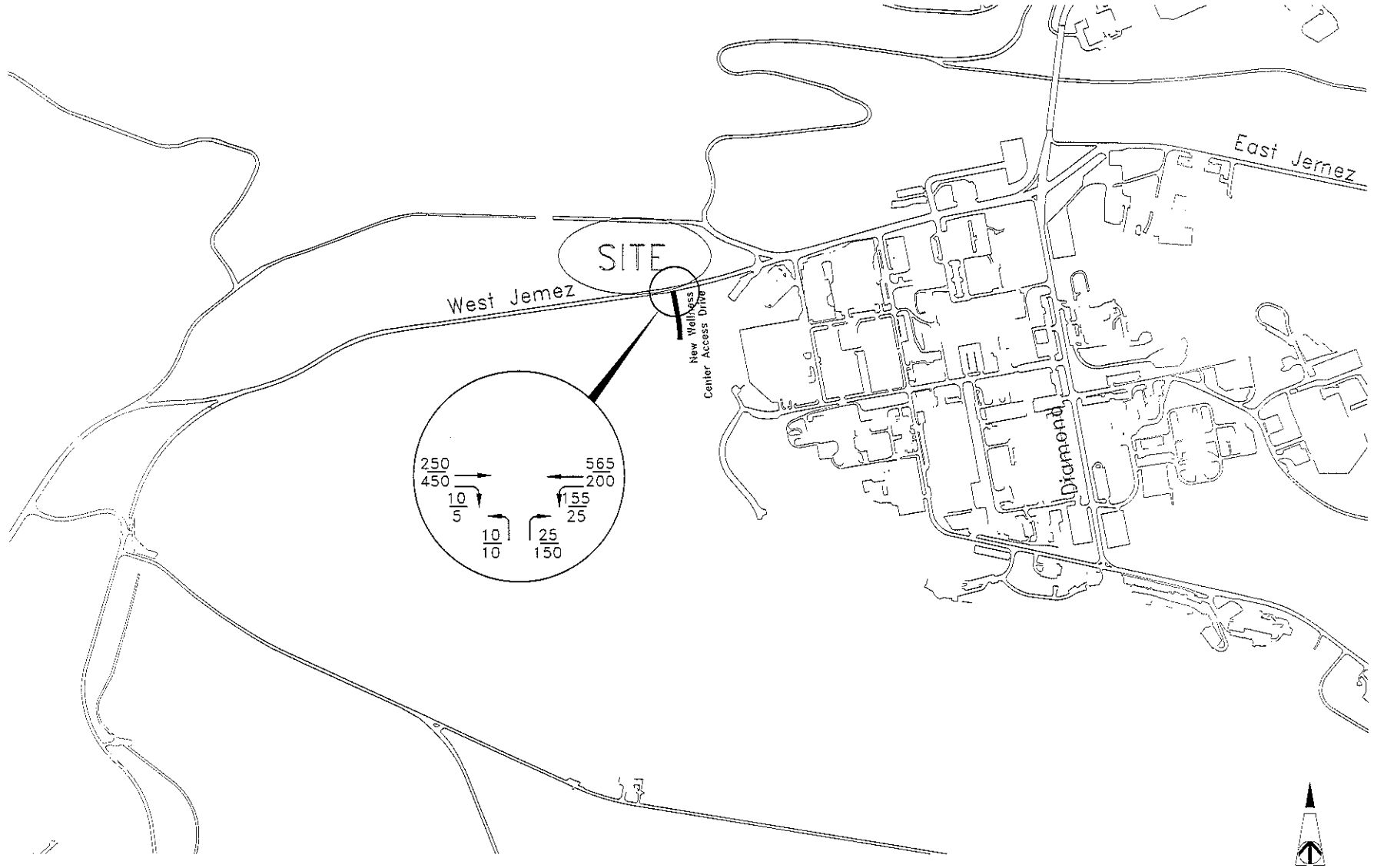

Legend:

xxx / xxx am / pm —Weekday peak-hour traffic (vehicles per hour)

Not to Scale

Long-Term Background Traffic
(20% increase in traffic on West Jemez Road)

LANL Science Center

Figure 3

LSC # 056010

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SECTION D

Trip Generation

Estimates of the amount of vehicular traffic expected to be generated by the site have been made based on nationally published trip generation rates found in *Trip Generation, 7th Edition, 2003* by the Institute of Transportation Engineers (ITE). In addition to the 1,400 employees, it is estimated that there would be about 200 visitors per day at the Science Center. To take visitors into account, 1,600 employees were used to calculate the trip generation of the Science Center. This is a conservative method since, unlike employees, many visitors would not arrive or depart during the peak hours. Table 1 shows the results of the trip generation estimates.

As shown in Table 1, the Science Center is expected to generate about 5,790 vehicle-trips on the average weekday (2,395 vehicles entering and 2,395 vehicles exiting in a 24-hour period). During the morning peak hour, about 870 vehicles would enter and 110 vehicles would exit the site. During the afternoon peak hour, about 390 vehicles would enter and 870 vehicles would exit the site.

Table 1
Trip Generation Estimate
Los Alamos National Laboratory Science Center

Land Use Description	Trip Generation Units	Trip Generation Rates [1]					Total Trips Generated				
		Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out
Science Center[2]	1,600 employees	3.62	0.54	0.07	0.24	0.55	5,792	869	107	392	872

Notes:
(1) Source: "Trip Generation," Institute of Transportation Engineers, 7th edition, 2003
(2) Daily rate is from ITE land use 715 - Single Tenant Office Building and peak-hour rates are from ITE land use 733 - Government Office Complex.

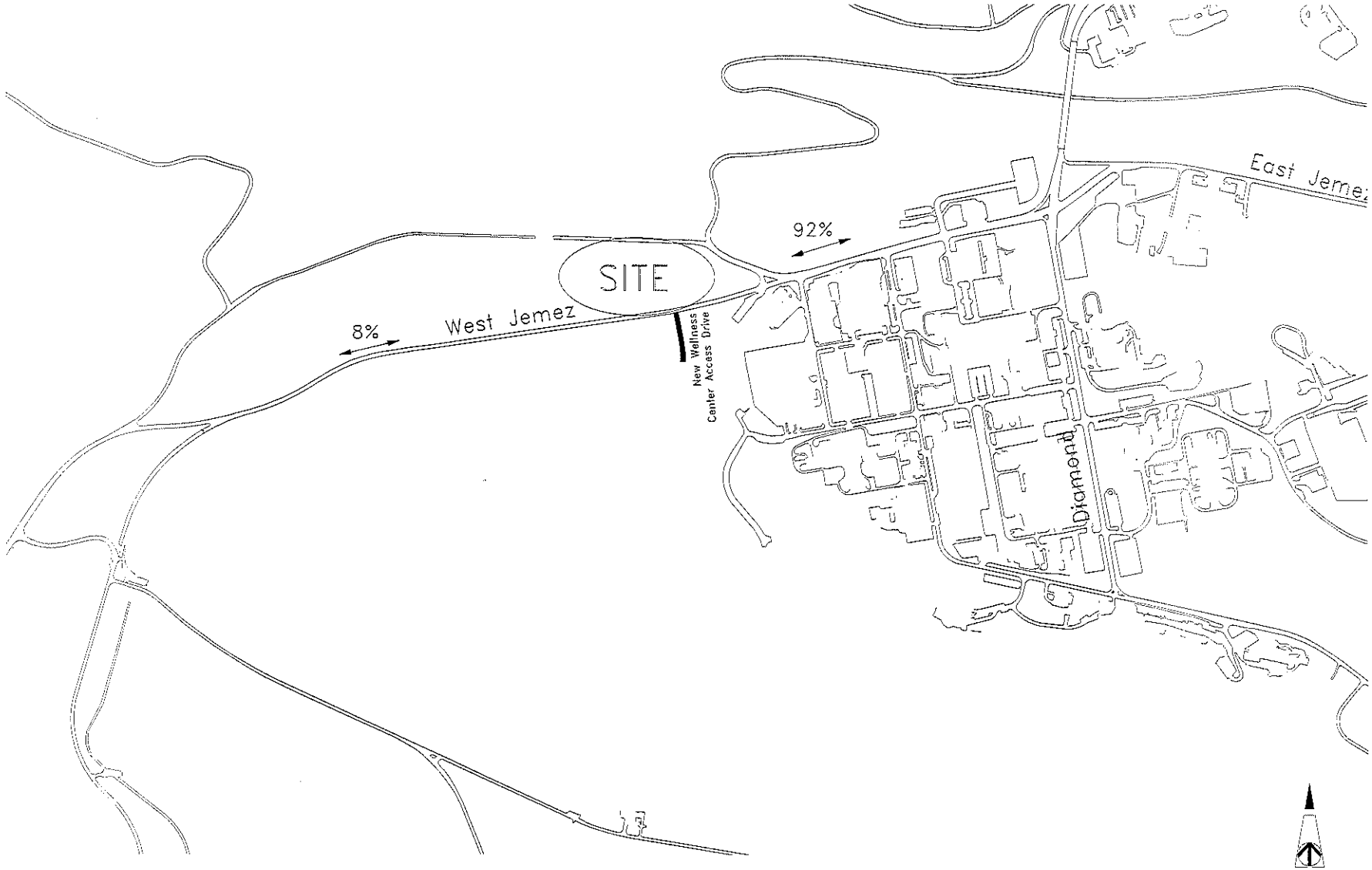
Source: LSC Transportation Consultants, Inc. Date: 11/15/05

SECTION E

Trip Distribution and Assignment

The directional distribution of the site-generated traffic volumes on the adjacent roadways is an important factor in determining the traffic impacts of the site. The specific distribution estimates for the site-generated traffic volumes are shown in Figure 4. The distribution estimates are based on existing traffic counts on West Jemez Road.

The site-generated traffic volumes on West Jemez Road were determined by applying the distribution percentages (from Figure 4) to the trip generation estimates (from Table 1). Figure 5 shows the morning and afternoon peak-hour and average daily site-generated traffic volumes for the Science Center.



Legend:

XX% –Directional distribution of site–generated traffic

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Directional Distribution

LANL Science Center

Figure 4

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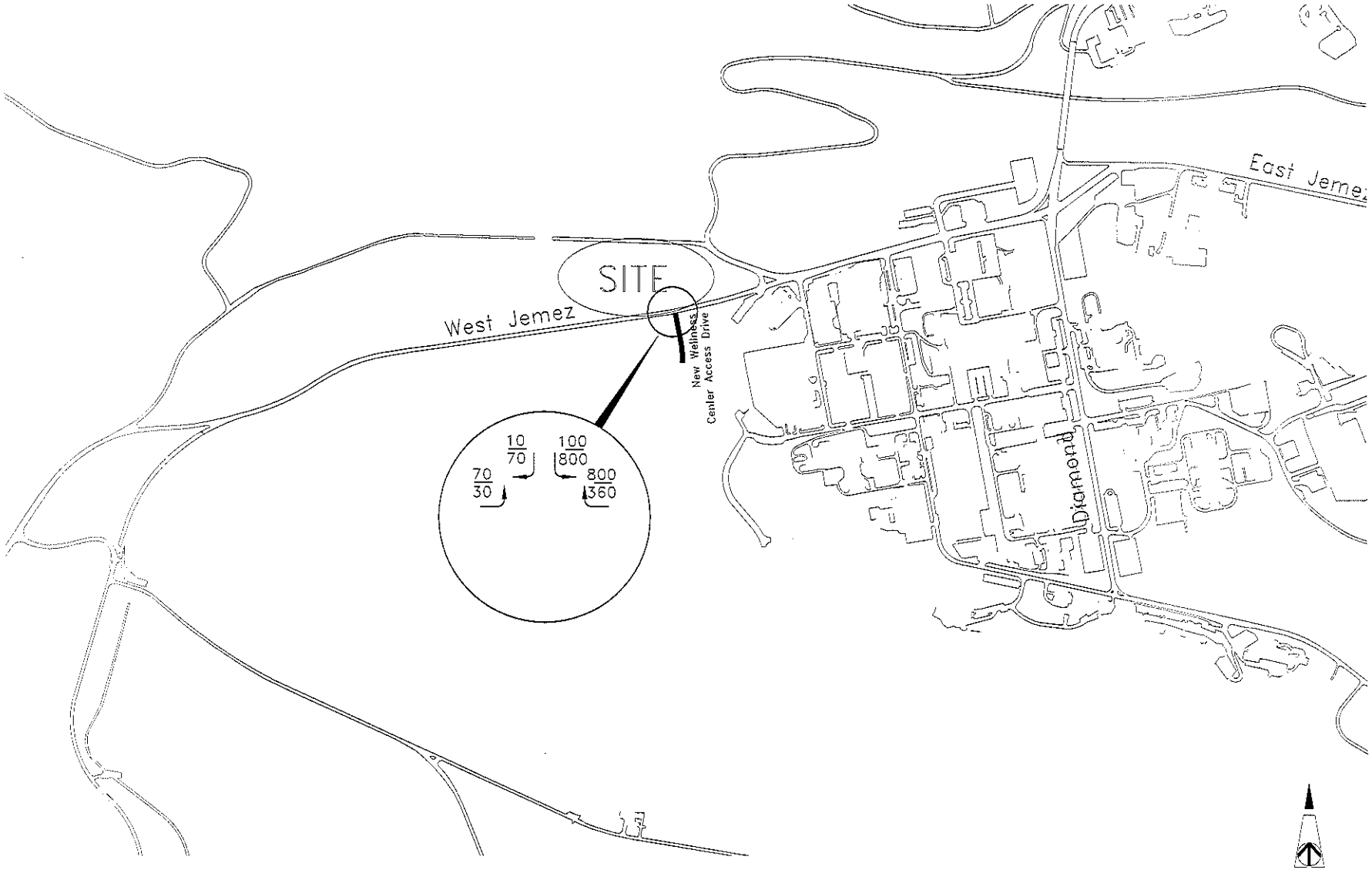

Site-Generated Traffic

LANL Science Center

Figure 5
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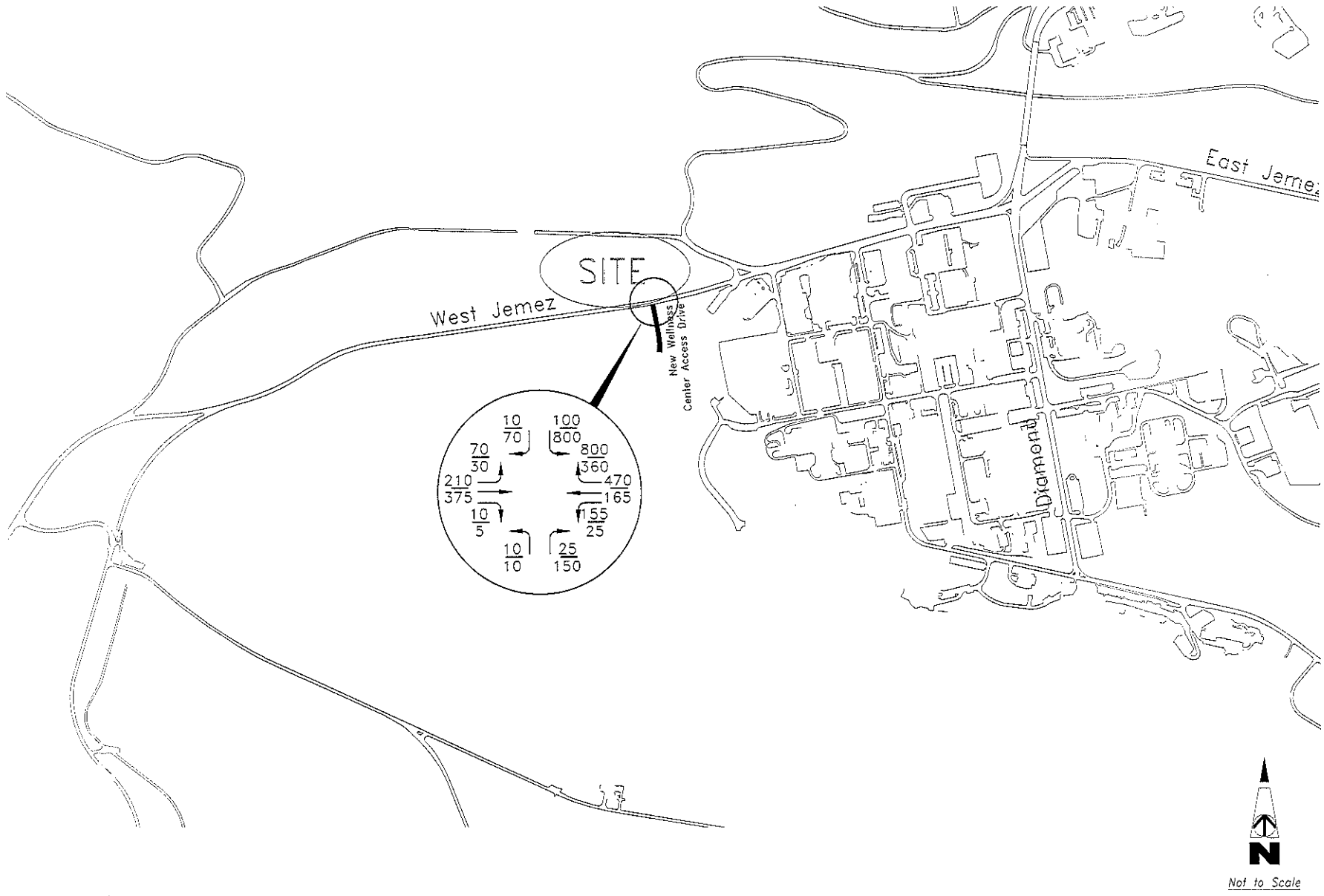
SECTION F

Background Plus Site-Generated Traffic

Figure 6 shows the short-term background plus site-generated traffic volumes. The background plus site-generated traffic volumes are the sum of the site-generated traffic volumes (Figure 5) plus the short-term background traffic volumes (from Figure 2).

Figure 7 shows the long-term background plus site-generated traffic volumes and is the sum of the site-generated traffic volumes (Figure 5) plus the long-term background traffic volumes (from Figure 3).



Short-Term Background Plus Site-Generated Traffic

LANL Science Center

Figure 6

LSC # 056010

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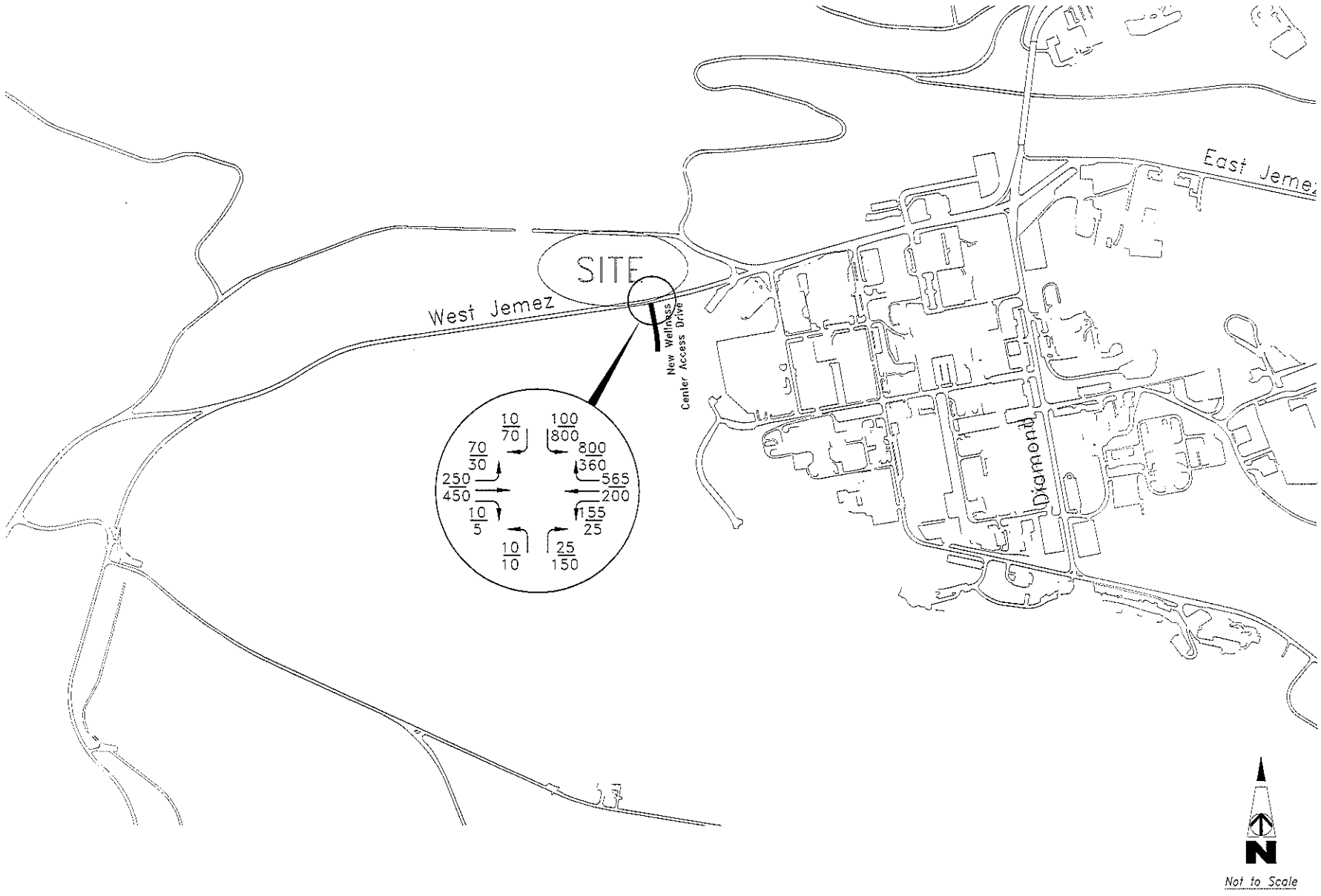

Long-Term Background Plus Site-Generated Traffic

LANL Science Center

Figure 7

LSC # 056010

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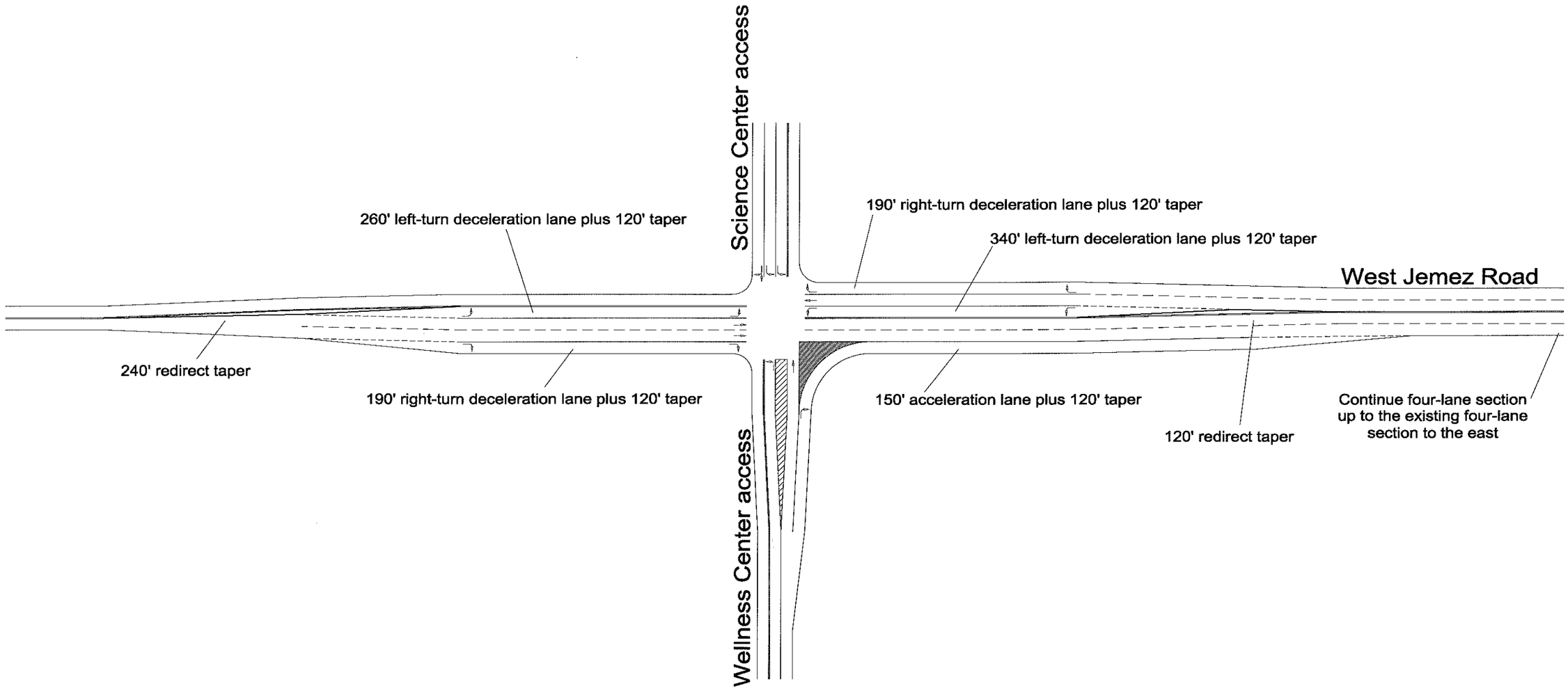
SECTION G

Projected Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of very little congestion or delay. LOS F is indicative of a high level of congestion or delay.

The Science Center access on West Jemez Road has been analyzed to determine the projected levels of service based on the signalized method of analysis procedures outlined in the *Highway Capacity Manual, 2000 Edition* by the Transportation Research Board. The level of service reports are attached in the Appendix.

The signalized access to the Science Center is projected to operate at LOS A during the morning peak hour and LOS B during the afternoon peak hour based on the short-term traffic volumes. Based on the long-term traffic volumes, the intersection is projected to operate at LOS A during the morning peak hour and LOS C during the afternoon peak hour. The recommended lane geometry for the access intersection is shown in Figure 8.



Dimensions shown are based on a speed limit of 35 mph on West Jemez Road.

Not to Scale

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Recommended Lane Geometry

LANL Science Center

Figure 8
LSC # 056010

SECTION H

Construction Traffic

Based on information provided by LANL, about 300 construction workers can be expected to work on the Science Center at any given time. The following assumptions have been made regarding the construction traffic: all workers arrive during the morning peak hour and depart during the afternoon peak hour, an average of two workers occupy each vehicle, and the peak hours account for half of the daily trips. Therefore, about 600 daily trips, 150 morning peak-hour inbound trips, and 150 afternoon peak-hour outbound trips are estimated to be generated by those working on construction of the Science Center.

The amount of traffic generated by the construction of the Science Center is not projected to have any significant impacts on the adjacent roadway system, including West Jemez Road. No mitigation measures are recommended to accommodate the construction-related traffic volumes. If other construction projects are undertaken at the same time, the combined impacts should be considered and mitigation measures may be required.

A traffic control plan should be prepared for construction improvements on West Jemez Road. Traffic flow and access should be maintained during construction. Mitigation measures may include restrictions on lane closures and construction hours. The construction contractor should be required to provide appropriate signing and barricades.

SECTION I

Conclusions and Recommendations

TRIP GENERATION

1. The Science Center is expected to generate about 5,790 vehicle-trips on the average weekday (2,395 vehicles entering and 2,395 vehicles exiting in a 24-hour period). During the morning peak hour, about 870 vehicles would enter and 110 vehicles would exit the site. During the afternoon peak hour, about 390 vehicles would enter and 870 vehicles would exit the site.

PROJECTED LEVELS OF SERVICE

2. The signalized access to the Science Center is projected to operate at LOS A during the morning peak hour and LOS B during the afternoon peak hour based on the short-term traffic volumes. Based on the long-term traffic volumes, the intersection is projected to operate at LOS A during the morning peak hour and LOS C during the afternoon peak hour. The recommended lane geometry for the access intersection is shown in Figure 8.

RECOMMENDED IMPROVEMENTS ON WEST JEMEZ ROAD

3. It is recommended that the four-lane cross section of West Jemez Road east of the proposed site access be extended to the site access. Also, eastbound and westbound right- and left-turn decelerations lanes should be constructed on West Jemez approaching the site access. Figure 8 shows the recommended lane geometry of the site access intersection.

CONSTRUCTION TRAFFIC

4. The construction of the Science Center is expected to generate about 600 vehicle-trips on the average weekday, with about 300 vehicles entering and 300 vehicles exiting in a 24-hour period. During the morning peak hour, about 150 vehicles would enter the site. During the afternoon peak hour, about 150 vehicles would exit the site.

5. The amount of construction traffic is not anticipated to be great enough to require any mitigation measures.

6. Construction on West Jemez Road may require mitigation measures to maintain access and traffic flow. The contractor should be required to provide a traffic control plan to address the impacts on traffic flow.

Appendix

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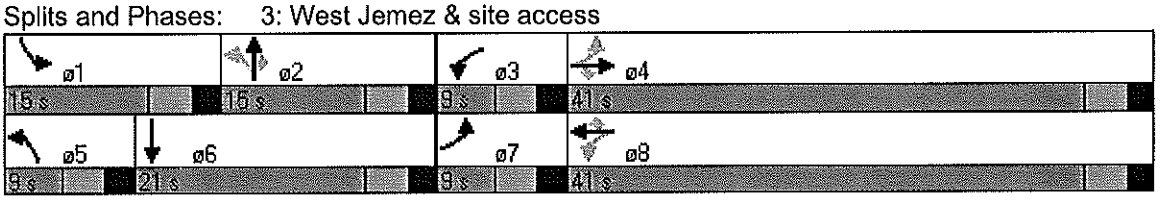
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	350		0	350		0	0		0
Storage Lanes	1		1	1		1	1		1	2		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850		0.862	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1863	1583	3433	1606	0
Flt Permitted	0.298			0.607			0.750			0.950		
Satd. Flow (perm)	555	3539	1583	1131	1863	1583	1397	1863	1583	3433	1606	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			11			889			28		11	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1148			672			864			944	
Travel Time (s)		17.4			10.2			23.6			25.7	
Volume (vph)	70	210	10	155	470	800	10	1	25	100	1	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	78	233	11	172	522	889	11	1	28	111	1	11
Lane Group Flow (vph)	78	233	11	172	522	889	11	1	28	111	12	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	15.0	15.0	9.0	21.0	
Total Split (s)	9.0	41.0	41.0	9.0	41.0	41.0	9.0	15.0	15.0	15.0	21.0	0.0
Total Split (%)	11.3%	51.3%	51.3%	11.3%	51.3%	51.3%	11.3%	18.8%	18.8%	18.8%	26.3%	0.0%
Maximum Green (s)	4.0	36.0	36.0	4.0	36.0	36.0	4.0	10.0	10.0	10.0	16.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	55.8	48.5	48.5	58.0	52.1	52.1	8.2	7.1	7.1	8.9	11.8	
Actuated g/C Ratio	0.70	0.61	0.61	0.72	0.65	0.65	0.10	0.09	0.09	0.11	0.15	
v/c Ratio	0.16	0.11	0.01	0.19	0.43	0.66	0.07	0.01	0.17	0.29	0.05	
Control Delay	5.7	9.2	6.5	5.2	12.3	3.9	24.3	32.0	15.7	34.2	15.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	5.7	9.2	6.5	5.2	12.3	3.9	24.3	32.0	15.7	34.2	15.2	
LOS	A	A	A	A	B	A	C	C	B	C	B	
Approach Delay		8.3			6.8			18.5			32.3	
Approach LOS		A			A			B			C	

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 8.8	Intersection LOS: A
Intersection Capacity Utilization 66.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: West Jemez & site access

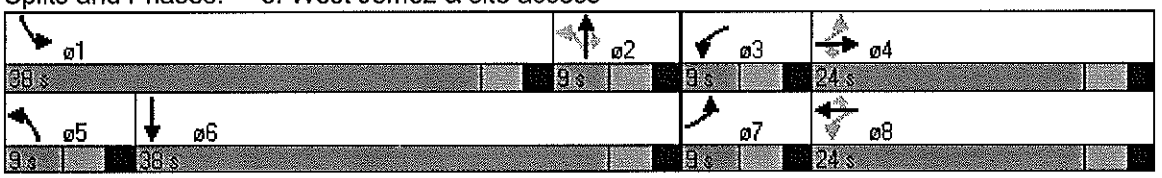


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	350		0	350		0	0		0
Storage Lanes	1		1	1		1	1		1	2		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850		0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1863	1583	3433	1587	0
Flt Permitted	0.552			0.398			0.800			0.950		
Satd. Flow (perm)	1028	3539	1583	741	1863	1583	1490	1863	1583	3433	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			6			400			167		78	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1138			672			864			944	
Travel Time (s)		17.2			10.2			23.6			25.7	
Volume (vph)	30	375	5	25	165	360	10	1	150	800	1	70
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	417	6	28	183	400	11	1	167	889	1	78
Lane Group Flow (vph)	33	417	6	28	183	400	11	1	167	889	79	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	9.0	9.0	9.0	21.0	
Total Split (s)	9.0	24.0	24.0	9.0	24.0	24.0	9.0	9.0	9.0	38.0	38.0	0.0
Total Split (%)	11.3%	30.0%	30.0%	11.3%	30.0%	30.0%	11.3%	11.3%	11.3%	47.5%	47.5%	0.0%
Maximum Green (s)	4.0	19.0	19.0	4.0	19.0	19.0	4.0	4.0	4.0	33.0	33.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	32.3	30.3	30.3	31.4	28.0	28.0	11.8	6.8	6.8	27.4	36.3	
Actuated g/C Ratio	0.40	0.38	0.38	0.39	0.35	0.35	0.15	0.08	0.08	0.34	0.45	
v/c Ratio	0.07	0.31	0.01	0.08	0.28	0.49	0.05	0.01	0.58	0.76	0.10	
Control Delay	16.3	20.7	14.2	16.4	23.4	5.2	15.6	34.0	15.8	27.5	3.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.3	20.7	14.2	16.4	23.4	5.2	15.6	34.0	15.8	27.5	3.7	
LOS	B	C	B	B	C	A	B	C	B	C	A	
Approach Delay		20.3			11.2			15.9			25.5	
Approach LOS		C			B			B			C	

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 19.7	Intersection LOS: B
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: West Jemez & site access

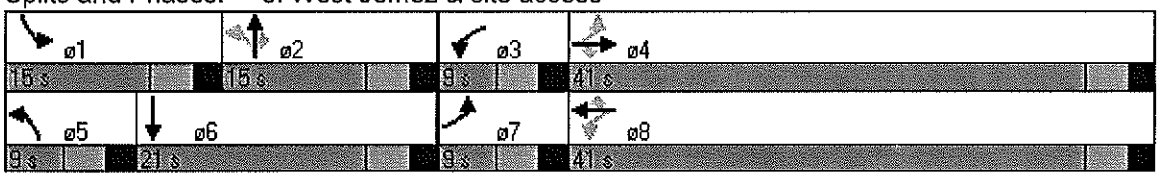


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	350		0	350		0	0		0
Storage Lanes	1		1	1		1	1		1	2		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850		0.862	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1863	1583	3433	1606	0
Flt Permitted	0.207			0.581			0.750			0.950		
Satd. Flow (perm)	386	3539	1583	1082	1863	1583	1397	1863	1583	3433	1606	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			11			889			28		11	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1148			672			864			944	
Travel Time (s)		17.4			10.2			23.6			25.7	
Volume (vph)	70	250	10	155	565	800	10	1	25	100	1	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	78	278	11	172	628	889	11	1	28	111	1	11
Lane Group Flow (vph)	78	278	11	172	628	889	11	1	28	111	12	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	15.0	15.0	9.0	21.0	
Total Split (s)	9.0	41.0	41.0	9.0	41.0	41.0	9.0	15.0	15.0	15.0	21.0	0.0
Total Split (%)	11.3%	51.3%	51.3%	11.3%	51.3%	51.3%	11.3%	18.8%	18.8%	18.8%	26.3%	0.0%
Maximum Green (s)	4.0	36.0	36.0	4.0	36.0	36.0	4.0	10.0	10.0	10.0	16.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	55.8	48.5	48.5	58.0	52.1	52.1	8.2	7.1	7.1	8.9	11.8	
Actuated g/C Ratio	0.70	0.61	0.61	0.72	0.65	0.65	0.10	0.09	0.09	0.11	0.15	
v/c Ratio	0.20	0.13	0.01	0.20	0.52	0.66	0.07	0.01	0.17	0.29	0.05	
Control Delay	6.2	9.3	6.5	5.3	13.8	3.9	24.3	32.0	15.7	34.2	15.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.2	9.3	6.5	5.3	13.8	3.9	24.3	32.0	15.7	34.2	15.2	
LOS	A	A	A	A	B	A	C	C	B	C	B	
Approach Delay		8.5			7.7			18.5			32.3	
Approach LOS		A			A			B			C	

Intersection Summary

Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 9.4		Intersection LOS: A	
Intersection Capacity Utilization 66.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: West Jemez & site access



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	350		0	350		0	0		0
Storage Lanes	1		1	1		1	1		1	2		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850		0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1863	1583	3433	1587	0
Flt Permitted	0.482			0.322			0.800			0.950		
Satd. Flow (perm)	898	3539	1583	600	1863	1583	1490	1863	1583	3433	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			6			400			151		78	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1138			672			864			944	
Travel Time (s)		17.2			10.2			23.6			25.7	
Volume (vph)	30	450	5	25	200	360	10	1	150	800	1	70
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	500	6	28	222	400	11	1	167	889	1	78
Lane Group Flow (vph)	33	500	6	28	222	400	11	1	167	889	79	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			
Detector Phases	7	4	4	3	8	8	5	2	2	1	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	9.0	9.0	9.0	21.0	
Total Split (s)	9.0	24.0	24.0	9.0	24.0	24.0	9.0	9.0	9.0	38.0	38.0	0.0
Total Split (%)	11.3%	30.0%	30.0%	11.3%	30.0%	30.0%	11.3%	11.3%	11.3%	47.5%	47.5%	0.0%
Maximum Green (s)	4.0	19.0	19.0	4.0	19.0	19.0	4.0	4.0	4.0	33.0	33.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	32.0	30.0	30.0	31.1	27.7	27.7	12.1	7.1	7.1	27.4	36.6	
Actuated g/C Ratio	0.40	0.38	0.38	0.39	0.35	0.35	0.15	0.09	0.09	0.34	0.46	
v/c Ratio	0.08	0.38	0.01	0.09	0.34	0.49	0.05	0.01	0.60	0.76	0.10	
Control Delay	16.5	21.6	14.2	16.7	24.4	5.2	15.5	34.0	19.1	27.5	3.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.5	21.6	14.2	16.7	24.4	5.2	15.5	34.0	19.1	27.5	3.7	
LOS	B	C	B	B	C	A	B	C	B	C	A	
Approach Delay		21.2			12.3			19.0			25.5	
Approach LOS		C			B			B			C	

Intersection Summary

Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: West Jemez & site access