CMRR Traffic Impact Analysis Study

Rev. 0
100% Final Submittal

September 30, 2008

35554-009-08

Prepared By:

VIGIL ENTERPRISES, INC.

Submitted by:

10/10/08
Thomas J. Roberts — Date
Sr. Project Manager
Vigil Enterprises, Inc.

Approved by:

W. Chandler Elkins 10/14/08
W. Chandler Elkins
Project Manager
Los Alamos National Laboratory

Unclassified
Classification

Michael Ladach 10-14-08
Reviewer — Date

Michael Ladach
Print Name of Reviewer

35018

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Scope of Work

VIGIL ENTERPRISES, INC. has completed a study for Los Alamos National Laboratory (LANL) to assess the effects that the construction of the CMRR Facilities will have on the existing transportation network and has provided the CMRR Traffic Impact Analysis Study to assist LANL in their development of a Traffic Control Plan to be implemented along the Pajarito Corridor. This Traffic Control Plan should be implemented during the construction phase of the CMRR Project which is currently scheduled to be performed over the next 8 years starting in 2009.

Approach

VIGIL ENTERPRISES, INC. used the following process to perform the study:

Coordination, Project Start Up, and Meeting Attendance

- A Kick off meeting was held to introduce key project personnel.
- Bi-weekly project meetings were held to discuss inputs to the study and discuss information gathered to complete the report.

The Following Site Surveys and Existing Conditions Information Gathered:

- Performance statistics at signalized intersections
- Performance statistics at un-signalized intersections
- Average Weekly Volume
- Peak weekly volume
- Intersection turning movements
- Existing Traffic Signal Review

The Following Analysis for Future Conditions Performed:

- Analyzed proposed traffic movements for construction along Pajarito Road
- Evaluated vehicular flow to and from construction site
- Analyzed accidents that have occurred over the last 5 years
- Evaluated peak construction deliveries and craft movements
- Evaluated impact of proposed traffic movements on un-signalized intersections
- Evaluated Impact of proposed traffic movements on signalized
- Evaluated options for traffic movements or reconfiguration of existing access and travel patterns

Estimated Schedule and Cost

An analysis level estimate and schedule not including LANL burdens to implement the recommended improvements, changes, or traffic controls is included in the CMRR Traffic Impact Analysis Study in Appendix F. The cost estimate is a high level estimate.

Deliverable

Attachment 1 contains the CMRR Traffic Impact Analysis Study.

CMRR TRAFFIC IMPACT ANALYSIS

(Pajarito Corridor Between TA-64 and TA-46)

Los Alamos, New Mexico

Task Order: 35554-009-08
Rev. 0

Prepared For:

Vigil Enterprises, Inc.
Santa Fe, New Mexico 87505

Prepared by:

Wilson & Company, Inc. Engineers & Architects
4900 Lang Avenue NE
Albuquerque, New Mexico 87109

WCI Project Number: 08-100-117-00

September 2008

VIGIL ENTERPRISES, INC.

Attachment 1

CMRR Traffic Impact Analysis Study

Pajarito Corridor
Between TA-64 and TA-46

LIST OF TABLES

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APPENDICES

Executive Summary

A. Site Location and Study Area

The proposed Chemistry and Metallurgy Research Replacement (CMRR) construction site is located on the north side of Pajarito Road, west of Pecos Drive, in Technical Area TA-55 at the Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico. Construction lay-down yards will be located on the north side of the Pajarito Road corridor - one east of Puye Road in TA-63 and another at TA-46. The CMRR program office will be located on the south side of Pajarito Road, across from the CMRR construction site, in TA-50.

The project study area consists of approximately 2 miles of the Pajarito Road corridor, extending from northwest of the entrance to TA-64 to southeast of the entrance to TA-46. There are three key signalized intersections and three key unsignalized intersections with the corridor study area:

- Pajarito Road & TA-64 – Signalized
- Pajarito Road & Pecos Road – Signalized
- Pajarito Road & Lubbock Road – Signalized
- Pajarito Road & Puye Road – Unsignalized
- Pajarito Road & TA-46 – Unsignalized
- TA-46 & Internal Roadways – Unsignalized, All-way stop

An additional unsignalized CMRR site driveway intersection is proposed to be located on Pajarito Road, approximately 500 feet west of Pecos Drive. Figure 1 illustrates the location of the Pajarito Road corridor. Figure 2 illustrates the project study area, CMRR project layout, and location of these key intersections. As detailed in Section VI.D of this report, analysis has all lead to the recommendation of an additional construction entrance on Pajarito Road at MM 3.0 to provide access to the TA-46 lay-down yards.

B. Development Description CMRR Project

Construction of the CMRR facility is anticipated to occur over an eight year period, beginning in 2009. The Traffic Control Plan is anticipated to be in place between 2009 and 2018. The CMRR program management staff is anticipated to peak at approximately 200 employees. Construction craft and management employees are anticipated to peak at approximately 600 persons. Construction truck and delivery movements are anticipated to peak in excess of 1,300 monthly round trips.

C. Analyses Results by Analysis Year/Phase

Table ES-1 summarizes the results of the analysis of existing traffic conditions, Year 2009 Implementation Year Conditions, and Year 2013 CMRR Construction Peak Conditions at each of the analyzed intersections.

TABLE ES-1
INTERSECTION LEVEL OF SERVICE SUMMARY
LOS (DELAY)

AM Peak

Intersection	2008 Existing	2009 Background	2009 Total	2013 Background	2013 Total
Pajarito Road & TA-64	A (9.8)	B (10.4)	B (10.6)	B (11.9)	B (12.6)
Pajarito Road & CMRR Construction Entrance (US)	n/a	n/a	A (0.2)/ *B (13.1)*	n/a	A (0.8)/ *C (19.2)*
Pajarito Road & Pecos Drive	C (23.3)	C (23.2)	C (22.9)	C (25.8)	C (25.6)
Pajarito Road & Lubbock Road	A (9.1)	A (9.8)	B (12.0)	B (10.2)	B (13.8)
Pajarito Road & Puye Road (US)	A (1.0)/ *B (13.8)*	A (1.0)/ *C (15.6)*	A (0.9)/ *C (16.1)*	A (1.2)/ *C (16.4)*	A (1.0)/ *C (17.2)*
Pajarito Road & TA-46 (US)	A (1.0)/ *B (13.8)*	A (0.9)/ *B (15.6)*	A (1.0)/ *C (17.6)*	A (1.0)/ *C (16.4)*	A (1.2)/ *C (19.6)*
TA-46/Internal (AWSC)	A (7.5)	A (7.5)	A (8.0)	A (7.7)	A (8.4)
Pajarito Road & Recommended New TA-46 Construction Entrance (US)	n/a	n/a	A (0.1)/ *A (0.0)*	n/a	A (0.2)/ *C (18.6)*

PM Peak

Intersection	2008 Existing	2009 Background	2009 Total	2013 Background	2013 Total
Pajarito Road & TA-64	A (8.5)	A (8.8)	A (9.2)	A (9.2)	A (9.9)
Pajarito Road & CMRR Construction Entrance (US)	n/a	n/a	A (0.3)/ *B (12.8)*	n/a	A (0.8)/ *C (16.2)*
Pajarito Road & Pecos Drive	B (19.7)	B (19.0)	C (20.1)	C (21.7)	C (22.9)
Pajarito Road & Lubbock Road	A (8.5)	A (8.8)	A (8.9)	A (8.7)	A (8.9)
Pajarito Road & Puye Road (US)	A (1.9)/ *B (11.5)*	A (1.8)/ *B (12.9)*	A (1.7)/ *B (14.5)*	A (2.1)/ *B (13.2)*	A (2.1)/ *C (15.8)*
Pajarito Road & TA-46 (US)	A (2.1)/ *B (11.2)*	A (2.0)/ *B (12.3)*	A (3.2)/ *C (16.2)*	A (2.3)/ *C (12.6)*	A (4.1)/ *C (18.8)*
TA-46/Internal (AWSC)	A (7.1)	A (7.2)	A (7.3)	A (7.2)	A (7.5)
Pajarito Road & Recommended New TA-46 Construction Entrance (US)	n/a	n/a	A (1.3)/ *C (16.3)*	n/a	A (1.7)/ *C (18.2)*

Italics indicate the delay and LOS for the stop-sign controlled approach at unsignalized intersections.
US indicates unsignalized intersection.
AWSC indicates an all-way stop sign controlled, unsignalized intersection.

D. Summary of Impacts and Recommendation

As indicated in Table ES-1, all of the analyzed intersections are forecast to operate at acceptable level of service C or better during each analysis timeframe, both with and without the CMRR construction traffic. The table also provides analysis results for a new, unsignalized construction entrance on Pajarito Road at MM 3.0 to provide access to the TA-46 laydown yards, as recommended in subsequent report sections.

The additional traffic generated by the CMRR construction project will increase overall delay by no more than 1.5 seconds at any signalized intersection. Stop controlled approach delays will increase by no more than 6.5 seconds at any intersection.

However, the addition of CMRR construction traffic will result in the following degradations in level of service in the 2009 Implementation Year:

- **Pajarito Road & TA-64:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & Pecos Drive**: No degradation in overall intersection level of service will occur in the AM peak. In the PM peak, overall intersection delay and level of service will degrade from B (19.0 sec) in the background condition to C (20.1 sec) with addition of the CMRR construction traffic in 2009.
- **Pajarito Road & Lubbock Road**: Overall intersection delay and level of service will degrade from A (9.8 sec) in the background condition to B (12.0 sec) with addition of the CMRR construction traffic in the AM peak. No degradation in overall intersection level of service will occur in the PM peak in 2009.
- **Pajarito Road & Puye Road:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & TA-46**: Delay and level of service on the southbound stop-sign controlled approach will degrade from B (15.6 sec) to C (17.6) in the AM and B (12.3 sec) to C (16.2) in the PM with addition of the CMRR construction traffic in 2009.
- **Internal Road & TA-46**: No degradation in overall intersection level of service will occur in either the AM or PM peak.

In the 2013 CMRR Construction Peak, the addition of CMRR construction traffic will result in the following degradations in level of service:

- **Pajarito Road & TA-64:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & Pecos Drive:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & Lubbock Road:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & Puye Road**: No degradation in overall intersection level of service will occur in the AM peak. Delay and level of service on the southbound

approach will degrade from B (13.2 sec) to C (15.8 sec) in the PM with addition of the CMRR construction traffic in 2013.

- **Pajarito Road & TA-46**: No degradation in overall intersection level of service will occur in the AM peak. Delay and level of service on the southbound approach will degrade from B (12.6 sec) to C (18.8 sec) in the PM with addition of the CMRR construction traffic in 2013.
- **Internal Road & TA-46**: No degradation in overall intersection level of service will occur in either the AM or PM peak.

Though no specific improvements are required to address any intersection level of service deficiencies, the following items are recommended to improve overall level of service in the Pajarito Road corridor during the 2009-2018 construction of the CMRR facility:

1. Implement a 35mph construction speed zone on Pajarito Road between TA-64 and TA-46 for the length of the CMRR construction period.

2. Construct the new CMRR construction site driveway to Pajarito Road with two exiting and one entering lane (2009),

   2a. Construct an eastbound left turn deceleration lane on Pajarito Road at the intersection with the new CMRR construction site driveway (2009). The required length is 300 feet with a 100 foot taper, based on the 35mph construction zone speed.

   2b. Construct a westbound right turn deceleration lane on Pajarito Road at the intersection with the new CMRR construction site driveway (2010). The required length is 230 feet with a 100 foot taper, based on the 35mph construction zone speed. These, combined with a minimum 50 foot tangent, indicate a minimum distance of 380 feet between the return at Pecos Drive and the return at the construction driveway. Thus, the new CMRR driveway must located far enough west of Pecos Drive to accommodate this geometry.

3. Relocate the TA-46 construction access to MP 3.0 (2009). Provide two southbound exiting lanes. In addition to this direct access:

   3a. Construct an eastbound left turn deceleration lane on Pajarito Road at the intersection with the new TA-46 construction site driveway (2009). The required length is 300 feet with a 100 foot taper, based on the 35mph construction zone speed.

   3b. Construct a westbound right turn deceleration lane on Pajarito Road at the intersection with the new TA-46 construction site driveway (2010). The required length is 230 feet with a 100 foot taper, based on the 35mph construction zone speed. These, combined with a minimum 50 foot tangent, indicate a minimum

distance of 380 feet between the return at the existing TA-46 driveway and the return at the new TA-46 construction driveway. Thus, the new TA-46 construction driveway must be located far enough west of the existing TA-46 driveway to accommodate this geometry.

4. All off-site truck deliveries should be via Pajarito Road, through White Rock, in order to minimize construction truck traffic on LANL's main core campus (TA-3) roadways.

5. Current inspection demand at White Rock should be evaluated to determine the need for additional security staff to inspect the off-site deliveries. In general, demand will be at its peak under the following circumstances:
   - Off-site hauling of aggregate base to TA-46 and TA-63 (estimated 2010)
   - Off-site hauling of backfill to TA-55 (estimated 2012 and 2013)

6. Consideration should be given to lengthening existing acceleration and deceleration lanes to meet the standards of the NMDOT State Access Management Manual as part of any roadway widening or rehabilitation projects, or consideration of a reduction in posted speed. A reduction in posted speeds to less than 30 mph would be required for all existing accel/decel lanes to meet NMDOT standards

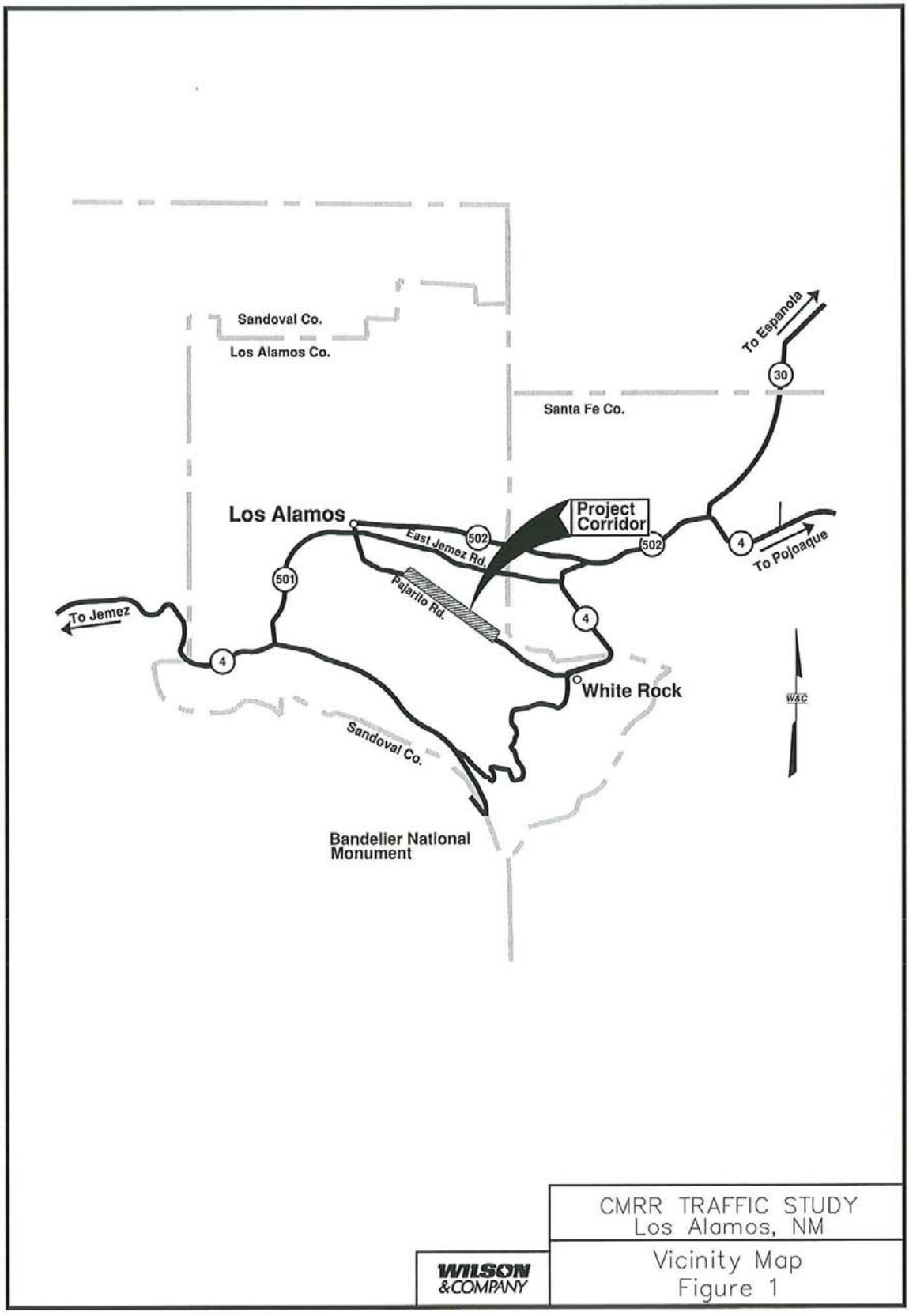
7. Any modifications to the roadway network shall make provisions to not impede pedestrian and bicycle traffic.

8. All improvements shall conform to the latest NMDOT standards.

9. Construction traffic control shall be per the latest version of the Manual on Uniform Traffic Control Devices.

10. Even though a traffic signal is not warranted at the intersection of Pajarito and Puye, if more large construction vehicles tend to use this intersection, a temporary signal span may be required to have the trucks enter the highway safely due to the limited site distance to the east.

11. This study shall be revisited if the assumptions made change or the study criteria deviates from the original proposed construction sequence and/or schedule.


Sandoval Co.
Los Alamos Co.
Santa Fe Co.
To Espanola
30
Los Alamos
Project Corridor
East Jemez Rd.
502
502
4
To Pojoaque
501
Pajarito Rd.
To Jemez
4
4
White Rock
WAC
Sandoval Co.
Bandelier National Monument
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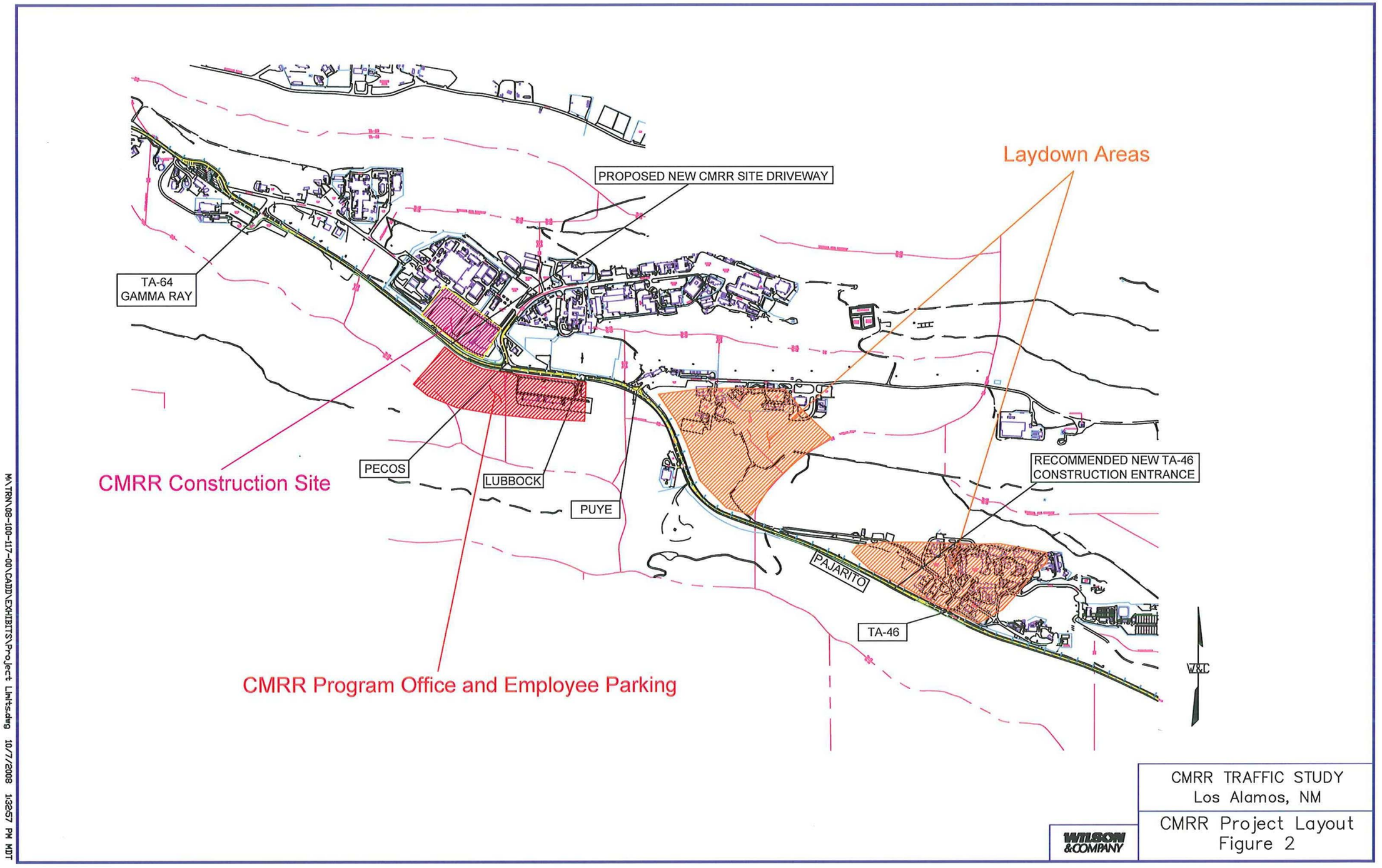
CMRR TRAFFIC STUDY
Los Alamos, NM
WILSON &COMPANY
Vicinity Map
Figure 1


Laydown Areas
PROPOSED NEW CMRR SITE DRIVEWAY
TA-64
GAMMA RAY
RECOMMENDED NEW TA-46
CONSTRUCTION ENTRANCE
CMRR Construction Site
PECOS
LUBBOCK
PUYE
PAJARITO
TA-46
CMRR Program Office and Employee Parking
W&C
M:\TRN\08-100-117-001\CADD\EXHIBITS\Project Limits.dwg 10/7/2008 13:57 PM MDT
CMRR TRAFFIC STUDY
Los Alamos, NM
CMRR Project Layout
Figure 2
WILSON &COMPANY

I. Introduction

A. Purpose of Report and Study Objectives

This Traffic Impact Analysis (TIA) has been conducted to identify the potential impacts that the construction of the proposed Chemistry and Metallurgy Research Replacement (CMRR) project will have on the Pajarito Road corridor at the Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico. The study will provide recommendations for development and implementation of a Traffic Control Plan in the study corridor.

B. Project Location Including Legal Description

The proposed Chemistry and Metallurgy Research Replacement (CMRR) construction site is located on the north side of Pajarito Road, west of Pecos Drive, in Technical Area TA-55 at the Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico. Construction lay-down yards will be located on the north side of the Pajarito Road corridor - one east of Puye Road in TA-63 and another at TA-46. The CMRR program office will be located on the south side of Pajarito Road, across from the CMRR construction site, in TA-50.

C. Vicinity Map

Figure 1 illustrates the location of the Pajarito Road study corridor. Figure 2 illustrates the location of the proposed CMRR construction site, laydown yards, and program office within the Pajarito corridor.

II. Description of Proposed Development

A. Land Use and Intensity

The proposed CMRR construction site is located on the north side of Pajarito Road, west of Pecos Drive, in Technical Area TA-55 at the Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico. CMRR program management staff is anticipated to peak at approximately 200 employees. Construction craft and management employees are anticipated to peak at approximately 600 persons. Construction truck and delivery movements are anticipated to peak in excess of 1,300 monthly round trips.

B. Development Phasing and Timing

Construction of the CMRR facility is anticipated to occur over an eight year period, beginning in 2009. The Traffic Control Plan is anticipated to be in place between 2009 and 2018. A summary of the CMRR Construction Traffic Movement Forecasts for various project stages over this time period is provided in Appendix E.

C. Existing Zoning

The Comprehensive Site Plan 2000 identifies the following assumptions for the Pajarito Corridor West Planning Area:

- The Pajarito Corridor West Planning Area is the proposed location of the nuclear campus.
- The replacement CMR facility will be located at TA-55.
- SNM processing, storage and handling should be maximized in a single PIDAS-protected area at the nuclear campus.
- Other activities directly related to SNM should be located within the nuclear campus, but not necessarily within the PIDAS-protected area.

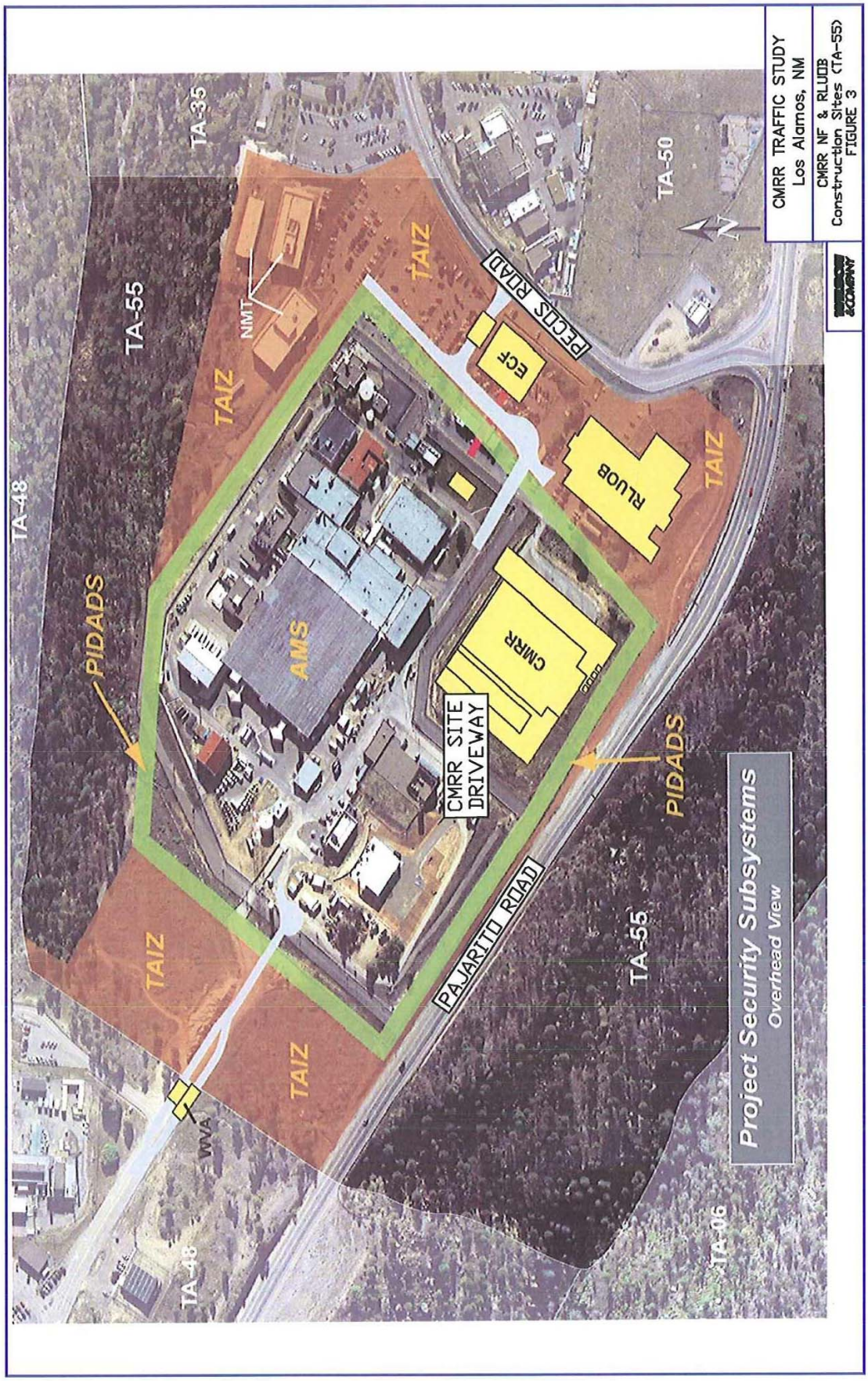
An excerpt of the Comprehensive Site Plan 2000 is provided in Appendix H.

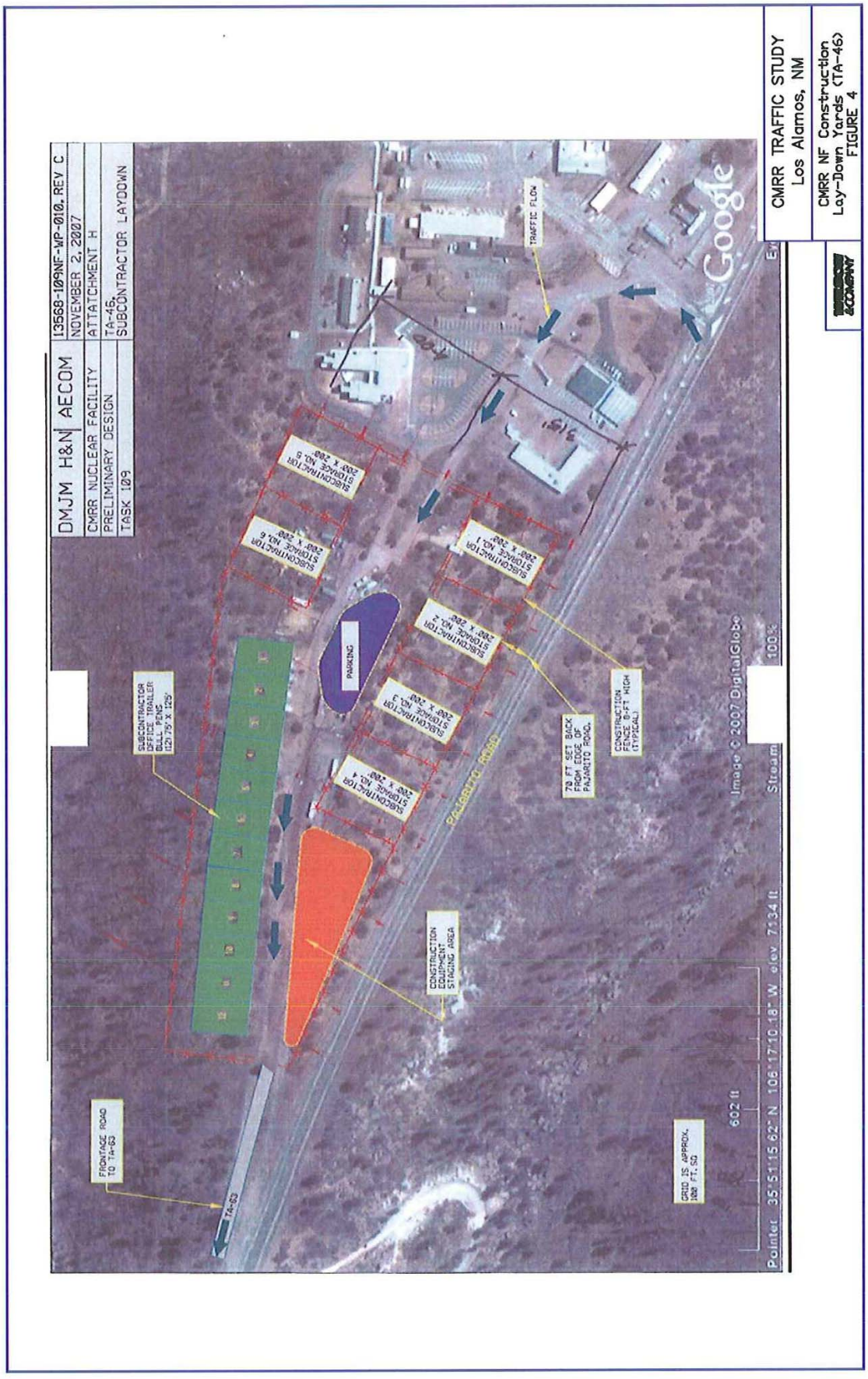
D. Number, Type, and Location of Access Points

Access to the construction site will be provided via a construction driveway on the north side of Pajarito Road, approximately 500 feet west of the Pecos Drive intersection.

E. Site Plan or Plans

Figure 2 illustrated the general location of the CMRR construction site and related lay-down yards and program offices. The site plans for the CMRR facility and lay-down yards are illustrated in Figures 3 thru 5.


CMRR TRAFFIC STUDY
Los Alamos, NM
CMRR NF & RLUOB
Construction Sites (TA-55)
FIGURE 3
Project Security Subsystems
Overhead View
TA-48
TA-55
TA-35
TA-50
TA-06
TAIZ
PIDADS
AMS
NMT
ECF
RLUOB
CMRR
CMRR SITE DRIVEWAY
PECOS ROAD
PAJARITO ROAD
VVA
N


CMRR TRAFFIC STUDY
Los Alamos, NM
CMRR NF Construction
Lay-Down Yards (TA-46)
FIGURE 4
DMJM H&N | AECOM
13568-109NF-WP-010, REV C
NOVEMBER 2, 2007
CMRR NUCLEAR FACILITY
ATTATCHMENT H
PRELIMINARY DESIGN
TA-46,
SUBCONTRACTOR LAYDOWN
TASK 109
TRAFFIC FLOW
PARKING
SUBCONTRACTOR STORAGE NO. 1 200' X 200'
SUBCONTRACTOR STORAGE NO. 2 200' X 200'
SUBCONTRACTOR STORAGE NO. 3 200' X 200'
SUBCONTRACTOR STORAGE NO. 4 200' X 200'
SUBCONTRACTOR STORAGE NO. 5 200' X 200'
SUBCONTRACTOR STORAGE NO. 6 200' X 200'
SUBCONTRACTOR ASSET HAULER BULL PENS (120.75' X 125')
70 FT. SET BACK FROM EDGE OF PAJARITO ROAD.
CONSTRUCTION FENCE 8-FT. HIGH (TYPICAL)
CONSTRUCTION EQUIPMENT STAGING AREA
FRONTAGE ROAD TO TA-53
TA-53
PAJARITO ROAD
Stream
Image © 2007 DigitalGlobe
100%
Pointer 35°51'15.62" N 106°17'10.18" W elev 7134 ft
602 ft
GRID IS APPROX. 1287 FT. SQ
Google


DMJM H&N AECOM
13568-109NF-WP-010, REV C
NOVEMBER 2, 2007
CMRR NUCLEAR FACILITY
ATTATCHMENT G
PRELIMINARY DESIGN
TA-63,
TASK 109
BATCH PLANT & LAYDOWN
CMRR TRAFFIC STUDY
Los Alamos, NM
CMRR NF Construction
Lay-Down Yards (TA-63)
FIGURE 5
Google
PUYE ROAD
CONSTRUCTION FENCE 8 FT HIGH
CONSTRUCTION TRAILERS (2) 50' X 102'
ENTRANCE GATE
CONSTR. EQUIPMENT PARKING
LAYDOWN AREA
CONCRETE TRUCK WASHOUT AREA 60' X 120'
HIGH POWER LINE CORRIDOR 60 FT CLEAR WIDTH
FINE AGGREGATE STOCK PILE (2) 40FT DIA BINS (2) 65 FT DIA X 25' HIGH EQUIVALENT
CONVEYOR (TYP.)
COARSE AGGREGATE (2) 80 FT DIA BINS (2) 80 FT DIA X 30' HIGH EQUIVALENT
CHILLER EQUIPMENT
FRONTAGE ROAD TO TA-46
TRUCK FLOW
COARSE AGGREGATE COOLING PITS (3) 25' X 125' X 4' DEEP
BATCHING TOWER (TYP.)
CEMENT (TYP.)
CONSTRUCTION FENCE 8 FT HIGH
TRAILER 26' X 102'
GRID IS APPROX. 1020 FT SQ
Pointer 35°51'29.78" N 106°17'33.93" W elev 7182 ft
598 ft
Stream
100%

III. Study Area Conditions

A. Study Area Definition

The project study area consists of approximately 2 miles of the Pajarito Road corridor, extending from northwest of the entrance to TA-64 to southeast of the entrance to TA-46. There are three key signalized intersections and three key unsignalized intersections within the corridor study area. Figure 6 illustrates the project study area and location of key study area intersections.

B. General Description of Existing Land Use

The Pajarito Road corridor is the most secure corridor on the LANL campus and is home to the majority of the Lab's nuclear research.

C. Other Known Development Activity (NMSSUP Project)

The CMRR facility construction will occur over an eight year period, beginning in 2009. The NMSSUP construction project, located in TA-55 just east of the CMRR project, is also scheduled to begin construction in March 2009, with completion scheduled in March 2012. Thus, the NMSSUP construction traffic will occur simultaneously with early phases of the CMRR construction.

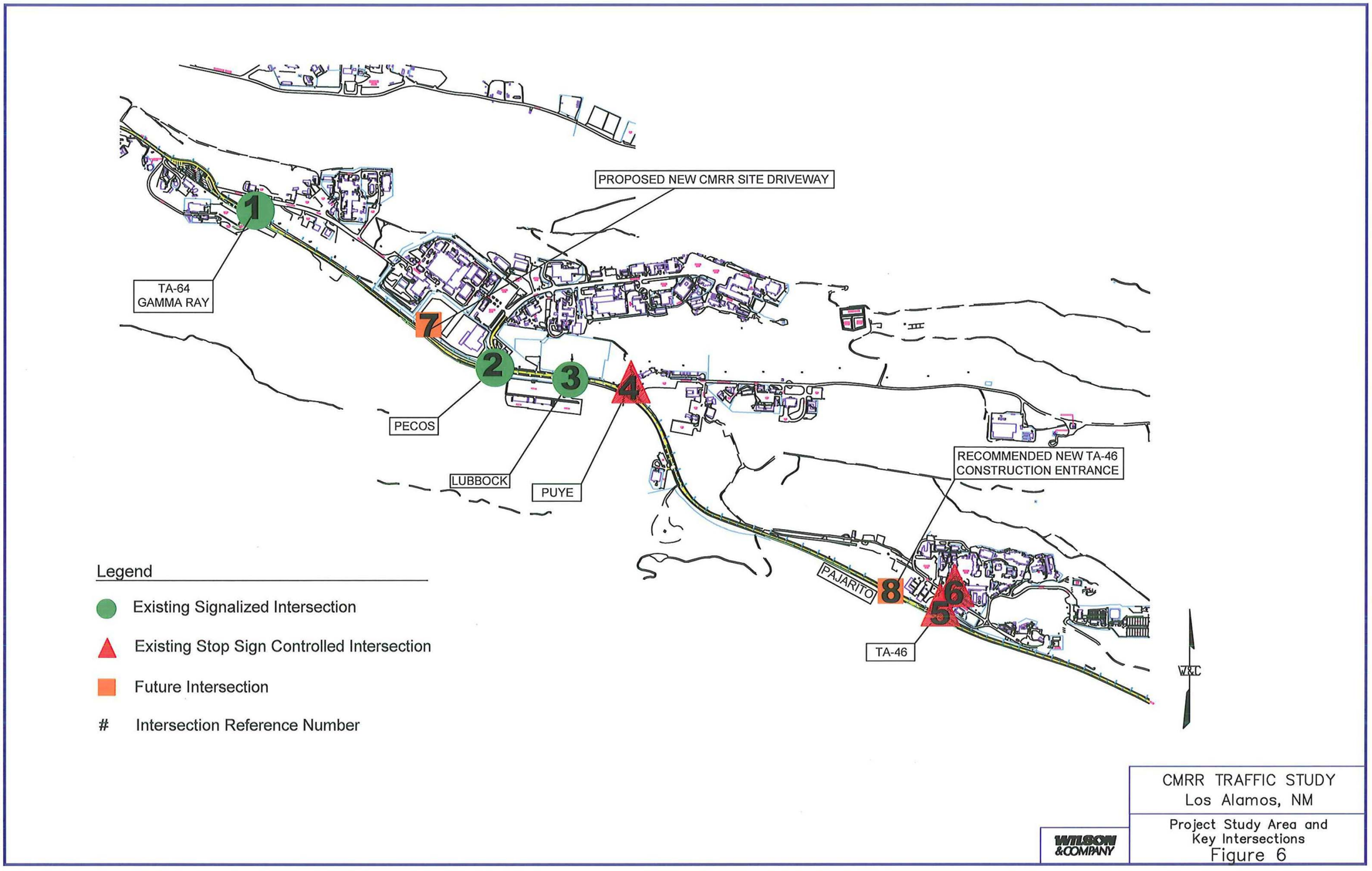
The NMSSUP construction is anticipated to generate 100 dirt haul trucks for excavation and backfill each day for a one year period beginning in spring 2009. After that period, project material and delivery trucks will average 15-20 trips per day. There is also a potential for on-site parking of approximately 100 management and employee vehicles.

D. Existing Roadway System Characteristics

1.0 Roadway Characteristics

Pajarito Road is primarily a two-lane roadway within the project study area. Existing lanes are generally 12' wide with 6'-8' shoulders. The posted speed on Pajarito Road varies from 40mph in the northwest to 55mph in the southeast. It is primarily posted 50mph in the project study limit. However, there is currently a 35mph construction zone between Puye Road and TA-64. It is anticipated that this construction zone will be extended to TA-46 in conjunction with the CMRR project.

In addition to the single travel lane in each direction, several additional acceleration and deceleration lanes are provided throughout the corridor for turning vehicles to safely enter and exit the corridor without impeding the flow of through traffic.



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CMRR TRAFFIC STUDY
Los Alamos, NM

Project Study Area and Key Intersections
Figure 6

WILSON & COMPANY

Existing acceleration lanes are provided in the following locations:

- A westbound acceleration lane west of Puye Road for approximately 120 feet, for southbound right turns entering the corridor.
- An eastbound acceleration lane east of Puye Road for approximately 150 feet, for southbound left turns entering the corridor.
- A westbound acceleration lane west of TA-46 for approximately 250 feet, for southbound right turns entering the corridor.
- An eastbound acceleration lane east of TA-46 for approximately 130 feet, for southbound left turns entering the corridor.

Table 18.K-1 of the New Mexico *State Access Management Manual* provides standard acceleration lane lengths based on posted speed. For the posted speed of 50mph in the Pajarito corridor, the standard acceleration lane length is 760 feet. For a posted construction zone speed of 35mph, the standard acceleration lane length is 270 feet. Thus, none of these acceleration lanes currently meet state standards for the permanent posted speed of the interim construction zone speed. For all of these lanes to NMDOT, posted speeds would need to be reduced below 30mph in the corridor. However, a review of the crash data does not show a pattern indicating a major safety issue associated with the shorter lanes. Therefore, it would appear that the presence of the lanes is accomplishing the intended purpose of taking turning traffic out of the through lanes.

Existing deceleration lanes are provided in the following locations:

- Eastbound right and left turn lanes at the TA-64 entrance for approximately 250 feet.
- Westbound right and left turn lanes at the TA-64 entrance for approximately 210 feet.
- An eastbound left turn lane at Pecos Drive for approximately 465 feet.
- A westbound right turn lane at Pecos Drive for approximately 540 feet.
- An eastbound right turn lane at Lubbock Road for approximately 560 feet.
- A westbound left turn lane at Lubbock Road for approximately 200 feet.
- An eastbound left turn lane at Puye Road for approximately 190 feet.
- A westbound right turn lane at Puye Road for approximately 115 feet.
- An eastbound left turn lane at the TA-46 entrance for approximately 250 feet.
- A westbound right turn lane at the TA-46 entrance for approximately 450 feet.

Table 18.K-1 of the New Mexico *State Access Management Manual* also provides standard deceleration distances based on posted speed. For the posted speed of 50mph in the Pajarito corridor, the standard deceleration distance is 475 feet for a stop condition and 450 feet for slowing to 15mph. Thus, none of the deceleration lanes currently meet state standards based on the permanent posted speed, with the exception of the westbound right turns at Pecos Drive and TA-46. For the posted construction zone speed of 35mph, the

standard deceleration distance is 250 feet for a stop condition and 230 feet for slowing to 15mph. Each of the deceleration lanes meet this criteria, with the exception of the westbound turn lanes at TA-64, the westbound left turn lane at Lubbock Road, the eastbound left turn lane at Puye Road, and the westbound right turn lane at Puye Road. For all of these lanes to meet NMDOT standards, posted speeds would need to be reduced below 25 mph. However, a review of the crash data does not show a pattern indicating a major safety issue associated with the shorter lanes. Therefore, it would appear that the presence of the lanes is accomplishing the intended purpose of taking turning traffic out of the through lanes.

2.0 Key Intersections

The location of key study area intersections was depicted in Figure 6. The following provides a description of each of the analyzed existing intersections. A summary of the intersection geometry and traffic control is provided in Figure 7.

Pajarito Road & TA-64

This is a four-leg, signal controlled intersection in the northwest portion of the project study area. It provides access to both TA-64 in the south and TA-48 in the north.

Pajarito Road & Pecos Drive

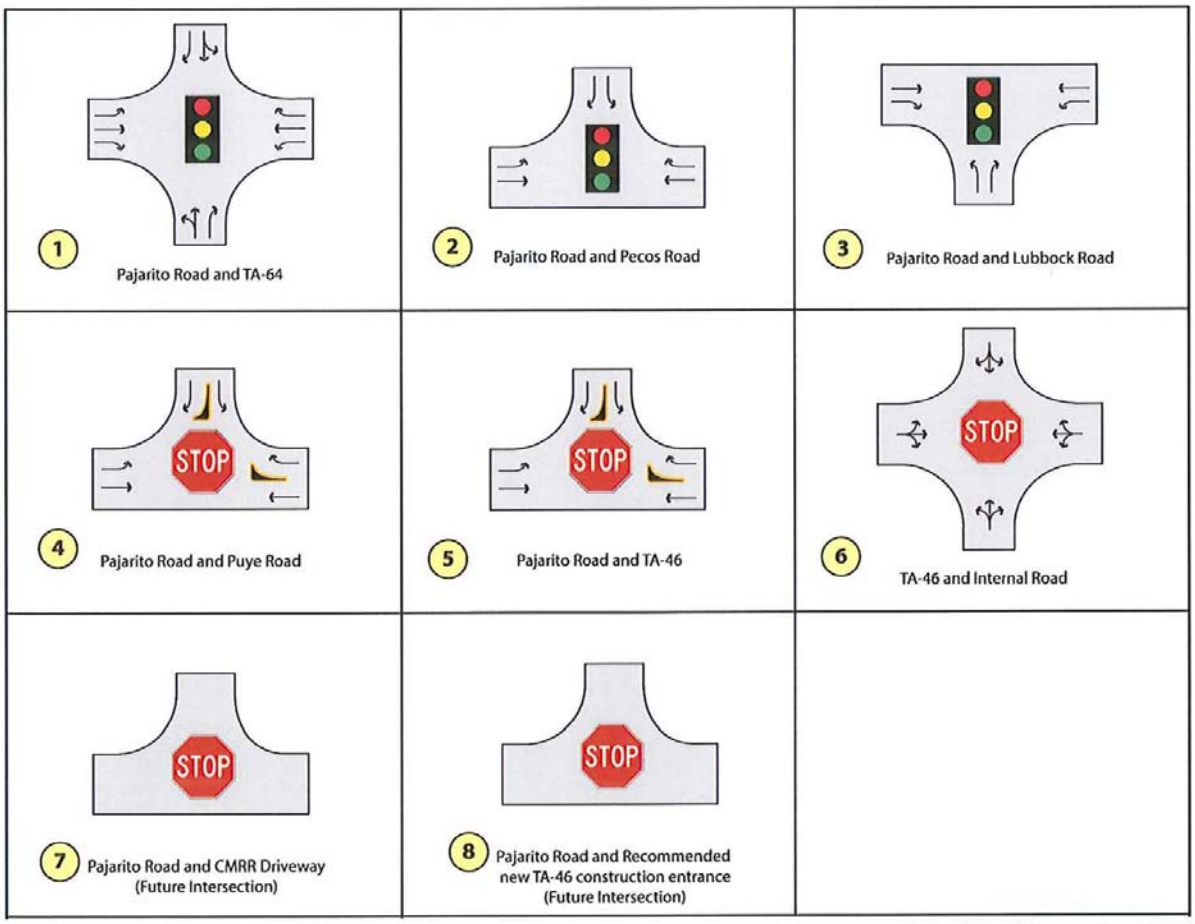
This is a three-leg, signal controlled intersection. This intersection was recently reconstructed as a result of recommendations from the March 2006 *Pajarito Road Modifications System Study Report.* To provide enhanced pedestrian service and safety, the free southbound and westbound right turn lanes were replace with traditional right turn deceleration lanes. Pedestrian crossings were provided across the west leg of the intersection, along with an exclusive pedestrian signal phase.

Pajarito Road & Lubbock Road

This three-leg, signal controlled intersection was recently added to the Pajarito Road corridor to provide access to construction parking facilities in TA-50 south of Pajarito Road. The intersection geometry depicted in Figure 7 was based on recommendations from the March 2006 *Pajarito Road Modifications System Study Report.*

Pajarito Road & Puye Road

This is a three-leg intersection with stop sign control for left turns and yield sign control for right turns on the southbound Puye Road approach. Acceleration lanes are provided on Pajarito Road for entering right and left turns from Puye Road.



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INTERSECTION LANE CONFIGURATIONS
EXISTING YEAR 2008 CONDITIONS

CMRR PAJARITO CORRIDOR TRAFFIC IMPACT ANALYSIS

FIGURE 7

Pajarito Road & TA-46
This is a three-leg intersection with stop sign control for left turns and yield sign control for right turns on the southbound approach from the TA-46 driveway. Acceleration lanes are provided on Pajarito Road for entering right and left turns from the TA-46 driveway

TA-46 Driveway & Internal Roadway
This is primarily a four-leg intersection, with the east and west leg slightly offset. Each leg is stop sign controlled. A single shared lane is provided on each approach.

E. Programmed Transportation Improvements

As discussed above, several modifications to intersections within the Pajarito Road corridor were recently constructed based on recommendations from the March 2006 *Pajarito Road Modifications System Study Report.* No other transportation system improvements are currently programmed during the course of the CMRR construction from 2009-2018. The Comprehensive Site Plan 2000 does list several potential and proposed transportation developments in the Pajarito Corridor West Planning Area. An excerpt of this document is provided in Appendix H.

F. Description of Traffic Signal Systems

As discussed previously, there are three signalized intersections in the subject section of Pajarito Road: TA-64, Pecos Drive, and Lubbock Road. Each of these signals operates independently (uncoordinated), with detector actuation for each phase. Detailed traffic control data used in the analysis is provided in Appendix D. The following provides a brief description of the signal phasing at each intersection:

Pajarito Road & TA-64
Eastbound and westbound left turns from Pajarito Road are provided a leading protected phase. Left turns from the TA-64 and TA-48 run permissively with the through and right turn movements.

Pajarito Road & Pecos Drive
A leading, protected left turn phase is provided on the westbound approach to this intersection. Southbound left turns and southbound right turns are controlled by separate signal phases. This allows southbound left turns to run concurrent with the exclusive pedestrian phase that is provided for pedestrians utilizing the crosswalk on the west leg of this intersection.

Pajarito Road & Lubbock Road
Westbound left turns from Pajarito Road are provided a leading protected phase.

G. Alternative Travel Modes Discussion

As mentioned previously, significant pedestrian activity is anticipated in the corridor in the vicinity of the Pecos Drive intersection. This intersection has been modified previously to support the anticipated pedestrian demand through the following actions:

- Removal of the free southbound and westbound right turns lanes and replacement with traditional right turn lanes
- Provision of an exclusive pedestrian signal phase for crossings on the west intersection leg
- Construction of enhanced pedestrian crosswalks
- Provision of enhanced pedestrian lighting.

Pedestrian crossings generated by the CMRR construction project will also benefit from these enhancements.

IV. Analysis of Existing Conditions

A. Daily and Peak-Hour Traffic Volumes

1.0 Daily Traffic Volumes

In July, 2008 Wilson & Company conducted 24-hour tube counts on Pajarito Road in two locations: east of the TA-46 driveway and west of Pecos Drive. The counts were conducted for a five day period to arrive at average weekday traffic volumes. Count data is provided in Appendix B.

The collected data indicates an Average Daily Traffic (ADT) Volume of 4,555 vehicles per day in the northwest portion of the corridor and an ADT of 4,373 vehicles per day in the southeast portion of the corridor.

2.0 Peak Hour Traffic Volumes

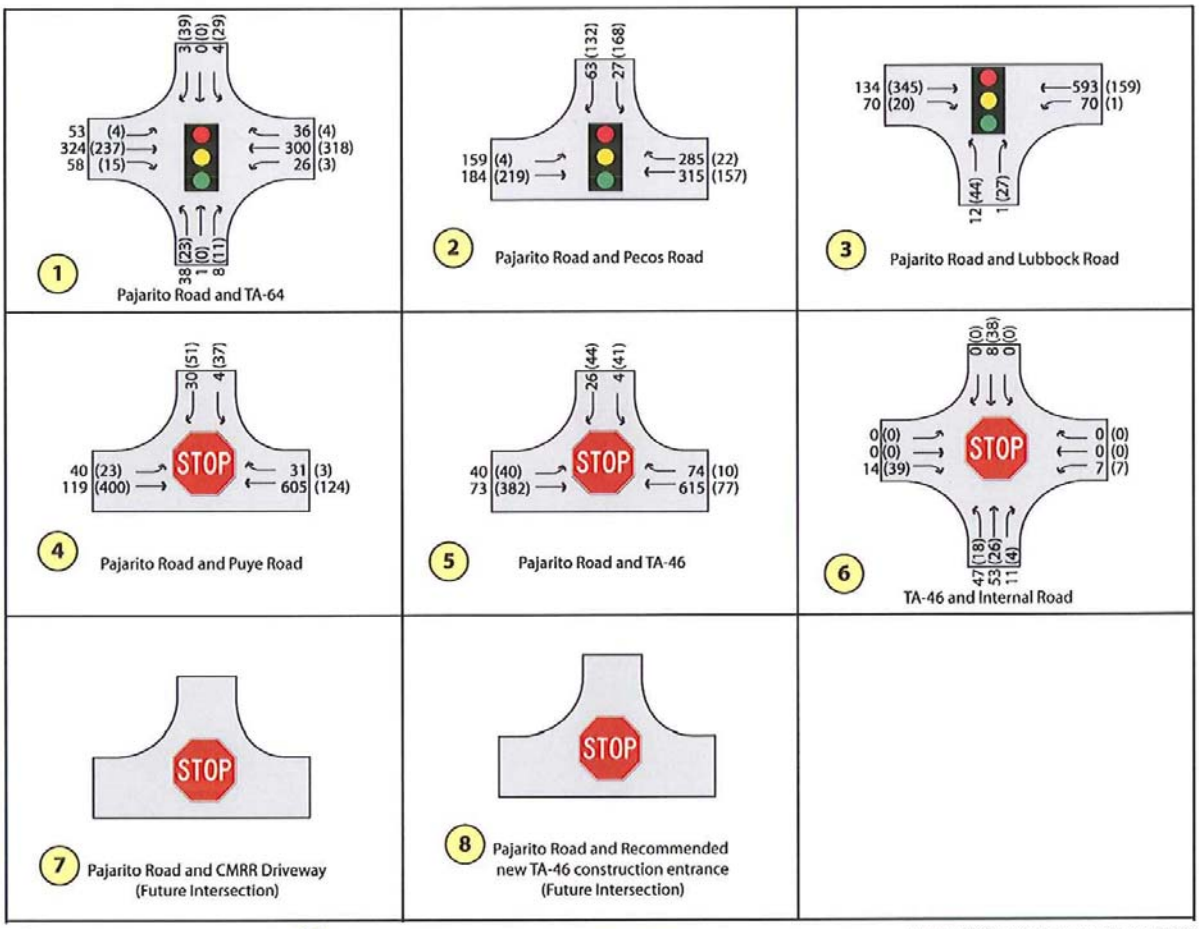
Peak period traffic data for the three signalized intersections was provided by LANL. The counts were conducted in March and April of 2008. Wilson & Company conducted peak period traffic counts at each of the analyzed unsignalized intersections in July 2008. Count data is provided in Appendix B.

Data indicates that traffic volumes in the corridor peak between 6:45-7:45 in the AM and 4:45-5:45 in the PM. CMRR construction is anticipated to occur between 7AM and 4PM. It is assumed that the majority of the construction employee traffic will arrive and depart from the site within 30 minutes of the scheduled start and end times.

Based on this daily construction schedule, the AM peak construction traffic will roughly coincide with the peak hour of the corridor, with the potential for some of the AM peak construction traffic to occur prior to the peak hour of the corridor. To provide a conservative analysis, all of the AM peak construction traffic was assigned to the AM peak of the corridor.

During the identified 4:45-5:45 PM peak period of the corridor, however, construction traffic is anticipated to be minimal. It is anticipated that the majority of employees will have already departed, and truck hauling and deliveries will not occur. Therefore, the 4:00-5:00 PM peak hour was selected as the peak period of construction impacts for purposes of the analysis.

Figure 8 provides a summary of the existing AM and PM peak hour intersection traffic volumes used in the analysis.



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CMRR PAJARITO CORRIDOR TRAFFIC IMPACT ANALYSIS

PEAK HOUR TURN VOLUMES AM (PM)
EXISTING YEAR 2008 CONDITIONS
FIGURE 8

B. Level of Service Criteria

1.0 Signalized Intersection Analysis Criteria

The signalized intersection analysis conforms to the operational analysis methodology outlined in Chapter 16 of the *Highway Capacity Manual 2000 (HCM 2000), Transportation Research Board Special Report 209*. The HCM 2000 methodology relates the intersection level of service (LOS) to intersection control delay, in terms of seconds per vehicle (sec/veh). A micro simulation program, *Synchro*, was used for this analysis as it implements the methods of *HCM 2000* to calculate level of service.

This methodology sets 1,900 passenger-cars per hour per lane (pcphpl) as the base (or ideal) saturation flow rate at signalized intersections, which is based on the minimum headway that can be sustained between departing vehicles at a signalized intersection. The service saturation flow rate, which reflects the saturation flow rate specific to the study facility, is determined by adjusting the ideal saturation flow rate for lane width, on-street parking, bus stops, pedestrian volume, traffic composition (or percentage of heavy vehicles), and shared lane movements (e.g. through and right-turn movements sharing the same lane).

The LOS criteria used for the analysis of signalized intersections are described in Table 1, identifying the thresholds of control delays and the associated LOS.

2.0 Unsignalized Intersection Analysis Criteria

Unsignalized intersections, including two-way and all-way stop controlled intersections were analyzed using the Chapter 17 methodology of the *2000 Highway Capacity Manual*. The Level of Service for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. Table 2 summarizes the LOS criteria for unsignalized intersections. The *Synchro* software package was utilized to produce LOS results.

3.0 Level of Service Thresholds

Overall intersection level of service D is typically assigned as the threshold for acceptable operations at signalized intersections. However, level of service E may acceptable for certain low volumes approaches, particularly when a higher level of service may degrade a major movement. At unsignalized intersections, level of service D is usually considered as a minimum for each approach, but lower levels may be acceptable for very low volume approaches.

TABLE 1
SIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA DEFINITIONS

Average Control Delay (seconds/vehicle)	Level of Service (LOS) Characteristics
<10	*LOS A* describes operations with very low delay. This occurs when progression is extremely favorable, and most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
>10– 20	*LOS B* describes operations with generally good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
>20 – 35	*LOS C* describes operations with higher delays, which may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
>35– 55	*LOS D* describes operations with high delay, resulting from some combination of unfavorable progression, long cycle lengths, or high volumes. The influence of congestion becomes more noticeable, and individual cycle failures are noticeable.
>55 – 80	*LOS E* is considered the limit of acceptable delay. Individual cycle failures are frequent occurrences.
>80	*LOS F* describes a condition of excessively high delay, considered unacceptable to most drivers. This condition often occurs when arrival flow rates exceed the LOS D capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay.

Source: 2000 Highway Capacity Manual, TRB Special Report 209.

TABLE 2
LEVEL OF SERVICE CRITERIA FOR
STOP CONTROLLED UNSIGNALIZED INTERSECTIONS

Average Control Delay (sec/veh)	Level of Service (LOS)
$\leq$10	A
>10 and $\leq$15	B
>15 and $\leq$25	C
>25 and $\leq$35	D
>35 and $\leq$50	E
>50	F

Source: 2000 Highway Capacity Manual, TRB Special Report 209.

C. Existing Levels of Service

The existing peak hour traffic volumes at each intersection, as depicted in Figure 8, were evaluated using the Synchro analysis tool and resulting delays were compared to the thresholds described in the previous section. Table 3 provides a summary of resulting delays and associated levels of service at each analyzed intersection.

D. Safety

Accident summaries were provided by LANL and attached in Appendix C. The data indicates that only one accident per year has occurred for the most recent three years of available data. No predominant crash pattern has been identified in this corridor.

E. Operational and/or Safety Deficiencies

As indicated in Table 3, each of the analyzed signalized intersections is currently operating at LOS B or better, with the exception of the intersection of Pajarito Road at Pecos Drive during the AM peak hour, which is operating at LOS C. It should be noted that actual operations at this intersection may be better than indicated by the Synchro model, since the model was run assuming actuation of the exclusive pedestrian phase during each cycle (which does not likely occur based on available pedestrian data). This was assumed to provide a conservative worst case analysis.

At each of the unsignalized intersections, each approach is operating at level of service B or better.

Therefore, based on the above analysis, each of the analyzed intersections is currently operating at acceptable levels of service. No existing deficiencies have been identified.

F. Results of Special Studies

No special studies were conducted in conjunction with this analysis.

TABLE 3
2008 EXISTING INTERSECTION LEVEL OF SERVICE
AM (PM) PEAK

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	**TH**	**RT**	**LT**	**TH**	**RT**	**LT**	**TH**	**RT**	**LT**	**TH**	**RT**
Pajarito & TA-64												
Volume to Capacity (v/c)	0.17 (0.01)	0.36 (0.28)	0.07 (0.02)	0.10 (0.01)	0.38 (0.38)	0.05 (0.01)		0.13 (0.08)	0.03 (0.03)		0.01 (0.10)	0.01 (0.10)
Approach Delay (sec)	8.5 (7.4)			10.4 (8.5)			15.8 (12.9)			14.9 (10.4)		
Approach LOS	A (A)			A (A)			B (B)			B (B)		
Intersection Delay (sec)	**9.8 (8.5)**											
Intersection LOS	**A (A)**											
Pajarito & Pecos												
Volume to Capacity (v/c)	0.61 (0.50)	0.23 (0.39)			0.70 (0.45)	0.48 (0.07)				0.04 (0.19)		0.38 (0.56)
Approach Delay (sec)	27.6 (24.2)			21.7 (24.9)						17.2 (12.3)		
Approach LOS	C (C)			C (C)						B (B)		
Intersection Delay (sec)	**23.3 (19.7)**											
Intersection LOS	**C (B)**											
Pajarito & Lubbock												
Volume to Capacity (v/c)		0.17 (0.50)	0.10 (0.03)	0.30 (0.00)	0.64 (0.21)		0.03 (0.07)		0.00 (0.04)			
Approach Delay (sec)	6.2 (9.5)			9.9 (5.3)			14.7 (10.6)					
Approach LOS	A ()			A ()			B ()					
Intersection Delay (sec)	**9.1 (8.5)**											
Intersection LOS	**A (A)**											
Pajarito & Puye (US)												
Volume to Capacity (v/c)	0.05 (0.02)	0.08 (0.26)			0.39 (0.08)	0.02 (0.00)				0.07 (0.10)		
Approach Delay (sec)	2.3 (0.4)			0.0 (0.0)						**13.8 (11.5)**		
Approach LOS										**B (B)**		
Intersection Delay (sec)	**1.0 (1.9)**											
Intersection LOS	**A (A)**											
Pajarito & TA-46 (US)												
Volume to Capacity (v/c)	0.05 (0.03)	0.05 (0.24)			0.39 (0.05)	0.05 (0.01)				0.01 (0.10)		0.06 (0.05)
Approach Delay (sec)	3.3 (0.7)			0.0 (0.0)						**13.8 (11.2)**		
Approach LOS										**B (B)**		
Intersection Delay (sec)	**1.0 (2.1)**											
Intersection LOS	**A (A)**											
Internal Road & TA-46 (US)												
Volume to Capacity (v/c)												
Approach Delay (sec)	6.7 (6.7)			7.5 (7.4)			7.6 (7.4)			7.1 (7.3)		
Approach LOS	A (A)			A (A)			A (A)			A (A)		
Intersection Delay (sec)	**7.5 (7.1)**											
Intersection LOS	**A (A)**											

AM (PM)
(US) indicates Unsignalized Intersection

V. Analysis of Implementation Year Conditions (2009)

A. Traffic Projections

1.0 Background Traffic

Construction of the CMRR facility is anticipated to begin in Year 2009. Therefore, this will be the year in which the Traffic Control Plan is implemented. As discussed earlier, the NMMSUP facility construction will also be underway in 2009. Therefore, traffic associated with the NMMSUP construction must be considered in the 2009 background traffic volumes. As described earlier in the report, the NMMSUP is anticipated to generate 100 dirt haul trucks per day in 2009, in conjunction with a potential 100 private vehicles parking on site at TA-55. For analysis purposes, the 100 dirt haul trucks are anticipated to represent 11 round trips during each of the AM and PM peaks. The 100 passenger vehicles were also assumed to arrive to the TA-55 site during the AM peak and depart during the PM peak to provide a worst case analysis.

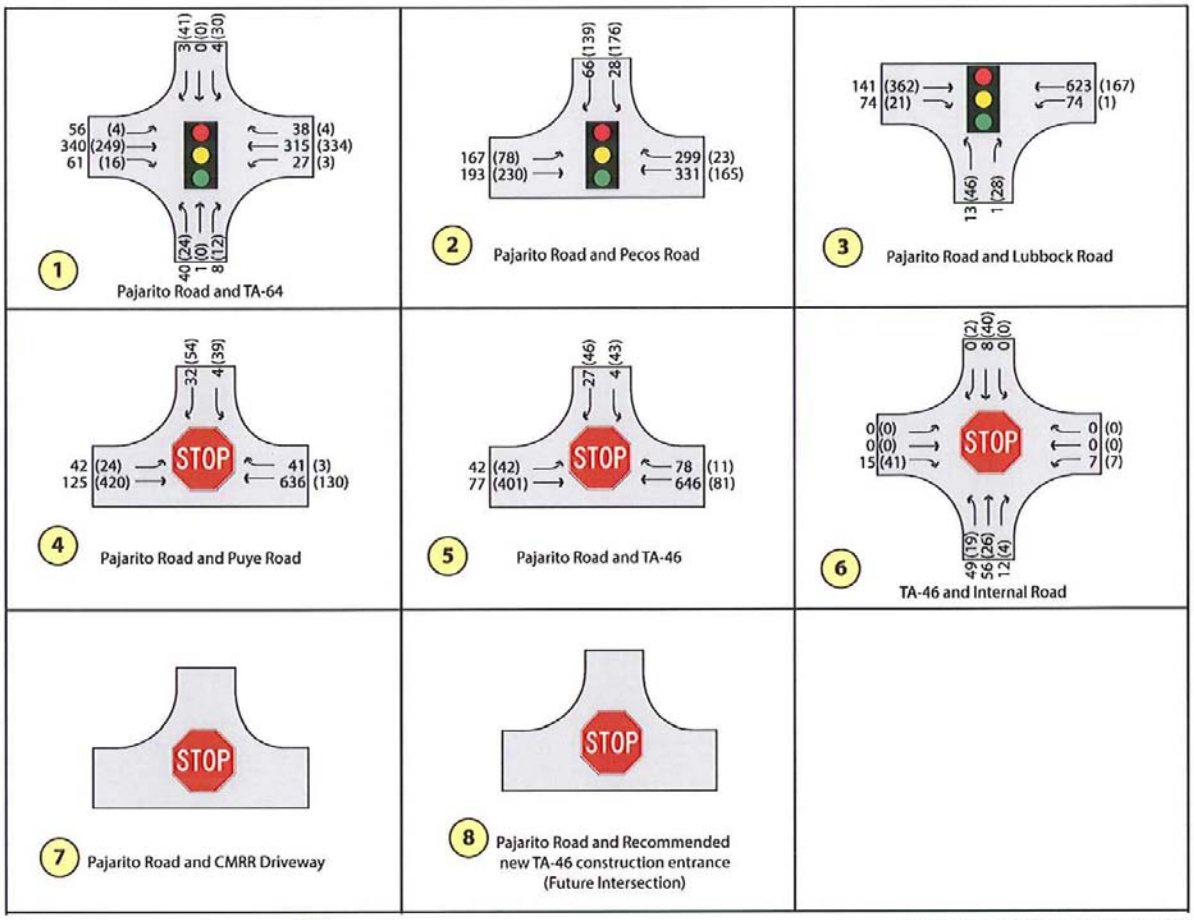
In addition to the NMMSUP, existing 2008 volumes were increased by 5% per year to account for other traffic increases in the corridor.

Figure 9 displays the resulting 2009 Implementation Year Background Traffic Volumes for the AM and PM peaks.

2.0 Development Assumptions for Implementation Year Conditions

LANL provided a summary of the CMRR Construction Traffic Movement Forecasts, which is included in Appendix E. In order to arrive at the equivalent number of trips during the peak periods, the following assumptions were used:

- All full-time employees indicated in the Construction Traffic Movement Forecast will be assumed to arrive during the AM peak period and depart during the PM peak period.
- Trip calculations will include a 5% reduction to account for carpooling.
- The management employees will park in TA-50 and TA-46. It is assumed that they will have adequate clearance to access the Pajarito corridor from both the northwest and southeast and thus represent additional trips in the corridor.



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PEAK HOUR TURN VOLUMES AM (PM)
YEAR 2009 IMPLEMENTATION YEAR BACKGROUND CONDITIONS

CMRR PAJARITO CORRIDOR TRAFFIC IMPACT ANALYSIS

FIGURE 9

- The craft employees will park in TA-03 and TA-60. It is assumed that they will not have access to the Pajarito corridor. Alternate routes will be required to reach the parking lots at TA-03 and TA-60, from which they will be bussed to the CMRR site. Therefore, none of the craft employee trips to the parking facilities will enter the corridor study limits.
- The craft employees will be bussed from the lots to the construction site. A shuttle capacity of 20 passengers will be assumed. The shuttle drop off location will be at the CMRR construction driveway.
- Monthly truck haul and delivery movements will be converted to peak hour movements assuming equal hourly distributions for a 5-day work week with 9 hour days.

3.0 Trip Generation

Table 4 provides a summary of the anticipated construction movements in the 2009 implementation year, based on the CMRR Construction Traffic Movement Forecasts provided by LANL (Appendix E) and the assumptions listed above.

TABLE 4
YEAR 2009 IMPLEMENTATION YEAR
CMMR CONSTRUCTION MOVEMENT FORECASTS

	Monthly Forecast	Peak Hour Forecast Equivalent	Reduced for Carpooling	Reduced for Shuttle	Return Trips	**Total Peak Trips**
Construction Craft FTEs	150	150	150	8	8	15
Construction Management FTEs	36	36	34	34	0	34
LANL Management FTEs	179	179	170	170	0	170
Excavation from TA-55 to TA-46 & TA-63	0	0	0	0	0	0
Concrete Trucks from TA-63 to TA-55	0	0	0	0	0	0
Aggregate to TA-63 from Off-site	0	0	0	0	0	0
Backfill to TA-55 from Off-site	0	0	0	0	0	0
Aggregate Base to TA-46 & TA-63 from Off-site	0	0	0	0	0	0
Offsite Deliveries to TA-63 and TA-46	0	0	0	0	0	0
Deliveries to RLUOB at TA-55	40	0	0	0	0	0
Deliveries to TA-55 from TA-46 & TA-63	0	0	0	0	0	0
						220

4.0 Trip Distribution and Assignment

The resulting peak hour trips documented in Table 4 were assigned to the Pajarito corridor based on the following assumptions:

- For all management employee trips, 25% are assumed to be from points northwest of the corridor and the remaining 75% from southeast.
- 2/3 of the management traffic will park at the TA-50 parking lot off Lubbock Road. The remaining 1/3 will park at the construction yard entrance off TA-46.
- Truck movements to/from off-site locations, including aggregate and backfill hauling and off-site deliveries are assumed to be derived from the southeast.
- All deliveries to the CMRR site will be via a new construction driveway on Pajarito Road, approximately 500 feet west of Pecos Road.

5.0 Total Traffic with Proposed Development/Build Condition

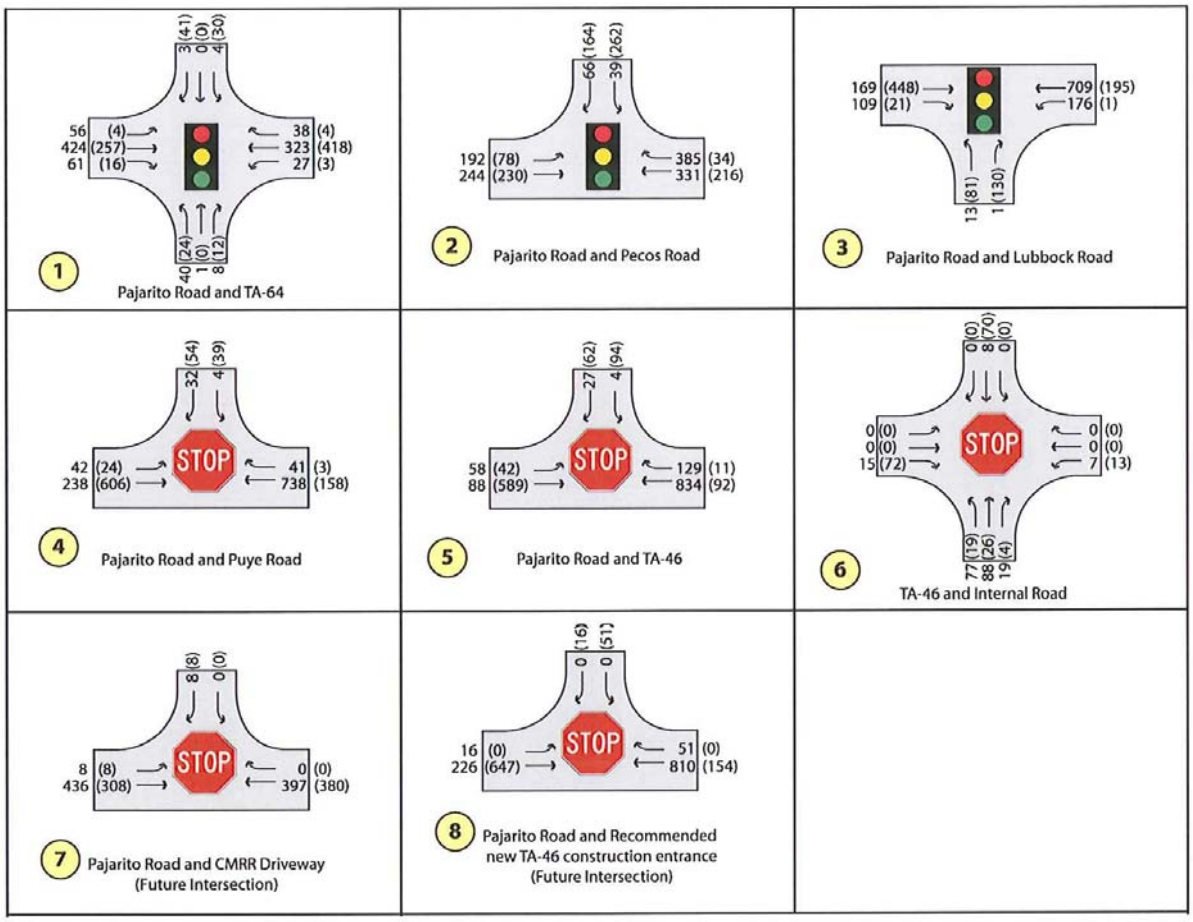
Forecasted construction traffic was combined with the 2009 background traffic to determine the total volume of traffic anticipated in the Pajarito corridor during the 2009 Implementation Year. Figure 10 displays the resulting 2009 Implementation Year Total Traffic volumes during the AM and PM peak periods.

B. Traffic Analysis

1.0 Intersections and Proposed Access Points

Existing roadway and intersection geometry and intersection traffic control was used in the analysis of the 2009 background and total traffic conditions.

For the analysis of total traffic volumes, the additional CMRR construction entrance was added to the network, approximately 500 feet west of the Pecos Drive intersection. A single travel lane was assumed on the westbound and southbound approaches to the new CMRR construction entrance intersection. On the eastbound approach, a through lane and left turn deceleration lane were assumed, as discussed in subsequent section V-D.



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PEAK HOUR TURN VOLUMES AM (PM)
YEAR 2009 IMPLEMENTATION YEAR TOTAL CONDITIONS

CMRR PAJARITO CORRIDOR TRAFFIC IMPACT ANALYSIS

FIGURE 10

2.0 Traffic Signal Warrant Review

Guidelines from the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) were reviewed to determine whether anticipated volumes at unsignalized intersections in the corridor would warrant installation of a traffic signal based on the following warrants:

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour Warrant

Though the posted construction zone speed will be 35mph in the corridor, the analysis was conducted assuming travel speeds in excess of 40mph, to present a worst case analysis.

CMRR Driveway

Warrant 1 requires a minimum minor approach volume of 42 vehicles to satisfy the combination of warrants for a facility with travel speeds greater than 40mph. Warrant 2 requires a minimum minor approach volume of 60 vehicles for a facility with posed speeds greater than 40 mph. Warrant 3 requires a minimum minor approach volume of 75 vehicles for a facility with a posted speed greater than 40 mph.

Preliminary review would indicate that the minor peak hour volume of 8 vehicles forecasted to exit the CMRR site during the 2009 implementation year are insufficient to meet minimum requirement of any of these warrants. Therefore, no additional detailed analysis was conducted.

For analysis purposes, stop sign control on the southbound approach was assumed.

Puye Road

Warrant 1 requires a minimum minor approach volume of 42 vehicles to satisfy the combination of warrants for a facility with travel speeds greater than 40mph. While PM peak hour volumes meet the criteria, AM peak hour volumes do not. Since these two periods typically represent the highest volume scenarios during the day, it is not anticipated that the criteria would be met for the 8 hours required to meet this warrant.

Warrant 2 requires a minimum minor approach volume of 60 vehicles for a facility with posed speeds greater than 40 mph. While PM peak hour volumes meet the criteria, AM peak hour volumes do not. Since these two periods typically represent the highest volume scenarios during the day, it is not anticipated that the criteria would be met for the 4 hours required to meet this warrant.

Warrant 3 requires minimum minor approach volumes that vary based on the mainline volume of traffic, with a minimum threshold of 75 vehicles for a facility with a posted speed greater than 40 mph. AM peak hour volumes do not meet the minimum threshold criteria, but PM peak volumes do. For the PM peak mainline volume of approximately 800 vehicles, a minor approach volume of 120 vehicles is required to meet this warrant. Therefore, the forecast PM peak hour volume on Puye Road of 93 vehicles is not sufficient to meet the warrant criteria.

TA-46

Warrant 1 requires a minimum minor approach volume of 42 vehicles to satisfy the combination of warrants for a facility with travel speeds greater than 40mph. While PM peak hour volumes meet the criteria, AM peak hour volumes do not. Since these two periods typically represent the highest volume scenarios during the day, it is not anticipated that the criteria would be met for the 8 hours required to meet this warrant.

Warrant 2 requires a minimum minor approach volume of 60 vehicles for a facility with posed speeds greater than 40 mph. While PM peak hour volumes meet the criteria, AM peak hour volumes do not. Since these two periods typically represent the highest volume scenarios during the day, it is not anticipated that the criteria would be met for the 4 hours required to meet this warrant.

Warrant 3 requires minimum minor approach volumes that vary based on the mainline volume of traffic, with a minimum threshold of 75 vehicles for a facility with a posted speed greater than 40 mph. AM peak hour volumes do not meet the minimum threshold criteria, but PM peak volumes do. For the PM peak mainline volume of approximately 700 vehicles, a minor approach volume of 145 vehicles is required to meet this warrant. The forecast PM peak hour volume on the TA-46 driveway of 156 vehicles marginally meets the warrant criteria. However, the criteria is presented for a single lane minor approach. The TA-46 driveway provides a channelized southbound right turn lane. Removal of the right turn volume reduces the traffic volume to 94 left turn vehicles controlled by the stop. This volume is not sufficient to warrant installation of a traffic signal.

3.0 Level of Service Analysis Results

The 2009 background and total peak hour traffic volumes at each intersection, as depicted in Figures 9 and 10, were evaluated using the Synchro analysis tool and resulting delays were compared to the thresholds described in Section IV-B. Tables 5 and 6 provide a summary of resulting delays and associated levels of service at each analyzed intersection.

Under the 2009 background condition, as indicated in Table 5, each of the analyzed signalized intersections is forecast to continue to operate at LOS B or better, with the exception of the intersection of Pajarito Road at Pecos Drive during the AM peak hour, which will continue to operate at LOS C. At each of the unsignalized intersections, each approach will continue to operate at level of service B or better, with the exception of southbound Puye Road, which is forecast to operate at level of service C during the AM peak

Under the 2009 total condition, as indicated in Table 6, each of the analyzed signalized intersections is forecast to continue to operate at LOS B or better, with the exception of the intersection of Pajarito Road at Pecos Drive which will operate at LOS C during both the AM and PM peaks. At each of the unsignalized intersections, each approach will continue to operate at level of service B or better, with the exception of southbound Puye Road, which is forecast to operate at level of service C during the AM peak, and southbound TA-46 driveway, which is forecasted to operate at level of service C during the AM and PM peaks.

C. Impact Assessment

Based on the analysis discussed above, each of the analyzed intersections will operate with acceptable levels of service during both the AM and PM peak periods. However, the addition of CMRR construction traffic will result in the following degradations in level of service:

- **Pajarito Road & TA-64:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & Pecos Drive**: No degradation in overall intersection level of service will occur in the AM peak. In the PM peak, overall intersection delay and level of service will degrade from B (19.0 sec) in the background condition to C (20.1 sec) with addition of the CMRR construction traffic.
- **Pajarito Road & Lubbock Road**: Overall intersection delay and level of service will degrade from A (9.8 sec) in the background condition to B (12.0 sec) with addition of the CMRR construction traffic in the AM peak. No degradation in overall intersection level of service will occur in the PM peak.
- **Pajarito Road & Puye Road:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & TA-46**: Delay and level of service on the southbound stop-sign controlled approach will degrade from B (15.6 sec) to C (17.6) in the AM and B (12.3 sec) to C (16.2) in the PM with addition of the CMRR construction traffic.
- **Internal Road & TA-46**: No degradation in overall intersection level of service will occur in either the AM or PM peak.

TABLE 5
2009 IMPLEMENTATION YEAR BACKGROUND TRAFFIC
INTERSECTION LEVEL OF SERVICE, AM (PM) PEAK

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Pajarito & TA-64												
Volume to Capacity (v/c)	0.18 (0.01)	0.39 (0.29)	0.07 (0.02)	0.11 (0.01)	0.42 (0.42)	0.06 (0.01)		0.14 (0.08)	0.03 (0.03)		0.01 (0.10)	0.01 (0.11)
Approach Delay (sec)	8.5 (7.5)			11.9 (9.0)			17.0 (12.8)			15.1 (10.3)		
Approach LOS	A (A)			B (A)			B (B)			B (B)		
Intersection Delay (sec)	10.4 (8.8)											
Intersection LOS	B (A)											
Pajarito & Pecos												
Volume to Capacity (v/c)	0.69 (0.54)	0.23 (0.42)			0.72 (0.46)	0.57 (0.10)				0.06 (0.29)		0.44 (0.58)
Approach Delay (sec)	29.7 (25.6)			20.3 (24.4)						19.0 (11.8)		
Approach LOS	C (C)			C (C)						B (B)		
Intersection Delay (sec)	23.2 (19.0)											
Intersection LOS	C (B)											
Pajarito & Lubbock												
Volume to Capacity (v/c)		0.18 (0.56)	0.10 (0.03)	0.40 (0.00)	0.69 (0.21)		0.04 (0.11)		0.00 (0.07)			
Approach Delay (sec)	6.0 (9.8)			10.8 (5.0)			17.2 (11.8)					
Approach LOS	A (A)			B (A)			B (B)					
Intersection Delay (sec)	9.8 (8.8)											
Intersection LOS	A (A)											
Pajarito & Puye (US)												
Volume to Capacity (v/c)	0.05 (0.02)	0.09 (0.32)			0.46 (0.09)	0.03 (0.00)				0.09 (0.13)		
Approach Delay (sec)	2.3 (0.3)			0.0 (0.0)						15.6 (12.9)		
Approach LOS										C (B)		
Intersection Delay (sec)	1.0 (1.8)											
Intersection LOS	A (A)											
Pajarito & TA-46 (US)												
Volume to Capacity (v/c)	0.06 (0.03)	0.06 (0.31)			0.47 (0.06)	0.05 (0.01)				0.02 (0.12)		0.08 (0.05)
Approach Delay (sec)	3.2 (0.6)			0.0 (0.0)						15.6 (12.3)		
Approach LOS										B (B)		
Intersection Delay (sec)	0.9 (2.0)											
Intersection LOS	A (A)											
Internal Road & TA-46 (US)												
Volume to Capacity (v/c)												
Approach Delay (sec)	6.7 (6.7)			7.5 (7.4)			7.7 (7.4)			7.1 (7.3)		
Approach LOS	A (A)			A (A)			A (A)			A (A)		
Intersection Delay (sec)	7.5 (7.2)											
Intersection LOS	A (A)											

AM (PM) Peak
(US) indicates Unsignalized Intersection

TABLE 6
2009 IMPLEMENTATION YEAR TOTAL TRAFFIC
INTERSECTION LEVEL OF SERVICE, AM (PM) PEAK

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Pajarito & TA-64												
Volume to Capacity (v/c)	0.18 (0.01)	0.45 (0.30)	0.07 (0.02)	0.11 (0.01)	0.43 (0.49)	0.06 (0.01)		0.14 (0.08)	0.03 (0.03)		0.01 (0.10)	0.01 (0.11)
Approach Delay (sec)	8.9 (7.6)			12.0 (9.8)			17.1 (12.8)			15.1 (10.3)		
Approach LOS	A (A)			B (A)			B (B)			B (B)		
Intersection Delay (sec)	10.6 (9.2)											
Intersection LOS	B (A)											
Pajarito & Pecos												
Volume to Capacity (v/c)	0.69 (0.56)	0.29 (0.39)			0.72 (0.55)	0.57 (0.09)				0.06 (0.30)		0.44 (0.59)
Approach Delay (sec)	28.1 (25.7)			20.3 (25.8)						19.0 (12.8)		
Approach LOS	C (C)			C (C)						B (B)		
Intersection Delay (sec)	22.9 (20.1)											
Intersection LOS	C (C)											
Pajarito & Lubbock												
Volume to Capacity (v/c)		0.28 (0.57)	0.19 (0.03)	0.51 (0.00)	0.69 (0.23)		0.04 (0.18)		0.00 (0.27)			
Approach Delay (sec)	7.1 (10.3)			13.4 (5.5)			17.2 (8.9)					
Approach LOS	A (B)			B (A)			B (A)					
Intersection Delay (sec)	12.0 (8.9)											
Intersection LOS	B (A)											
Pajarito & Puye (US)												
Volume to Capacity (v/c)	0.06 (0.02)	0.15 (0.39)			0.47 (0.10)	0.03 (0.00)				0.09 (0.16)		
Approach Delay (sec)	1.4 (0.3)			0.0 (0.0)						16.1 (14.5)		
Approach LOS										C (B)		
Intersection Delay (sec)	0.9 (1.7)											
Intersection LOS	A (A)											
Pajarito & TA-46 (US)												
Volume to Capacity (v/c)	0.10 (0.03)	0.06 (0.38)			0.53 (0.06)	0.08 (0.01)				0.02 (0.31)		0.09 (0.07)
Approach Delay (sec)	4.4 (0.5)			0.0 (0.0)						17.6 (16.2)		
Approach LOS										C (C)		
Intersection Delay (sec)	1.0 (3.2)											
Intersection LOS	A (A)											
Internal Road & TA-46 (US)												
Volume to Capacity (v/c)												
Approach Delay (sec)	6.9 (6.9)			7.6 (7.6)			8.2 (7.5)			7.2 (7.6)		
Approach LOS	A (A)			A (A)			A (A)			A (A)		
Intersection Delay (sec)	8.0 (7.3)											
Intersection LOS	A (A)											
Pajarito & CMRR Road (US)												
Volume to Capacity (v/c)	0.01 (0.01)	0.28 (0.20)			0.0 (0.24)					0.02 (0.02)		
Approach Delay (sec)	0.2 (0.3)			0.0 (0.0)						13.1 (12.8)		
Approach LOS										B (B)		
Intersection Delay (sec)	0.2 (0.3)											
Intersection LOS	A (A)											

AM (PM) Peak
(US) indicates Unsignalized Intersection

D. Access Design Specifications

1.0 Speed-Change Lane Requirements

The New Mexico State Highway Access Management Requirements were reviewed to determine whether left or right turn deceleration lanes are required on Pajarito Road at the new CMRR construction driveway intersection.

Table 17.B-3, *Criteria for Left-Turn Deceleration Lanes on Rural Two-Lane Highways*, indicates that at travel speeds from 35 to 40 mph in the construction zone, the forecast volume of 8 left turns would require a minimum directional volume of approximately 172 vehicles in the through lane. Forecast mainline volumes will exceed this threshold. Therefore, an eastbound left turn deceleration lane is warranted. The length of this lane should be 300 feet, based on a minimum storage of 50 feet and a required deceleration distance of 250 feet, with a 100 foot deceleration taper for the posted speed of 35mph.

Table 17.B-5, *Criteria for Right-Turn Deceleration Lanes on Rural Two-Lane Highways*, indicates that at travel speeds from 35 to 40 mph in the construction zone, the forecast volume of fewer than 5 right turns would not require a right turn deceleration lane.

2.0 Vehicle Storage Needs

Estimated queuing from the Synchro outputs were compared to available turn lane storage. Results indicate that available storage is sufficient to accommodate forecasted demand at each of the existing intersections.

At the site driveway, the analysis indicates that average queues are not expected to exceed one vehicle on any approach lane, so the minimum storage of 50 feet is acceptable.

3.0 Sight Distance Evaluation

During the initial site visit, site distance was visually inspected. All intersections studied seemed to have adequate site distance required to make associated turning movements. The one exception may be vehicles exiting from TA-46 looking east are some what hindered by the chain link fence at the northern Right of Way.

4.0 Site Access Improvements/Modifications

As previously discussed, a left turn deceleration lane will be warranted at the new CMRR construction site driveway with forecast 2009 implementation year traffic volumes. The length of this lane should be 300 feet, based on a minimum storage of 50 feet and a required deceleration distance of 250 feet, with a 100 foot deceleration taper for the posted speed of 35mph.

Review of the forecast volumes and projected level of service does not indicate the need for any additional lanes during the 2009 implementation year.

5.0 Pedestrian/Bicycle Considerations

Pedestrian traffic associated with the CMRR construction site is anticipated to occur between the site and the parking facilities at TA-50, in the vicinity of the Pecos Drive intersection. As discussed previously, this intersection has already been reconstructed to improve the safety and efficiency of pedestrian crossings at this intersection through installation of a crosswalk and exclusive pedestrian phasing. These improvements are anticipated to service any additional pedestrian traffic generated by the CMRR construction site.

VI. Analysis of Construction Peak Conditions (2013)

A. Traffic Projections

1.0 Background Traffic

The peak period of construction traffic, as discussed below, has been identified to occur during the year 2013. Construction traffic associated with the NMMSUP will no longer be a consideration during 2013, since demobilization of this project will begin in 2011.

The 2008 existing traffic volumes were increased by 5% per year to account for all other traffic increases in the corridor.

Figure 11 illustrates the 2013 background traffic volumes anticipated to occur in conjunction with the peak period of construction traffic.

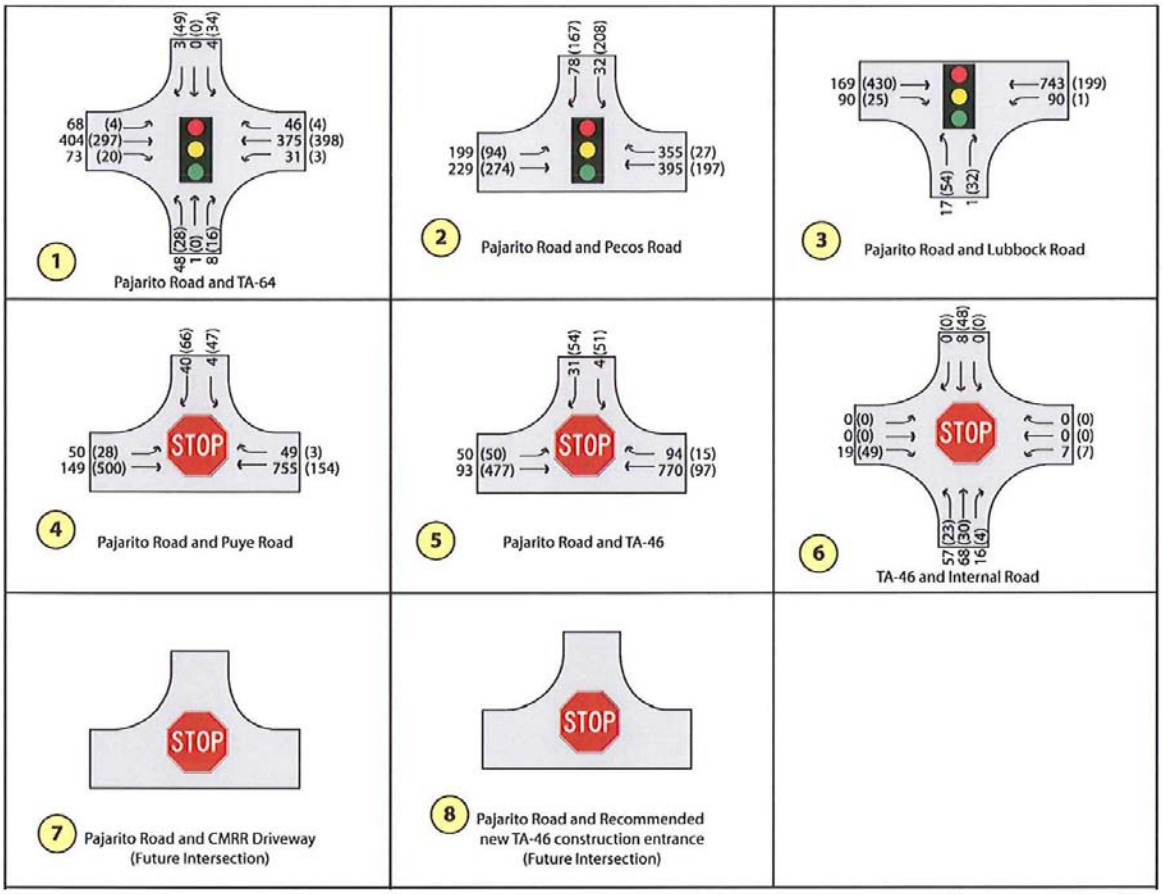
2.0 Development Assumptions for Construction Peak Conditions

As discussed in the analysis of 2009 implementation year conditions, LANL provided a summary of the CMRR Construction Traffic Movement Forecasts, which is included in Appendix E. The same assumptions used to derive equivalent peak period trips for the 2009 implementation year were utilized in identification of the peak period of construction traffic.

3.0 Trip Generation

The CMRR Construction Traffic Movement Forecasts were reviewed to identify potential peak periods of traffic generation. Table 7 provides a summary of the traffic generated during peak construction periods. As indicated in this table, construction traffic associated with the NMMSUP was also considered for the periods between 2009-2012.

Review of the construction forecast data indicates that 2010 would be the year that the corridor might experience the greatest amount of construction traffic, due to a potential 100 space on-site parking lot at the NMMSUP, assumed as a worst case condition. However, it is anticipated that, when considering construction traffic in combination with the increase in background traffic, year 2013 will represent the worst-case scenario for total traffic in the corridor. Therefore, 2013 will serve as the analysis year for CMRR construction peak conditions.



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PEAK HOUR TURN VOLUMES AM (PM)
YEAR 2013 BACKGROUND CONDITIONS

CMRR PAJARITO CORRIDOR TRAFFIC IMPACT ANALYSIS

FIGURE 11

TABLE 7
COMPARISON OF PEAK PERIOD CMRR CONSTRUCTION MOVEMENT FORECASTS

2010 – Period of Peak Truck Movements, with NMMSUP

	Monthly Forecast	Peak Hour Forecast Equivalent	Reduced for Carpooling	Reduced for Shuttle	Return Trips	**Total Peak Trips**
Construction Craft FTEs	101	101	101	5	5	10
Construction Management FTEs	24	24	23	23	0	23
LANL Management FTEs	190	190	181	181	0	181
Excavation from TA-55 to TA-46 & TA-63	1000	6	6	6	6	11
Concrete Trucks from TA_63 to TA-55	0	0	0	0	0	0
Aggregate to TA-63 from Off-site	0	0	0	0	0	0
Backfill to TA-55 from Off-site	0	0	0	0	0	0
Aggregate Base to TA-46 & TA-63 from Off-site	300	2	2	2	2	3
Offsite Deliveries to TA-63 and TA-46	0	0	0	0	0	0
Deliveries to RLUOB at TA-55	40	0	0	0	0	0
Deliveries to TA-55 from TA-46 & TA-63	0	0	0	0	0	0
NMMSUP Vehicle Parking at TA-55 (worst case)			100	0	0	100
Peak Dirt Haul Trucks (100 per day)		11	11	11	11	22
						350

2012 – Period of Peak Management Employees

	Monthly Forecast	Peak Hour Forecast Equivalent	Reduced for Carpooling	Reduced for Shuttle	Return Trips	**Total Peak Trips**
Construction Craft FTEs	450	450	450	23	23	45
Construction Management FTEs	108	108	103	103	0	103
LANL Management FTEs	178	178	169	169	0	169
Excavation from TA-55 to TA-46 & TA-63	0	0	0	0	0	0
Concrete Trucks from TA_63 to TA-55	300	2	2	2	2	3
Aggregate to TA-63 from Off-site	20	0	0	0	0	0
Backfill to TA-55 from Off-site	0	0	0	0	0	0
Aggregate Base to TA-46 & TA-63 from Off-site	0	0	0	0	0	0
Offsite Deliveries to TA-63 and TA-46	40	0	0	0	0	0
Deliveries to RLUOB at TA-55	0	0	0	0	0	0
Deliveries to TA-55 from TA-46 & TA-63	100	1	1	1	1	1
						322

2013 – Period of Peak Total Employees

	Monthly Forecast	Peak Hour Forecast Equivalent	Reduced for Carpooling	Reduced for Shuttle	Return Trips	**Total Peak Trips**
Construction Craft FTEs	480	480	480	24	24	48
Construction Management FTEs	115	115	109	109	0	109
LANL Management FTEs	162	162	154	154	0	154
Excavation from TA-55 to TA-46 & TA-63	0	0	0	0	0	0
Concrete Trucks from TA_63 to TA-55	300	2	2	2	2	3
Aggregate to TA-63 from Off-site	20	0	0	0	0	0
Backfill to TA-55 from Off-site	375	2	2	2	2	4
Aggregate Base to TA-46 & TA-63 from Off-site	0	0	0	0	0	0
Offsite Deliveries to TA-63 and TA-46	100	1	1	1	1	1
Deliveries to RLUOB at TA-55	0	0	0	0	0	0
Deliveries to TA-55 from TA-46 & TA-63	100	1	1	1	1	1
						321

4.0 Trip Distribution and Assignment

The same assumptions documented in the analysis of Year 2009 Implementation Year Conditions were applied to the Year 2013 CMMR Construction Movement Forecasts to determine peak hour traffic volumes in the Pajarito Road corridor.

5.0 Total Traffic with Proposed Development/Build Condition

Forecasted construction traffic was combined with the 2013 background traffic to determine the total volume of traffic anticipated in the Pajarito corridor during the 2013 Construction Peak. Figure 12 displays the resulting 2013 Construction Peak Total Traffic volumes during the AM and PM peak periods.

B. Traffic Analysis

1.0 Intersections and Proposed Access Points

Existing roadway and intersection geometry and intersection traffic control was used in the analysis of the 2013 background and total traffic conditions.

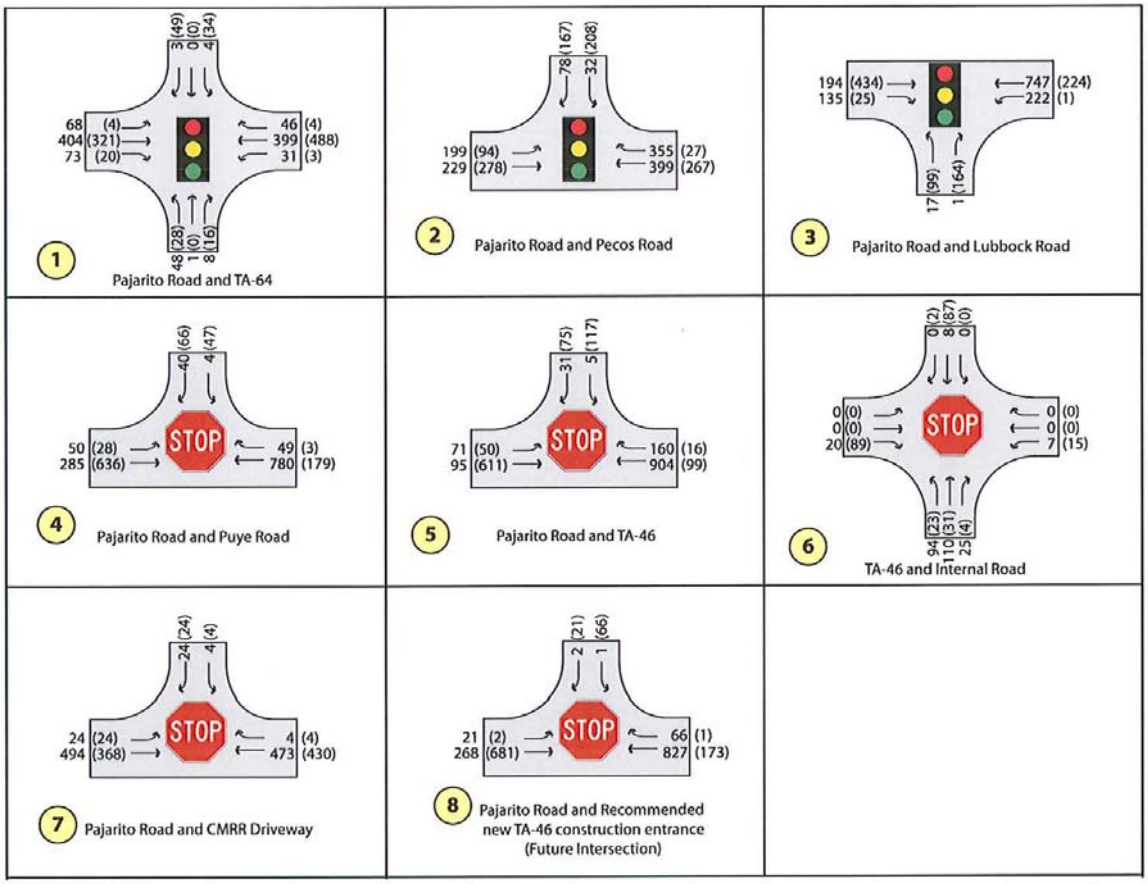
For the analysis of total traffic volumes, the additional CMRR construction entrance was added to the network, approximately 500 feet west of the Pecos Drive intersection. A single travel lane was assumed on the westbound and southbound approaches to the new CMRR construction entrance intersection. On the eastbound approach, a through lane and left turn deceleration lane were assumed, as discussed in subsequent section VI.D.

2.0 Traffic Signal Warrant Review

Guidelines from the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) were reviewed to determine whether anticipated volumes at the CMRR construction entrance would warrant installation of a traffic signal based on the following warrants:

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour Warrant

Though the posted construction zone speed will be 35mph in the corridor, the analysis was conducted assuming travel speeds in excess of 40mph, to present a worst case analysis.



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PEAK HOUR TURN VOLUMES AM (PM)
YEAR 2013 CMRR CONSTRUCTION PEAK CONDITIONS

CMRR PAJARITO CORRIDOR TRAFFIC IMPACT ANALYSIS

FIGURE 12

CMRR Driveway

As discussed previously in Section V-B, minimum minor approach volumes to satisfy the warrants for a facility with a posted speed greater than 40 mph is 42 vehicles for Warrant 1, 60 vehicles for Warrant 2, and 75 vehicles for Warrant 3.

Preliminary review would indicate that the minor volume of 28 vehicles forecasted to exit the CMRR site during the 2013 implementation year are insufficient to meet minimum requirements of any of these warrants. Therefore, no additional detailed analysis was conducted, and stop sign control on the southbound approach was assumed for the 2013 peak construction period.

While 2013 represents the peak period of construction traffic throughout the Pajarito Road corridor, 2010 represents the highest peak of truck hauling and deliveries to and from the CMRR site. Even at this peak, the driveway is anticipated to incur no more than 11 exiting trips during a given hour. This is less than the 2013 peak period when employee shuttle traffic also utilizes this driveway in conjunction with the trucks. Therefore, traffic volumes will not warrant installation of a traffic signal at this location.

Puye Road

Warrant 1 requires a minimum minor approach volume of 42 vehicles to satisfy the combination of warrants for a facility with travel speeds greater than 40mph. While PM peak hour volumes meet the criteria, AM peak hour volumes only marginally meet the criteria. As discussed previously, the criteria is for a single lane minor approach. The southbound minor approach provides a left turn lane and a channelized right turn lane. Removal of the right turn volume results in only 4 left turn vehicles controlled by the stop sign during the AM peak and 47 vehicles during the PM peak. Thus, AM volumes no longer satisfy the criteria. Since these two periods typically represent the highest volume scenarios during the day, it is not anticipated that the criteria would be met for the 8 hours required to meet this warrant.

Warrant 2 requires a minimum minor approach volume of 60 vehicles for a facility with posed speeds greater than 40 mph. While PM peak hour volumes meet the criteria, AM peak hour volumes do not. Since these two periods typically represent the highest volume scenarios during the day, it is not anticipated that the criteria would be met for the 4 hours required to meet this warrant.

Warrant 3 requires minimum minor approach volumes that vary based on the mainline volume of traffic, with a minimum threshold of 75 vehicles for a facility with a posted speed greater than 40 mph. AM peak hour volumes do not meet the minimum threshold criteria, but PM peak volumes do. For the PM peak mainline volume of approximately 850 vehicles, a minor approach

volume of 110 vehicles is required to meet this warrant. The forecast PM peak hour volume on Puye Road of 113 vehicles marginally meets the warrant criteria. However, as discussed above, the criteria is presented for a single lane minor approach. Puye Road provides a channelized southbound right turn lane. Removal of the right turn volume reduces the traffic volume to 47 left turn vehicles controlled by the stop sign. This volume is not sufficient to warrant installation of a traffic signal.

TA-46

Warrant 1 requires a minimum minor approach volume of 42 vehicles to satisfy the combination of warrants for a facility with travel speeds greater than 40mph. While PM peak hour volumes meet the criteria, AM peak hour volumes do not. Since these two periods typically represent the highest volume scenarios during the day, it is not anticipated that the criteria would be met for the 8 hours required to meet this warrant.

Warrant 2 requires a minimum minor approach volume of 60 vehicles for a facility with posed speeds greater than 40 mph. While PM peak hour volumes meet the criteria, AM peak hour volumes do not. Since these two periods typically represent the highest volume scenarios during the day, it is not anticipated that the criteria would be met for the 4 hours required to meet this warrant.

Warrant 3 requires minimum minor approach volumes that vary based on the mainline volume of traffic, with a minimum threshold of 75 vehicles for a facility with a posted speed greater than 40 mph. AM peak hour volumes do not meet the minimum threshold criteria, but PM peak volumes do. For the PM peak mainline volume of approximately 775 vehicles, a minor approach volume of 126 vehicles is required to meet this warrant. The forecast PM peak hour volume on the TA-46 driveway of 192 vehicles meets the warrant criteria. However, the criteria is presented for a single lane minor approach. The TA-46 driveway provides a channelized southbound right turn lane. Removal of the right turn volume reduces the traffic volume to 117 left turn vehicles controlled by the stop sign. This volume is not sufficient to warrant installation of a traffic signal.

3.0 Level of Service Analysis Results

The 2013 background and total CMRR construction peak traffic volumes at each intersection, as depicted in Figures 11 and 12, were evaluated using the Synchro analysis tool and resulting delays were compared to the thresholds described in a previous section. Tables 8 and 9 provide a summary of resulting delays and associated levels of service at each analyzed intersection.

TABLE 8
2013 CMRR CONSTRUCTION PEAK, BACKGROUND TRAFFIC
INTERSECTION LEVEL OF SERVICE, AM (PM) PEAK

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Pajarito & TA-64												
Volume to Capacity (v/c)	0.23 (0.01)	0.47 (0.35)	0.09 (0.03)	0.12 (0.01)	0.49 (0.47)	0.07 (0.01)		0.17 (0.09)	0.03 (0.04)		0.01 (0.11)	0.01 (0.13)
Approach Delay (sec)	10.8 (7.9)			12.6 (9.6)			17.7 (12.5)			15.4 (10.1)		
Approach LOS	B (A)			B (A)			B (B)			B (B)		
Intersection Delay (sec)	11.9 (9.2)											
Intersection LOS	B (A)											
Pajarito & Pecos												
Volume to Capacity (v/c)	0.74 (0.65)	0.27 (0.47)			0.79 (0.51)	0.53 (0.08)				0.05 (0.24)		0.49 (0.63)
Approach Delay (sec)	31.1 (27.8)			23.7 (25.3)						19.6 (13.5)		
Approach LOS	C (C)			C (C)						B (B)		
Intersection Delay (sec)	25.8 (21.7)											
Intersection LOS	C (C)											
Pajarito & Lubbock												
Volume to Capacity (v/c)		0.20 (0.55)	0.12 (0.04)	0.43 (0.00)	0.71 (0.24)		0.05 (0.13)		0.00 (0.08)			
Approach Delay (sec)	6.2 (9.6)			11.3 (5.3)			17.9 (11.6)					
Approach LOS	A (A)			B (A)			B (B)					
Intersection Delay (sec)	10.2 (8.7)											
Intersection LOS	B (A)											
Pajarito & Puye (US)												
Volume to Capacity (v/c)	0.07 (0.02)	0.10 (0.32)			0.48 (0.10)	0.03 (0.00)				0.12 (0.16)		
Approach Delay (sec)	2.5 (0.4)			0.0 (0.0)						16.4 (13.2)		
Approach LOS										C (B)		
Intersection Delay (sec)	1.2 (2.1)											
Intersection LOS	A (A)											
Pajarito & TA-46 (US)												
Volume to Capacity (v/c)	0.07 (0.04)	0.06 (0.30)			0.49 (0.06)	0.06 (0.01)				0.02 (0.15)		0.09 (0.06)
Approach Delay (sec)	3.6 (0.7)			0.0 (0.0)						16.4 (12.6)		
Approach LOS										C (B)		
Intersection Delay (sec)	1.0 (2.3)											
Intersection LOS	A (A)											
Internal Road & TA-46 (US)												
Volume to Capacity (v/c)												
Approach Delay (sec)	6.8 (6.8)			7.5 (7.5)			7.8 (7.5)			7.2 (7.4)		
Approach LOS	A (A)			A (A)			A (A)			A (A)		
Intersection Delay (sec)	7.7 (7.2)											
Intersection LOS	A (A)											

AM (PM) Peak
(US) indicates Unsignalized Intersection

TABLE 9
2013 CMRR CONSTRUCTION PEAK, TOTAL TRAFFIC
INTERSECTION LEVEL OF SERVICE, AM (PM) PEAK

Intersection	Eastbound			Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Pajarito & TA-64												
Volume to Capacity (v/c)	0.23 (0.01)	0.57 (0.37)	0.09 (0.03)	0.12 (0.01)	0.52 (0.56)	0.07 (0.01)		0.17 (0.09)	0.03 (0.04)		0.01 (0.12)	0.01 (0.13)
Approach Delay (sec)	11.9 (8.0)			12.9 (10.9)			17.9 (13.1)			15.6 (10.5)		
Approach LOS	B (A)			B (B)			B (B)			B (B)		
Intersection Delay (sec)	12.6 (9.9)											
Intersection LOS	B (A)											
Pajarito & Pecos												
Volume to Capacity (v/c)	0.74 (0.68)	0.35 (0.44)			0.80 (0.61)	0.52 (0.07)				0.05 (0.25)		0.49 (0.64)
Approach Delay (sec)	29.3 (28.0)			24.0 (27.0)						19.6 (14.8)		
Approach LOS	C (C)			C (C)						B (B)		
Intersection Delay (sec)	25.6 (22.9)											
Intersection LOS	C (C)											
Pajarito & Lubbock												
Volume to Capacity (v/c)		0.30 (0.56)	0.22 (0.04)	0.65 (0.00)	0.71 (0.27)		0.05 (0.22)		0.00 (0.31)			
Approach Delay (sec)	7.0 (10.5)			16.0 (6.0)			18.0 (8.6)					
Approach LOS	A (B)			B (A)			B (A)					
Intersection Delay (sec)	13.8 (8.9)											
Intersection LOS	B (A)											
Pajarito & Puye (US)												
Volume to Capacity (v/c)	0.07 (0.02)	0.18 (0.41)			0.50 (0.11)	0.03 (0.00)				0.12 (0.22)		
Approach Delay (sec)	1.5 (0.3)			0.0 (0.0)						17.2 (15.8)		
Approach LOS										C (C)		
Intersection Delay (sec)	1.0 (2.1)											
Intersection LOS	A (A)											
Pajarito & TA-46 (US)												
Volume to Capacity (v/c)	0.13 (0.04)	0.06 (0.39)			0.58 (0.06)	0.10 (0.01)				0.03 (0.42)		0.11 (0.09)
Approach Delay (sec)	5.1 (0.6)			0.0 (0.0)						19.6 (18.8)		
Approach LOS										C (C)		
Intersection Delay (sec)	1.2 (4.1)											
Intersection LOS	A (A)											
Internal Road & TA-46 (US)												
Volume to Capacity (v/c)												
Approach Delay (sec)	7.0 (7.1)			7.8 (7.7)			8.6 (7.6)			7.3 (7.7)		
Approach LOS	A (A)			A (A)			A (A)			A (A)		
Intersection Delay (sec)	8.4 (7.5)											
Intersection LOS	A (A)											
Pajarito & CMRR Road (US)												
Volume to Capacity (v/c)	0.04 (0.04)	0.32 (0.24)			0.30 (0.28)					0.11 (0.09)		
Approach Delay (sec)	0.5 (0.6)			0.0 (0.0)						19.2 (16.2)		
Approach LOS										C (C)		
Intersection Delay (sec)	0.8 (0.8)											
Intersection LOS	A (A)											

AM (PM) Peak

(US) indicates Unsignalized Intersection

Under the 2013 background condition, as indicated in Table 8, each of the analyzed signalized intersections is forecast to continue to operate at LOS B or better, with the exception of the intersection of Pajarito Road at Pecos Drive during the AM and PM peak hours, which will operate at LOS C. At each of the unsignalized intersections, each approach will continue to operate at level of service B or better, with the exception of southbound Puye Road and southbound TA-46 driveway, which are forecast to operate at level of service C during the AM peak

Under the 2009 total condition, as indicated in Table 9, each of the analyzed signalized intersections is forecast to continue to operate at LOS B or better, with the exception of the intersection of Pajarito Road Pecos Drive which will operate at LOS C during both the AM and PM peaks. At each of the unsignalized intersections, each approach will continue to operate at level of service B or better, with the exception of southbound the southbound approaches to Puye Road, the TA-46 driveway, and the CMRR driveway, which are forecast to operate at level of service C during the AM and PM peaks.

C. Impact Assessment

Based on the analysis discussed above, each of the analyzed intersections will operate with acceptable levels of service during both the AM and PM peak periods. However, the addition of CMRR construction traffic will result in the following degradations in level of service:

- **Pajarito Road & TA-64:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & Pecos Drive:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & Lubbock Road:** No degradation in overall intersection level of service will occur in either the AM or PM peak.
- **Pajarito Road & Puye Road**: No degradation in overall intersection level of service will occur in the AM peak. Delay and level of service on the southbound approach will degrade from B (13.2 sec) to C (15.8 sec) in the PM with addition of the CMRR construction traffic.
- **Pajarito Road & TA-46**: No degradation in overall intersection level of service will occur in the AM peak. Delay and level of service on the southbound approach will degrade from B (12.6 sec) to C (18.8 sec) in the PM with addition of the CMRR construction traffic.
- **Internal Road & TA-46**: No degradation in overall intersection level of service will occur in either the AM or PM peak.

D. Access Design Specifications

1.0 Analysis of Truck Access at TA-46

The current site plan proposes access to construction laydown yards via the existing TA-46 driveway intersection at Pajarito Road. Internal roadways that provide access to other buildings and laboratories intersect with the TA-46 driveway only a few hundred feet north of Pajarito Road. Turning templates for WB-50 trucks were used to analyze the ability of construction vehicles to safely execute turn maneuvers at these closely spaced intersections. Results of this analysis indicated that the current TA-46 intersections will have numerous access conflict points when introducing large construction vehicles into the internal roadway system.

Therefore, alternative access to the laydown yards should be considered. Additional analysis was conducted to determine whether adequate levels of service could be provided at a new access driveway to Pajarito Road. CMRR construction traffic previously assigned to the TA-46 driveway consisted of both construction vehicles and management FTE vehicles. All of this traffic was reassigned to a new TA-46 construction driveway, located west of the existing TA-46 driveway. The reassignment of traffic volumes resulted in the following movements at the new construction driveway:

	EB L	EB T	WB T	WB R	SB L	SB R
2009 AM	16	226	810	51	0	0
2009 PM	0	647	154	0	51	16
2013 AM	21	268	827	66	1	2
2013 PM	2	681	173	1	66	21

The peak hour volumes were evaluated using the Synchro analysis tool and resulting delays were compared to the thresholds described in a previous section. Table 10 provides a summary of resulting delays and associated levels of service at the new intersection for each analysis period. As indicated in Table 10, acceptable level of service C delays or better will be experienced by vehicles utilizing the new driveway.

TABLE 10
NEW TA-46 CONSTRUCTION DRIVEWAY
INTERSECTION LEVEL OF SERVICE, AM (PM) PEAK

2009												
Intersection	**Eastbound**			**Westbound**			**Northbound**			**Southbound**		
	LT	**TH**	**RT**	**LT**	**TH**	**RT**	**LT**	**TH**	**RT**	**LT**	**TH**	**RT**
Pajarito & New TA-46 Driveway (US)												
Volume to Capacity (v/c)	0.02 (0.00)	0.14 (0.41)			0.52 (0.10)	0.03 (0.00)				0.00 (0.17)		0.00 (0.02)
Approach Delay (sec)	0.7 (0.0)			0.0 (0.0)						0.0 (16.3)		
Approach LOS										A (C)		
Intersection Delay (sec)	0.1 (1.3)											
Intersection LOS	A (A)											

2013												
Intersection	**Eastbound**			**Westbound**			**Northbound**			**Southbound**		
	LT	**TH**	**RT**	**LT**	**TH**	**RT**	**LT**	**TH**	**RT**	**LT**	**TH**	**RT**
Pajarito & New TA-46 Driveway (US)												
Volume to Capacity (v/c)	0.03 (0.00)	0.17 (0.44)			0.53 (0.11)	0.04 (0.00)				0.01 (0.24)		0.01 (0.03)
Approach Delay (sec)	0.7 (0.00)			0.00 (0.00)						18.6 (18.2)		
Approach LOS										C (C)		
Intersection Delay (sec)	0.2 (1.7)											
Intersection LOS	A (A)											

AM (PM) Peak
(US) indicates Unsignalized Intersection

2.0 Speed-Change Lane Requirements

The New Mexico State Highway Access Management Requirements were reviewed to determine whether left or right turn deceleration lanes are required on Pajarito Road at both the CMRR construction driveway and the new TA-46 construction driveway intersections in conjunction with peak construction traffic volumes.

CMRR Construction Driveway

The need for construction of an eastbound left turn deceleration lane on Pajarito Road at the CMRR construction entrance was identified previously in conjunction with the 2009 Implementation Year condition.

Table 17.B-5, *Criteria for Right-Turn Deceleration Lanes on Rural Two-Lane Highways*, indicates that at travel speeds from 35 to 40 mph in the construction zone, the 2013 forecast volume of fewer than 5 right turns would not require a right turn deceleration lane.

As discussed previously, the peak truck haul and delivery demand at the CMRR construction site driveway occurs in 2010. It is estimated that during

this time period, an average 6 trucks per hour will turn right from westbound Pajarito Road into the CMRR site. Table 17.B-5, *Criteria for Right-Turn Deceleration Lanes on Rural Two-Lane Highways*, indicates that at travel speeds from 35 to 40 mph, a forecast volume of 6 right turns would require a minimum directional volume of approximately 424 vehicles in the through lane. Forecast mainline volumes are anticipated to meet this threshold. Therefore, a westbound right turn deceleration lane is warranted. Based on NMDOT standards, the lane should be constructed with a deceleration length of 230 feet for a posted speed of 35 mph.

New TA-46 Construction Driveway

Table 17.B-3, *Criteria for Left-Turn Deceleration Lanes on Rural Two-Lane Highways*, indicates that at travel speeds from 35 to 40 mph in the construction zone, the 2009 forecast volume of 16 left turns would require a minimum directional volume of approximately 96 vehicles in the through lane. Forecast mainline volumes will exceed this threshold. Therefore, an eastbound left turn deceleration lane is warranted. Based on NMDOT standards for a 35mph construction zone and Synchro estimated queues of one vehicle or less, the left turn lane should be 300 feet (250 feet deceleration plus 50 feet storage) with a 100 foot taper.

Table 17.B-5, *Criteria for Right-Turn Deceleration Lanes on Rural Two-Lane Highways*, indicates that at travel speeds from 35 to 40 mph in the construction zone, the 2009 forecast volume of 51 right turns would require a right turn deceleration, as it exceeds the maximum threshold of 31 vehicles per hour. Based on NMDOT standards, the lane should be constructed with a deceleration length of 230 feet and a 100 foot taper for a posted speed of 35 mph.

3.0 Vehicle Storage Needs

Estimated queuing from the Synchro outputs were compared to available turn lane storage. Table 11 provides a summary of the required storage based on Synchro estimated 50% (average) queue lengths and a comparison to available storage. The NMDOT minimum of 50 feet of storage was recommended when estimated queues were shorter than 50 feet.

Results indicate that available storage is sufficient to accommodate forecasted demand at each of the existing intersections.

At the site driveway, the analysis indicates that average queues are not expected to exceed one vehicle on any approach lane, so the minimum storage of 50 feet is acceptable. However, additional storage for exiting left turns would be desirable to account for the possibility of the arrival of multiple trucks.

TABLE 11
REQUIRED STORAGE BASED ON ESTIMATED QUEUES AND COMPARISON TO AVAILABLE STORAGE

	Pajarito Road & TA64	Pajarito Road & CMRR	Pajarito Road & Pecos	Pajarito Road & Lubbock	Pajarito Road & Puye	Pajarito Road & New TA46	Pajarito Road & TA-46
Eastbound Left							
50% Queue	50	50	120	-	50	50	50
Available Storage	250	50	465	-	190	50	250
Eastbound Right							
50% Queue	50	-	-	50	-	-	-
Available Storage	250	-	-	560	-	-	-
Westbound Left							
50% Queue	50	-	-	60	-	-	-
Available Storage	210	-	-	200	-	-	-
Westbound Right							
50% Queue	50	-	50	-	50	50	50
Available Storage	210	-	540	-	115	50	450
Northbound Left							
50% Queue	-	-	-	50	-	-	-
Available Storage	-	-	-	180	-	-	-
Northbound Right							
50% Queue	50	-	-	50	-	-	-
Available Storage	130	-	-	180	-	-	-
Southbound Left							
50% Queue	-	50	70	-	50	50	50
Available Storage	-	50	210	-	50	50	50
Southbound Right							
50% Queue	50	50	50	-	50	50	50
Available Storage	50	50	210	-	120	50	50

4.0 Sight Distance Evaluation

The sight distance at TA-46 is questionable and if a new construction access road is built it should be located near the crest of the curve at MP 3. At this location there is sufficient sight distance in both directions.

5.0 Site Access Improvements/Modifications

CMRR Construction Driveway

As previously discussed, both left turn and right turn deceleration lanes will be warranted on Pajarito Road at the CMRR construction site driveway with forecast CMRR construction peak traffic volumes. The eastbound left turn land should be 300 feet with a 100 foot taper, based on the 35mph construction zone speed. The westbound right turn lane should be 230 feet with a 100 foot taper, based on the 35mph construction zone speed.

While analysis indicates that acceptable level of service can be provided with a single egress lane from the CMRR construction site, further review indicates that delays to southbound left turning vehicles could approach 40 seconds during peak periods. Therefore, to prevent unnecessary delays to the southbound right turning vehicles (primarily employee shuttles during the peak periods), it is recommended that the site driveway be constructed with two exiting lanes. The left turn lane should provide a minimum 50 feet of storage, though additional storage would be desirable to accommodate the possibility of the arrival of multiple trucks.

New TA-46 Construction Driveway

As previously discussed, both left turn and right turn deceleration lanes will be warranted on Pajarito Road at the new TA-46 construction site driveway with forecast CMRR construction peak traffic volumes. The eastbound left turn land should be 300 feet with a 100 foot taper, based on the 35mph construction zone speed. The westbound right turn lane should be 230 feet with a 100 foot taper, based on the 35mph construction zone speed.

While analysis indicates that acceptable level of service can be provided with a single egress lane at the new TA-46 construction driveway, it is recommended that the site driveway be constructed with two exiting lanes to prevent unnecessary delays to the southbound right turning vehicles. The left turn lane should provide a minimum 50 feet of storage, though additional storage would be desirable to accommodate the possibility of the arrival of multiple trucks.

6.0 Pedestrian/Bicycle Considerations

Pedestrian traffic associated with the CMRR construction site is anticipated to occur between the site and the parking facilities at TA-50, in the vicinity of the Pecos Drive intersection. As discussed previously, this intersection has

already been reconstructed to improve the safety and efficiency of pedestrian crossings at this intersection through installation of a crosswalk and exclusive pedestrian phasing. These improvements are anticipated to service any additional pedestrian traffic generated by the CMRR construction site.

7.0 Forecasted Demand of Off-site Deliveries on Inspection Facilities

The CMRR Construction Traffic Movement Forecast provided in Appendix E indicates that off-site deliveries to associated with the CMRR construction could reach a maximum of approximately 500 monthly trips. This correlates to an average 3 additional hourly deliveries that must be processed by inspection facilities during the periods of peak demand. Current inspection demand should be evaluated to determine the need for additional security staff during these peak periods of demand. In general, demand will be at its peak under the following circumstances:

- Off-site hauling of aggregate base to TA-46 and TA-63 (estimated 2010)
- Off-site hauling of backfill to TA-55 (estimated 2012 and 2013)

In general, other periods of off-site hauling and deliveries will not exceed more than 1 additional average hourly delivery that must be processed by inspection facilities.

VII. Summary of Deficiencies, Anticipated Impacts, and Recommendations

A. Existing Conditions

No existing study area deficiencies were identified.

B. Implementation Year Conditions (2009)

No deficiencies were identified in the 2009 Implementation Year. However, the addition of CMRR construction traffic will degrade level of service at the following locations:

- **Pajarito Road & Pecos Drive, PM Peak**: Overall intersection delay and level of service will degrade from B (19.0 sec) in the background condition to C (20.1 sec) with addition of the CMRR construction traffic.
- **Pajarito Road & Lubbock Road, AM Peak**: Overall intersection delay and level of service will degrade from A (9.8 sec) in the background condition to B (12.0 sec) with addition of the CMRR construction traffic.
- **Pajarito Road & TA-46, AM & PM Peak**: Delay and level of service on the southbound approach will degrade from B (15.6 sec) to C (17.6) in the AM and B (12.3 sec) to C (16.2) in the PM with addition of the CMRR construction traffic.

C. Construction Peak Conditions (2013)

No deficiencies were identified in the 2013 CMRR Construction Peak Year. However, the addition of CMRR construction traffic will degrade level of service at the following locations:

- **Pajarito Road & Puye Road, PM Peak**: Delay and level of service on the southbound approach will degrade from B (13.2 sec) to C (15.8 sec) in the PM with addition of the CMRR construction traffic.
- **Pajarito Road & TA-46, PM Peak**: Delay and level of service on the southbound approach will degrade from B (12.6 sec) to C (18.8 sec) in the PM with addition of the CMRR construction traffic.

D. Recommendations

The following items are recommended to improve overall level of service in the Pajarito Road corridor during the 2009-2018 construction of the CMRR facility:

1. Implement a 35mph construction speed zone on Pajarito Road between TA-64 and TA-46 for the length of the CMRR construction period.

2. Construct the new CMRR construction site driveway to Pajarito Road with two exiting and one entering lane (2009),

   2a. Construct an eastbound left turn deceleration lane on Pajarito Road at the intersection with the new CMRR construction site driveway (2009). The required length is 300 feet with a 100 foot taper, based on the 35mph construction zone speed.

   2b. Construct a westbound right turn deceleration lane on Pajarito Road at the intersection with the new CMRR construction site driveway (2010). The required length is 230 feet with a 100 foot taper, based on the 35mph construction zone speed. These, combined with a minimum 50 foot tangent, indicate a minimum distance of 380 feet between the return at Pecos Drive and the return at the construction driveway. Thus, the new CMRR driveway must located far enough west of Pecos Drive to accommodate this geometry.

3. Relocate the TA-46 construction access to MP 3.0 (2009). Provide two southbound exiting lanes. In addition to this direct access:

   3a. Construct an eastbound left turn deceleration lane on Pajarito Road at the intersection with the new TA-46 construction site driveway (2009). The required length is 300 feet with a 100 foot taper, based on the 35mph construction zone speed.

   3b. Construct a westbound right turn deceleration lane on Pajarito Road at the intersection with the new TA-46 construction site driveway (2010). The required length is 230 feet with a 100 foot taper, based on the 35mph construction zone speed. These, combined with a minimum 50 foot tangent, indicate a minimum distance of 380 feet between the return at the existing TA-46 driveway and the return at the new TA-46 construction driveway. Thus, the new TA-46 construction driveway must be located far enough west of the existing TA-46 driveway to accommodate this geometry.

4. All off-site truck deliveries should be via Pajarito Road, through White Rock, in order to minimize construction truck traffic on LANL's main core campus (TA-3) roadways.

5. Current inspection demand at White Rock should be evaluated to determine the need for additional security staff to inspect the off-site deliveries. In general, demand will be at its peak under the following circumstances:
   - Off-site hauling of aggregate base to TA-46 and TA-63 (estimated 2010)
   - Off-site hauling of backfill to TA-55 (estimated 2012 and 2013)

6. Consideration should be given to lengthening existing acceleration and deceleration lanes to meet the standards of the NMDOT State Access Management Manual as part of any roadway widening or rehabilitation projects, or consideration of a reduction in posted speed. A reduction in posted speeds to less than 30 mph would be required for all existing accel/decel lanes to meet NMDOT standards

7. Any modifications to the roadway network shall make provisions to not impede pedestrian and bicycle traffic.

8. All improvement shall conform to the latest NMDOT standards.

9. Construction traffic control shall be per the latest version of the Manual on Uniform Traffic Control Devices.

10. Even though a traffic signal is not warranted at the intersection of Pajarito and Puye, if more large construction vehicles tend to use this intersection, a temporary signal span may be required to have the trucks enter the highway safely due to the limited site distance to the east.

11. This study shall be revisited if the assumptions made change or the study criteria deviates from the original proposed construction sequence and/or schedule.

Appendices

Appendix A
Scoping Meeting Summary

Appendix B
Traffic Count Data

Appendix C
Intersection Collision Data

Appendix D
Traffic Signal Data

Appendix E
Supporting Information for the Development of Future-Year Traffic Projections

Appendix F
Traffic Analysis Output Reports Organized by Analysis Year/Phase

Appendix G
Recommendation Construction Costs

Appendix H
Reference Documents

CMRR TRAFFIC IMPACT ANALYSIS

(Pajarito Corridor Between TA-64 and TA-46)

Los Alamos, New Mexico

Rev. 0

Prepared For:

Vigil Enterprises Inc.
Santa Fe, New Mexico 87505

Prepared by:

Wilson & Company, Inc. Engineers & Architects
4900 Lang Avenue NE
Albuquerque, New Mexico 87109

September 2008

WILSON
& COMPANY

CMRR TRAFFIC IMPACT ANALYSIS

(Pajarito Corridor Between TA-64 and TA-46)

Los Alamos, New Mexico

Task Order: 35554-009-08
Rev. 0

Prepared For:

Vigil Enterprises, Inc.
Santa Fe, New Mexico 87505

Prepared by:

Wilson & Company, Inc. Engineers & Architects
4900 Lang Avenue NE
Albuquerque, New Mexico 87109

WCI Project Number: 08-100-117-00

September 2008

Appendices

A. Scoping Meeting Summary
B. Traffic Count Data
C. Intersection Collision Data
D. Traffic Signal Data
E. Supporting Information for the Development of Future-Year Traffic Projections
F. Traffic Analysis Output Reports Organized by Analysis Year/Phase
G. Recommendation Construction Costs
H. Reference Documents

Appendix A

Scoping Meeting Summary

VIGIL ENTERPRISES, INC.

CMRR Traffic Study Project
Kickoff Meeting

Contract: 35554-009-08 3C
Meeting Minutes

Date Distributed: August 12, 2008

Meeting Date: **August 5, 2008**
Time: **3:00 PM**
Location: **TA-50-9001**

Team Members Present:

Lacey Bruaw, LANL STR, lbruaw@lanl.gov
Charlie Trask, LANL Traffic Engineer, cwtrask3@lanl.gov
Chandler Elkins, LANL PM, wcelkins@lanl.gov

Team Members Not Present:

Natalie Romero-Trujillo, LANL Traffic, nromero@lanl.gov
Bruce Baumgartner, CMRR Project, bruceb@lanl.gov
Kirt Anderson, LANL Planning, kirt@lanl.gov
Elysha Quintana. LANL ASM, elysha@lanl.gov
Steven Overton. LANL. soverton@lanl.gov

Edward Cordova. Civil Engineer, edward.cordova@wilsonco.com
Karl Thomas. Deputy Project Manager, kthomas@vigilenterprises.com
Tom Roberts. Project Manager, tomroberts@vigilenterprises.com

Denise Vigil, Principal, dvigil@vigilenterprises.com
Daniel Padilla, dpadilla@wilsonco.com

If there are any comments, additions, or corrections to these meeting minutes, please contact Karl Thomas at 455-1211 or kthomas@vigilenterprises.com.

Prepared By: _____ Date: August 12, 2008
Karl Thomas
Deputy Project Manager

Approved By: _____ Date: August 12, 2008
Thomas J. Roberts
Sr. Project Manager

Team contact information can be found on the attached attendance roster.

CMRR Traffic Analysis Project

Technical Information/Discussion

The following information was discussed and it was agreed that this will be the information used to generate the traffic analysis report.

- The AM peak period is assumed to occur between 6:45 and 7:45 AM.
- The PM peak period is assumed to occur between 4:00 and 5:00 PM. Though this does not represent the true peak of the corridor based on actual counts, it has been selected as the PM peak period of CMRR construction traffic impacts based on the 7AM-4PM work day stated in the RFP.
- A 5% linear annual growth rate will be applied to existing traffic volumes to account for additional growth in the corridor.
- All full-time employees indicated in the Construction Traffic Movement Forecast will be assumed to arrive during the AM peak period and depart during the PM peak period.
- Trip calculations will include a 5% reduction to account for carpooling.
- The management portion of the FTEs will park in TA-50 and TA-46. It is assumed that they will have adequate clearance to access the Pajarito corridor from both the northwest (Los Alamos) and southeast (White Rock). For purposes of the analysis, 25% of the LANL management FTEs will be assumed to be derived from points northwest of the corridor and 75% from the southeast. For the construction management FTE, 25% are assumed to be from points northwest of the corridor and the remaining 75% from southeast.
- The craft FTEs will park in TA-03 and TA-60. It is assumed that they will not have access to the Pajarito corridor. Alternate routes will be required to reach the parking lots at TA-03 and TA-60, from which they will be bussed to the CMRR site. Therefore, none of the employee trips to the parking facilities will enter the corridor study limits.
- The craft FTEs will be bussed from the lots to the construction site. A shuttle capacity of 20 passengers will be assumed. The shuttle drop off location will be assumed off Pajarito Road. All craft, buses, and deliveries will use this same access point.
- All management FTE's (Construction and LANL) will park 1/3 at TA-46 and 2/3 in the parking area off of Lubock.
- Monthly craft movements will be converted to peak hour movements assumed equal hourly distributions for a 5-day work week with 9 hour days.
- The following table provides a comparison of the peak periods of employment and peak periods of craft movement.

FY13, Q3 (April 2013?)

	Monthly Forecast	Peak Hour Forecast Equivalent	Reduced for Carpooling	Reduced for Shuttle	Return Trips	Total Peak Trips
Construction Craft FTEs	480	480	480	24	24	48
Construction Management FTEs	115	115	109	109	0	109
LANL Management FTEs	162	162	154	154	0	154
Excavation from TA-55 to TA-46 & TA-63	0	0	0	0	0	0
Concrete Trucks from TA_63 to TA-55	300	2	2	2	2	3
Aggregate to TA-63 from Off-site	20	0	0	0	0	0
Backfill to TA-55 from Off-site	375	2	2	2	2	4
Aggregate Base to TA-46 & TA-63 from Off-site	0	0	0	0	0	0
Offsite Deleiveries to TA-63 and TA-46	100	1	1	1	1	1
Deliveries to RLUOS from TA-55	0	0	0	0	0	0
Deliveries to TA-55 from TA-46 & TA-63	100	1	1	1	1	1
						321

FY10, Q3

	Monthly Forecast	Peak Hour Forecast Equivalent	Reduced for Carpooling	Reduced for Shuttle	Return Trips	Total Peak Trips
Construction Craft FTEs	101	101	101	5	5	10
Construction Management FTEs	24	24	23	23	0	23
LANL Management FTEs	190	190	181	181	0	181
Excavation from TA-55 to TA-46 & TA-63	1000	6	6	6	6	11
Concrete Trucks from TA_63 to TA-55	0	0	0	0	0	0
Aggregate to TA-63 from Off-site	0	0	0	0	0	0
Backfill to TA-55 from Off-site	0	0	0	0	0	0
Aggregate Base to TA-46 & TA-63 from Off-site	0	0	0	0	0	0
Offsite Deleiveries to TA-63 and TA-46	40	0	0	0	0	0
Deliveries to RLUOS from TA-55	0	0	0	0	0	0
Deliveries to TA-55 from TA-46 & TA-63	100	1	1	1	1	1
						226

FY12, Q4

	Monthly Forecast	Peak Hour Forecast Equivalent	Reduced for Carpooling	Reduced for Shuttle	Return Trips	Total Peak Trips
Construction Craft FTEs	450	450	450	23	23	45
Construction Management FTEs	108	108	103	103	0	103
LANL Management FTEs	178	178	169	169	0	169
Excavation from TA-55 to TA-46 & TA-63	0	0	0	0	0	0
Concrete Trucks from TA_63 to TA-55	300	2	2	2	2	3
Aggregate to TA-63 from Off-site	20	0	0	0	0	0
Backfill to TA-55 from Off-site	0	0	0	0	0	0
Aggregate Base to TA-46 & TA-63 from Off-site	0	0	0	0	0	0
Offsite Deleiveries to TA-63 and TA-46	40	0	0	0	0	0
Deliveries to RLUOS from TA-55	0	0	0	0	0	0
Deliveries to TA-55 from TA-46 & TA-63	100	1	1	1	1	1
						322

Red trips from TA-03 and TA-60 to Construction Driveway
Blue trips from Construction Driveway to TA-03 and TA-60
Dark Green Trips - 25% from NW and 75% from SE, with 2/3 to Lubbock (TA-50) and 1/3 to TA-46, Equates to 17% from NW to Lubbock, 8% from NW to TA-46, 50% from SE to Lubbock, 25% from SE to TA-46
OrangeTrips from TA-63 to TA-55
Purple Trips from Off-site (SW) to TA-55
Aqua Trips from Off-Site (SW) to TA-46
Pink Trips from TA-55 to TA-63
Italics trips from TA-55 to Offsite(SW)
Gray Trips from TA-46 to Offsite (SW)

Includes 5% reduction for carpooling

** Each round-trip shuttle represents 2 corridor trips

- Based on the comparison of the peak employment periods and the peak period of craft movement, Q4, Year 2012 represents the highest construction traffic demand in the corridor. However, the demand exceeds the Q3, Year 2013 demand by only 5 trips per peak. When combined with the background growth, it is assumed that Q3, Year 2013 represents the peak traffic scenario and will therefore be utilized in the analysis of future traffic.

- The Construction Traffic Movement Forecasts indicate craft movement to/from off-site locations, including aggregate and backfill hauling. It is assumed that all the deliveries will enter the study corridor from White Rock. This will necessitate either a new inspection station or left turn capability at the current inspection area.

- All deliveries to the CMRR site for this analysis will be via driveways directly off Pajarito Road.

- Synchro level service algorithms will be used to perform the analysis.

The team will schedule a conference call on 8/19/08.

The 90% presentation will be held at 9 AM on 8/26/08.

A comment incorporation verification meeting will be held on 9/9/08.

CMRR TRAFFIC ANALYSIS PROJECT ACTION ITEMS

Action Item	Assignee	Due Date	Comments	Status
1. Send C. Trask info to design team	C. Elkins	7/15/08		closed
2. Obtain UMAP information electronically	E. Cordova	7/18/08		closed
3. Obtain NMSSUP traffic information	C. Elkins	7/18/08	Mark Harris should be contacted for hours of operation	closed
4. RFI #1 Signal cycle length	C. Elkins	7/25/08	Sent to LANL 7/23/08 Received from LANL 7/23/08	Closed
5. Send raw data to the team from previous study	C. Elkins/C. Trask	7/30/08		Closed
6. RFI #2 Clarifications needed on analysis	C. Elkins	7/30/08	Sent to LANL 7/28/08	Closed

VIGIL ENTERPRISES, INC.

CMRR Traffic Impact Analysis Study
Attendance Roster
August 5, 2008

NAME	INITIALS	TITLE / PROJECT ROLE	DOE Security Clearance	PHONE	E-MAIL
Chandler Elkins	WCE	LANL PM	Q	665 1575	wcelkins@lanl.gov
Charlie Trask	CWT	LANL Traffic Engineer	Q	667 7756	cwtrask3@lanl.gov
Lacey Bruaw	LB	LANL STR	U	665 0743	lbruaw@lanl.gov
Eliza Martinez				667 1562	eliza@lanl.gov
Warren Dela Cruz				667 1617	wdlc@lanl.gov
John Bradley				667 0104	bradley_john_p@lanl.gov
Steve Overton				606 0154	soverton@lanl.gov
David Tokach				606 2388	dctokach@lanl.gov
Bruce Baumgartner		CMRR		665-0855	bruceb@lanl.gov
Elysha Quintana		ASM			elysha@lanl.gov
Natalie Romero-Trujillo		LANL Traffic	Q	667-3438	nromero@lanl.gov
Kirt Anderson		Planning	Q	665-2335	kirt@lanl.gov
Edward Cordova		Civil Engineer	Q	348-4076	Edward.Cordova@wilsonco.com
Tim Simmons		Traffic Engineer	U	348-4084	Timothy.Simmons@wilsonco.com
Denise Vigil		Principal	Q	455-1211	dvigil@vigilenterprises.com
Karl Thomas		Deputy Project Manager	U	455-1211	kthomas@vigilenterprises.com
Tom Roberts		Project Manager	Q	455-1211	tomroberts@vigilenterprises.com

Appendix B

Traffic Count Data

COUNTS TAKEN:	DATE	ACTUAL PEAK HOUR	USED PEAK HOUR
EAST JEMEZ – NM–4	05/01/2008	11:00AM – Noon:	11:00AM – Noon:
EAST JEMEZ – TA–53	Date	Time	Time
EAST JEMEZ – ROYAL CREST	Date	Time	Time
EAST JEMEZ – LANDFILL	DATE	TIME	TIME
EAST JEMEZ – GUARD STATION	02/20/2008	11:30A – 12:30P	11:30A – 12:30P
DIAMOND – WEST JEMEZ BYPASS	03/13/2008	11:00A – NOON	11:00A – NOON
DIAMOND DRIVE – WEST JEMEZ	02/21/2008	11:15A – 12:15P	11:15A – 12:15P
DIAMOND DRIVE – EMBUDO	03/12/2008	11:30A – 12:30P	11:30A – 12:30P
DIAMOND DRIVE – ENIWETOK	03/05/2008	11:00A – NOON	11:00A – NOON
DIAMOND DRIVE – SIGMA	03/04/2008	11:00A – NOON	11:00A – NOON
DIAMOND DRIVE – PAJARITO	Date	Time	Time
WEST JEMEZ – CASA GRANDE	02/26/2008	11:15A – 12:15P	11:15A – 12:15P
WEST JEMEZ – PAJARITO	02/28/2008	11:15A – 12:15P	11:15A – 12:15P
WEST JEMEZ – BIKINI ATOLL	02/27/2008	11:15A – 12:15P	11:15A – 12:15P
WEST JEMEZ – WEST ROAD	Date	Time	Time
WEST JEMEZ – WELLNESS (East)	Date	Time	Time
WEST JEMEZ – WELLNESS (West)	Date	Time	Time
WEST JEMEZ – TA–8	Date	Time	Time
WEST JEMEZ – TA–16	Date	Time	Time
WEST JEMEZ – WETF	DATE	TIME	TIME
WEST JEMEZ – NM–4	Date	Time	Time

COUNTS TAKEN:	DATE	ACTUAL PEAK HOUR	USED PEAK HOUR
PAJARITO – TA–48/64	Date	Time	Time
PAJARITO – PECOS	04/10/2008	11:00A – NOON	11:00A – NOON
PAJARITO – LUBBOCK	03/26/2008	11:00A – NOON	11:00A – NOON
PAJARITO – TA–52/63	DATE	TIME	TIME
PAJARITO – TA–46	DATE	TIME	TIME
PAJARITO – TA–51	DATE	TIME	TIME
PAJARITO – TA–54	DATE	TIME	TIME
PAJARITO – TA–18	DATE	TIME	TIME
PAJARITO – NM–4	DATE	TIME	TIME
DIAMOND DRIVE – 38th	DATE	TIME	TIME
DIAMOND DRIVE – SANDIA	Date	Time	Time
DIAMOND DRIVE – CANYON	Date	Time	Time
DIAMOND DRIVE – TRINITY	Date	Time	Time
DIAMOND DRIVE – WEST ROAD	Date	Time	

NOT TO SCALE

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2008 TURNING MOVEMENT COUNTS OUTBOUND NOON PEAK HOUR

PREPARED FOR: LOS ALAMOS NATIONAL LABORATORY
Up–date: May 19, 2008
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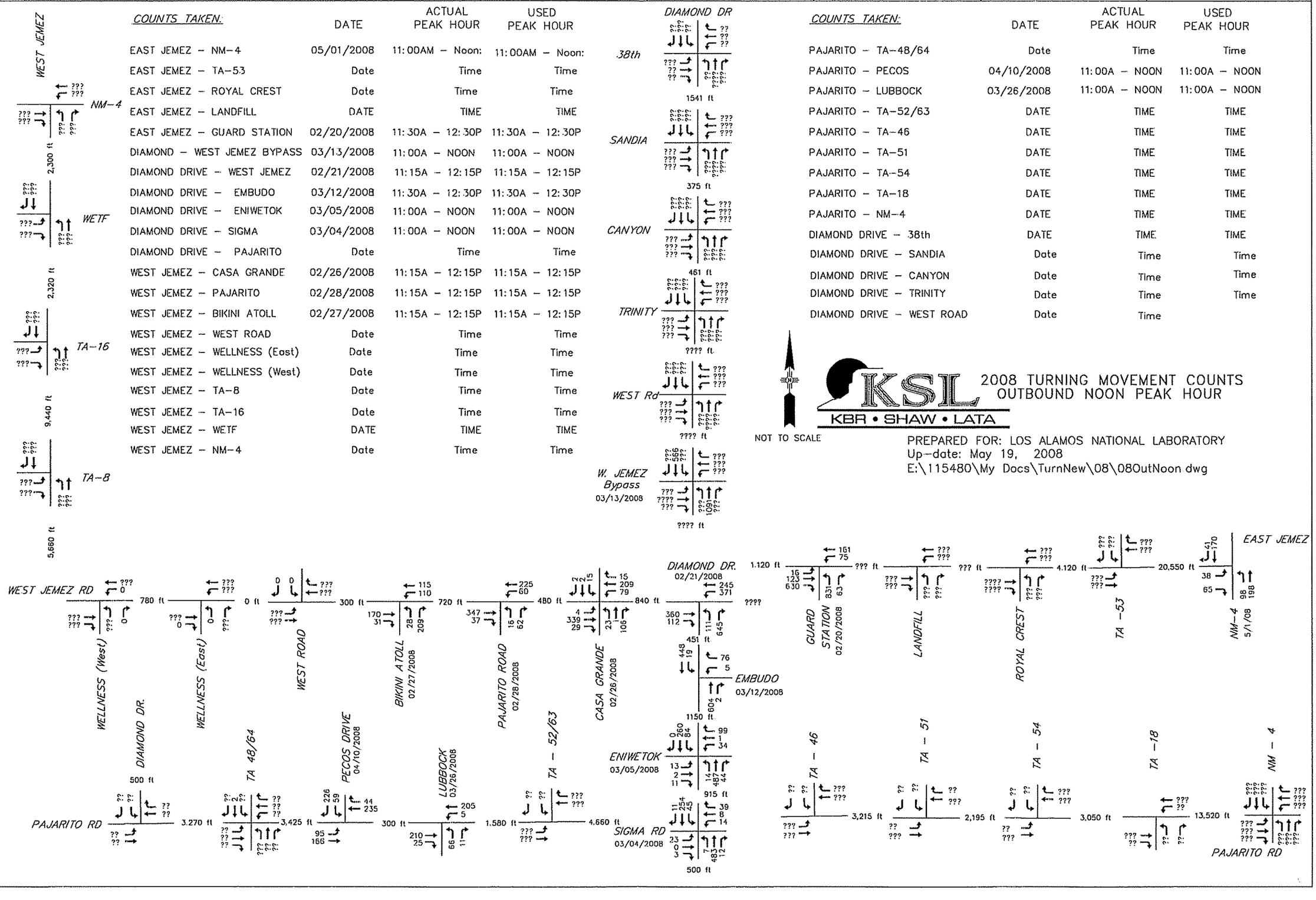

COUNTS TAKEN:	DATE	ACTUAL PEAK HOUR	USED PEAK HOUR
EAST JEMEZ – NM–4	05/01/2008	6:30A – 7:30A	6:30A – 7:30A
EAST JEMEZ – TA–53	Date	Time	Time
EAST JEMEZ – ROYAL CREST	Date	Time	Time
EAST JEMEZ – LANDFILL	DATE	TIME	TIME
EAST JEMEZ – GUARD STATION	02/20/2008	7:00A – 8:00A	7:00A – 8:00A
DIAMOND – WEST JEMEZ BYPASS	03/13/2008	7:30A – 8:30A	7:30A – 8:30A
DIAMOND DRIVE – WEST JEMEZ	02/21/2008	7:15A – 8:15A	7:15A – 8:15A
DIAMOND DRIVE – EMBUDO	03/12/2008	6:30A – 7:30A	6:30A – 7:30A
DIAMOND DRIVE – ENIWETOK	03/05/2008	6:45A – 7:45A	6:45A – 7:45A
DIAMOND DRIVE – SIGMA	03/04/2008	7:00A – 8:00A	7:00A – 8:00A
DIAMOND DRIVE – PAJARITO	Date	Time	Time
WEST JEMEZ – CASA GRANDE	02/26/2008	7:00A – 8:00A	7:00A – 8:00A
WEST JEMEZ – PAJARITO	02/28/2008	6:45A – 7:45A	6:45A – 7:45A
WEST JEMEZ – BIKINI ATOLL	02/27/2008	7:00A – 8:00A	7:00A – 8:00A
WEST JEMEZ – WEST ROAD	Date	Time	Time
WEST JEMEZ – WELLNESS (East)	Date	Time	Time
WEST JEMEZ – WELLNESS (West)	Date	Time	Time
WEST JEMEZ – TA–8	Date	Time	Time
WEST JEMEZ – TA–16	Date	Time	Time
WEST JEMEZ – WETF	DATE	TIME	TIME
WEST JEMEZ – NM–4	Date	Time	Time

COUNTS TAKEN:	DATE	ACTUAL PEAK HOUR	USED PEAK HOUR
PAJARITO – TA–48/64	04/01/2008	7:00A – 8:00A	7:00A – 8:00A
PAJARITO – PECOS	04/10/2008	7:30A – 8:30A	7:30A – 8:30A
PAJARITO – LUBBOCK	03/26/2008	6:45A – 7:45A	6:45A – 7:45A
PAJARITO – TA–52/63	DATE	TIME	TIME
PAJARITO – TA–46	DATE	TIME	TIME
PAJARITO – TA–51	DATE	TIME	TIME
PAJARITO – TA–54	DATE	TIME	TIME
PAJARITO – TA–18	DATE	TIME	TIME
PAJARITO – NM–4	DATE	TIME	TIME
DIAMOND DRIVE – 38th	3/27/2007	7:15A – 8:15A	7:15A – 8:15A
DIAMOND DRIVE – SANDIA	3/22/2007	7:15A – 8:15A	7:15A – 8:15A
DIAMOND DRIVE – CANYON	3/20/2007	7:15A – 8:15A	7:15A – 8:15A
DIAMOND DRIVE – TRINITY	3/13/2007	7:15A – 8:15A	7:15A – 8:15A
DIAMOND DRIVE – WEST ROAD	3/8/2007	7:00A – 8:00A	7:00A – 8:00A

NOT TO SCALE

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2008 TURNING MOVEMENT COUNTS MORNING PEAK HOUR

PREPARED FOR: LOS ALAMOS NATIONAL LABORATORY
Up–date: May 19, 2008
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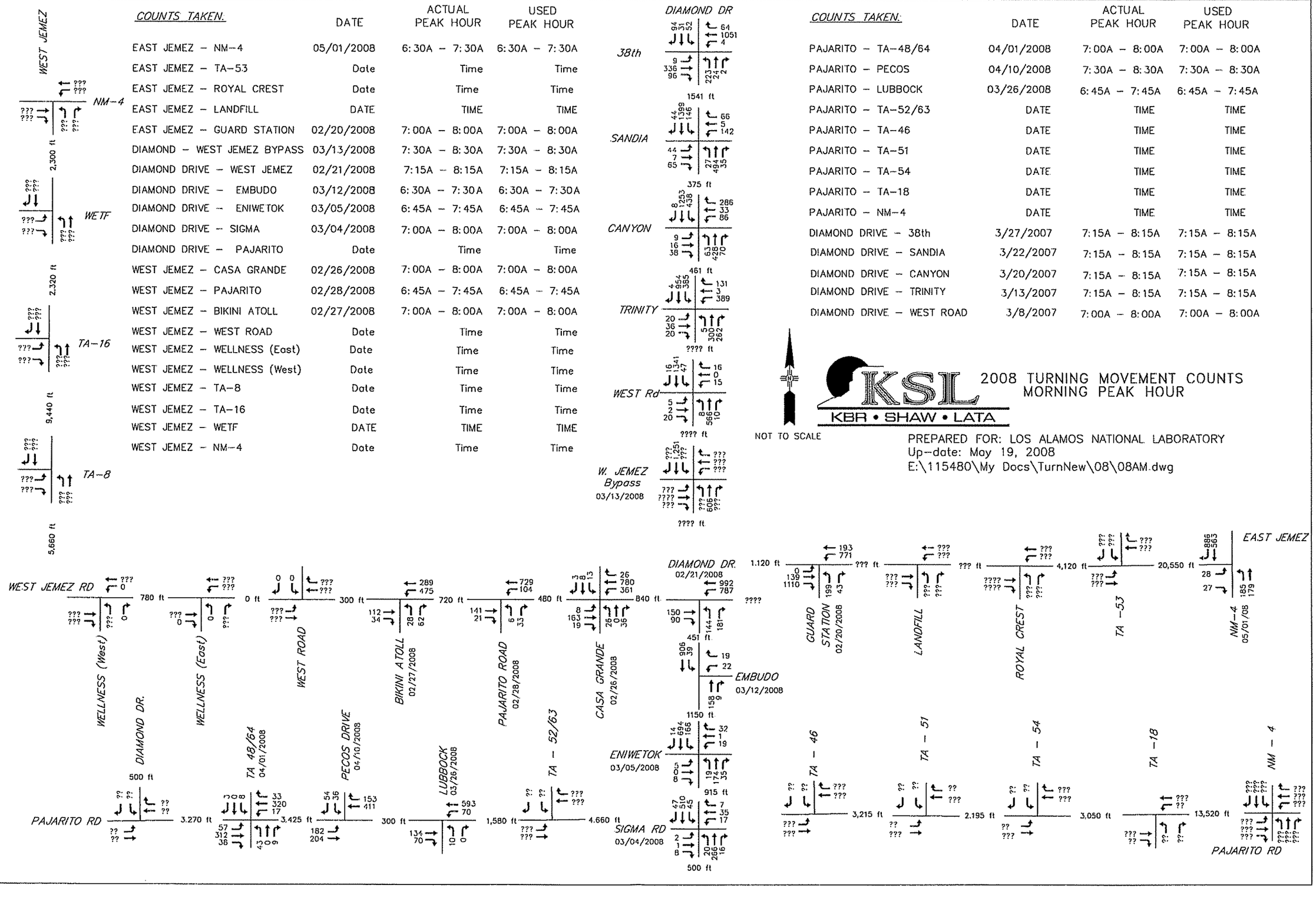

COUNTS TAKEN:	DATE	ACTUAL PEAK HOUR	USED PEAK HOUR
EAST JEMEZ – NM–4	05/01/2008	Noon – 1:00PM	Noon – 1:00PM
EAST JEMEZ – TA–53	Date	Time	Time
EAST JEMEZ – ROYAL CREST	Date	Time	Time
EAST JEMEZ – LANDFILL	DATE	TIME	TIME
EAST JEMEZ – GUARD STATION	02/20/2008	NOON – 1:00PM	NOON – 1:00PM
DIAMOND – WEST JEMEZ BYPASS	03/13/2008	NOON – 1:00PM	NOON – 1:00PM
DIAMOND DRIVE – WEST JEMEZ	02/21/2008	NOON – 1:00PM	NOON – 1:00PM
DIAMOND DRIVE – EMBUDO	03/12/2008	NOON – 1:00PM	NOON – 1:00PM
DIAMOND DRIVE – ENIWETOK	03/05/2008	NOON – 1:00PM	NOON – 1:00PM
DIAMOND DRIVE – SIGMA	03/04/2008	NOON – 1:00PM	NOON – 1:00PM
DIAMOND DRIVE – PAJARITO	Date	Time	Time
WEST JEMEZ – CASA GRANDE	02/26/2008	12:15PM – 1:15PM	12:15PM – 1:15PM
WEST JEMEZ – PAJARITO	02/28/2008	NOON – 1:00PM	NOON – 1:00PM
WEST JEMEZ – BIKINI ATOLL	02/27/2008	12:15PM – 1:15PM	12:15PM – 1:15PM
WEST JEMEZ – WEST ROAD	Date	Time	Time
WEST JEMEZ – WELLNESS (East)	Date	Time	Time
WEST JEMEZ – WELLNESS (West)	Date	Time	Time
WEST JEMEZ – TA–8	Date	Time	Time
WEST JEMEZ – TA–16	Date	Time	Time
WEST JEMEZ – WETF	DATE	TIME	TIME
WEST JEMEZ – NM–4	Date	Time	Time

COUNTS TAKEN:	DATE	ACTUAL PEAK HOUR	USED PEAK HOUR
PAJARITO – TA–48/64	Date	Time	Time
PAJARITO – PECOS	04/10/2008	NOON – 1:00PM	NOON – 1:00PM
PAJARITO – LUBBOCK	03/26/2008	NOON – 1:00PM	NOON – 1:00PM
PAJARITO – TA–52/63	DATE	TIME	TIME
PAJARITO – TA–46	DATE	TIME	TIME
PAJARITO – TA–51	DATE	TIME	TIME
PAJARITO – TA–54	DATE	TIME	TIME
PAJARITO – TA–18	DATE	TIME	TIME
PAJARITO – NM–4	DATE	TIME	TIME
DIAMOND DRIVE – 38th	DATE	TIME	TIME
DIAMOND DRIVE – SANDIA	Date	Time	Time
DIAMOND DRIVE – CANYON	Date	Time	Time
DIAMOND DRIVE – TRINITY	Date	Time	Time
DIAMOND DRIVE – WEST ROAD	Date	Time	

NOT TO SCALE

UTILITIES AND INFRASTRUCTURE

2008 TURNING MOVEMENT COUNTS INBOUND NOON PEAK HOUR

THIS DRAWING NOT APPROVED FOR PUBLIC RELEASE

PREPARED FOR: LOS ALAMOS NATIONAL LABORATORY
Up–date: May 19, 2008

CLASSIFICATION: U	REVIEWER: H.M. SALAZAR	DATE: 05–JUNE–2008

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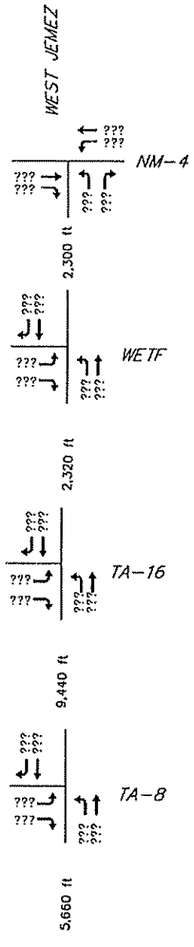

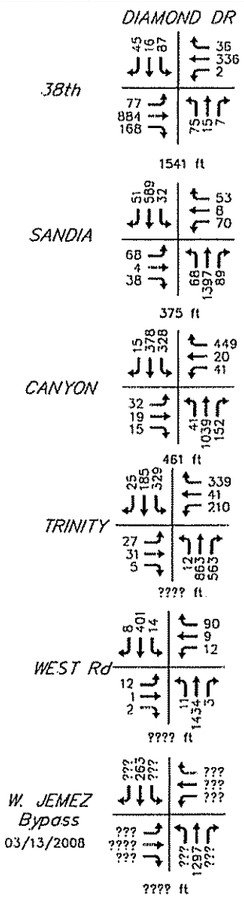

COUNTS TAKEN:	DATE	ACTUAL PEAK HOUR	USED PEAK HOUR
EAST JEMEZ – NM–4	05/01/2008	4:45PM – 5:45PM	4:45PM – 5:45PM
EAST JEMEZ – TA–53	Date	Time	Time
EAST JEMEZ – ROYAL CREST	Date	Time	Time
EAST JEMEZ – LANDFILL	DATE	TIME	TIME
EAST JEMEZ – GUARD STATION	02/20/2008	5:00P – 6:00P	5:00P – 6:00P
DIAMOND – WEST JEMEZ BYPASS	03/13/2008	5:00P – 6:00P	5:00P – 6:00P
DIAMOND DRIVE – WEST JEMEZ	02/21/2008	4:30P – 5:30P	4:30P – 5:30P
DIAMOND DRIVE – EMBUDO	03/12/2008	5:00P – 6:00P	5:00P – 6:00P
DIAMOND DRIVE – ENIWETOK	03/05/2008	5:00P – 6:00P	5:00P – 6:00P
DIAMOND DRIVE – SIGMA	03/04/2008	5:00P – 6:00P	5:00P – 6:00P
DIAMOND DRIVE – PAJARITO	Date	Time	Time
WEST JEMEZ – CASA GRANDE	02/26/2008	4:30P – 5:30P	4:30P – 5:30P
WEST JEMEZ – PAJARITO	02/28/2008	4:30P – 5:30P	4:30P – 5:30P
WEST JEMEZ – BIKINI ATOLL	02/27/2008	4:30P – 5:30P	4:30P – 5:30P
WEST JEMEZ – WEST ROAD	Date	Time	Time
WEST JEMEZ – WELLNESS (East)	Date	Time	Time
WEST JEMEZ – WELLNESS (West)	Date	Time	Time
WEST JEMEZ – TA–8	Date	Time	Time
WEST JEMEZ – TA–16	Date	Time	Time
WEST JEMEZ – WETF	DATE	TIME	TIME
WEST JEMEZ – NM–4	Date	Time	Time

COUNTS TAKEN:	DATE	ACTUAL PEAK HOUR	USED PEAK HOUR
PAJARITO – TA–48/64	04/01/2008	4:30P – 5:30P	4:30P – 5:30P
PAJARITO – PECOS	04/10/2008	5:00P – 6:00P	5:00P – 6:00P
PAJARITO – LUBBOCK	03/26/2008	4:45P – 5:45P	4:45P – 5:45P
PAJARITO – TA–52/63	DATE	TIME	TIME
PAJARITO – TA–46	DATE	TIME	TIME
PAJARITO – TA–51	DATE	TIME	TIME
PAJARITO – TA–54	DATE	TIME	TIME
PAJARITO – TA–18	DATE	TIME	TIME
PAJARITO – NM–4	DATE	TIME	TIME
DIAMOND DRIVE – 38th	3/27/2007	4:45P – 5:45P	4:45P – 5:45P
DIAMOND DRIVE – SANDIA	3/22/2007	4:45P – 5:45P	4:45P – 5:45P
DIAMOND DRIVE – CANYON	3/20/2007	4:45P – 5:45P	4:45P – 5:45P
DIAMOND DRIVE – TRINITY	3/13/2007	4:45P – 5:45P	4:45P – 5:45P
DIAMOND DRIVE – WEST ROAD	3/8/2007	4:30P – 5:30P	4:30P – 5:30P

NOT TO SCALE

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2008 TURNING MOVEMENT COUNTS EVENING PEAK HOUR

PREPARED FOR: LOS ALAMOS NATIONAL LABORATORY
Up–date: May 19, 2008
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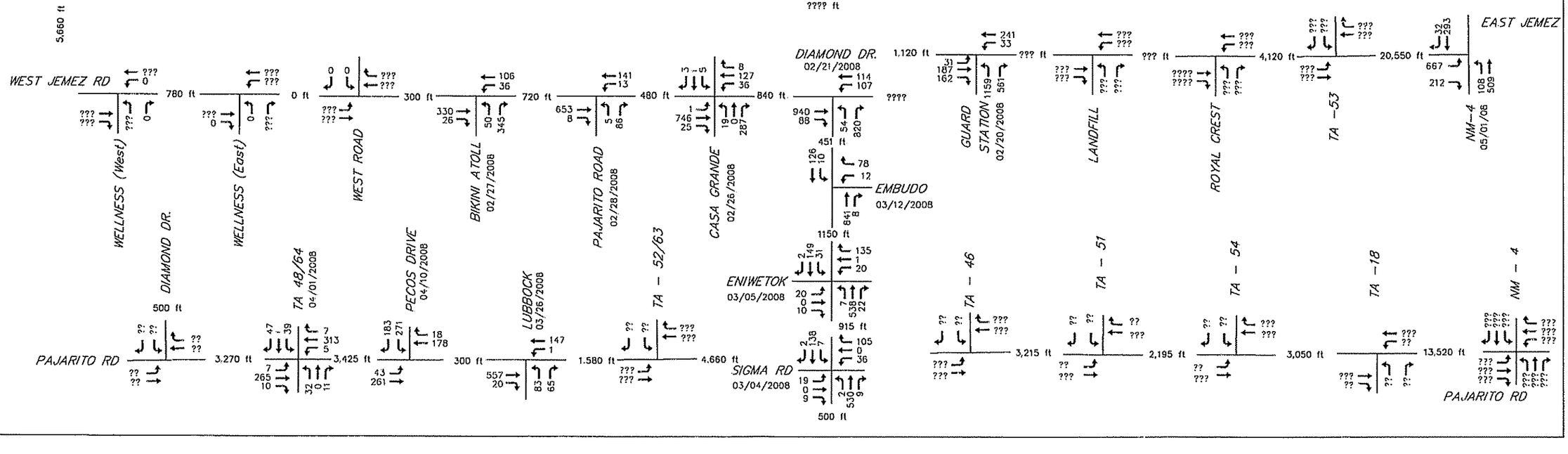


Wilson & Company, Inc.
4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: NRP
Board #: D-4785
Other: Tuesday PM & Wednesday AM

File Name : INTERNAL RDWY_TA-46
Site Code : 00000000
Start Date : 7/16/2008

Groups Printed- Cars - Heavy Trucks

	TA-46 From North					INTERNAL ROADWAY From East					TA-46 From South					INTERNAL ROADWAY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	0	0	0	0	1	2	5	0	8	0	1	0	0	1	9
06:15 AM	0	0	0	0	0	0	0	1	0	1	5	2	8	0	15	0	0	0	0	0	16
06:30 AM	0	2	0	0	2	0	0	0	0	0	5	4	10	0	19	1	0	0	0	1	22
06:45 AM	0	2	0	0	2	0	0	1	0	1	6	13	15	0	34	4	0	0	0	4	41
Total	0	4	0	0	4	0	0	2	0	2	17	21	38	0	76	5	1	0	0	6	88
07:00 AM	0	2	0	0	2	0	0	1	0	1	1	13	10	0	24	5	0	0	0	5	32
07:15 AM	0	1	0	0	1	0	0	1	0	1	0	13	9	0	22	1	0	0	0	1	25
07:30 AM	0	3	0	0	3	0	0	4	0	4	4	14	13	0	31	4	0	0	0	4	42
07:45 AM	0	3	0	0	3	0	1	3	0	4	2	16	18	0	36	3	0	0	0	3	46
Total	0	9	0	0	9	0	1	9	0	10	7	56	50	0	113	13	0	0	0	13	145
08:00 AM	0	2	0	0	2	0	0	0	0	0	4	21	17	0	42	5	0	0	0	5	49
08:15 AM	0	6	0	0	6	0	0	3	0	3	6	7	17	0	30	3	0	0	0	3	42
08:30 AM	0	4	0	0	4	0	0	1	0	1	3	7	9	0	19	3	2	0	0	5	29
08:45 AM	0	9	0	0	9	0	0	4	0	4	2	10	24	0	36	5	0	0	0	5	54
Total	0	21	0	0	21	0	0	8	0	8	15	45	67	0	127	16	2	0	0	18	174
*** BREAK ***																					
03:00 PM	0	3	0	0	3	0	0	6	0	6	2	5	5	0	12	6	0	0	0	6	27
03:15 PM	0	6	0	0	6	0	0	3	0	3	4	2	5	0	11	8	0	0	0	8	28
03:30 PM	0	5	0	0	5	0	0	9	0	9	2	5	6	0	13	4	0	0	0	4	31
03:45 PM	0	7	0	0	7	0	0	4	0	4	0	4	5	0	9	11	1	0	0	12	32
Total	0	21	0	0	21	0	0	22	0	22	8	16	21	0	45	29	1	0	0	30	118
04:00 PM	2	8	0	0	10	0	0	1	0	1	2	8	8	0	18	7	0	0	0	7	36
04:15 PM	0	10	0	0	10	0	0	3	0	3	1	3	4	0	8	4	0	0	0	4	25
04:30 PM	0	13	0	0	13	0	0	0	0	0	0	6	4	0	10	18	0	0	0	18	41
04:45 PM	0	7	0	0	7	0	0	3	0	3	1	8	2	0	11	10	0	0	0	10	31
Total	2	38	0	0	40	0	0	7	0	7	4	25	18	0	47	39	0	0	0	39	133
05:00 PM	2	20	0	0	22	0	0	2	0	2	1	2	0	0	3	11	0	0	0	11	38
05:15 PM	0	7	0	0	7	0	1	6	0	7	0	3	1	0	4	11	0	0	0	11	29
05:30 PM	1	11	0	0	12	0	0	0	0	0	0	3	1	0	4	19	0	0	0	19	35
05:45 PM	0	8	0	0	8	0	0	2	0	2	1	0	0	0	1	12	0	0	0	12	23
Total	3	46	0	0	49	0	1	10	0	11	2	8	2	0	12	53	0	0	0	53	125
Grand Total	5	139	0	0	144	0	2	58	0	60	53	171	196	0	420	155	4	0	0	159	783
Apprch %	3.5	96.5	0	0		0	3.3	96.7	0		12.6	40.7	46.7	0		97.5	2.5	0	0		
Total %	0.6	17.8	0	0	18.4	0	0.3	7.4	0	7.7	6.8	21.8	25	0	53.6	19.8	0.5	0	0	20.3	
Cars	5	138	0	0	143	0	2	58	0	60	53	170	196	0	419	155	4	0	0	159	781
% Cars	100	99.3	0	0	99.3	0	100	100	0	100	100	99.4	100	0	99.8	100	100	0	0	100	99.7

Wilson & Company, Inc.
4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: NRP
Board #: D-4785
Other: Tuesday PM & Wednesday AM

File Name : INTERNAL RDWY_TA-46
Site Code : 00000000
Start Date : 7/16/2008
Page No : 2

Groups Printed- Cars - Heavy Trucks

	TA-46 From North					INTERNAL ROADWAY From East					TA-46 From South					INTERNAL ROADWAY From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Heavy Trucks	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
% Heavy Trucks	0	0.7	0	0	0.7	0	0	0	0	0	0	0.6	0	0	0.2	0	0	0	0	0	0.3

Wilson & Company, Inc.

4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: NRP
Board #: D-4785
Other: Tuesday PM & Wednesday AM

File Name : INTERNAL RDWY_TA-46
Site Code : 00000000
Start Date : 7/16/2008

Groups Printed- Cars

	TA-46 From North					INTERNAL ROADWAY From East					TA-46 From South					INTERNAL ROADWAY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	0	0	0	0	1	2	5	0	8	0	1	0	0	1	9
06:15 AM	0	0	0	0	0	0	0	1	0	1	5	2	8	0	15	0	0	0	0	0	16
06:30 AM	0	2	0	0	2	0	0	0	0	0	5	4	10	0	19	1	0	0	0	1	22
06:45 AM	0	2	0	0	2	0	0	1	0	1	6	13	15	0	34	4	0	0	0	4	41
Total	0	4	0	0	4	0	0	2	0	2	17	21	38	0	76	5	1	0	0	6	88
07:00 AM	0	2	0	0	2	0	0	1	0	1	1	13	10	0	24	5	0	0	0	5	32
07:15 AM	0	1	0	0	1	0	0	1	0	1	0	13	9	0	22	1	0	0	0	1	25
07:30 AM	0	3	0	0	3	0	0	4	0	4	4	14	13	0	31	4	0	0	0	4	42
07:45 AM	0	3	0	0	3	0	1	3	0	4	2	16	18	0	36	3	0	0	0	3	46
Total	0	9	0	0	9	0	1	9	0	10	7	56	50	0	113	13	0	0	0	13	145
08:00 AM	0	2	0	0	2	0	0	0	0	0	4	21	17	0	42	5	0	0	0	5	49
08:15 AM	0	6	0	0	6	0	0	3	0	3	6	7	17	0	30	3	0	0	0	3	42
08:30 AM	0	4	0	0	4	0	0	1	0	1	3	7	9	0	19	3	2	0	0	5	29
08:45 AM	0	8	0	0	8	0	0	4	0	4	2	9	24	0	35	5	0	0	0	5	52
Total	0	20	0	0	20	0	0	8	0	8	15	44	67	0	126	16	2	0	0	18	172
*** BREAK ***																					
03:00 PM	0	3	0	0	3	0	0	6	0	6	2	5	5	0	12	6	0	0	0	6	27
03:15 PM	0	6	0	0	6	0	0	3	0	3	4	2	5	0	11	8	0	0	0	8	28
03:30 PM	0	5	0	0	5	0	0	9	0	9	2	5	6	0	13	4	0	0	0	4	31
03:45 PM	0	7	0	0	7	0	0	4	0	4	0	4	5	0	9	11	1	0	0	12	32
Total	0	21	0	0	21	0	0	22	0	22	8	16	21	0	45	29	1	0	0	30	118
04:00 PM	2	8	0	0	10	0	0	1	0	1	2	8	8	0	18	7	0	0	0	7	36
04:15 PM	0	10	0	0	10	0	0	3	0	3	1	3	4	0	8	4	0	0	0	4	25
04:30 PM	0	13	0	0	13	0	0	0	0	0	0	6	4	0	10	18	0	0	0	18	41
04:45 PM	0	7	0	0	7	0	0	3	0	3	1	8	2	0	11	10	0	0	0	10	31
Total	2	38	0	0	40	0	0	7	0	7	4	25	18	0	47	39	0	0	0	39	133
05:00 PM	2	20	0	0	22	0	0	2	0	2	1	2	0	0	3	11	0	0	0	11	38
05:15 PM	0	7	0	0	7	0	1	6	0	7	0	3	1	0	4	11	0	0	0	11	29
05:30 PM	1	11	0	0	12	0	0	0	0	0	0	3	1	0	4	19	0	0	0	19	35
05:45 PM	0	8	0	0	8	0	0	2	0	2	1	0	0	0	1	12	0	0	0	12	23
Total	3	46	0	0	49	0	1	10	0	11	2	8	2	0	12	53	0	0	0	53	125
Grand Total	5	138	0	0	143	0	2	58	0	60	53	170	196	0	419	155	4	0	0	159	781
Apprch %	3.5	96.5	0	0		0	3.3	96.7	0		12.6	40.6	46.8	0		97.5	2.5	0	0		
Total %	0.6	17.7	0	0	18.3	0	0.3	7.4	0	7.7	6.8	21.8	25.1	0	53.6	19.8	0.5	0	0	20.4	

Wilson & Company, Inc.
4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: NRP
Board #: D-4785
Other: Tuesday PM & Wednesday AM

File Name : INTERNAL RDWY_TA-46
Site Code : 00000000
Start Date : 7/16/2008
Page No : 1

Groups Printed- Heavy Trucks

	TA-46 From North					INTERNAL ROADWAY From East					TA-46 From South					INTERNAL ROADWAY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
*** BREAK ***																					
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
*** BREAK ***																					
Grand Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	50	0	0	50	0	0	0	0	0	0	50	0	0	50	0	0	0	0	0	

Wilson & Company, Inc.

4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: DAR
Board #: D4-4784
Other:Tuesday PM & Wednesday AM

File Name : PAJARITO_PUYE
Site Code : 00000000
Start Date : 7/16/2008
Page No : 1

Groups Printed- Cars - Heavy Trucks

	PUYE From North					PAJARITO From East					PUYE From South					PAJARITO From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:15 AM	2	0	0	0	2	6	67	0	1	74	0	0	0	0	0	0	12	3	0	15	91
06:30 AM	5	0	0	0	5	7	118	0	0	125	0	0	0	0	0	0	18	5	0	23	153
06:45 AM	5	0	3	0	8	8	183	0	0	191	0	0	0	0	0	0	33	10	0	43	242
Total	12	0	3	0	15	21	368	0	1	390	0	0	0	0	0	0	63	18	0	81	486
07:00 AM	6	0	0	0	6	5	182	0	0	187	0	0	0	0	0	0	27	6	0	33	226
07:15 AM	2	0	1	0	3	13	124	0	0	137	0	0	0	0	0	0	23	15	0	38	178
07:30 AM	17	0	0	0	17	13	118	0	0	131	0	0	0	0	0	0	36	9	0	45	193
07:45 AM	9	0	3	0	12	6	139	0	0	145	0	0	0	0	0	0	61	17	0	78	235
Total	34	0	4	0	38	37	563	0	0	600	0	0	0	0	0	0	147	47	0	194	832
08:00 AM	9	0	0	0	9	10	114	0	0	124	0	0	0	0	0	0	39	13	0	52	185
08:15 AM	6	0	0	0	6	5	89	0	0	94	0	0	0	0	0	0	30	16	0	46	146
08:30 AM	5	0	2	0	7	4	61	0	0	65	0	0	0	0	0	0	28	12	0	40	112
08:45 AM	11	0	5	0	16	3	52	0	0	55	0	0	0	0	0	0	46	15	0	61	132
Total	31	0	7	0	38	22	316	0	0	338	0	0	0	0	0	0	143	56	0	199	575
09:00 AM	5	0	4	0	9	3	52	0	0	55	0	0	0	0	0	0	30	13	0	43	107
*** BREAK ***																					
Total	5	0	4	0	9	3	52	0	0	55	0	0	0	0	0	0	30	13	0	43	107
*** BREAK ***																					
03:00 PM	11	0	2	0	13	4	35	0	0	39	0	0	0	0	0	0	36	10	0	46	98
03:15 PM	18	0	5	0	23	2	19	0	0	21	0	0	0	0	0	0	42	15	0	57	101
03:30 PM	3	0	5	0	8	1	18	0	0	19	0	0	0	0	0	0	45	12	0	57	84
03:45 PM	10	0	12	0	22	2	36	0	0	38	0	0	0	0	0	0	54	4	0	58	118
Total	42	0	24	0	66	9	108	0	0	117	0	0	0	0	0	0	177	41	0	218	401
04:00 PM	8	0	12	0	20	1	34	0	0	35	0	0	0	0	0	0	76	9	0	85	140
04:15 PM	9	0	13	1	23	2	32	0	0	34	0	0	0	0	0	0	83	3	0	86	143
04:30 PM	13	0	4	0	17	0	28	0	0	28	0	0	0	0	0	0	117	5	1	123	168
04:45 PM	21	0	8	0	29	0	30	0	0	30	0	0	0	0	0	0	124	6	0	130	189
Total	51	0	37	1	89	3	124	0	0	127	0	0	0	0	0	0	400	23	1	424	640
05:00 PM	21	0	9	0	30	1	49	0	0	50	0	0	0	0	0	0	158	4	0	162	242
05:15 PM	14	0	7	0	21	0	31	0	0	31	0	0	0	0	0	0	177	4	0	181	233
05:30 PM	7	0	4	0	11	1	21	0	0	22	0	0	0	0	0	0	123	4	0	127	160
05:45 PM	3	0	9	0	12	1	20	0	0	21	0	0	0	0	0	0	66	2	0	68	101
Total	45	0	29	0	74	3	121	0	0	124	0	0	0	0	0	0	524	14	0	538	736
Grand Total	220	0	108	1	329	98	1652	0	1	1751	0	0	0	0	0	0	1484	212	1	1697	3777
Apprch %	66.9	0	32.8	0.3		5.6	94.3	0	0.1		0	0	0	0		0	87.4	12.5	0.1		
Total %	5.8	0	2.9	0	8.7	2.6	43.7	0	0	46.4	0	0	0	0	0	0	39.3	5.6	0	44.9	

Wilson & Company, Inc.
4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: DAR
Board #: D4-4784
Other:Tuesday PM & Wednesday AM

File Name : PAJARITO_PUYE
Site Code : 00000000
Start Date : 7/16/2008

Groups Printed- Cars - Heavy Trucks

	PUYE From North					PAJARITO From East					PUYE From South					PAJARITO From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Cars	220	0	108	1	329	98	1642	0	1	1741	0	0	0	0	0	0	1469	212	1	1682	3752
% Cars	100	0	100	100	100	100	99.4	0	100	99.4	0	0	0	0	0	0	99	100	100	99.1	99.3
Heavy Trucks	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	15	0	0	15	25
% Heavy Trucks	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0	1	0	0	0.9	0.7

Bicycles observed along Pajarito: 9 Bikes in AM, 10 Bikes in PM

Wilson & Company, Inc.

4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: DAR
Board #: D4-4784
Other:Tuesday PM & Wednesday AM

File Name : PAJARITO_PUYE
Site Code : 00000000
Start Date : 7/16/2008

Groups Printed- Cars

	PUYE From North					PAJARITO From East					PUYE From South					PAJARITO From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:15 AM	2	0	0	0	2	6	67	0	1	74	0	0	0	0	0	0	12	3	0	15	91
06:30 AM	5	0	0	0	5	7	116	0	0	123	0	0	0	0	0	0	17	5	0	22	150
06:45 AM	5	0	3	0	8	8	183	0	0	191	0	0	0	0	0	0	32	10	0	42	241
Total	12	0	3	0	15	21	366	0	1	388	0	0	0	0	0	0	61	18	0	79	482
07:00 AM	6	0	0	0	6	5	180	0	0	185	0	0	0	0	0	0	27	6	0	33	224
07:15 AM	2	0	1	0	3	13	124	0	0	137	0	0	0	0	0	0	22	15	0	37	177
07:30 AM	17	0	0	0	17	13	118	0	0	131	0	0	0	0	0	0	33	9	0	42	190
07:45 AM	9	0	3	0	12	6	139	0	0	145	0	0	0	0	0	0	59	17	0	76	233
Total	34	0	4	0	38	37	561	0	0	598	0	0	0	0	0	0	141	47	0	188	824
08:00 AM	9	0	0	0	9	10	114	0	0	124	0	0	0	0	0	0	39	13	0	52	185
08:15 AM	6	0	0	0	6	5	89	0	0	94	0	0	0	0	0	0	29	16	0	45	145
08:30 AM	5	0	2	0	7	4	59	0	0	63	0	0	0	0	0	0	26	12	0	38	108
08:45 AM	11	0	5	0	16	3	51	0	0	54	0	0	0	0	0	0	45	15	0	60	130
Total	31	0	7	0	38	22	313	0	0	335	0	0	0	0	0	0	139	56	0	195	568
09:00 AM	5	0	4	0	9	3	50	0	0	53	0	0	0	0	0	0	30	13	0	43	105
*** BREAK ***																					
Total	5	0	4	0	9	3	50	0	0	53	0	0	0	0	0	0	30	13	0	43	105
*** BREAK ***																					
03:00 PM	11	0	2	0	13	4	35	0	0	39	0	0	0	0	0	0	34	10	0	44	96
03:15 PM	18	0	5	0	23	2	19	0	0	21	0	0	0	0	0	0	42	15	0	57	101
03:30 PM	3	0	5	0	8	1	18	0	0	19	0	0	0	0	0	0	45	12	0	57	84
03:45 PM	10	0	12	0	22	2	35	0	0	37	0	0	0	0	0	0	54	4	0	58	117
Total	42	0	24	0	66	9	107	0	0	116	0	0	0	0	0	0	175	41	0	216	398
04:00 PM	8	0	12	0	20	1	34	0	0	35	0	0	0	0	0	0	76	9	0	85	140
04:15 PM	9	0	13	1	23	2	32	0	0	34	0	0	0	0	0	0	82	3	0	85	142
04:30 PM	13	0	4	0	17	0	28	0	0	28	0	0	0	0	0	0	117	5	1	123	168
04:45 PM	21	0	8	0	29	0	30	0	0	30	0	0	0	0	0	0	124	6	0	130	189
Total	51	0	37	1	89	3	124	0	0	127	0	0	0	0	0	0	399	23	1	423	639
05:00 PM	21	0	9	0	30	1	49	0	0	50	0	0	0	0	0	0	158	4	0	162	242
05:15 PM	14	0	7	0	21	0	31	0	0	31	0	0	0	0	0	0	177	4	0	181	233
05:30 PM	7	0	4	0	11	1	21	0	0	22	0	0	0	0	0	0	123	4	0	127	160
05:45 PM	3	0	9	0	12	1	20	0	0	21	0	0	0	0	0	0	66	2	0	68	101
Total	45	0	29	0	74	3	121	0	0	124	0	0	0	0	0	0	524	14	0	538	736
Grand Total	220	0	108	1	329	98	1642	0	1	1741	0	0	0	0	0	0	1469	212	1	1682	3752
Apprch %	66.9	0	32.8	0.3		5.6	94.3	0	0.1		0	0	0	0		0	87.3	12.6	0.1		
Total %	5.9	0	2.9	0	8.8	2.6	43.8	0	0	46.4	0	0	0	0	0	0	39.2	5.7	0	44.8	

Wilson & Company, Inc.
4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: DAR
Board #: D4-4784
Other:Tuesday PM & Wednesday AM

File Name : PAJARITO_PUYE
Site Code : 00000000
Start Date : 7/16/2008
Page No : 1

Groups Printed- Heavy Trucks

	PUYE From North					PAJARITO From East					PUYE From South					PAJARITO From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
*** BREAK ***																					
06:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
07:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6	0	0	6	8
*** BREAK ***																					
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
08:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
09:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
*** BREAK ***																					
03:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
*** BREAK ***																					
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
*** BREAK ***																					
Grand Total	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	15	0	0	15	25
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	40	0	0	40	0	0	0	0	0	0	60	0	0	60	

Bicycles observed along Pajarito: 9 Bikes in AM, 10 Bikes in PM

Wilson & Company, Inc.

4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: LAR
Board #: D-4783
Other: Tuesdayt PM & Wednesday AM

File Name : PAJARITO_TA-46
Site Code : 00000000
Start Date : 7/16/2008
Page No : 1

Groups Printed- Cars - Heavy Trucks

	TA-46 From North					PAJARITO From East					TA-46 From South					PAJARITO From West					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:00 AM	0	0	0	0	0	1	22	0	0	23	0	0	0	0	0	2	2	3	0	7	30
06:15 AM	1	0	0	0	1	10	83	0	0	93	0	0	0	0	0	0	9	3	0	12	106
06:30 AM	3	0	0	0	3	19	133	0	0	152	0	0	0	0	0	0	13	3	2	18	173
06:45 AM	8	0	1	0	9	26	194	0	0	220	0	0	0	0	0	0	25	9	0	34	263
Total	12	0	1	0	13	56	432	0	0	488	0	0	0	0	0	2	49	18	2	71	572
07:00 AM	6	0	2	0	8	19	159	0	0	178	0	0	0	0	0	0	19	8	0	27	213
07:15 AM	3	0	0	0	3	12	141	0	0	153	0	0	0	0	0	0	13	10	0	23	179
07:30 AM	9	0	1	0	10	17	121	0	1	139	0	0	0	1	1	0	16	13	1	30	180
07:45 AM	4	0	4	0	8	18	130	0	1	149	0	0	0	0	0	0	36	19	0	55	212
Total	22	0	7	0	29	66	551	0	2	619	0	0	0	1	1	0	84	50	1	135	784
08:00 AM	7	0	2	0	9	16	107	0	0	123	0	0	0	0	0	0	17	26	0	43	175
08:15 AM	9	0	4	0	13	14	76	0	0	90	0	0	0	0	0	0	11	15	0	26	129
08:30 AM	9	0	1	0	10	4	54	0	0	58	0	0	0	0	0	0	14	15	0	29	97
08:45 AM	15	0	0	0	15	8	38	0	0	46	0	0	0	1	1	0	21	27	1	49	111
Total	40	0	7	0	47	42	275	0	0	317	0	0	0	1	1	0	63	83	1	147	512
*** BREAK ***																					
03:00 PM	15	0	3	0	18	2	26	0	0	28	0	0	0	0	0	0	23	10	0	33	79
03:15 PM	11	0	3	0	14	1	8	0	1	10	0	0	0	0	0	0	29	9	0	38	62
03:30 PM	8	0	10	1	19	1	12	0	0	13	0	0	0	0	0	0	44	12	0	56	88
03:45 PM	15	0	7	0	22	0	23	0	0	23	0	0	0	0	0	0	36	9	0	45	90
Total	49	0	23	1	73	4	69	0	1	74	0	0	0	0	0	0	132	40	0	172	319
04:00 PM	9	0	8	0	17	3	26	0	0	29	0	0	0	0	0	0	86	15	0	101	147
04:15 PM	13	0	5	0	18	2	23	0	0	25	0	0	0	0	0	0	69	9	0	78	121
04:30 PM	11	0	17	0	28	1	12	0	0	13	0	0	0	0	0	0	116	7	0	123	164
04:45 PM	11	0	11	0	22	4	16	0	1	21	0	0	0	0	0	0	111	9	0	120	163
Total	44	0	41	0	85	10	77	0	1	88	0	0	0	0	0	0	382	40	0	422	595
05:00 PM	14	0	16	0	30	0	17	0	0	17	0	0	0	0	0	0	162	5	0	167	214
05:15 PM	13	0	13	1	27	0	14	0	0	14	0	0	0	0	0	0	186	5	1	192	233
05:30 PM	11	0	21	1	33	0	6	0	0	6	0	0	0	0	0	0	128	6	1	135	174
05:45 PM	16	0	5	0	21	0	4	0	0	4	0	0	0	0	0	0	84	1	1	86	111
Total	54	0	55	2	111	0	41	0	0	41	0	0	0	0	0	0	560	17	3	580	732
Grand Total	221	0	134	3	358	178	1445	0	4	1627	0	0	0	2	2	2	1270	248	7	1527	3514
Apprch %	61.7	0	37.4	0.8		10.9	88.8	0	0.2		0	0	0	100		0.1	83.2	16.2	0.5		
Total %	6.3	0	3.8	0.1	10.2	5.1	41.1	0	0.1	46.3	0	0	0	0.1	0.1	0.1	36.1	7.1	0.2	43.5	
Cars	221	0	134	3	358	177	1438	0	4	1619	0	0	0	2	2	2	1262	246	7	1517	3496
% Cars	100	0	100	100	100	99.4	99.5	0	100	99.5	0	0	0	100	100	100	99.4	99.2	100	99.3	99.5

Wilson & Company, Inc.
4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: LAR
Board #: D-4783
Other: Tuesdayt PM & Wednesday AM

File Name : PAJARITO_TA-46
Site Code : 00000000
Start Date : 7/16/2008
Page No : 2

Groups Printed- Cars - Heavy Trucks

	TA-46 From North					PAJARITO From East					TA-46 From South					PAJARITO From West					
	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Heavy Trucks	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	0	8	2	0	10	18
% Heavy Trucks	0	0	0	0	0	0.6	0.5	0	0	0.5	0	0	0	0	0	0	0.6	0.8	0	0.7	0.5

Wilson & Company, Inc.

4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: LAR
Board #: D-4783
Other: Tuesdayt PM & Wednesday AM

File Name : PAJARITO_TA-46
Site Code : 00000000
Start Date : 7/16/2008

Groups Printed- Cars

	TA-46 From North					PAJARITO From East					TA-46 From South					PAJARITO From West					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:00 AM	0	0	0	0	0	1	22	0	0	23	0	0	0	0	0	2	2	3	0	7	30
06:15 AM	1	0	0	0	1	10	82	0	0	92	0	0	0	0	0	0	9	3	0	12	105
06:30 AM	3	0	0	0	3	19	133	0	0	152	0	0	0	0	0	0	13	3	2	18	173
06:45 AM	8	0	1	0	9	26	193	0	0	219	0	0	0	0	0	0	24	9	0	33	261
Total	12	0	1	0	13	56	430	0	0	486	0	0	0	0	0	2	48	18	2	70	569
07:00 AM	6	0	2	0	8	19	159	0	0	178	0	0	0	0	0	0	19	8	0	27	213
07:15 AM	3	0	0	0	3	12	141	0	0	153	0	0	0	0	0	0	12	10	0	22	178
07:30 AM	9	0	1	0	10	17	121	0	1	139	0	0	0	1	1	0	16	13	1	30	180
07:45 AM	4	0	4	0	8	18	130	0	1	149	0	0	0	0	0	0	36	19	0	55	212
Total	22	0	7	0	29	66	551	0	2	619	0	0	0	1	1	0	83	50	1	134	783
08:00 AM	7	0	2	0	9	16	107	0	0	123	0	0	0	0	0	0	16	26	0	42	174
08:15 AM	9	0	4	0	13	14	76	0	0	90	0	0	0	0	0	0	11	14	0	25	128
08:30 AM	9	0	1	0	10	4	52	0	0	56	0	0	0	0	0	0	13	14	0	27	93
08:45 AM	15	0	0	0	15	7	37	0	0	44	0	0	0	1	1	0	20	27	1	48	108
Total	40	0	7	0	47	41	272	0	0	313	0	0	0	1	1	0	60	81	1	142	503
*** BREAK ***																					
03:00 PM	15	0	3	0	18	2	26	0	0	28	0	0	0	0	0	0	23	10	0	33	79
03:15 PM	11	0	3	0	14	1	8	0	1	10	0	0	0	0	0	0	27	9	0	36	60
03:30 PM	8	0	10	1	19	1	12	0	0	13	0	0	0	0	0	0	44	12	0	56	88
03:45 PM	15	0	7	0	22	0	21	0	0	21	0	0	0	0	0	0	36	9	0	45	88
Total	49	0	23	1	73	4	67	0	1	72	0	0	0	0	0	0	130	40	0	170	315
04:00 PM	9	0	8	0	17	3	26	0	0	29	0	0	0	0	0	0	86	15	0	101	147
04:15 PM	13	0	5	0	18	2	23	0	0	25	0	0	0	0	0	0	68	9	0	77	120
04:30 PM	11	0	17	0	28	1	12	0	0	13	0	0	0	0	0	0	116	7	0	123	164
04:45 PM	11	0	11	0	22	4	16	0	1	21	0	0	0	0	0	0	111	9	0	120	163
Total	44	0	41	0	85	10	77	0	1	88	0	0	0	0	0	0	381	40	0	421	594
05:00 PM	14	0	16	0	30	0	17	0	0	17	0	0	0	0	0	0	162	5	0	167	214
05:15 PM	13	0	13	1	27	0	14	0	0	14	0	0	0	0	0	0	186	5	1	192	233
05:30 PM	11	0	21	1	33	0	6	0	0	6	0	0	0	0	0	0	128	6	1	135	174
05:45 PM	16	0	5	0	21	0	4	0	0	4	0	0	0	0	0	0	84	1	1	86	111
Total	54	0	55	2	111	0	41	0	0	41	0	0	0	0	0	0	560	17	3	580	732
Grand Total	221	0	134	3	358	177	1438	0	4	1619	0	0	0	2	2	2	1262	246	7	1517	3496
Apprch %	61.7	0	37.4	0.8		10.9	88.8	0	0.2		0	0	0	100		0.1	83.2	16.2	0.5		
Total %	6.3	0	3.8	0.1	10.2	5.1	41.1	0	0.1	46.3	0	0	0	0.1	0.1	0.1	36.1	7	0.2	43.4	

Wilson & Company, Inc.

4900 Lang Avenue NE
Albuquerque, New Mexico
505-348-4000

Weather: Clear
Counted By: LAR
Board #: D-4783
Other: Tuesdayt PM & Wednesday AM

File Name : PAJARITO_TA-46
Site Code : 00000000
Start Date : 7/16/2008

Groups Printed- Heavy Trucks

	TA-46 From North					PAJARITO From East					TA-46 From South					PAJARITO From West					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
*** BREAK ***																					
06:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
06:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
*** BREAK ***																					
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	4
08:45 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	3	2	0	5	9
*** BREAK ***																					
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
*** BREAK ***																					
03:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
*** BREAK ***																					
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
*** BREAK ***																					
Grand Total	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	0	8	2	0	10	18
Apprch %	0	0	0	0		12.5	87.5	0	0		0	0	0	0		0	80	20	0		
Total %	0	0	0	0	0	5.6	38.9	0	0	44.4	0	0	0	0	0	0	44.4	11.1	0	55.6	

Wilson & Company, Inc.

4900 Lang Ave. NE
Albuquerque, NM 87109
505-348-4000

Site Code: PAJARITO E OF TA46

Start	14-Jul-08		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	7	5	4	1	3	1	5	3	5	3	5	3
01:00	*	*	*	*	2	1	0	0	8	1	2	2	1	2	3	1
02:00	*	*	*	*	6	0	5	0	2	0	2	2	1	1	3	1
03:00	*	*	*	*	1	0	1	0	0	1	1	0	0	1	1	0
04:00	*	*	*	*	0	8	0	10	1	11	0	3	1	1	0	7
05:00	*	*	*	*	3	36	3	44	2	18	2	7	3	2	3	21
06:00	*	*	*	*	37	393	43	374	15	169	4	32	1	15	20	197
07:00	*	*	*	*	87	675	85	692	51	327	14	35	8	18	49	349
08:00	*	*	*	*	82	377	82	354	55	225	9	15	7	14	47	197
09:00	*	*	*	*	69	137	83	148	45	107	9	16	4	7	42	83
10:00	*	*	*	*	90	104	95	108	55	80	6	7	16	21	52	64
11:00	*	*	*	*	126	115	152	145	108	69	16	15	14	16	83	72
12:00 PM	*	*	*	*	122	126	131	153	79	92	14	10	14	12	72	79
01:00	*	*	*	*	92	130	125	128	76	64	8	13	11	10	62	69
02:00	*	*	*	*	88	81	124	83	98	49	15	8	5	11	66	46
03:00	*	*	*	*	176	70	175	107	189	38	27	14	19	10	117	48
04:00	*	*	*	*	392	60	415	70	200	40	19	11	14	15	208	39
05:00	*	*	*	*	634	55	558	55	180	19	12	9	21	7	281	29
06:00	*	*	*	*	189	25	199	17	55	16	13	9	12	9	94	15
07:00	*	*	49	6	44	9	55	6	25	10	11	5	10	10	32	8
08:00	*	*	20	9	24	10	32	8	18	6	16	3	5	7	19	7
09:00	*	*	14	7	12	6	12	11	11	2	11	4	12	8	12	6
10:00	*	*	4	4	5	7	8	9	14	7	0	6	2	3	6	6
11:00	*	*	8	3	13	5	6	2	12	3	11	7	7	4	10	4
Lane	0	0	95	29	2301	2435	2393	2525	1302	1355	227	236	193	207	1287	1351
Day	0		124		4736		4918		2657		463		400		2638	
AM Peak					11:00	07:00	11:00	07:00	11:00	07:00	11:00	07:00	10:00	10:00	11:00	07:00
Vol.					126	675	152	692	108	327	16	35	16	21	83	349
PM Peak			19:00	20:00	17:00	13:00	17:00	12:00	16:00	12:00	15:00	15:00	17:00	16:00	17:00	12:00
Vol.			49	9	634	130	558	153	200	92	27	14	21	15	281	79

Wilson & Company, Inc.
4900 Lang Ave. NE
Albuquerque, NM 87109
505-348-4000

Site Code: PAJARITO E OF TA46

Start Time	21-Jul-08 EB	21-Jul-08 WB	Tue EB	Tue WB	Wed EB	Wed WB	Thu EB	Thu WB	Fri EB	Fri WB	Sat EB	Sat WB	Sun EB	Sun WB	Week Average EB	Week Average WB
12:00 AM	4	4	6	3	*	*	*	*	*	*	*	*	*	*	5	4
01:00	5	2	3	1	*	*	*	*	*	*	*	*	*	*	4	2
02:00	0	5	4	1	*	*	*	*	*	*	*	*	*	*	2	3
03:00	0	1	2	0	*	*	*	*	*	*	*	*	*	*	1	0
04:00	0	11	0	9	*	*	*	*	*	*	*	*	*	*	0	10
05:00	5	43	3	44	*	*	*	*	*	*	*	*	*	*	4	44
06:00	41	380	38	436	*	*	*	*	*	*	*	*	*	*	40	408
07:00	74	648	93	670	*	*	*	*	*	*	*	*	*	*	84	659
08:00	80	384	71	390	*	*	*	*	*	*	*	*	*	*	76	387
09:00	73	146	78	131	*	*	*	*	*	*	*	*	*	*	76	138
10:00	93	90	100	123	*	*	*	*	*	*	*	*	*	*	96	106
11:00	144	122	141	121	*	*	*	*	*	*	*	*	*	*	142	122
12:00 PM	134	163	166	141	*	*	*	*	*	*	*	*	*	*	150	152
01:00	114	148	*	*	*	*	*	*	*	*	*	*	*	*	114	148
02:00	82	79	*	*	*	*	*	*	*	*	*	*	*	*	82	79
03:00	166	83	*	*	*	*	*	*	*	*	*	*	*	*	166	83
04:00	421	71	*	*	*	*	*	*	*	*	*	*	*	*	421	71
05:00	636	56	*	*	*	*	*	*	*	*	*	*	*	*	636	56
06:00	214	18	*	*	*	*	*	*	*	*	*	*	*	*	214	18
07:00	40	6	*	*	*	*	*	*	*	*	*	*	*	*	40	6
08:00	22	7	*	*	*	*	*	*	*	*	*	*	*	*	22	7
09:00	16	4	*	*	*	*	*	*	*	*	*	*	*	*	16	4
10:00	11	8	*	*	*	*	*	*	*	*	*	*	*	*	11	8
11:00	5	5	*	*	*	*	*	*	*	*	*	*	*	*	5	5
Lane	2380	2484	705	2070	0	0	0	0	0	0	0	0	0	0	2407	2520
Day	4864		2775		0		0		0		0		0		4927	
AM Peak	11:00	07:00	11:00	07:00											11:00	07:00
Vol.	144	648	141	670											142	659
PM Peak	17:00	12:00	12:00	12:00											17:00	12:00
Vol.	636	163	166	141											636	152

Comb. Total	4864	2899	4736	4918	2657	463	400	7565

ADT ADT 3,006 AADT 3,006

Wilson & Company, Inc.

4900 Lang Ave. NE
Albuquerque, NM 87109
505-348-4000

Site Code: PAJARITO W OF PECOS

Start	14-Jul-08		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	11	10	4	3	4	4	6	5	6	5	6	5
01:00	*	*	*	*	3	11	5	9	5	5	4	5	1	5	4	7
02:00	*	*	*	*	1	2	2	1	0	5	3	3	0	1	1	2
03:00	*	*	*	*	3	1	2	2	5	3	2	4	1	2	3	2
04:00	*	*	*	*	14	4	15	3	22	8	14	0	1	0	13	3
05:00	*	*	*	*	35	16	34	20	26	11	6	10	7	6	22	13
06:00	*	*	*	*	155	95	158	101	83	81	34	24	13	14	89	63
07:00	*	*	*	*	189	168	197	159	129	138	34	25	22	24	114	103
08:00	*	*	*	*	185	172	192	161	154	160	15	14	13	20	112	105
09:00	*	*	*	*	179	165	178	158	122	124	20	14	10	12	102	95
10:00	*	*	*	*	193	140	166	163	116	130	13	14	20	26	102	95
11:00	*	*	*	*	156	231	174	239	123	182	25	41	27	22	101	143
12:00 PM	*	*	*	*	201	179	213	208	152	156	28	22	24	18	124	117
01:00	*	*	218	151	214	166	236	148	141	110	13	15	17	11	140	100
02:00	*	*	193	155	166	139	178	158	131	101	18	21	13	21	116	99
03:00	*	*	162	190	166	179	170	172	141	144	23	27	29	23	115	122
04:00	*	*	188	192	185	194	190	198	128	157	14	31	16	14	120	131
05:00	*	*	213	223	211	184	187	195	108	84	23	22	19	15	127	120
06:00	*	*	108	94	102	116	120	102	54	57	20	24	19	14	70	68
07:00	*	*	40	44	29	52	44	26	26	26	23	18	13	20	29	31
08:00	*	*	16	21	15	14	29	24	16	15	17	10	5	9	16	16
09:00	*	*	21	13	10	7	16	20	14	4	14	10	11	8	14	10
10:00	*	*	5	9	10	16	7	12	10	11	2	8	4	7	6	10
11:00	*	*	14	17	17	21	12	24	19	15	19	17	12	10	16	17
Lane	0	0	1178	1109	2450	2282	2529	2306	1729	1731	390	384	303	307	1562	1477
Day	0		2287		4732		4835		3460		774		610		3039	
AM Peak					10:00	11:00	07:00	11:00	08:00	11:00	06:00	11:00	11:00	10:00	07:00	11:00
Vol.					193	231	197	239	154	182	34	41	27	26	114	143
PM Peak			13:00	17:00	13:00	16:00	13:00	12:00	12:00	16:00	12:00	16:00	15:00	15:00	13:00	16:00
Vol.			218	223	214	194	236	208	152	157	28	31	29	23	140	131

Wilson & Company, Inc.

4900 Lang Ave. NE
Albuquerque, NM 87109
505-348-4000

Site Code: PAJARITO W OF PECOS

Start	21-Jul-08		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	8	5	7	11	*	*	*	*	*	*	*	*	*	*	8	8
01:00	5	8	3	7	*	*	*	*	*	*	*	*	*	*	4	8
02:00	15	6	0	2	*	*	*	*	*	*	*	*	*	*	8	4
03:00	10	8	5	0	*	*	*	*	*	*	*	*	*	*	8	4
04:00	17	11	18	5	*	*	*	*	*	*	*	*	*	*	18	8
05:00	29	25	36	18	*	*	*	*	*	*	*	*	*	*	32	22
06:00	167	89	160	107	*	*	*	*	*	*	*	*	*	*	164	98
07:00	206	176	194	200	*	*	*	*	*	*	*	*	*	*	200	188
08:00	194	168	184	161	*	*	*	*	*	*	*	*	*	*	189	164
09:00	185	130	191	158	*	*	*	*	*	*	*	*	*	*	188	144
10:00	187	144	180	180	*	*	*	*	*	*	*	*	*	*	184	162
11:00	141	228	159	255	*	*	*	*	*	*	*	*	*	*	150	242
12:00 PM	197	204	212	188	*	*	*	*	*	*	*	*	*	*	204	196
01:00	223	151	*	*	*	*	*	*	*	*	*	*	*	*	223	151
02:00	173	147	*	*	*	*	*	*	*	*	*	*	*	*	173	147
03:00	159	185	*	*	*	*	*	*	*	*	*	*	*	*	159	185
04:00	200	191	*	*	*	*	*	*	*	*	*	*	*	*	200	191
05:00	203	217	*	*	*	*	*	*	*	*	*	*	*	*	203	217
06:00	114	111	*	*	*	*	*	*	*	*	*	*	*	*	114	111
07:00	35	33	*	*	*	*	*	*	*	*	*	*	*	*	35	33
08:00	23	14	*	*	*	*	*	*	*	*	*	*	*	*	23	14
09:00	12	15	*	*	*	*	*	*	*	*	*	*	*	*	12	15
10:00	10	12	*	*	*	*	*	*	*	*	*	*	*	*	10	12
11:00	11	20	*	*	*	*	*	*	*	*	*	*	*	*	11	20
Lane	2524	2298	1349	1292	0	0	0	0	0	0	0	0	0	0	2520	2344
Day	4822		2641		0		0		0		0		0		4864	
AM Peak	07:00	11:00	07:00	11:00											07:00	11:00
Vol.	206	228	194	255											200	242
PM Peak	13:00	17:00	12:00	12:00											13:00	17:00
Vol.	223	217	212	188											223	217

Comb. Total	4822	4928	4732	4835	3460	774	610	7903

ADT ADT 3,206 AADT 3,206

Appendix C

Intersection Collision Data

ACCIDENT SUMMARY SHEET

INTERSECTION/SEGMENT: Pajarito Road

ROUTE	YEAR 2000		YEAR 2001		YEAR 2002		YEAR 2003		YEAR 2004		YEAR 2005		YEAR 2006		YEAR 2007		YEAR 2008		TOTAL	
MP TO MP	No. 1	10%	No. 1	10%	No. 2	20%	No. 1	10%	No. 2	20%	No. 1	10%	No. 1	10%	No. 1	10%	No. 0	0%	No. 10	% 100
ACCIDENT TYPE																				
Fixed Object																			0	0
Right Angle																			0	0
Rear End					2	100			1	50									3	30
Backing																			0	0
Sideswipe: Same Direction																			0	0
Sideswipe: Opposite Direction																			0	0
Head On																			0	0
Left Turn											1	100	1	100					2	20
Parked Vehicle/Parking Maneuver																			0	0
Overturn																			0	0
Driveway/Driveway Maneuver																			0	0
Pedestrian/Bicyclist																			0	0
Other	1	100	1	100			1	100	1	50					1	100			5	50
ACCIDENT SEVERITY																				
Property Damage Only (PDO)	1	100	1	100	2	100	1	100	2	100	1	100	1	100	1	100			10	100
Injury/Non-Fatal																			0	0
Fatal																			0	0
ROAD CONDITIONS																				
Dry/Clear	1	100			2	100	1	100	2	100	1	100	1	100	1	100			9	90
Wet																			0	0
Snowy/Icy			1	100															1	10
Other																			0	0
LIGHTING																				
Daylight			1	100	2	100			2	100	1	100	1	100	1	100			8	80
Darkness	1	100					1	100											2	20
Dawn or Dusk																			0	0
PROBABLE CAUSE																				
Following Too Close																			0	0
Driver inattention					2	100									1	100			3	30
Excess Speed/Too Fast For Conditions	1																		1	10
Avoid Other Vehicle																			0	0
Improper Driving																			0	0
Failure to use Turn Signal																			0	0
Failure to Yield R.O.W.																			0	0
Disregard Traffic Control Device																			0	0
Under influence Alcohol																			0	0
Mechanical Defect																			0	0
Pedestrian Error																			0	0
Road Defect/Construction Activity																			0	0
Other			1	100			1	100	2	100	1	100	1	100					6	60
ALCOHOL INVOLVEMENT																				
Sobriety Unknown	1	100	1	100	2	100	1	100	2	100	1	100	1	100	1	100			10	100
Had Been Drinking																			0	0
Had Not Been Drinking																			0	0

Appendix D

Traffic Signal Data

Section 4C 02 Warrant 1, Eight-Hour Vehicular Volume

Support:
The Minimum Vehicular Volume, Condition A, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal

The Interruption of Continuous Traffic, Condition B, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street

It is intended that Warrant 1 be treated as a single warrant. If Condition A is satisfied, then the criteria for Warrant 1 is satisfied and Condition B and the combination of Conditions A and B are not needed. Similarly, if Condition B is satisfied, then the criteria for Warrant 1 is satisfied and the combination of Conditions A and B is not needed

Standard:
The need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day:

A. **The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; or**
B. **The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.**

In applying each condition the major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of these 8 hours.

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition B—Interruption of Continuous Traffic									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

[a] Basic minimum hourly volume.
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 70 km/h or exceeds 40 mph or in an isolated community with a population of less than 10,000
[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 70 km/h or exceeds 40 mph or in an isolated community with a population of less than 10,000

Option:
If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 70 km/h or exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 70 percent columns in Table 4C-1 may be used in place of the 100 percent columns

Guidance:
The combination of Conditions A and B is intended for application at locations where Condition A is not satisfied and Condition B is not satisfied and should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems

Standard:
The need for a traffic control signal shall be considered if an engineering study finds that both of the following conditions exist for each of any 8 hours of an average day:

A. **The vehicles per hour given in both of the 80 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; and**
B. **The vehicles per hour given in both of the 80 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.**

These major-street and minor-street volumes shall be for the same 8 hours for each condition; however, the 8 hours satisfied in Condition A shall not be required to be the same 8 hours satisfied in Condition B. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

Option:
If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 70 km/h or exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns

Section 4C 03 Warrant 2, Four-Hour Vehicular Volume

Support:
The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal

Standard:
The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall

not be required to be on the same approach during each of these 4 hours.

Option:
If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 70 km/h or exceeds 40 mph or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-2 may be used in place of Figure 4C-1.

Figure 4C-1 Warrant 2, Four-Hour Vehicular Volume

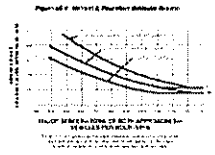
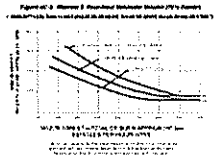


Figure 4C-2 Warrant 2, Four-Hour Vehicular Volume (70% Factor)



Section 4C.04 Warrant 3, Peak Hour

Support:
The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

Standard:
This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

The need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

A. **If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:**
   1. **The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach, and**
   2. **The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and**
   3. **The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.**
B. **The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.**

Option:
If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 70 km/h or exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to satisfy the criteria in the second category of the Standard.

Figure 4C-3 Warrant 3, Peak Hour

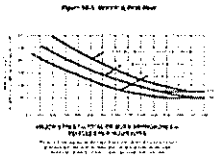
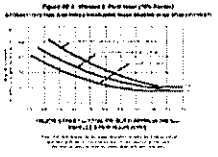


Figure 4C-4 Warrant 3, Peak Hour (70% Factor)



Section 4C.05 Warrant 4, Pedestrian Volume

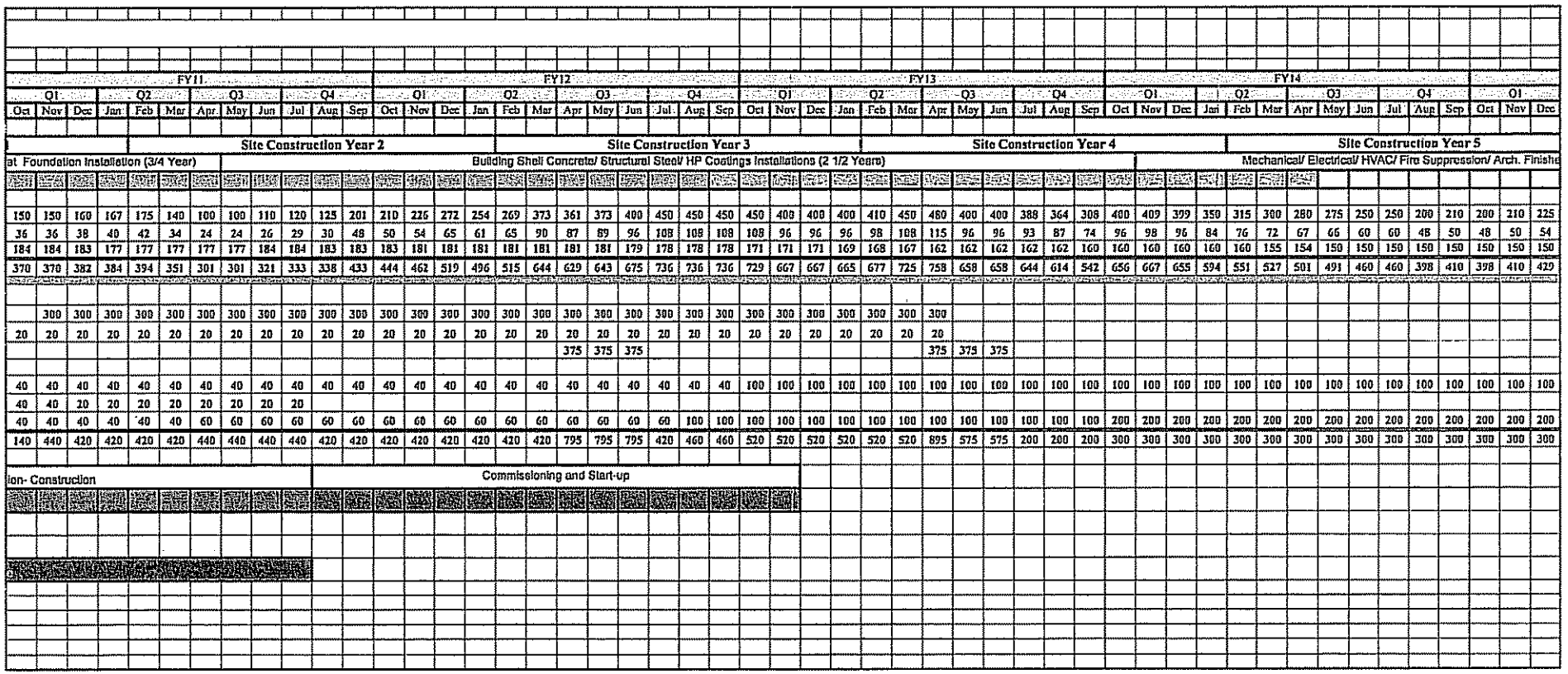
Appendix E

Supporting information for the Development of Future-Year Traffic Projections

CMRR NF Construction Traffic Movement Forecast

Traffic Planning Purposes only

			FY08												FY09												FY10									
			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4		
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
NF Construction Schedule																																				Site Construction Year		
																																		Site Prep/ Temp utility (1/2 Year)		Basem
	Construction Schedule Based on 2008 & 2009 Funding																																					
Items	**Description**	**Total**																																				
1	Construction S/C Craft FTE's	28,427	120	120	120	160	160	160	160	200	200	200	200	200	200	150	150	150	150	100	100	75	50	40	20	20	40	50	60	60	90	90	101	150	150	100	100	110
2	Construction S/C Management FTE's (24%)	6,342	29	29	29	38	38	38	38	48	48	48	48	48	48	36	36	36	36	24	24	18	12	10	5	5	10	12	14	14	22	22	24	36	36	24	24	26
3	LANL Management FTE's TA-50	20,445	104	106	106	105	152	160	163	163	163	163	162	162	178	178	178	179	179	179	177	176	176	175	174	181	180	180	180	190	190	190	190	190	189	189	189	189
4	Total Man Months FTE's	53,214	252	254	255	304	350	358	361	411	411	411	410	410	426	364	364	365	365	303	301	269	238	224	199	206	230	242	255	265	302	302	316	376	375	313	313	326
5	Haul Excavation from TA-55 to TA-46 & TA-63	2,500																													1,000	1,000	500				
6	Concrete Truck Movements TA-63 to TA-55	9,100																																			100	
7	Hauling Aggregate to batch plant TA-63 from off-site	710																																		50	20	20
8	Hauling Backfill to TA-55 from Off-site	2,250																																				
9	Hauling aggregate Base to TA-46,63 from Off-site	650																															300	350				
10	Off Site Deliveries to TA-63 and TA-46	5,700																																	20	20	40	40
11	Deliveries to RLUOB site at TA-55	1,660	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
12	Deliveries to TA-55 from TA-46 and TA-63	8,530																																		10	40	40
13	Total Monthly Traffic Movements	31,120	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	1,040	1,340	890	60	120	240	140
		0																																				
RLUOB Construction Schedule			RLUOB SFE Design						RLUOB SFE/ GFE Procurement & Fabrication																		RLUOB SFE/LAB Equipment Installa											
	RLUOB Baseline Plan																																					
1.3.03	RLUOB Design Build														Austin Period of Performance																							
1.4.04.1	RLUOB SFE Equipment Installation										RLUOB SFE Equipment Installation RFP →			EMI	BEA																							Period of Performanc
	Craft Manhours	4,360,397																																				
	Craft Management 24%	1,046,495																																				
	CMRR Oversight Manhours	3,373,442																																				
	Total Manhours	8,780,334																																				


FY11
FY12
FY13
FY14
Q1 Q2 Q3 Q4
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Site Construction Year 2
Site Construction Year 3
Site Construction Year 4
Site Construction Year 5
at Foundation Installation (3/4 Year)
Building Shell Concrete/ Structural Steel/ HP Coatings Installations (2 1/2 Years)
Mechanical/ Electrical/ HVAC/ Fire Suppression/ Arch. Finishe
150 150 160 167 175 140 100 100 110 120 125 201 210 226 272 254 269 373 361 373 400 450 450 450 450 400 400 400 410 450 480 400 400 388 364 308 400 409 399 350 315 300 280 275 250 250 200 210 200 210 225
36 36 38 40 42 34 24 24 26 29 30 48 50 54 65 61 65 90 87 89 96 108 108 108 108 96 96 96 98 108 115 96 96 93 87 74 96 98 96 84 76 72 67 66 60 60 48 50 48 50 54
184 184 183 177 177 177 177 177 184 184 183 183 183 181 181 181 181 181 181 181 179 178 178 178 171 171 171 169 168 167 162 162 162 162 162 160 160 160 160 160 160 155 154 150 150 150 150 150 150 150 150
370 370 382 384 394 351 301 301 321 333 338 433 444 462 519 496 515 644 629 643 675 736 736 736 729 667 667 665 677 725 758 658 658 644 614 542 656 667 655 594 551 527 501 491 460 460 398 410 398 410 429
300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
375 375 375 375 375 375
40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100
40 40 20 20 20 20 20 20 20 20
40 40 40 40 40 40 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 100 100 100 100 100 100 100 100 100 100 100 100 100 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200
140 440 420 420 420 420 440 440 440 440 420 420 420 420 420 420 420 420 795 795 795 420 460 460 520 520 520 520 520 520 895 575 575 200 200 200 300 300 300 300 300 300 300 300 300 300 300 300 300
ion- Construction
Commissioning and Start-up

FY15									FY16												FY17												FY18												FY19					
Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
	Site Construction Year 6												Site Construction Year 7												Site Construction Year 8												Site Construction Year 9													
s (1 3/4 Years)						SFE equipment outfitting and MEP of Laboratories (2 Years)																								Commissioning and Start-up (1 3/4 Years)																				
210	210	225	250	250	240	240	240	240	240	240	240	240	240	240	240	240	240	220	220	210	180	160	160	155	150	130	125	110	100	75	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
50	50	54	60	60	58	58	58	58	58	58	58	58	58	58	58	58	58	53	53	50	43	38	38	37	36	31	30	26	24	18	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
150	150	150	150	150	150	150	150	148	148	147	146	144	138	138	134	133	128	125	125	125	125	125	125	125	125	125	120	120	115	115	115	115	115	110	110	105	105	102	100	95	90	75	60	50	45	40	35	30	25	
410	410	429	460	460	448	448	448	446	446	445	444	442	436	436	432	431	426	398	398	385	348	323	323	317	311	286	275	256	239	208	177	177	177	172	172	167	167	164	162	157	152	137	122	112	107	102	97	92	87	
100	100	100	100	100	100	100	100	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20		
200	200	100	100	100	100	100	100	100	100	60	60	60	60	60	60	60	60	60	60	60	60	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	20	20	20	20	20	20	20	20		
300	300	200	200	200	200	200	200	140	140	100	100	100	100	100	100	100	100	100	100	100	100	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	40	40	40	40	40	40	40	40	0	

PM Peak

		2009 PM PEAK CMMR Trips															
INTERSECTION NO.	NAME	NBL	NBT	NBR	Ped/ Bicycles	SBL	SBT	SBR	Ped/ Bicycles	EBL	EBT	EBR	Ped/ Bicycles	WBL	WBT	WBR	Ped/ Bicycles
1	TA 64 & PAJARITO RD	0	0	0	0	0	0	0	0	0	8	0	0	0	59	0	0
7	CMRR DRIVE & PAJARITO	0	0	0	0	0	0	8	0	8	0	0	0	0	51	0	0
2	PECOS & PAJARITO RD	0	0	0	0	0	0	0	0	0	0	0	0	0	51	0	0
3	LUBBOCK & PAJARITO RD	35	0	102	0	0	0	0	0	0	0	0	0	0	17	0	0
4	PUYE & PAJARITO RD	0	0	0	0	0	0	0	0	0	102	0	0	0	17	0	0
5	TA 46 & PAJARITO RD	0	0	0	0	51	0	16	0	0	102	0	0	0	0	0	0
6	TA 46 & INTERNAL RDWY	0	0	0	0	0	30	0	0	0	0	31	0	6	0	0	0

Appendix F

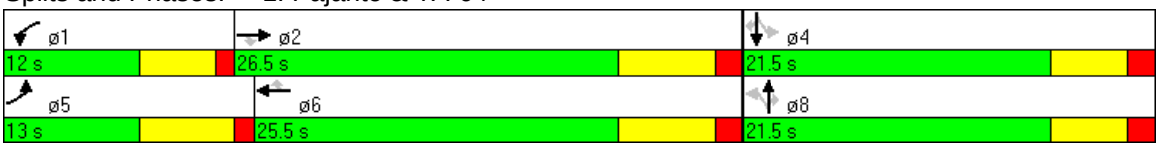
Traffic Analysis Output Reports Organized by Analysis Year/Phase

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1775	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.793			0.730	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1477	1583	0	1360	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			63			39			9			3
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2793			235			228	
Travel Time (s)		7.3			42.3			5.3			5.2	
Volume (vph)	53	324	58	26	300	36	38	1	8	4	0	3
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	58	352	63	28	326	39	0	42	9	0	4	3
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	21.2	21.2	8.1	18.8	18.8		9.0	9.0		9.0	9.0
Actuated g/C Ratio	0.19	0.53	0.53	0.16	0.47	0.47		0.22	0.22		0.22	0.22
v/c Ratio	0.17	0.36	0.07	0.10	0.38	0.05		0.13	0.02		0.01	0.01
Control Delay	18.7	7.8	2.8	20.5	10.3	4.2		16.9	10.9		16.5	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	18.7	7.8	2.8	20.5	10.3	4.2		16.9	10.9		16.5	12.7
LOS	B	A	A	C	B	A		B	B		B	B
Approach Delay		8.5			10.4			15.8			14.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 40.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 41.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

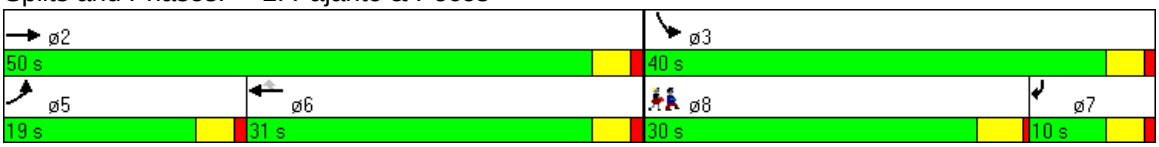


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				310		68	
Link Speed (mph)		45	45		25		
Link Distance (ft)		613	884		370		
Travel Time (s)		9.3	13.4		10.1		
Volume (vph)	159	184	315	285	27	63	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	173	200	342	310	29	68	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	19.0	50.0	31.0	31.0	40.0	10.0	30.0
Total Split (%)	21.1%	55.6%	34.4%	34.4%	44.4%	11.1%	33%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	13.4	39.4	22.0	22.0	36.3	6.1	
Actuated g/C Ratio	0.16	0.47	0.26	0.26	0.43	0.07	
v/c Ratio	0.61	0.23	0.70	0.48	0.04	0.38	
Control Delay	43.9	13.4	36.2	5.8	16.3	17.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	43.9	13.4	36.2	5.8	16.3	17.5	
LOS	D	B	D	A	B	B	
Approach Delay		27.6	21.7		17.2		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83.8			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 23.3		Intersection LOS: C	
Intersection Capacity Utilization 39.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

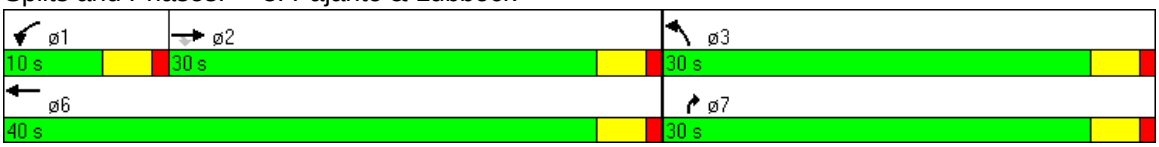


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		76				1
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	134	70	70	593	12	1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	146	76	76	645	13	1
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	10.0	40.0	30.0	30.0
Total Split (%)	42.9%	42.9%	14.3%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	16.3	16.3	6.0	19.6	8.1	8.1
Actuated g/C Ratio	0.45	0.45	0.14	0.54	0.22	0.22
v/c Ratio	0.17	0.10	0.30	0.64	0.03	0.00
Control Delay	7.9	3.1	21.0	8.6	14.8	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	3.1	21.0	8.6	14.8	13.0
LOS	A	A	C	A	B	B
Approach Delay	6.2			9.9	14.7	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	A			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 36.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 9.1		Intersection LOS: A	
Intersection Capacity Utilization 42.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	40	119	605	39	4	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	129	658	42	4	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked						
vC, conflicting volume	658				874	658
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	658				874	658
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				99	93
cM capacity (veh/h)	930				305	464

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	43	129	658	42	37
Volume Left	43	0	0	0	4
Volume Right	0	0	0	42	33
cSH	930	1700	1700	1700	526
Volume to Capacity	0.05	0.08	0.39	0.02	0.07
Queue Length 95th (ft)	4	0	0	0	6
Control Delay (s)	9.1	0.0	0.0	0.0	13.8
Lane LOS	A				B
Approach Delay (s)	2.3		0.0		13.8
Approach LOS					B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	43.2%	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)	40	73	615	74	4	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	79	668	80	4	28
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	750				836	669
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	750				836	669
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				99	94
cM capacity (veh/h)	858				320	457

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	43	79	668	80	4	28
Volume Left	43	0	0	0	4	0
Volume Right	0	0	0	80	0	28
cSH	858	1700	1700	1700	320	457
Volume to Capacity	0.05	0.05	0.39	0.05	0.01	0.06
Queue Length 95th (ft)	4	0	0	0	1	5
Control Delay (s)	9.4	0.0	0.0	0.0	16.4	13.4
Lane LOS	A				C	B
Approach Delay (s)	3.3		0.0		13.8	
Approach LOS					B	

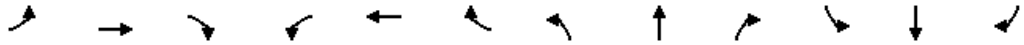
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	14	7	0	0	47	53	11	0	8	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	15	8	0	0	51	58	12	0	9	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	15	8	121	9
Volume Left (vph)	0	8	51	0
Volume Right (vph)	15	0	12	0
Hadj (s)	-0.57	0.23	0.06	0.03
Departure Headway (s)	3.6	4.4	4.0	4.1
Degree Utilization, x	0.02	0.01	0.13	0.01
Capacity (veh/h)	955	786	880	865
Control Delay (s)	6.7	7.5	7.6	7.1
Approach Delay (s)	6.7	7.5	7.6	7.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1770	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.736			0.741	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1371	1583	0	1380	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			16			4			12			42
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2793			235			228	
Travel Time (s)		7.3			42.3			5.3			5.2	
Volume (vph)	4	237	15	3	318	4	23	0	11	29	0	39
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	4	258	16	3	346	4	0	25	12	0	32	42
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	18.7	18.7	8.0	18.6	18.6		8.9	8.9		8.9	8.9
Actuated g/C Ratio	0.19	0.50	0.50	0.17	0.49	0.49		0.24	0.24		0.24	0.24
v/c Ratio	0.01	0.28	0.02	0.01	0.38	0.01		0.08	0.03		0.10	0.10
Control Delay	17.0	7.5	4.1	17.7	8.5	5.2		14.7	9.3		14.8	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	17.0	7.5	4.1	17.7	8.5	5.2		14.7	9.3		14.8	7.1
LOS	B	A	A	B	A	A		B	A		B	A
Approach Delay		7.4			8.5			12.9			10.4	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 37.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 38.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				24		143	
Link Speed (mph)		45	45		25		
Link Distance (ft)		613	884		370		
Travel Time (s)		9.3	13.4		10.1		
Volume (vph)	74	219	157	22	168	132	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	80	238	171	24	183	143	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	10.0	41.0	31.0	31.0	39.0	9.0	30.0
Total Split (%)	12.5%	51.3%	38.8%	38.8%	48.8%	11.3%	38%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	6.0	20.8	13.2	13.2	35.4	5.1	
Actuated g/C Ratio	0.09	0.32	0.21	0.21	0.55	0.08	
v/c Ratio	0.50	0.39	0.45	0.07	0.19	0.56	
Control Delay	41.9	18.2	27.0	9.7	9.4	15.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.9	18.2	27.0	9.7	9.4	15.9	
LOS	D	B	C	A	A	B	
Approach Delay		24.2	24.9		12.3		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 64.3			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22				29
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	345	20	1	159	44	27
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	375	22	1	173	48	29
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	10.0	40.0	30.0	30.0
Total Split (%)	42.9%	42.9%	14.3%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	14.0	14.0	6.2	15.0	13.2	13.2
Actuated g/C Ratio	0.40	0.40	0.15	0.44	0.41	0.41
v/c Ratio	0.50	0.03	0.00	0.21	0.07	0.04
Control Delay	9.9	3.8	19.0	5.2	12.7	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	3.8	19.0	5.2	12.7	7.1
LOS	A	A	B	A	B	A
Approach Delay	9.5			5.3	10.6	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	A			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 32.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 29.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	23	400	124	3	37	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	435	135	3	40	55
Pedestrians		1			1	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		0			0	
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked					0.87	
vC, conflicting volume	136				621	137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136				565	137
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				90	94
cM capacity (veh/h)	1447				416	910

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	25	435	135	3	96
Volume Left	25	0	0	0	40
Volume Right	0	0	0	3	55
cSH	1447	1700	1700	1700	990
Volume to Capacity	0.02	0.26	0.08	0.00	0.10
Queue Length 95th (ft)	1	0	0	0	8
Control Delay (s)	7.5	0.0	0.0	0.0	11.5
Lane LOS	A				B
Approach Delay (s)	0.4		0.0		11.5
Approach LOS					B

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	31.4%	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)	40	382	77	10	41	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	415	84	11	45	48
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	96				587	85
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96				587	85
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				90	95
cM capacity (veh/h)	1497				458	974

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	43	415	84	11	45	48
Volume Left	43	0	0	0	45	0
Volume Right	0	0	0	11	0	48
cSH	1497	1700	1700	1700	458	974
Volume to Capacity	0.03	0.24	0.05	0.01	0.10	0.05
Queue Length 95th (ft)	2	0	0	0	8	4
Control Delay (s)	7.5	0.0	0.0	0.0	13.7	8.9
Lane LOS	A				B	A
Approach Delay (s)	0.7		0.0		11.2	
Approach LOS					B	

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	39	7	0	0	18	25	4	0	38	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	42	8	0	0	20	27	4	0	41	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	42	8	51	43
Volume Left (vph)	0	8	20	0
Volume Right (vph)	42	0	4	2
Hadj (s)	-0.57	0.23	0.06	0.00
Departure Headway (s)	3.5	4.4	4.1	4.1
Degree Utilization, x	0.04	0.01	0.06	0.05
Capacity (veh/h)	983	800	855	872
Control Delay (s)	6.7	7.4	7.4	7.3
Approach Delay (s)	6.7	7.4	7.4	7.3
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1775	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.790			0.728	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1472	1583	0	1356	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66			41			9			3
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2793			235			228	
Travel Time (s)		7.3			42.3			5.3			5.2	
Volume (vph)	56	365	61	27	315	38	40	1	8	4	0	3
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	61	397	66	29	342	41	0	44	9	0	4	3
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	23.8	23.8	8.1	18.9	18.9		9.0	9.0		9.0	9.0
Actuated g/C Ratio	0.19	0.55	0.55	0.15	0.44	0.44		0.21	0.21		0.21	0.21
v/c Ratio	0.18	0.39	0.07	0.11	0.42	0.06		0.14	0.03		0.01	0.01
Control Delay	18.9	7.8	2.7	21.9	12.0	4.2		18.2	11.0		17.0	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	18.9	7.8	2.7	21.9	12.0	4.2		18.2	11.0		17.0	12.7
LOS	B	A	A	C	B	A		B	B		B	B
Approach Delay		8.5			11.9			17.0			15.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 43			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 10.4		Intersection LOS: B	
Intersection Capacity Utilization 44.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				418		72	
Link Speed (mph)		45	45		25		
Link Distance (ft)		613	884		370		
Travel Time (s)		9.3	13.4		10.1		
Volume (vph)	192	193	331	385	39	66	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	209	210	360	418	42	72	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	20.0	51.0	31.0	31.0	39.0	9.0	30.0
Total Split (%)	22.2%	56.7%	34.4%	34.4%	43.3%	10.0%	33%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	14.6	41.5	22.9	22.9	35.3	5.0	
Actuated g/C Ratio	0.17	0.49	0.27	0.27	0.42	0.06	
v/c Ratio	0.69	0.23	0.72	0.57	0.06	0.44	
Control Delay	46.6	12.8	36.8	6.0	17.3	20.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.6	12.8	36.8	6.0	17.3	20.0	
LOS	D	B	D	A	B	B	
Approach Delay		29.7	20.3		19.0		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 84.8			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 23.2		Intersection LOS: C	
Intersection Capacity Utilization 42.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		80				1
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	152	74	74	709	13	1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	165	80	80	771	14	1
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	31.0	9.0	40.0	30.0	30.0
Total Split (%)	44.3%	44.3%	12.9%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	19.7	19.7	5.1	24.5	8.2	8.2
Actuated g/C Ratio	0.48	0.48	0.11	0.60	0.20	0.20
v/c Ratio	0.18	0.10	0.40	0.69	0.04	0.00
Control Delay	7.7	2.5	27.2	9.1	17.4	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	2.5	27.2	9.1	17.4	15.0
LOS	A	A	C	A	B	B
Approach Delay	6.0			10.8	17.2	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	A			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 41			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	42	136	721	41	4	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	148	784	45	4	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked						
vC, conflicting volume	784				1023	784
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	784				1023	784
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				98	91
cM capacity (veh/h)	835				247	393

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	46	148	784	45	39
Volume Left	46	0	0	0	4
Volume Right	0	0	0	45	35
cSH	835	1700	1700	1700	443
Volume to Capacity	0.05	0.09	0.46	0.03	0.09
Queue Length 95th (ft)	4	0	0	0	7
Control Delay (s)	9.6	0.0	0.0	0.0	15.6
Lane LOS	A				C
Approach Delay (s)	2.3		0.0		15.6
Approach LOS					C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	47.9%	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)	42	88	732	78	4	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	96	796	85	4	29
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	881				984	797
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	881				984	797
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				98	92
cM capacity (veh/h)	766				259	386

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	46	96	796	85	4	29
Volume Left	46	0	0	0	4	0
Volume Right	0	0	0	85	0	29
cSH	766	1700	1700	1700	259	386
Volume to Capacity	0.06	0.06	0.47	0.05	0.02	0.08
Queue Length 95th (ft)	5	0	0	0	1	6
Control Delay (s)	10.0	0.0	0.0	0.0	19.1	15.1
Lane LOS	A				C	C
Approach Delay (s)	3.2		0.0		15.6	
Approach LOS					C	

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	15	7	0	0	49	56	12	0	8	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	16	8	0	0	53	61	13	0	9	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	16	8	127	9
Volume Left (vph)	0	8	53	0
Volume Right (vph)	16	0	13	0
Hadj (s)	-0.57	0.23	0.06	0.03
Departure Headway (s)	3.6	4.4	4.0	4.1
Degree Utilization, x	0.02	0.01	0.14	0.01
Capacity (veh/h)	949	783	880	863
Control Delay (s)	6.7	7.5	7.7	7.1
Approach Delay (s)	6.7	7.5	7.7	7.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1770	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.736			0.740	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1371	1583	0	1378	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			17			4			13			45
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2793			235			228	
Travel Time (s)		7.3			42.3			5.3			5.2	
Volume (vph)	4	249	16	3	359	4	24	0	12	30	0	41
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	4	271	17	3	390	4	0	26	13	0	33	45
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	18.7	18.7	8.0	18.6	18.6		8.9	8.9		8.9	8.9
Actuated g/C Ratio	0.19	0.50	0.50	0.17	0.49	0.49		0.24	0.24		0.24	0.24
v/c Ratio	0.01	0.29	0.02	0.01	0.42	0.01		0.08	0.03		0.10	0.11
Control Delay	17.0	7.6	4.0	17.7	9.0	5.2		14.7	9.1		14.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	17.0	7.6	4.0	17.7	9.0	5.2		14.7	9.1		14.8	7.0
LOS	B	A	A	B	A	A		B	A		B	A
Approach Delay		7.5			9.0			12.8			10.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 37.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 40.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				37		178	
Link Speed (mph)		45	45		25		
Link Distance (ft)		613	884		370		
Travel Time (s)		9.3	13.4		10.1		
Volume (vph)	78	230	165	34	262	164	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	85	250	179	37	285	178	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	10.0	40.0	30.0	30.0	40.0	10.0	30.0
Total Split (%)	12.5%	50.0%	37.5%	37.5%	50.0%	12.5%	38%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	6.0	21.2	13.6	13.6	36.4	6.1	
Actuated g/C Ratio	0.09	0.32	0.21	0.21	0.55	0.09	
v/c Ratio	0.54	0.42	0.46	0.10	0.29	0.58	
Control Delay	45.2	19.0	27.7	8.7	10.2	14.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.2	19.0	27.7	8.7	10.2	14.2	
LOS	D	B	C	A	B	B	
Approach Delay		25.6	24.4		11.8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 65.7			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 19.0		Intersection LOS: B	
Intersection Capacity Utilization 37.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		23				30
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	448	21	1	178	46	28
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	487	23	1	193	50	30
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	31.0	9.0	40.0	30.0	30.0
Total Split (%)	44.3%	44.3%	12.9%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	16.3	16.3	5.1	17.5	9.1	9.1
Actuated g/C Ratio	0.46	0.46	0.12	0.50	0.26	0.26
v/c Ratio	0.56	0.03	0.00	0.21	0.11	0.07
Control Delay	10.1	3.3	21.0	4.9	14.3	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.1	3.3	21.0	4.9	14.3	7.8
LOS	B	A	C	A	B	A
Approach Delay	9.8			5.0	11.8	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	A			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 35.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 34.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	24	506	141	3	39	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	550	153	3	42	59
Pedestrians		1			1	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		0			0	
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked					0.82	
vC, conflicting volume	154				756	155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	154				702	155
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				87	93
cM capacity (veh/h)	1425				324	889

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	26	550	153	3	101
Volume Left	26	0	0	0	42
Volume Right	0	0	0	3	59
cSH	1425	1700	1700	1700	773
Volume to Capacity	0.02	0.32	0.09	0.00	0.13
Queue Length 95th (ft)	1	0	0	0	11
Control Delay (s)	7.6	0.0	0.0	0.0	12.9
Lane LOS	A				B
Approach Delay (s)	0.3		0.0		12.9
Approach LOS					B

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	37.0%	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)	42	487	92	11	43	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	529	100	12	47	50
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	113				722	101
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113				722	101
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	95
cM capacity (veh/h)	1475				381	954

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	46	529	100	12	47	50
Volume Left	46	0	0	0	47	0
Volume Right	0	0	0	12	0	50
cSH	1475	1700	1700	1700	381	954
Volume to Capacity	0.03	0.31	0.06	0.01	0.12	0.05
Queue Length 95th (ft)	2	0	0	0	10	4
Control Delay (s)	7.5	0.0	0.0	0.0	15.8	9.0
Lane LOS	A				C	A
Approach Delay (s)	0.6		0.0		12.3	
Approach LOS					B	

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	41	7	0	0	19	26	4	0	40	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	45	8	0	0	21	28	4	0	43	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	45	8	53	46
Volume Left (vph)	0	8	21	0
Volume Right (vph)	45	0	4	2
Hadj (s)	-0.57	0.23	0.06	0.01
Departure Headway (s)	3.6	4.4	4.1	4.1
Degree Utilization, x	0.04	0.01	0.06	0.05
Capacity (veh/h)	980	797	853	869
Control Delay (s)	6.7	7.4	7.4	7.3
Approach Delay (s)	6.7	7.4	7.4	7.3
Approach LOS	A	A	A	A

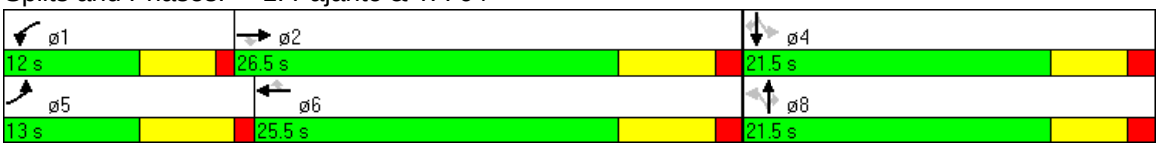
Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1775	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.790			0.728	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1472	1583	0	1356	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66			41			9			3
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2871			235			228	
Travel Time (s)		7.3			43.5			5.3			5.2	
Volume (vph)	56	424	61	27	323	38	40	1	8	4	0	3
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	61	461	66	29	351	41	0	44	9	0	4	3
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	23.8	23.8	8.1	18.9	18.9		9.0	9.0		9.0	9.0
Actuated g/C Ratio	0.19	0.55	0.55	0.15	0.44	0.44		0.21	0.21		0.21	0.21
v/c Ratio	0.18	0.45	0.07	0.11	0.43	0.06		0.14	0.03		0.01	0.01
Control Delay	19.0	8.5	2.7	21.9	12.1	4.2		18.3	11.0		17.0	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	19.0	8.5	2.7	21.9	12.1	4.2		18.3	11.0		17.0	12.7
LOS	B	A	A	C	B	A		B	B		B	B
Approach Delay		8.9			12.0			17.1			15.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 43.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 10.6		Intersection LOS: B	
Intersection Capacity Utilization 47.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

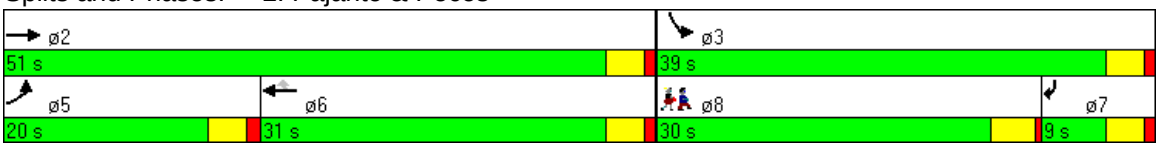


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				418		72	
Link Speed (mph)		45	45		25		
Link Distance (ft)		530	884		370		
Travel Time (s)		8.0	13.4		10.1		
Volume (vph)	192	244	331	385	39	66	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	209	265	360	418	42	72	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	20.0	51.0	31.0	31.0	39.0	9.0	30.0
Total Split (%)	22.2%	56.7%	34.4%	34.4%	43.3%	10.0%	33%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	14.6	41.5	22.9	22.9	35.3	5.0	
Actuated g/C Ratio	0.17	0.49	0.27	0.27	0.42	0.06	
v/c Ratio	0.69	0.29	0.72	0.57	0.06	0.44	
Control Delay	46.6	13.5	36.8	6.0	17.3	20.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.6	13.5	36.8	6.0	17.3	20.0	
LOS	D	B	D	A	B	B	
Approach Delay		28.1	20.3		19.0		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 84.8			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 42.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

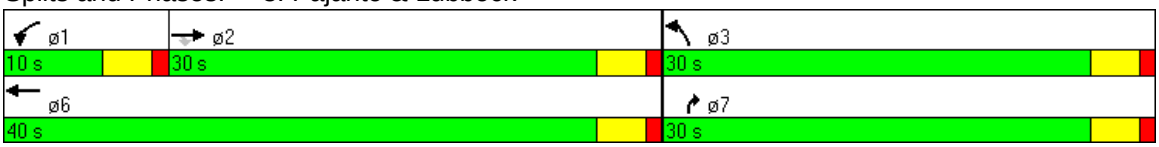


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		118				1
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	169	109	176	709	13	1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	184	118	191	771	14	1
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	10.0	40.0	30.0	30.0
Total Split (%)	42.9%	42.9%	14.3%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	15.1	15.1	8.6	24.5	8.2	8.2
Actuated g/C Ratio	0.35	0.35	0.21	0.60	0.20	0.20
v/c Ratio	0.28	0.19	0.51	0.69	0.04	0.00
Control Delay	9.9	2.8	30.8	9.1	17.4	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	2.8	30.8	9.1	17.4	15.0
LOS	A	A	C	A	B	B
Approach Delay	7.1			13.4	17.2	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	A			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 41			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	42	238	738	41	4	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	259	802	45	4	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked						
vC, conflicting volume	802				1152	802
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	802				1152	802
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				98	91
cM capacity (veh/h)	821				206	384

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	46	259	802	45	39
Volume Left	46	0	0	0	4
Volume Right	0	0	0	45	35
cSH	821	1700	1700	1700	432
Volume to Capacity	0.06	0.15	0.47	0.03	0.09
Queue Length 95th (ft)	4	0	0	0	7
Control Delay (s)	9.6	0.0	0.0	0.0	16.1
Lane LOS	A				C
Approach Delay (s)	1.4		0.0		16.1
Approach LOS					C

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.8%	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)	58	88	834	129	4	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	96	907	140	4	29
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1048				1129	908
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1048				1129	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 %	90				98	91
cM capacity (veh/h)	664				204	334

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	63	96	907	140	4	29
Volume Left	63	0	0	0	4	0
Volume Right	0	0	0	140	0	29
cSH	664	1700	1700	1700	204	334
Volume to Capacity	0.10	0.06	0.53	0.08	0.02	0.09
Queue Length 95th (ft)	8	0	0	0	2	7
Control Delay (s)	11.0	0.0	0.0	0.0	23.0	16.8
Lane LOS	B				C	C
Approach Delay (s)	4.4		0.0		17.6	
Approach LOS					C	

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	15	7	0	0	77	88	19	0	8	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	16	8	0	0	84	96	21	0	9	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	16	8	200	9
Volume Left (vph)	0	8	84	0
Volume Right (vph)	16	0	21	0
Hadj (s)	-0.57	0.23	0.06	0.03
Departure Headway (s)	3.8	4.6	4.0	4.2
Degree Utilization, x	0.02	0.01	0.22	0.01
Capacity (veh/h)	895	734	882	846
Control Delay (s)	6.9	7.6	8.2	7.2
Approach Delay (s)	6.9	7.6	8.2	7.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	29.2%	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)	8	436	397	0	0	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	474	432	0	0	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.82				0.82	0.82
vC, conflicting volume	432				923	432
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	309				906	309
tC, single (s)	5.1				7.4	7.2
tC, 2 stage (s)						
tF (s)	3.1				4.4	4.2
p0 queue free %	99				100	98
cM capacity (veh/h)	702				171	453

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	9	474	432	9
Volume Left	9	0	0	0
Volume Right	0	0	0	9
cSH	702	1700	1700	453
Volume to Capacity	0.01	0.28	0.25	0.02
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	10.2	0.0	0.0	13.1
Lane LOS	B			B
Approach Delay (s)	0.2		0.0	13.1
Approach LOS				B

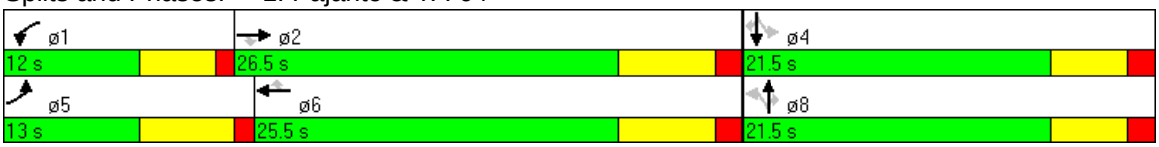
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1770	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.736			0.740	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1371	1583	0	1378	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			17			4			13			45
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2869			235			228	
Travel Time (s)		7.3			43.5			5.3			5.2	
Volume (vph)	4	257	16	3	418	4	24	0	12	30	0	41
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	4	279	17	3	454	4	0	26	13	0	33	45
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	18.7	18.7	8.0	18.6	18.6		8.9	8.9		8.9	8.9
Actuated g/C Ratio	0.19	0.50	0.50	0.17	0.49	0.49		0.24	0.24		0.24	0.24
v/c Ratio	0.01	0.30	0.02	0.01	0.49	0.01		0.08	0.03		0.10	0.11
Control Delay	17.0	7.6	4.0	17.7	9.8	5.2		14.7	9.1		14.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	17.0	7.6	4.0	17.7	9.8	5.2		14.7	9.1		14.8	7.0
LOS	B	A	A	B	A	A		B	A		B	A
Approach Delay		7.6			9.8			12.8			10.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 37.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 43.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

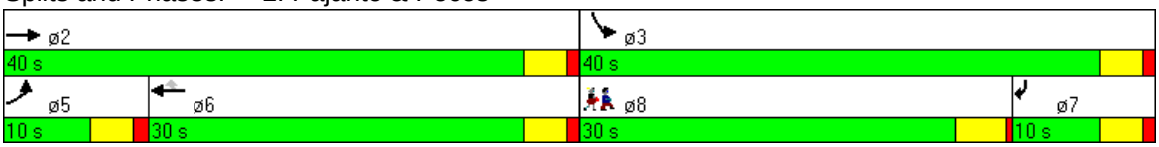


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				37		178	
Link Speed (mph)		45	45		25		
Link Distance (ft)		530	884		370		
Travel Time (s)		8.0	13.4		10.1		
Volume (vph)	78	230	216	34	262	164	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	85	250	235	37	285	178	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	10.0	40.0	30.0	30.0	40.0	10.0	30.0
Total Split (%)	12.5%	50.0%	37.5%	37.5%	50.0%	12.5%	38%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	6.0	23.1	15.5	15.5	36.5	6.1	
Actuated g/C Ratio	0.09	0.34	0.23	0.23	0.54	0.09	
v/c Ratio	0.56	0.39	0.55	0.09	0.30	0.59	
Control Delay	48.1	18.1	28.6	8.0	11.5	14.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.1	18.1	28.6	8.0	11.5	14.8	
LOS	D	B	C	A	B	B	
Approach Delay		25.7	25.8		12.8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 67.8			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 20.1		Intersection LOS: C	
Intersection Capacity Utilization 40.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

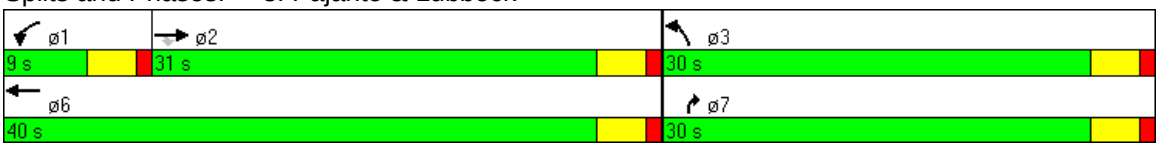


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		23				141
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	448	21	1	195	81	130
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	487	23	1	212	88	141
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	31.0	9.0	40.0	30.0	30.0
Total Split (%)	44.3%	44.3%	12.9%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	16.5	16.5	5.2	17.7	9.7	9.7
Actuated g/C Ratio	0.46	0.46	0.12	0.49	0.27	0.27
v/c Ratio	0.57	0.03	0.00	0.23	0.18	0.27
Control Delay	10.7	3.6	22.0	5.5	14.4	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	3.6	22.0	5.5	14.4	5.4
LOS	B	A	C	A	B	A
Approach Delay	10.3			5.5	8.9	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	B			A	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 36			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 8.9		Intersection LOS: A	
Intersection Capacity Utilization 38.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	24	608	158	3	39	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	661	172	3	42	59
Pedestrians		1			1	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		0			0	
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked					0.81	
vC, conflicting volume	173				886	174
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	173				859	174
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				84	93
cM capacity (veh/h)	1403				260	868

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	26	661	172	3	101
Volume Left	26	0	0	0	42
Volume Right	0	0	0	3	59
cSH	1403	1700	1700	1700	619
Volume to Capacity	0.02	0.39	0.10	0.00	0.16
Queue Length 95th (ft)	1	0	0	0	14
Control Delay (s)	7.6	0.0	0.0	0.0	14.5
Lane LOS	A				B
Approach Delay (s)	0.3		0.0		14.5
Approach LOS					B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	42.3%	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)	42	589	92	11	94	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	640	100	12	102	67
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	113				833	101
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113				833	101
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				69	93
cM capacity (veh/h)	1475				328	954

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	46	640	100	12	102	67
Volume Left	46	0	0	0	102	0
Volume Right	0	0	0	12	0	67
cSH	1475	1700	1700	1700	328	954
Volume to Capacity	0.03	0.38	0.06	0.01	0.31	0.07
Queue Length 95th (ft)	2	0	0	0	32	6
Control Delay (s)	7.5	0.0	0.0	0.0	20.9	9.1
Lane LOS	A				C	A
Approach Delay (s)	0.5		0.0		16.2	
Approach LOS					C	

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	72	13	0	0	19	26	4	0	70	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	78	14	0	0	21	28	4	0	76	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	78	14	53	78
Volume Left (vph)	0	14	21	0
Volume Right (vph)	78	0	4	2
Hadj (s)	-0.57	0.23	0.06	0.02
Departure Headway (s)	3.6	4.5	4.2	4.2
Degree Utilization, x	0.08	0.02	0.06	0.09
Capacity (veh/h)	952	761	822	843
Control Delay (s)	6.9	7.6	7.5	7.6
Approach Delay (s)	6.9	7.6	7.5	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.3		
HCM Level of Service	A		
Intersection Capacity Utilization	23.4%	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)	8	308	380	0	0	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	335	413	0	0	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.89				0.89	0.89
vC, conflicting volume	413				765	413
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344				738	344
tC, single (s)	5.1				7.4	7.2
tC, 2 stage (s)						
tF (s)	3.1				4.4	4.2
p0 queue free %	99				100	98
cM capacity (veh/h)	737				241	468

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	9	335	413	9
Volume Left	9	0	0	0
Volume Right	0	0	0	9
cSH	737	1700	1700	468
Volume to Capacity	0.01	0.20	0.24	0.02
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	9.9	0.0	0.0	12.8
Lane LOS	A			B
Approach Delay (s)	0.3		0.0	12.8
Approach LOS				B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1775	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.779			0.722	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1451	1583	0	1345	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			50			9			3
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2793			235			228	
Travel Time (s)		7.3			42.3			5.3			5.2	
Volume (vph)	68	404	73	31	375	46	48	1	8	4	0	3
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	74	439	79	34	408	50	0	53	9	0	4	3
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	22.1	22.1	8.1	19.4	19.4		9.2	9.2		9.2	9.2
Actuated g/C Ratio	0.18	0.51	0.51	0.16	0.44	0.44		0.21	0.21		0.21	0.21
v/c Ratio	0.23	0.47	0.09	0.12	0.49	0.07		0.17	0.03		0.01	0.01
Control Delay	20.0	10.6	3.2	20.8	13.0	3.9		18.8	11.0		17.2	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	20.0	10.6	3.2	20.8	13.0	3.9		18.8	11.0		17.2	13.0
LOS	B	B	A	C	B	A		B	B		B	B
Approach Delay		10.8			12.6			17.7			15.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 43.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 46.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				386		85	
Link Speed (mph)		45	45		25		
Link Distance (ft)		613	884		370		
Travel Time (s)		9.3	13.4		10.1		
Volume (vph)	199	229	395	355	32	78	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	216	249	429	386	35	85	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	19.0	51.0	32.0	32.0	39.0	9.0	30.0
Total Split (%)	21.1%	56.7%	35.6%	35.6%	43.3%	10.0%	33%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	14.3	43.5	25.3	25.3	35.1	5.0	
Actuated g/C Ratio	0.16	0.50	0.29	0.29	0.40	0.06	
v/c Ratio	0.74	0.27	0.79	0.53	0.05	0.49	
Control Delay	52.0	13.0	40.1	5.5	17.4	20.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.0	13.0	40.1	5.5	17.4	20.4	
LOS	D	B	D	A	B	C	
Approach Delay		31.1	23.7		19.6		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 86.7			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 46.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		98				1
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	169	90	90	743	17	1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	184	98	98	808	18	1
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	10.0	40.0	30.0	30.0
Total Split (%)	42.9%	42.9%	14.3%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	20.8	20.8	6.1	26.1	8.3	8.3
Actuated g/C Ratio	0.49	0.49	0.13	0.61	0.19	0.19
v/c Ratio	0.20	0.12	0.43	0.71	0.05	0.00
Control Delay	8.1	2.5	26.7	9.4	18.1	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	2.5	26.7	9.4	18.1	15.0
LOS	A	A	C	A	B	B
Approach Delay	6.2			11.3	17.9	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	A			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 42.7			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 49.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	50	149	755	49	4	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	162	821	53	4	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked						
vC, conflicting volume	821				1091	821
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	821				1091	821
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				98	88
cM capacity (veh/h)	808				222	375

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	54	162	821	53	48
Volume Left	54	0	0	0	4
Volume Right	0	0	0	53	43
cSH	808	1700	1700	1700	412
Volume to Capacity	0.07	0.10	0.48	0.03	0.12
Queue Length 95th (ft)	5	0	0	0	10
Control Delay (s)	9.8	0.0	0.0	0.0	16.4
Lane LOS	A				C
Approach Delay (s)	2.5		0.0		16.4
Approach LOS					C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	51.6%	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)	50	93	770	94	4	31
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	101	837	102	4	34
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	940				1048	838
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	940				1048	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 %	93				98	91
cM capacity (veh/h)	729				233	366

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	54	101	837	102	4	34
Volume Left	54	0	0	0	4	0
Volume Right	0	0	0	102	0	34
cSH	729	1700	1700	1700	233	366
Volume to Capacity	0.07	0.06	0.49	0.06	0.02	0.09
Queue Length 95th (ft)	6	0	0	0	1	8
Control Delay (s)	10.3	0.0	0.0	0.0	20.7	15.8
Lane LOS	B				C	C
Approach Delay (s)	3.6		0.0		16.4	
Approach LOS					C	

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	19	7	0	0	57	68	16	0	8	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	21	8	0	0	62	74	17	0	9	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	21	8	153	9
Volume Left (vph)	0	8	62	0
Volume Right (vph)	21	0	17	0
Hadj (s)	-0.57	0.23	0.05	0.03
Departure Headway (s)	3.7	4.5	4.0	4.1
Degree Utilization, x	0.02	0.01	0.17	0.01
Capacity (veh/h)	929	767	880	854
Control Delay (s)	6.8	7.5	7.8	7.2
Approach Delay (s)	6.8	7.5	7.8	7.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1770	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.733			0.738	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1365	1583	0	1375	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22			4			17			53
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2793			235			228	
Travel Time (s)		7.3			42.3			5.3			5.2	
Volume (vph)	4	297	20	3	398	4	28	0	16	34	0	49
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	4	323	22	3	433	4	0	30	17	0	37	53
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	18.7	18.7	8.0	18.6	18.6		8.9	8.9		8.9	8.9
Actuated g/C Ratio	0.19	0.50	0.50	0.17	0.49	0.49		0.24	0.24		0.24	0.24
v/c Ratio	0.01	0.35	0.03	0.01	0.47	0.01		0.09	0.04		0.11	0.13
Control Delay	17.0	8.1	3.8	17.7	9.6	5.5		14.7	8.7		14.8	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	17.0	8.1	3.8	17.7	9.6	5.5		14.7	8.7		14.8	6.7
LOS	B	A	A	B	A	A		B	A		B	A
Approach Delay		7.9			9.6			12.5			10.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 37.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 42.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				29		182	
Link Speed (mph)		45	45		25		
Link Distance (ft)		613	884		370		
Travel Time (s)		9.3	13.4		10.1		
Volume (vph)	94	274	197	27	208	167	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	102	298	214	29	226	182	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	10.0	41.0	31.0	31.0	39.0	9.0	30.0
Total Split (%)	12.5%	51.3%	38.8%	38.8%	48.8%	11.3%	38%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	6.0	22.4	14.8	14.8	35.4	5.1	
Actuated g/C Ratio	0.09	0.34	0.22	0.22	0.54	0.08	
v/c Ratio	0.65	0.47	0.51	0.08	0.24	0.63	
Control Delay	53.1	19.1	27.6	8.7	10.5	17.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	53.1	19.1	27.6	8.7	10.5	17.1	
LOS	D	B	C	A	B	B	
Approach Delay		27.8	25.3		13.5		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 65.9			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 21.7		Intersection LOS: C	
Intersection Capacity Utilization 37.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		27				35
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	430	25	1	199	54	32
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	467	27	1	216	59	35
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	31.0	9.0	40.0	30.0	30.0
Total Split (%)	44.3%	44.3%	12.9%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	16.0	16.0	5.1	17.2	9.2	9.2
Actuated g/C Ratio	0.46	0.46	0.12	0.49	0.26	0.26
v/c Ratio	0.55	0.04	0.00	0.24	0.13	0.08
Control Delay	10.0	3.3	21.0	5.2	14.1	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	3.3	21.0	5.2	14.1	7.3
LOS	A	A	C	A	B	A
Approach Delay	9.6			5.3	11.6	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	A			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 35			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 8.7		Intersection LOS: A	
Intersection Capacity Utilization 33.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	28	500	154	3	47	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	543	167	3	51	72
Pedestrians		1			1	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		0			0	
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked					0.83	
vC, conflicting volume	168				773	169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	168				727	169
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				84	92
cM capacity (veh/h)	1408				318	873

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	30	543	167	3	123
Volume Left	30	0	0	0	51
Volume Right	0	0	0	3	72
cSH	1408	1700	1700	1700	765
Volume to Capacity	0.02	0.32	0.10	0.00	0.16
Queue Length 95th (ft)	2	0	0	0	14
Control Delay (s)	7.6	0.0	0.0	0.0	13.2
Lane LOS	A				B
Approach Delay (s)	0.4		0.0		13.2
Approach LOS					B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	36.6%	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)	50	477	97	15	51	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	518	105	16	55	59
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	123				734	106
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	123				734	106
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				85	94
cM capacity (veh/h)	1463				373	947

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	54	518	105	16	55	59
Volume Left	54	0	0	0	55	0
Volume Right	0	0	0	16	0	59
cSH	1463	1700	1700	1700	373	947
Volume to Capacity	0.04	0.30	0.06	0.01	0.15	0.06
Queue Length 95th (ft)	3	0	0	0	13	5
Control Delay (s)	7.6	0.0	0.0	0.0	16.3	9.1
Lane LOS	A				C	A
Approach Delay (s)	0.7		0.0		12.6	
Approach LOS					B	

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	49	7	0	0	23	30	4	0	48	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	53	8	0	0	25	33	4	0	52	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	53	8	62	54
Volume Left (vph)	0	8	25	0
Volume Right (vph)	53	0	4	2
Hadj (s)	-0.57	0.23	0.07	0.01
Departure Headway (s)	3.6	4.4	4.1	4.1
Degree Utilization, x	0.05	0.01	0.07	0.06
Capacity (veh/h)	966	785	844	861
Control Delay (s)	6.8	7.5	7.5	7.4
Approach Delay (s)	6.8	7.5	7.5	7.4
Approach LOS	A	A	A	A

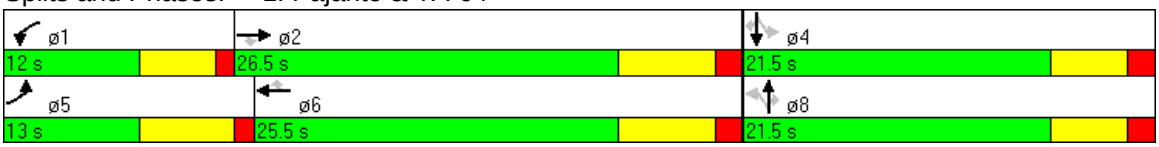
Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	22.2%	ICU Level of Service	A
Analysis Period (min)	15		

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1775	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.779			0.722	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1451	1583	0	1345	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			50			9			3
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2871			235			228	
Travel Time (s)		7.3			43.5			5.3			5.2	
Volume (vph)	68	494	73	31	399	46	48	1	8	4	0	3
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	74	537	79	34	434	50	0	53	9	0	4	3
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	22.4	22.4	8.1	19.7	19.7		9.2	9.2		9.2	9.2
Actuated g/C Ratio	0.18	0.51	0.51	0.16	0.45	0.45		0.21	0.21		0.21	0.21
v/c Ratio	0.23	0.57	0.09	0.12	0.52	0.07		0.17	0.03		0.01	0.01
Control Delay	20.2	12.0	3.2	21.0	13.3	3.9		19.0	11.0		17.5	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	20.2	12.0	3.2	21.0	13.3	3.9		19.0	11.0		17.5	13.0
LOS	C	B	A	C	B	A		B	B		B	B
Approach Delay		11.9			12.9			17.9			15.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 44			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 51.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

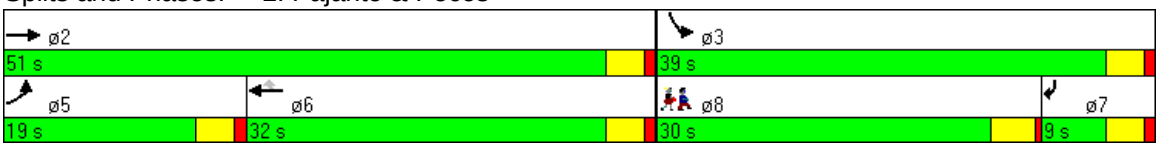


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				386		85	
Link Speed (mph)		45	45		25		
Link Distance (ft)		530	884		370		
Travel Time (s)		8.0	13.4		10.1		
Volume (vph)	199	299	399	355	32	78	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	216	325	434	386	35	85	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	19.0	51.0	32.0	32.0	39.0	9.0	30.0
Total Split (%)	21.1%	56.7%	35.6%	35.6%	43.3%	10.0%	33%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	14.3	43.7	25.4	25.4	35.1	5.0	
Actuated g/C Ratio	0.16	0.50	0.29	0.29	0.40	0.06	
v/c Ratio	0.74	0.35	0.80	0.52	0.05	0.49	
Control Delay	52.2	14.0	40.5	5.5	17.4	20.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.2	14.0	40.5	5.5	17.4	20.4	
LOS	D	B	D	A	B	C	
Approach Delay		29.3	24.0		19.6		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 86.9			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 25.6		Intersection LOS: C	
Intersection Capacity Utilization 46.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

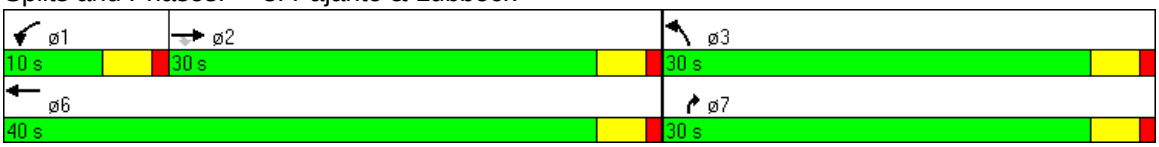


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		147				1
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	194	135	222	747	17	1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	211	147	241	812	18	1
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	30.0	30.0	10.0	40.0	30.0	30.0
Total Split (%)	42.9%	42.9%	14.3%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	16.9	16.9	8.9	26.4	8.3	8.3
Actuated g/C Ratio	0.37	0.37	0.21	0.61	0.19	0.19
v/c Ratio	0.30	0.22	0.65	0.71	0.05	0.00
Control Delay	10.0	2.6	38.3	9.4	18.2	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	2.6	38.3	9.4	18.2	15.0
LOS	A	A	D	A	B	B
Approach Delay	7.0			16.0	18.0	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	A			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 43			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	50	285	780	49	4	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	310	848	53	4	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked						
vC, conflicting volume	848				1266	848
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	848				1266	848
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				97	88
cM capacity (veh/h)	790				174	361

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	54	310	848	53	48
Volume Left	54	0	0	0	4
Volume Right	0	0	0	53	43
cSH	790	1700	1700	1700	397
Volume to Capacity	0.07	0.18	0.50	0.03	0.12
Queue Length 95th (ft)	6	0	0	0	10
Control Delay (s)	9.9	0.0	0.0	0.0	17.2
Lane LOS	A				C
Approach Delay (s)	1.5		0.0		17.2
Approach LOS					C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	51.6%	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)	71	95	904	160	5	31
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	103	983	174	5	34
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1158				1241	984
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1158				1241	984
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	87				97	89
cM capacity (veh/h)	603				168	301

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	77	103	983	174	5	34
Volume Left	77	0	0	0	5	0
Volume Right	0	0	0	174	0	34
cSH	603	1700	1700	1700	168	301
Volume to Capacity	0.13	0.06	0.58	0.10	0.03	0.11
Queue Length 95th (ft)	11	0	0	0	2	9
Control Delay (s)	11.8	0.0	0.0	0.0	27.1	18.4
Lane LOS	B				D	C
Approach Delay (s)	5.1		0.0		19.6	
Approach LOS					C	

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	20	7	0	0	94	110	25	0	8	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	22	8	0	0	102	120	27	0	9	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	22	8	249	9
Volume Left (vph)	0	8	102	0
Volume Right (vph)	22	0	27	0
Hadj (s)	-0.57	0.23	0.05	0.03
Departure Headway (s)	3.9	4.7	4.0	4.2
Degree Utilization, x	0.02	0.01	0.28	0.01
Capacity (veh/h)	863	711	880	832
Control Delay (s)	7.0	7.8	8.6	7.3
Approach Delay (s)	7.0	7.8	8.6	7.3
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.4		
HCM Level of Service	A		
Intersection Capacity Utilization	31.7%	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)	24	494	473	4	4	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	537	514	4	4	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.78				0.78	0.78
vC, conflicting volume	518				1105	516
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382				1135	380
tC, single (s)	5.1				7.4	7.2
tC, 2 stage (s)						
tF (s)	3.1				4.4	4.2
p0 queue free %	96				96	93
cM capacity (veh/h)	618				110	387

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	26	537	518	30
Volume Left	26	0	0	4
Volume Right	0	0	4	26
cSH	618	1700	1700	284
Volume to Capacity	0.04	0.32	0.30	0.11
Queue Length 95th (ft)	3	0	0	9
Control Delay (s)	11.1	0.0	0.0	19.2
Lane LOS	B			C
Approach Delay (s)	0.5		0.0	19.2
Approach LOS				C

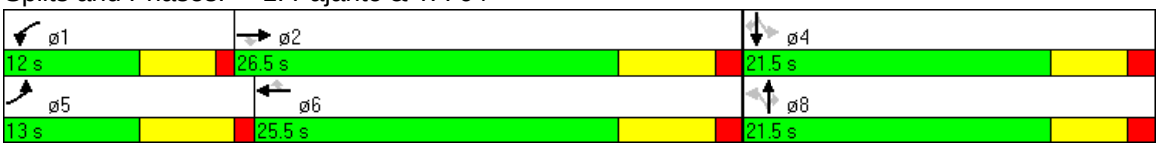
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

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
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	210		210	0		130	0		50
Storage Lanes	1		1	1		1	0		1	0		1
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	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	1770	1583	0	1770	1583
Flt Permitted	0.950			0.950				0.733			0.738	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	0	1365	1583	0	1375	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22			4			17			53
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		480			2869			235			228	
Travel Time (s)		7.3			43.5			5.3			5.2	
Volume (vph)	4	321	20	3	488	4	28	0	16	34	0	49
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	4	349	22	3	530	4	0	30	17	0	37	53
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	4	4	4
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	22.5	22.5	12.0	22.5	22.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	13.0	26.5	26.5	12.0	25.5	25.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	21.7%	44.2%	44.2%	20.0%	42.5%	42.5%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	9.0	19.5	19.5	8.0	19.4	19.4		8.9	8.9		8.9	8.9
Actuated g/C Ratio	0.18	0.51	0.51	0.17	0.51	0.51		0.23	0.23		0.23	0.23
v/c Ratio	0.01	0.37	0.03	0.01	0.56	0.00		0.09	0.04		0.12	0.13
Control Delay	17.8	8.1	3.8	18.3	10.9	5.2		15.4	9.1		15.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	17.8	8.1	3.8	18.3	10.9	5.2		15.4	9.1		15.5	7.0
LOS	B	A	A	B	B	A		B	A		B	A
Approach Delay		8.0			10.9			13.1			10.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 38.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 47.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Pajarito & TA-64

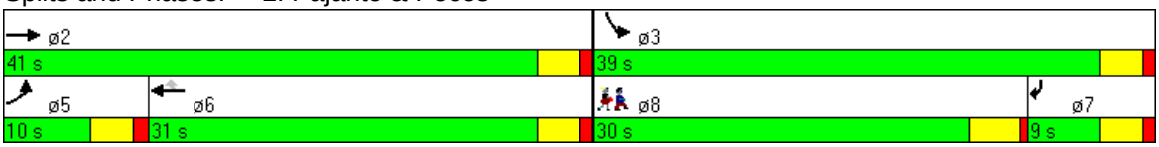


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)		0%	0%		0%		
Storage Length (ft)	465			540	0	210	
Storage Lanes	1			1	1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	
Turning Speed (mph)	15			9	15	9	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				29		182	
Link Speed (mph)		45	45		25		
Link Distance (ft)		530	884		370		
Travel Time (s)		8.0	13.4		10.1		
Volume (vph)	94	278	267	27	208	167	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)		0%	0%		0%		
Lane Group Flow (vph)	102	302	290	29	226	182	
Turn Type	Prot			Perm		custom	
Protected Phases	5	2	6		3	7	8
Permitted Phases				6			
Detector Phases	5	2	6	6	3	7	
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	9.0	30.0	30.0	30.0	9.0	9.0	30.0
Total Split (s)	10.0	41.0	31.0	31.0	39.0	9.0	30.0
Total Split (%)	12.5%	51.3%	38.8%	38.8%	48.8%	11.3%	38%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag	Lead		Lag	Lag		Lag	Lead
Lead-Lag Optimize?						Yes	Yes
Recall Mode	None	None	None	None	Min	Min	Ped
Act Effct Green (s)	6.0	25.1	17.5	17.5	35.6	5.1	
Actuated g/C Ratio	0.08	0.36	0.25	0.25	0.52	0.07	
v/c Ratio	0.68	0.44	0.61	0.07	0.25	0.64	
Control Delay	57.9	17.9	28.9	8.0	12.3	17.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	57.9	17.9	28.9	8.0	12.3	17.9	
LOS	E	B	C	A	B	B	
Approach Delay		28.0	27.0		14.8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Approach LOS		C	C		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 68.9			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 40.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Pajarito & Pecos

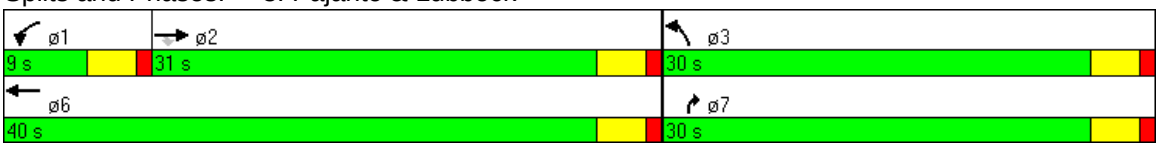


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		560	200		0	0
Storage Lanes		1	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)		9	15		15	9
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		27				178
Link Speed (mph)	45			45	25	
Link Distance (ft)	884			520	190	
Travel Time (s)	13.4			7.9	5.2	
Volume (vph)	434	25	1	224	99	164
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	472	27	1	243	108	178
Turn Type		Perm	Prot			custom
Protected Phases	2		1	6	3	7
Permitted Phases		2				
Detector Phases	2	2	1	6	3	7
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	31.0	9.0	40.0	30.0	30.0
Total Split (%)	44.3%	44.3%	12.9%	57.1%	42.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	16.4	16.4	5.2	17.5	10.0	10.0
Actuated g/C Ratio	0.45	0.45	0.12	0.48	0.28	0.28
v/c Ratio	0.56	0.04	0.00	0.27	0.22	0.31
Control Delay	10.8	3.6	22.0	6.0	14.4	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	3.6	22.0	6.0	14.4	5.1
LOS	B	A	C	A	B	A
Approach Delay	10.5			6.0	8.6	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	B			A	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 36.2			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 8.9		Intersection LOS: A	
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Pajarito & Lubbock



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	28	636	179	3	47	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	691	195	3	51	72
Pedestrians		1			1	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		0			0	
Right turn flare (veh)						5
Median type					None	
Median storage veh)						
Upstream signal (ft)		686				
pX, platoon unblocked					0.82	
vC, conflicting volume	196				948	197
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	196				936	197
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				78	91
cM capacity (veh/h)	1376				236	843

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	30	691	195	3	123
Volume Left	30	0	0	0	51
Volume Right	0	0	0	3	72
cSH	1376	1700	1700	1700	568
Volume to Capacity	0.02	0.41	0.11	0.00	0.22
Queue Length 95th (ft)	2	0	0	0	20
Control Delay (s)	7.7	0.0	0.0	0.0	15.8
Lane LOS	A				C
Approach Delay (s)	0.3		0.0		15.8
Approach LOS					C

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	43.8%	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)	50	611	99	16	117	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	664	108	17	127	82
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	126				881	109
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	126				881	109
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				58	91
cM capacity (veh/h)	1459				305	944

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	54	664	108	17	127	82
Volume Left	54	0	0	0	127	0
Volume Right	0	0	0	17	0	82
cSH	1459	1700	1700	1700	305	944
Volume to Capacity	0.04	0.39	0.06	0.01	0.42	0.09
Queue Length 95th (ft)	3	0	0	0	49	7
Control Delay (s)	7.6	0.0	0.0	0.0	25.0	9.2
Lane LOS	A				C	A
Approach Delay (s)	0.6		0.0		18.8	
Approach LOS					C	

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	89	15	0	0	23	31	4	0	87	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	97	16	0	0	25	34	4	0	95	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	97	16	63	97
Volume Left (vph)	0	16	25	0
Volume Right (vph)	97	0	4	2
Hadj (s)	-0.57	0.23	0.07	0.02
Departure Headway (s)	3.7	4.6	4.3	4.2
Degree Utilization, x	0.10	0.02	0.08	0.11
Capacity (veh/h)	927	741	804	828
Control Delay (s)	7.1	7.7	7.6	7.7
Approach Delay (s)	7.1	7.7	7.6	7.7
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	24.0%	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)	24	368	430	4	4	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	400	467	4	4	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	472				922	470
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	389				909	386
tC, single (s)	5.1				7.4	7.2
tC, 2 stage (s)						
tF (s)	3.1				4.4	4.2
p0 queue free %	96				97	94
cM capacity (veh/h)	681				174	425

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	26	400	472	30
Volume Left	26	0	0	4
Volume Right	0	0	4	26
cSH	681	1700	1700	352
Volume to Capacity	0.04	0.24	0.28	0.09
Queue Length 95th (ft)	3	0	0	7
Control Delay (s)	10.5	0.0	0.0	16.2
Lane LOS	B			C
Approach Delay (s)	0.6		0.0	16.2
Approach LOS				C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	32.9%	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)	16	226	810	51	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	246	880	55	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	936				1161	880
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	936				1161	880
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				100	100
cM capacity (veh/h)	732				211	346

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	17	246	880	55	0	0
Volume Left	17	0	0	0	0	0
Volume Right	0	0	0	55	0	0
cSH	732	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.14	0.52	0.03	0.00	0.00
Queue Length 95th (ft)	2	0	0	0	0	0
Control Delay (s)	10.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B				A	A
Approach Delay (s)	0.7		0.0		0.0	
Approach LOS					A	

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	46.0%	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)	0	647	154	0	51	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	703	167	0	55	17
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	167				871	167
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	167				871	167
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				83	98
cM capacity (veh/h)	1410				322	877

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	0	703	167	0	55	17
Volume Left	0	0	0	0	55	0
Volume Right	0	0	0	0	0	17
cSH	1700	1700	1700	1700	322	877
Volume to Capacity	0.00	0.41	0.10	0.00	0.17	0.02
Queue Length 95th (ft)	0	0	0	0	15	2
Control Delay (s)	0.0	0.0	0.0	0.0	18.5	9.2
Lane LOS					C	A
Approach Delay (s)	0.0		0.0		16.3	
Approach LOS					C	

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	44.1%	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)	21	268	827	66	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	291	899	72	1	2
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	971				1236	899
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	971				1236	899
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				99	99
cM capacity (veh/h)	710				188	338

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	23	291	899	72	1	2
Volume Left	23	0	0	0	1	0
Volume Right	0	0	0	72	0	2
cSH	710	1700	1700	1700	188	338
Volume to Capacity	0.03	0.17	0.53	0.04	0.01	0.01
Queue Length 95th (ft)	2	0	0	0	0	0
Control Delay (s)	10.2	0.0	0.0	0.0	24.2	15.7
Lane LOS	B				C	C
Approach Delay (s)	0.7		0.0		18.6	
Approach LOS					C	

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	53.5%	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)	2	681	173	1	66	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	740	188	1	72	23
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	189				933	188
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	189				933	188
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				76	97
cM capacity (veh/h)	1385				295	854

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	2	740	188	1	72	23
Volume Left	2	0	0	0	72	0
Volume Right	0	0	0	1	0	23
cSH	1385	1700	1700	1700	295	854
Volume to Capacity	0.00	0.44	0.11	0.00	0.24	0.03
Queue Length 95th (ft)	0	0	0	0	23	2
Control Delay (s)	7.6	0.0	0.0	0.0	21.1	9.3
Lane LOS	A				C	A
Approach Delay (s)	0.0		0.0		18.2	
Approach LOS					C	

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix G

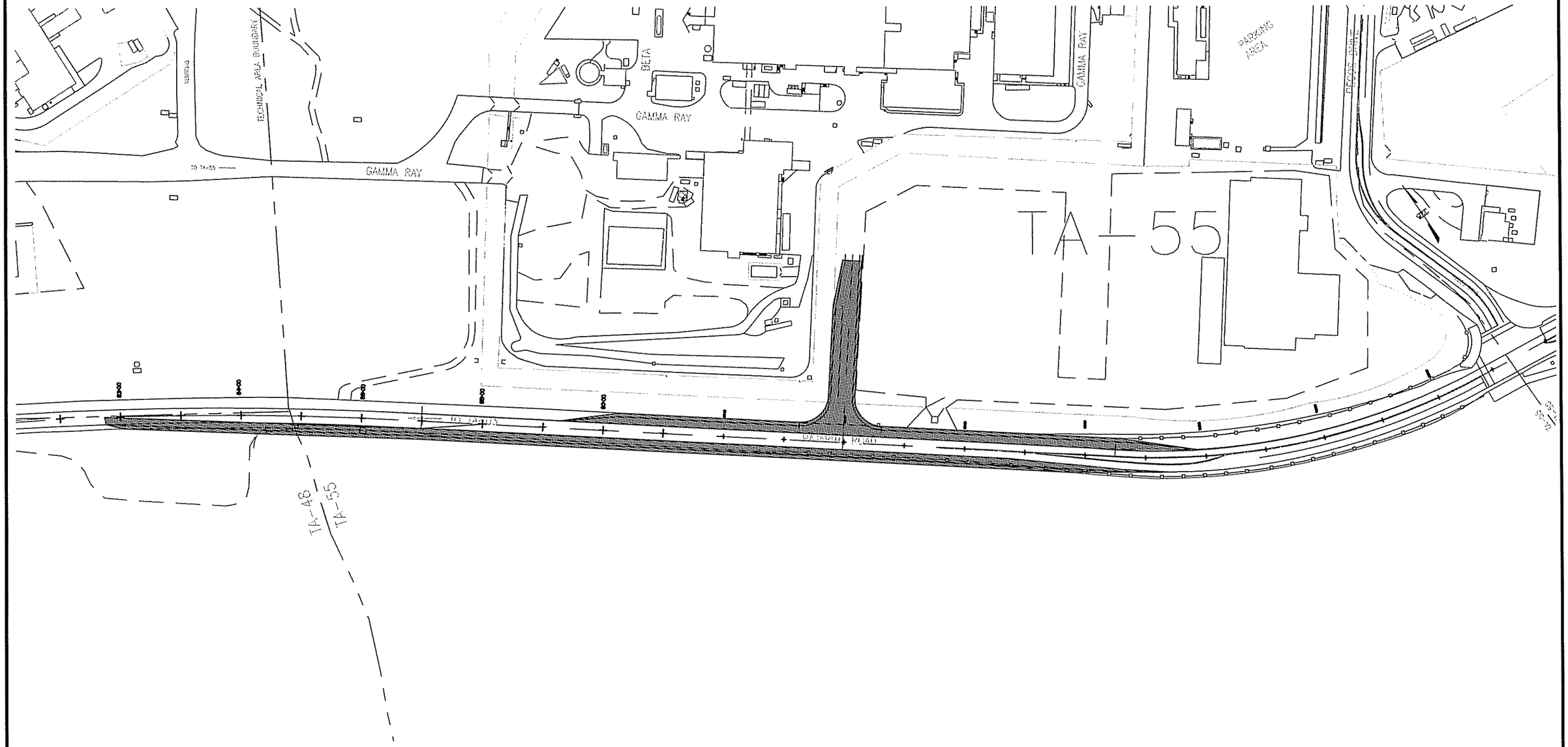
Recommendation Construction Costs

PAJARITO ROADWAY IMPROVEMENTS

ITEM ID NO.	ITEM DESCRIPTION	UNIT	EST. QUANTITY	UNIT PRICE	AMOUNT
	CONSTRUCTION ENGINEERING				
603xxx	SWPPP PLAN AND MANAGEMENT	LS	1	$15,000.00	$15,000.00
618000	TRAFFIC CONTROL MANAGEMENT	LS	1	$37,600.00	$37,600.00
621000	CONSTRUCTION MOBILIZATION	LS	1	$94,000.00	$94,000.00
801000	CONSTRUCTION STAKING	LS	1	$28,200.00	$28,200.00
	ROADWAY IMPROVEMENTS -				
201000	SITE CLEARING & GRUBBING, COMPLETE	LS	1	$4,600.00	$4,600.00
20xxxx	EARTHWORK	LS	1	$27,500.00	$27,500.00
207000	SUBGRADE PREP, 8"	SY	6,850.00	$1.50	$10,275.00
304015	BASE COURSE, 6"	SY	6,850.00	$15.00	$102,750.00
402375	76-22 PG GRADED ASPHALT MTL	TON	107.00	$900.00	$96,300.00
402460	HYDRATED LIME	TON	32.00	$150.00	$4,800.00
407000	ASPHALT MATERIAL FOR TACK COAT	TON	3.00	$900.00	$2,700.00
408100	PRIME COAT MATERIAL	TON	12.00	$900.00	$10,800.00
423240	HMA SP III	TON	2,100.00	$90.00	$189,000.00
	PERMANENT SIGNING & STRIPING	LS	1	$12,600.00	$12,600.00
	ROADWAY IMPROVEMENTS -				
201000	SITE CLEARING & GRUBBING, COMPLETE	LS	1	$8,000.00	$8,000.00
20xxxx	EARTHWORK	LS	1	$24,200.00	$24,200.00
207000	SUBGRADE PREP, 8"	SY	6,550.00	$1.50	$9,825.00
304000	BASE COURSE, 6"	SY	6,550.00	$15.00	$98,250.00
402375	76-22 PG GRADED ASPHALT MTL	TON	103.00	$900.00	$92,700.00
402460	HYDRATED LIME	TON	31.00	$150.00	$4,650.00
407000	ASPHALT MATERIAL FOR TACK COAT	TON	3.00	$900.00	$2,700.00
408100	PRIME COAT MATERIAL	TON	12.00	$900.00	$10,800.00
423240	HMA SP III	TON	2,010.00	$90.00	$180,900.00
	DRAINAGE	LS	1	$25,000.00	$25,000.00
	PERMANENT SIGNING & STRIPING	LS	1	$12,900.00	$12,900.00

Assumptions: 5 1/2" HMA over 6" base course

SUBTOTAL - CONSTRUCTION ENGINEERING	$174,800.00
SUBTOTAL - RECOMMENDATION 1	$461,325.00
SUBTOTAL - RECOMMENDATION 2	$469,925.00
SUBTOTALS	$1,106,050.00
ENGINEERING AND SURVEY @ 15%	$165,907.50
CONTINGENCY @ 35%	$387,117.50
TOTAL	$1,659,075.00



LEGEND

PROPOSED PAVEMENT

CMRR TRAFFIC STUDY
Los Alamos, NM

NEW CONSTRUCTION ACCESS
RECOM. 1

WILSON &COMPANY

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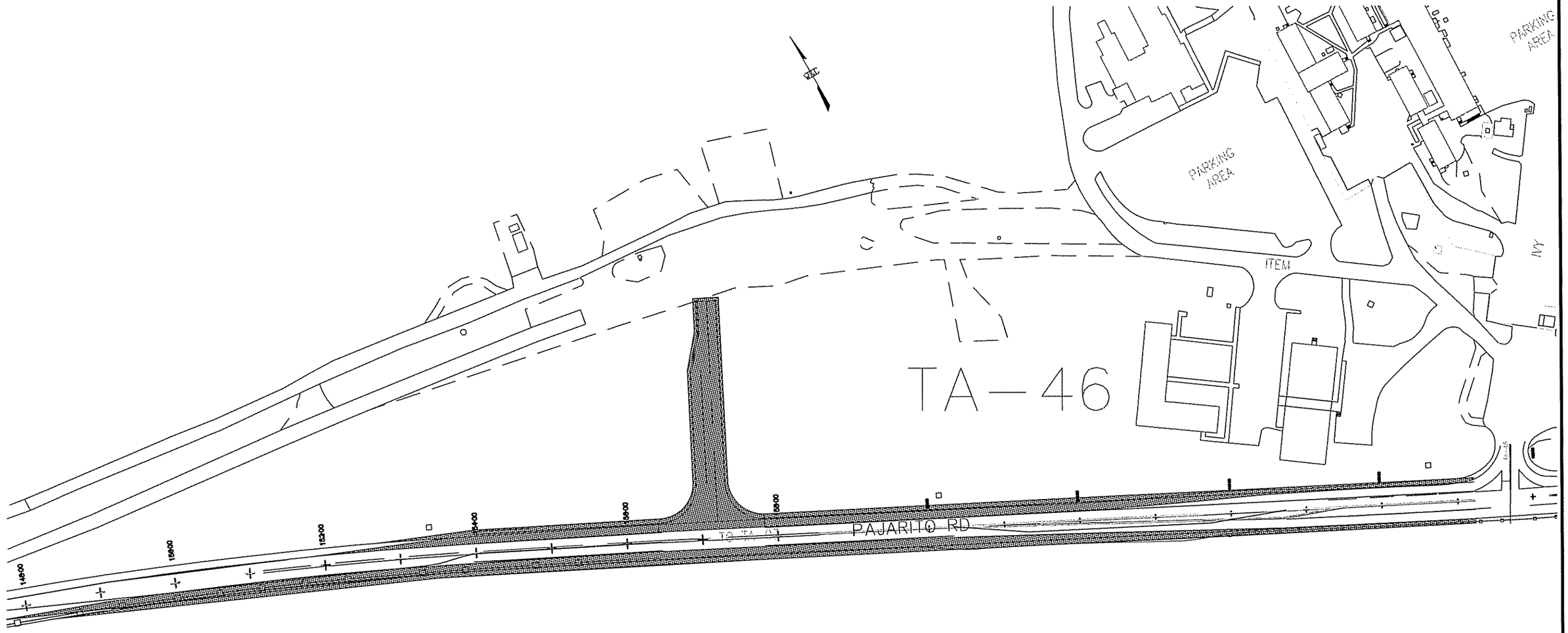

LEGEND

PROPOSED PAVEMENT

CMRR TRAFFIC STUDY
Los Alamos, NM

PROPOSED CONSTR. ACCESS
RECOM. 2

WILSON &COMPANY

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Appendix H

Reference Documents

C. Pajarito Corridor West Planning Area

1. General Description

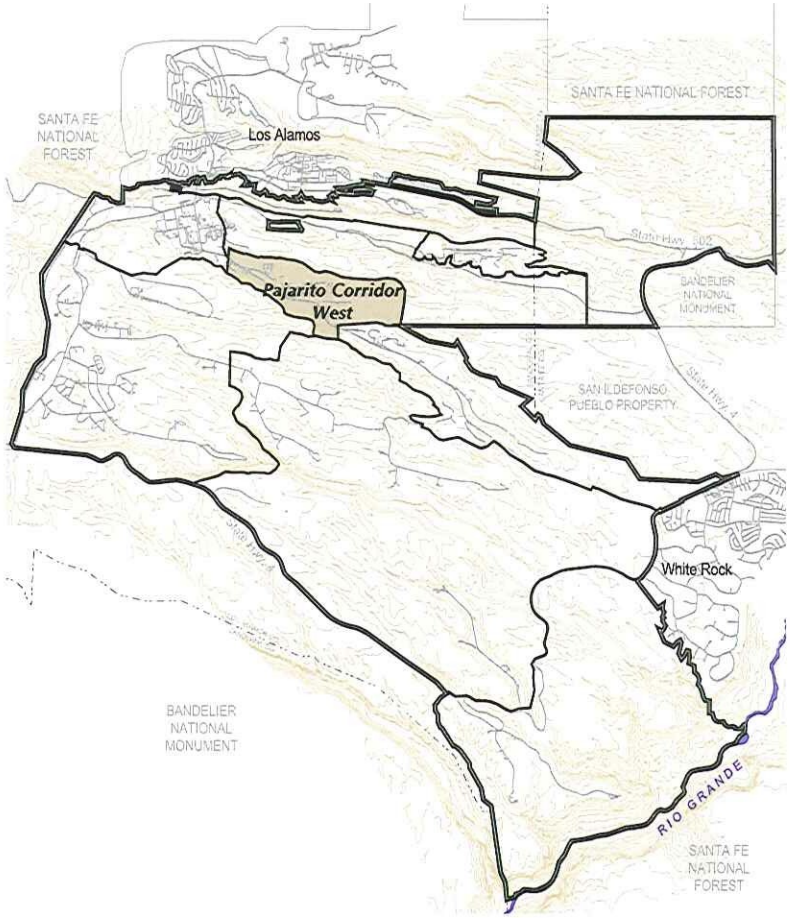
Pajarito Corridor West Planning Area lies between Mortandad Canyon on the north and Pajarito Canyon to the south as shown on Map VI-C1. Pajarito Road extends through the planning area for 1.7 miles, bisecting the area. Pajarito Corridor West Planning Area encompasses TAs-35, -48, -50, -52, -55, -63, -64, -66 and small portions of TAs-05 and -46.

The activities in the Pajarito Corridor West Planning Area are heavily focused on nuclear materials research and development, such as plutonium processing, nuclear safeguards research and development, and radiochemistry. Other work includes theoretical and computational activities, waste management and treatment, and industrial partnership activities.

The following assumptions will guide physical planning at the Pajarito Corridor West Planning Area for the next 10 years:

- *The Pajarito Corridor West Planning Area is the proposed location of the nuclear campus.*
- *The replacement CMR facility will be located at TA-55.*
- *SNM processing, storage and handling should be maximized in a single PIDAS-protected area at the nuclear campus.*
- *Other activities directly related to SNM should be located within the nuclear campus, but not necessarily within the PIDAS-protected area.*

Map VI-C1: Pajarito Corridor West Key Map



2. Opportunities and Constraints

The following opportunities and constraints affect physical planning within the Pajarito Corridor West Planning Area.

Physical Constraints

Federally protected species habitat, their related buffer zones and the steep slope of Pajarito Canyon encompass a significant portion of the Pajarito Corridor West Planning Area. Adjacent to the northern boundary are 100-year floodplains and associated wetlands. There are also 100-year floodplains at the southwest and southeast boundaries. The planning area also contains isolated wetlands in the northern half of the site. Development of these environmentally sensitive areas is discouraged.

Regarding seismic concerns, the *Structural Geology of the Northwestern Portion of Los Alamos Laboratory, Rio Grande Rift, New Mexico: Implications for Seismic Surface Rupture Potential from TA-03 to TA-55* reports that TA-55 sits in a relatively simple geologic structure. For TA-55 and the eastern portions of the study area, the potential for seismic surface rupture is thought to be extremely low because virtually no deformation in the last 1.22 million years can be documented.

Operational Constraints

Almost every major facility in the Pajarito Corridor West Planning Area has a nuclear source with associated safety analysis report (SAR) areas. Consequently this is one of the most-restricted areas at the Laboratory. Work within these areas is restricted to Laboratory and Laboratory contractor personnel only.

Various experiments are conducted in TA-35 that are very sensitive to vibrations. These experiments are normally conducted at night when there is less traffic and general activity.

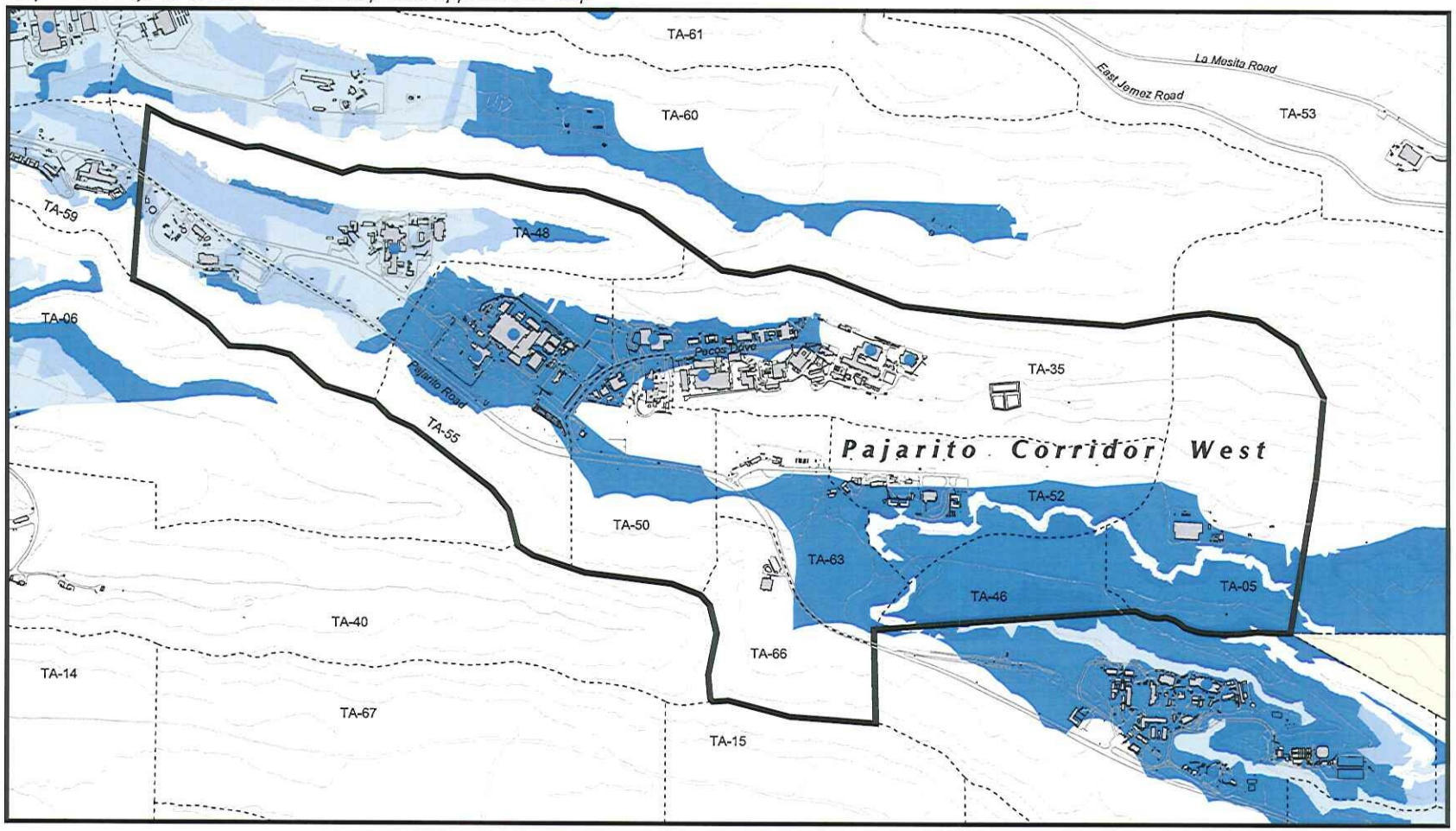
TA-50 is the primary location for Laboratory waste collection. The TA-50 waste facility complex is a hazardous, Category 3 nuclear facility. Radioactive liquid waste lines enter this facility from throughout the Laboratory. The current waste facility is 38 years old and nearing the end of its useful lifetime. There are eight radiation sources and contaminated areas in the northern half of TA-50. A possible new site for a radioactive waste treatment facility is TA-63. There is land available, and it is an appropriate location for siting such a facility.

Buildings identified as "Extremely High Risk" for seismic events within the Pajarito Corridor West Planning Area include Building 27 in TA-35 and Building 1 in TA-50.

Development Opportunities

Significant development opportunities are limited in the Pajarito Corridor West Planning Area as shown in Map VI-C2. Small parcels of developable land exist, such as east and west of TA-48 and -52, in the central part of TA-50, south of Pajarito Road, and in the southeast area of TA-66. Infill development at TA-35 and -55 is possible if permanent buildings are built to replace the small, temporary structures scattered throughout the areas. Utility and road access in this planning area is readily available.

Map VI-C2: Pajarito Corridor West Development Opportunities Map



LEGEND

- Technical Area Boundary
- Non Dept. of Energy Property
- Planning Area
- Unique Operational and/or Physical Considerations Exist
- Excellent Development Potential
- Good Development Potential
- Fair Development Potential
- Poor Development Potential
- Radiation Source

Areas of one acre or less are incorporated into the surrounding larger areas.

1500 0 1500 Feet

500 0 500 Meters

3. Projects for Pajarito Corridor West Planning Area

Proposed, planned or budgeted projects noted below and on the facing summary map, VI-C3, for this planning area were identified through Laboratory documents or by stakeholders during the Comprehensive Site Plan 2000 process. The symbol *NS* stands for project "Not Shown" on the summary sap.

Development of Nuclear Campus

(1) Planned replacement of CMR and SNM functions to new facility at TA-55.

(2) Proposed reuse of target fabrication at TA-35.

(3) Proposed replacement of waste facility at TA-50 because of life-cycle replacement need.

(4) Planned radiographic facility.

(5) Proposed removal of trailers and transportables and replacement with permanent buildings.

(6) Proposed long-term relocation or reuse of nonnuclear and public interface facilities within the nuclear campus, including Atlas and Pegasus.

Transportation Development

Three Options for Pajarito Road

(7a) Closure of Pajarito Road to public traffic with control gate to reduce safety and security concerns.

(7b) Realignment and upgrading of Pajarito Road, including new bypass road south of existing alignment.

(7c) Building of new north-south connector road between Pajarito Road and East Jemez Road to alleviate traffic on Pajarito Road.

(8) Potential restricted access road from TA-55 to potential AHF firing site in Sigma Mesa Planning Area. Road grade to be separate from new public road (1c).

(9) Proposed limited access road from TA-48 to TA-54 for movement of SNM to waste facilities.

(10) Proposed second road from TA-35 to proposed Pajarito/East Jemez Road connector road for emergency/safety access.

(11) Planned additional parking facilities to accommodate growth of nuclear campus.

(12) Proposed transit facilities to accommodate population growth at the nuclear campus.

Security Development

(13) Increased security area at the nuclear campus.

Infrastructure Revitalization

NS On-going utility revitalization activities as noted in Site Wide Planning Area section.

(14) Planned upgrade of 3-inch natural gas line from Pajarito Corridor West to TA-54 to meet capacity needs at TA-54.

(15) Proposed reconductoring of Norton electrical transmission line to increase site wide electrical distribution capacity.

Facilities Revitalization

NS Proposed replacement, removal or upgrade of poor or failing facilities that are approximately 25% of facilities in the planning area.

(16) Proposed replacement of seismic "Extremely High Risk" Building 27 at TA-35.

(17) Proposed replacement of seismic "Extremely High Risk" Building 1 at TA-50.

Quality Environment Enhancement

(18) Proposed development of walks and outdoor spaces for pedestrian and staff circulation safety.

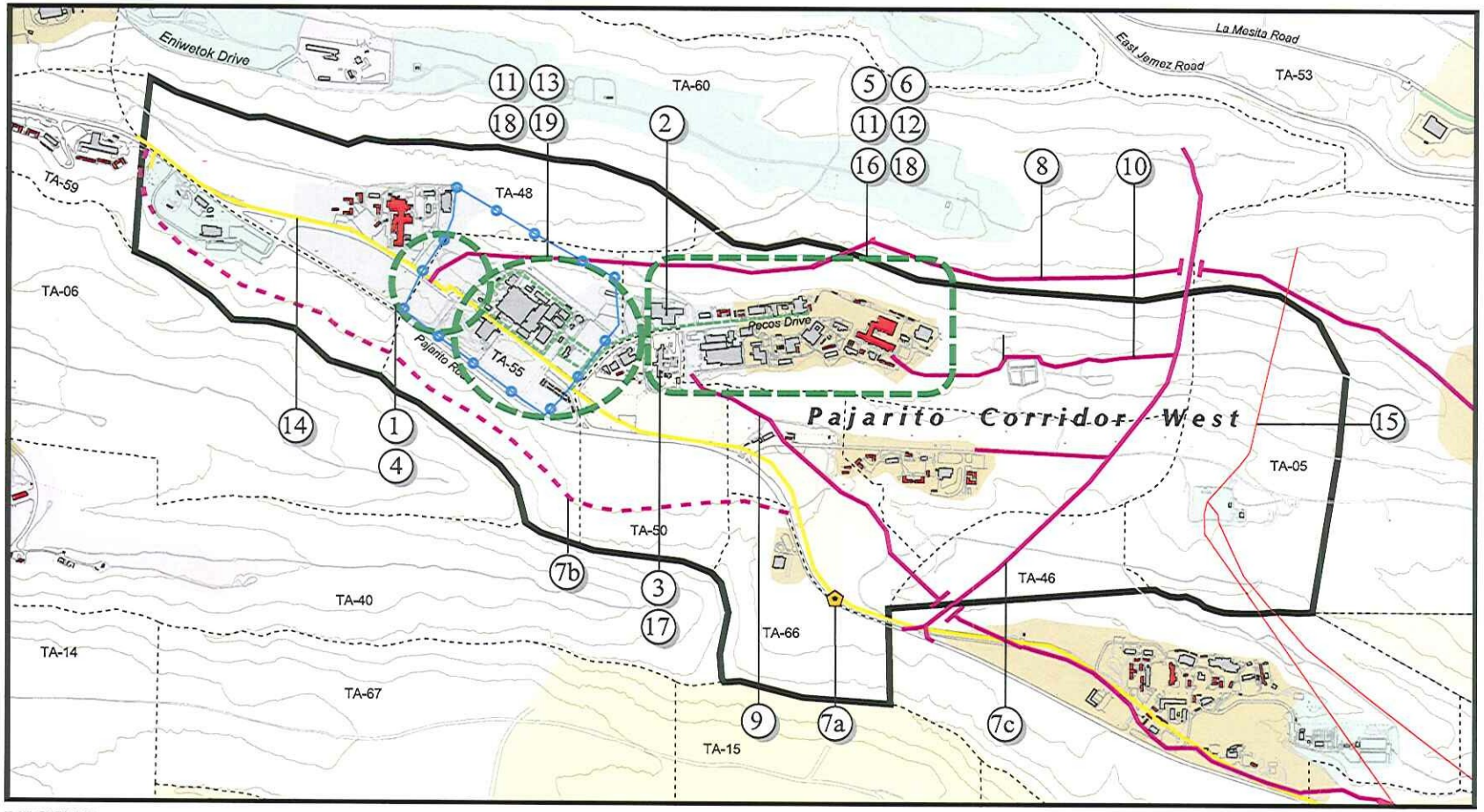
(19) Proposed development of cafeteria in nuclear campus to accommodate increased staff population.

CSP 2000 Issues for Pajarito Corridor West Planning Area

Important issues that need discussion for continued refinement of the CSP for this planning area:

- *Identify process and schedule for CMR replacement.*
- *Identify what SNM activities should eventually relocate to the nuclear campus.*
- *Identify policy for dealing with nonnuclear activities in nuclear campus.*
- *Identify process for replacing seismic "Extremely High Risk" buildings.*
- *Identity process for replacement of radioactive waste treatment facility at TA-50.*

Map VI-C3: Pajarito Corridor West Planning Area Summary Map



LEGEND

- Experimental Science
- High Explosives R&D
- High Explosive Testing
- Non-DOE Property
- Nuclear Materials R&D
- Physical/Technical Support
- Reserve
- Waste Management
- Land Transfer Tracts
- Planning Area
- Fair or Poor Buildings
- Area of Interest
- Electric Line 115 kV
- Gas Pipeline
- Long Range New or Improved Roads
- New or Improved Roads
- Proposed Fences
- Proposed Guard Gate
- Proposed Pedestrian Improvements

1500 0 1500 Feet
500 0 500 Meters

CHAPTER SEVEN
SPEED-CHANGE LANES
Section 17

Overview

Conflicts are created along state highways wherever driveways, intersections and other access points are introduced. These conflicts involve traffic traveling on the highway and traffic turning into and out of an access. To reduce conflicts at access points, right-turn and left-turn speed-change lanes are used. Speed-change lanes provide a separate facility for turning vehicles to decelerate or accelerate and to queue while waiting to turn. As a result, speed-change lanes minimize the interference between through traffic and turning traffic along the highway creating a safe environment for the traveling public. This chapter defines the criteria for determining when speed-change lanes are required or should be considered at existing or proposed access points along the state highway system.

17. SPEED-CHANGE LANE REQUIREMENTS:

A. Purpose: Speed-change lanes supplement the basic number of lanes provided on a roadway to facilitate movements to and from the roadway at access points. Their function is to minimize interference with through traffic and to reduce the conflict potential associated with motorists exiting or entering a highway facility. This section defines the criteria for determining where speed-change lanes are required along *non-access controlled* and *controlled-access* state highways that provide access via at-grade intersections. Application guidelines for speed-change lanes on *controlled-access* interstate highways and freeways, which provide access exclusively by grade-separated interchanges, are also provided; however, specific criteria for speed-change lanes on grade-separated highway facilities are not explicitly defined in this manual (see Sub-Section 17.C). Design specifications for speed-change lanes are provided in Sub-Section 18.K.

B. State Highways with At-Grade Intersections: At-grade intersections are provided along state highways in access categories UPA, RPA, UMA, RMA, UCOL and RCOL. At *unsignalized* at-grade intersections, four types of speed-change lanes are used including left-turn deceleration lanes, right-turn deceleration lanes, left-turn acceleration lanes, and right-turn acceleration lanes. At *signalized* at-grade intersections, three types of speed-change lanes are used including exclusive left-turn lanes, exclusive right-turn lanes, and right-turn acceleration lanes.

(1) Schematic Illustrations: Illustrations of left-turn and right-turn speed-change lanes are provided in Appendix E. The illustrations show the design components of the speed-change lanes with references to pertinent sections of the manual.

(2) Design Period: The need for speed-change lanes should be assessed using the design hour traffic volumes derived for the traffic study implementation year with the proposed development, or based on the future year traffic forecasts

developed for a highway improvement project. The analysis years for traffic analysis are defined in Paragraphs 16.D.3.d., 16.E.3.d., and 16.E.3.e.

(3) **General Criteria:**

(a) Speed-change lanes may be required by the NMSHTD at unsignalized or signalized access points where specific public safety and traffic operations concerns are identified and documented. Factors to be considered include traffic volume, highway speed, highway type (two-lane or multi-lane), level of service, commercial truck percentage, sight distance conditions, the influence of nearby access as well as any other pertinent site-specific issues.

(b) Left-turn acceleration and deceleration lanes should not overlap. Preference should be given to the left-turn deceleration lane. Alternative treatments to providing a left-turn acceleration lane may be considered when this situation arises such as providing traffic signal control or restricting the left-turn movement from the cross street. Alternative treatments require approval by the Department.

(c) Where two access points have right-turn speed-change lanes that overlap, or are in close proximity but do not overlap, a continuous ingress/egress lane may be established between the access points to improve roadway consistency, safety, and to maintain roadway edge continuity. An illustration of a typical ingress/egress lane application is provided in Appendix E.

(d) If the design of an access facility crosses two different speed zones, the speed-change lane design should be based upon the applicable speed limit. The applicable speed for a deceleration lane is the posted speed limit at the beginning of the deceleration lane. The applicable speed for an acceleration lane is the posted speed limit at the end of the acceleration lane.

(e) Acceleration lanes should only be used where sufficient acceleration length can be provided. Sufficient acceleration length is provided when the design vehicle is able to reach a speed within 10 mph of the posted speed on the highway.

(f) On multi-lane highways, the directional hourly traffic volume, or directional split, should be determined based on actual traffic count data. It may be assumed that traffic is equally divided among the mainline travel lanes when traffic count data are not available.

(4) **Unsignalized Intersections**: Speed-change lanes are provided at unsignalized at-grade intersections to minimize the speed differential between vehicles traveling along a roadway and vehicles entering or exiting a roadway. In addition to the location of the roadway (urban or rural), the three primary factors used to determine the need for a speed-change lane at an unsignalized at-grade access are highway travel speed, directional traffic volume per lane, and turning traffic

volume. Sight distance conditions, level of service, and roadway geometry should also be examined when determining the need for speed-change lanes as specified under Paragraph 17.B.3, General Criteria.

(a) **Urban Versus Rural Conditions**: For state highways which provide at-grade access, the criteria for determining the need for speed change lanes is defined separately for urban highways and rural highways. The criteria should be applied to New Mexico highways according to the Access Categorization System defined in Section 10.

(b) **Urban Conditions**: The need for speed-change lanes on highways in Access Categories UPA, UMA and UCOL is based on the criteria established for urban conditions.

i. **Left-turn Deceleration Lanes**:

- Urban Two-lane Highways: Left-turn deceleration lanes should be provided on urban two-lane highways based on the criteria stated in Table 17.B-1.

- Urban Multi-lane Highways: Left-turn deceleration lanes should be provided on urban multi-lane highways based on the criteria stated in Table 17.B-2.

ii. **Right-turn Deceleration Lanes**:

- Urban Two-lane Highways: Right-turn deceleration lanes should be provided on urban two-lane highways based on the criteria provided in Table 17.B-1.

- Urban Multi-lane Highways: Right-turn deceleration lanes should be provided on urban multi-lane highways based on the criteria provided in Table 17.B-2.

iii. **Right-turn Acceleration Lanes**: Right-turn acceleration lanes may be required at unsignalized at-grade access points on urban two-lane and multi-lane state highways with posted speed limits greater than 40 mph where an acceleration lane is necessary for public safety and traffic operations based upon site and roadway specific conditions.

iv. **Left-turn Acceleration Lanes**: Left-turn acceleration lanes may be required at unsignalized at-grade access points on urban two-lane and multi-lane state highways with posted speed limits greater than 45 mph where an acceleration lane is necessary for public safety and traffic operations based upon site and roadway specific conditions. The acceleration lane must not interfere with left-turn movements to any other access.

Table 17.B-1
Criteria for Deceleration Lanes on
URBAN TWO-LANE HIGHWAYS

Turning Volume [1] (vph)	LEFT-TURN DECELERATION LANE			RIGHT-TURN DECELERATION LANE		
	Minimum Directional Volume in the Through Lane (vphpl) [2]			Minimum Directional Volume in the Through Lane (vphpl) [2]		
	≤ 30 mph	35 to 45 mph	45 to 55 mph	≤ 30 mph	35 to 40 mph	45 to 55 mph
< 5	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
5	510	450	330	1,080	610	360
10	390	330	210	700	400	240
15	320	250	150	500	280	170
20	270	200	120	380	210	140
25	230	160	100	300	180	120
30	200	130	Required	250	160	110
35	170	110	Required	220	150	100
40	150	Required	Required	200	140	Required
45	130	Required	Required	190	Required	Required
≥ 46	Required	Required	Required	Required	Required	Required
	Left-turn Deceleration Lanes are Required on Urban Two-lane Highways for the following Left-turn Volumes: • ≤ 30 mph : 46 vph or more • 35 to 40 mph : 36 vph or more • 45 to 55 mph : 26 vph or more			***Right-turn Deceleration Lanes are Required on Urban Two-lane Highways for the following Right-turn Volumes:*** • ≤ 30 mph : 46 vph or more • 35 to 40 mph : 41 vph or more • 45 to 55 mph : 36 vph or more		

Notes:

1. *Use linear interpolation for turning volumes between 5 and 45 vph*
2. *The directional volume in the through lane includes through vehicles and turning vehicles.*

Table 17.B-2
Criteria for Deceleration Lanes on
URBAN MULTI-LANE HIGHWAYS

Turning Volume [1] (vph)	LEFT-TURN DECELERATION LANE			RIGHT-TURN DECELERATION LANE		
	Minimum Volume in the Adjacent Through Lane (vphpl) [2]			Minimum Volume in the Adjacent Through Lane (vphpl) [2]		
	≤ 30 mph	35 to 40 mph	45 to 55 mph	≤ 30 mph	35 to 40 mph	45 to 55 mph
< 5	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
5	Not Required	490	420	1,200	730	450
10	420	370	300	820	490	320
15	360	290	220	600	350	240
20	310	230	160	460	260	180
25	270	190	130	360	230	150
30	240	160	110	290	200	130
35	210	130	100	260	180	120
40	180	120	Required	240	170	110
45	160	110	Required	220	160	Required
50	140	Required	Required	200	Required	Required
55	120	Required	Required	190	Required	Required
≥ 56	Required	Required	Required	Required	Required	Required
	Left-turn Deceleration Lanes are Required on Urban Multi-lane Highways for the following Left-turn Volumes: • ≤ 30 mph : 56 vph or more • 35 to 40 mph : 46 vph or more • 45 to 55 mph : 36 vph or more			***Right-turn Deceleration Lanes are Required on Urban Multi-lane Highways for the following Right-turn Volumes:*** • ≤ 30 mph : 56 vph or more • 35 to 40 mph : 46 vph or more • 45 to 55 mph : 41 vph or more		

Notes:

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

(c) **Rural Conditions**: The need for speed-change lanes on highways in Access Categories RPA, RMA and RCOL is based on the criteria established for rural conditions.

i. **Left-turn Deceleration Lanes**:

- Rural Two-lane Highways: Left-turn deceleration lanes should be provided on rural two-lane highways based on the criteria provided in Table 17.B-3.

- Rural Multi-lane Highways: Left-turn deceleration lanes should be provided on rural multi-lane highways based on the criteria provided in Table 17.B-4.

ii. **Right-turn Deceleration Lanes**:

- Rural Two-lane Highways: Right-turn deceleration lanes should be provided on rural two-lane highways based on the criteria provided in Table 17.B-5.

- Rural Multi-lane Highways: Right-turn deceleration lanes should be provided on rural multi-lane highways based on the criteria provided in Table 17.B-6.

iii. **Right-turn Acceleration Lanes**: Right-turn acceleration lanes may be required at unsignalized at-grade access points on rural two-lane and multi-lane state highways with posted speed limits greater than 40 mph where an acceleration lane is necessary for public safety and traffic operations based upon site and roadway specific conditions.

iv. **Left-turn Acceleration Lanes**: Left-turn acceleration lanes may be required at unsignalized at-grade access points on rural two-lane and multi-lane state highways with posted speed limits greater than 45 mph where an acceleration lane is necessary for public safety and traffic operations based upon site and roadway specific conditions. The acceleration lane must not interfere with left-turn movements to any other access.

(5) **Signalized Intersections**: Speed-change lanes are provided at signalized intersections to improve intersection operational efficiency, to provide vehicle storage area for left-turn and right-turn movements, to increase the capacity (throughput) of the intersection, and to reduce incident potential. The lane requirements at a signalized intersection should be based on intersection capacity analysis, signal system progression analysis and actual field observations. The proximity of adjacent signalized intersections should also be considered. Refer to Section 15, Traffic Engineering Evaluation, for further information regarding the operational characteristics, spacing requirements and analysis of signalized intersections.

Table 17.B-3
Criteria for Left-turn Deceleration Lanes on
RURAL TWO-LANE HIGHWAYS

Left-Turn Volume [1] (vph)	LEFT-TURN DECELERATION LANE			
	Minimum Directional Volume in Through Lane (vphpl) [2]			
	≤ 30 mph	35 to 40 mph	45 to 55 mph	> 55 mph
< 5	Not Required	Not Required	Not Required	Not Required
5	400	220	120	60
10	240	140	80	40
15	160	100	60	Required
20	120	80	Required	Required
25	100	Required	Required	Required
≥ 26	Required	Required	Required	Required
	Left-turn Deceleration Lanes are Required on Rural Two-lane Highways for the following Left-turn Volumes: • ≤ 30 mph : 26 vph or more • 35 to 40 mph : 21 vph or more • 45 to 55 mph : 16 vph or more • > 55 mph : 11 vph or more			

Notes.

1. *Use linear interpolation for left-turn volumes between 5 and 25 vph.*
2. *The directional volume in the through lane includes through vehicles and turning vehicles.*

Table 17.B-4
Criteria for Left-turn Deceleration Lanes on
RURAL MULTI-LANE HIGHWAYS

Left-Turn Volume [1] (vph)	LEFT-TURN DECELERATION LANE			
	Minimum Volume in Adjacent Through Lane (vphpl) [2]			
	≤ 30 mph	35 to 40 mph	45 to 55 mph	> 55 mph
< 5	Not Required	Not Required	Not Required	Not Required
5	450	310	210	130
10	310	220	130	90
15	240	160	100	70
20	190	130	80	Required
25	150	110	Required	Required
30	130	Required	Required	Required
35	110	Required	Required	Required
≥ 36	Required	Required	Required	Required

Left-turn Deceleration Lanes are Required on Rural Multi-lane Highways for the following Left-turn Volumes:

- ≤ 30 mph : 36 vph or more
- 35 to 40 mph : 26 vph or more
- 45 to 55 mph : 21 vph or more
- > 55 mph : 16 vph or more

Notes:

1. *Use linear interpolation for left-turn volumes between 5 and 35 vph*
2. *The volume in the adjacent through lane includes through vehicles and turning vehicles.*

Table 17.B-5
Criteria for Right-Turn Deceleration Lanes on
RURAL TWO-LANE HIGHWAYS

Right-Turn Volume [1] (vph)	RIGHT-TURN DECELERATION LANE			
	Minimum Directional Volume in Through Lane (vphpl) [2]			
	≤ 30 mph	35 to 40 mph	45 to 55 mph	> 55 mph
< 5	Not Required	Not Required	Not Required	Not Required
5	800	460	270	160
10	430	280	170	110
15	290	180	110	80
20	200	140	90	70
25	170	120	80	Required
30	160	110	Required	Required
≥ 31	Required	Required	Required	Required
	Right-turn Deceleration Lanes are Required on Rural Two-lane Highways for the following Right-turn Volumes: • ≤ 30 mph : 31 vph or more • 35 to 40 mph : 31 vph or more • 45 to 55 mph : 26 vph or more • > 55 mph : 21 vph or more			

Notes:

1. *Use linear interpolation for left-turn volumes between 5 and 30 vph*
2. *The directional volume in the through lane includes through vehicles and turning vehicles*

Table 17.B-6
Criteria for Right-Turn Deceleration Lanes on
RURAL MULTI-LANE HIGHWAYS

Right-Turn Volume [1] (vph)	RIGHT-TURN DECELERATION LANE			
	Minimum Volume in Adjacent Through Lane (vphpl) [2]			
	≤ 30 mph	35 to 40 mph	45 to 55 mph	> 55 mph
< 5	Not Required	Not Required	Not Required	Not Required
5	910	520	310	180
10	520	330	200	130
15	370	220	140	100
20	270	170	110	90
25	220	140	100	Required
30	200	130	90	Required
35	180	120	Required	Required
≥ 36	Required	Required	Required	Required

Right-turn Deceleration Lanes are Required on Rural Multi-lane Highways for the following Right-turn Volumes:

- ≤ 30 mph : 36 vph or more
- 35 to 40 mph : 36 vph or more
- 45 to 55 mph : 31 vph or more
- > 55 mph : 21 vph or more

Notes:

1. *Use linear interpolation for left-turn volumes between 5 and 35 vph*
2. *The volume in the adjacent through lane includes through vehicles and turning vehicles.*

The use of speed-change lanes at signalized intersections is generally consistent for all access categories, urban and rural. Guidelines for determining the need for speed-change lanes at signalized intersections are provided below. The guidelines apply to all access categories except UINT and RINT. Situations where guidelines vary by access category are noted.

(a) **Exclusive Right-turn Lanes**: Exclusive right-turn lanes should be considered at signalized intersections under the following conditions:

i. Where the right-turn design hour volume (DHV) equals or exceeds 300 DHV and the volume in the outside general purpose travel lane equals or exceeds 300 DHV (i.e., the total volume in the outside travel lane is equal to or greater than 600 DHV including a right-turn volume of at least 300 DHV); or,

ii Where the right-turn volume equals or exceeds 150 DHV and the volume-to-capacity (v/c) ratio for the adjacent through movement(s) is expected to be 0.85 or greater based on accepted analysis methodologies; or,

iii. Where the right-turn volume equals or exceeds 100 DHV and the posted speed is 45 mph or above.

(b) **Exclusive Left-turn Lanes**:

i. Exclusive left-turn lanes should be provided at all intersections along state highways where new or modified traffic signal control will be implemented.

ii. For Access Categories UPA, UMA, RPA and RMA, dual exclusive left-turn lanes should be considered at signalized intersections where the left-turn volume equals or exceeds 250 DHV and the volume-to-capacity (v/c) ratio for a single-lane left-turn movement is determined to be equal to or greater than 0.95 for the left-turn movement based on accepted analysis methodologies.

(c) **Right-turn Acceleration Lanes**: In urban areas, signalized intersections should generally be designed to avoid the need for right-turn acceleration lanes. In rural areas, right-turn acceleration lanes should be considered at signalized intersections under the following conditions:

i. Where a free-moving, channelized right-turn movement from the cross street does not result in an additional lane on the mainline roadway (this does not include yield-controlled right-turn movements); or,

ii. Where sight distance is limited and the posted speed on the highway is greater than 40 mph; or,

iii Where a speed-change lane is required to transition a dual right-turn movement into the mainline roadway general-purpose lanes.

(d) **Left-turn Acceleration Lanes**: Left-turn acceleration lanes are typically not provided at signalized intersections.

C. **State and Interstate Highways with Grade-Separated Interchanges**: Speed-change lanes are used on controlled-access state and interstate highways at or between grade-separated interchanges. The need for speed-change lanes on grade-separated highway facilities should be determined based on design principles contained in the AASHTO publication *A Policy on Geometric Design of Highways and Streets* (Sub-Section 9.C), and based on detailed traffic operations analyses of the grade-separated facilities according to *Highway Capacity Manual* (Sub-Section 9.E) methodologies. The need for and function of speed-change lanes should be documented in an Interchange Management Plan for the interchange (refer to Section 12). New or modified access to a controlled-access highway must comply with Administrative Directive (AD) 222. Additional information on interstate highway facilities is provided in Sub-Section 13.D, Access Category Standards for urban and rural interstates.

(1) **Application Guidelines**: Speed-change lanes on grade-separated highway facilities are referred to as acceleration lanes, deceleration lanes, or as an auxiliary lane. The term "lane" may refer to a taper or a lane of uniform width depending on site-specific conditions and the design-type of the lane (i.e. taper or parallel). Speed-change lanes are generally provided along grade-separated highways (which may include highways in access categories UINT, RINT, UPA or RPA) for the situations listed below. At a minimum, speed-change lanes should enable a driver to make the necessary transition between the speed on a ramp roadway and the speed of operation on the mainline highway in a safe and comfortable manner.

(a) A deceleration lane should be provided for a movement exiting the highway's mainline lanes to an off-ramp roadway (diverge movements). An acceleration lane should be provided for a movement entering the mainline lanes from an on-ramp roadway (merge movements).

(b) Ramp-to-ramp auxiliary lanes may be required where interchanges are too closely spaced and/or where the distance between the end of the on-ramp taper and the beginning of the off-ramp taper is short.

(c) Auxiliary lanes may be required to provide lane continuity between interchanges along short segments of the freeway (i.e., generally segments less than one-mile in length).

(d) Ramp-to-ramp auxiliary lanes may be used to provide additional freeway capacity between ramps to extend the service life of the facility prior to the implementation of extensive improvements to the facility.

CHAPTER EIGHT
ACCESS LOCATION AND DESIGN STANDARDS
Section 18

Overview

This chapter defines access location and spacing standards that apply when access is requested along a state highway facility, and provides standards for the design of proposed access points. When applied, the standards will reduce conflicts along state highways that occur at access points and will result in the consistent application of design techniques used for state highway facilities. The design information provided is not all encompassing and should be supplemented by other highway and intersection design guidelines, in particular, the AASHTO document "A Policy on Geometric Design of Highways and Streets."

18. ACCESS LOCATION AND DESIGN STANDARDS:

A. **General**: The Department has developed these standards to provide guidance for the location and design of access points along state highways, specifically for those highways in access categories UPA, RPA, UMA, RMA, UCOL, and RCOL. These criteria are based upon established design standards meant to protect public safety, to maintain safe and smooth-flowing traffic operations, and to preserve the intended function of all state highway facilities.

(1) **Local Standards**: Where a local jurisdiction has established more stringent design standards than the Department, the local standards should be applied with the concurrence of the Department.

(2) **Material Placed within State Rights-of-Way**: Any materials used within state highway right-of-way shall be subject to approval by the NMSHTD. Refer to Section 14 for additional requirements regarding construction within state highway right-of-way.

(3) **Units**: The design criteria are specified in English units: miles per hour (mph) for speed limits, and feet for distance measurements. Metric equivalents are provided in Appendix F.

(4) **References**: The references listed in Section 9 are provided to supplement the design criteria contained herein. Where specific design criteria are not provided, the design approach should be based on nationally accepted standards and should be consistent with Department specifications.

B. **Access Location**: Access points should be located along state highways based on the spacing criteria defined in Sub-Section 18.C and on the sight distance requirements in Sub-Section 18.F. Factors to consider when locating access points are described below. In general, access points should be located to minimize turning movement conflicts between adjacent access facilities, and to provide adequate separation of conflicts for oncoming motorists.

(1) **Direct Access**: Direct access to a state highway may be considered when adequate access to other roadway facilities is not available. When access is required along a state highway, the number of access points should be limited to one per site unless frontage is adequate and design hour traffic volumes indicate that the operational level of service for a single access is expected to be below the minimum acceptable LOS standards defined in Table 15.C-1.

(2) **Proximity to Speed-Change Lanes**: Access should not be permitted within a speed-change lane, or within 50 feet of either the leading or trailing limits of a speed-change lane.

(3) **Interchange Proximity**: Access shall not be permitted within the access control limits of an interchange, as established by the Department's access control determination, or within 50 feet of the leading or trailing edge of the access control limits for the interchange.

(4) **Corner Clearance**: Driveway access should be controlled on both the approach and departure sides of an intersection to maintain corner clearances. Corner clearances should be consistent with the access spacing standards defined in Section 18.C. These distances may require modification such as at locations where speed change lanes are provided or where vehicle queuing needs exist. Refer to Sub-Section 7.U for a definition and illustration of corner clearance.

(5) **Edge Clearance**: The location of access points relative to frontage property lines (Sub-Section 7.AN) should be based on local requirements. When property frontage is not adequate to comply with local government's edge clearance requirements, shared access should be considered. Shared access driveways should be provided across property lines of adjoining parcels. Refer to Sub-Section 7.AJ for a definition and illustration of edge clearance.

C. **Access Spacing**: Criteria for determining the required spacing of access points along state highways are described below. These criteria should be applied together with the access location factors discussed in Sub-Section 18.B and the median opening requirements described in Sub-Section 18.D.

(1) **Non-Developed and Developing Areas**: Access spacing standards for new access points in non-developed and developing areas (i.e., highway segments with few existing access points) are defined in Table 18.C-1 by access category and posted speed. The spacing distances are measured from centerline to centerline of adjacent access points. An applicant may request a variance to the spacing requirements when physical characteristics of a property preclude access spacing based on the standards in Table 18.C-1.

(2) **Developed Areas**: In developed or redeveloping areas where existing driveway locations preclude access spacing based on the standards in Table 18.C-1, new access points should be located to minimize conflicts with existing access points. Access points should be consolidated where possible to provide shared property access. No more than one access per property should be allowed.

Table 18.C-1
Access Spacing Standards for Intersections and Driveways
(centerline to centerline spacing in feet)

Access Category	Posted Speed (mph)	Intersection Spacing (feet) [1]		Driveway Spacing (feet) [2]		
				Non-Traversable Median		Traversable Median [4]
		Signalized	Unsignalized [3]	Full Access	Partial Access	
Controlled-Access, Non-Interstate Highways	All Speeds	5,280	2,640	2,640	2,640	-NA-
UPA	≤ 30 mph	2,640	1,320	1,320	200	200
	35 to 40 mph	2,640	1,320	1,320	325	325
	45 to 50 mph	2,640	1,320	1,320	450	450
	≥ 55 mph	5,280	1,320	1,320	625	625
UMA	≤ 30 mph	1,760	660	660	175	175
	35 to 40 mph	1,760	660	660	275	275
	45 to 50 mph	2,640	660	660	400	400
	≥ 55 mph	5,280	1,320	1,320	600	600
UCOL	≤ 30 mph	1,100	330	330	150	150
	35 to 40 mph	1,320	330	330	225	225
	45 to 55 mph	1,760	660	660	350	350
RPA	≤ 30 mph	2,640	1,320	1,320	225	225
	35 to 40 mph	2,640	1,320	1,320	350	350
	45 to 50 mph	5,280	2,640	2,640	500	500
	≥ 55 mph	5,280	2,640	2,640	775	775
RMA	≤ 30 mph	1,760	660	660	200	200
	35 to 40 mph	2,640	660	660	325	325
	45 to 50 mph	2,640	1,320	1,320	450	450
	≥ 55 mph	5,280	2,640	2,640	725	725
RCOL	≤ 30 mph	1,320	330	330	200	200
	35 to 40 mph	1,760	660	660	300	300
	45 to 50 mph	2,640	1,320	1,320	425	425
	≥ 55 mph	2,640	1,320	1,320	550	550

Notes:
1. Intersection - Public street or other access serving a large area or a major traffic generator(s) where full access is typically provided.
2. Driveway - Public or private access serving a limited area where traffic signal control is not required.
3. In urban areas, spacing should be consistent with the established street spacing along the state highway facility.
4. Includes highways with no median or a painted median. The type of access, full or partial, is determined at the discretion of the Department. See Sub-Sections 7.AO and 7.BP.

(3) **Business Districts**: The spacing of access points within business districts on urban or rural highways may be adjusted based on site-specific conditions consistent with the requirements for the access category of the highway. A business district occurs along a highway when within 300 feet along such highway there are buildings in use for business or industrial purposes (including but not limited to hotels, banks or office buildings, railroad stations and public buildings) which occupy at least fifty percent of the frontage on one side or fifty percent of the frontage collectively on both sides of the highway. [NMSA 1978, 66-1-4.2.d.]

(4) **Signalized Access Spacing**: Signalized intersection spacing standards are defined in Table 18.C-1. Refer to Sub-Section 15.F, Traffic Signals, for requirements pertaining to traffic signal installations.

(5) **Opposing Driveway Spacing**: Driveways on opposite sides of a highway should be aligned to create a four-legged access intersection. Offset driveway locations should be avoided.

(a) **Non-Traversable Median**: When driveways are on opposite sides of a highway with a non-traversable median, the driveway centerlines should be centered approximately on the median opening. Where offset driveway locations are expected to result in turning movement conflicts at the median opening, access restrictions should be considered. Schematic illustrations of access channelization alternatives are provided in Appendix E.

(b) **Traversable Median**: When driveways are on opposite sides of a highway with no median or a traversable median, the driveway centerlines should be located to minimize conflict potential based on site-specific conditions.

D. **Median Openings**: New median openings on state highways with non-traversable medians should not be allowed unless a traffic engineering study analyzing all related traffic and safety issues is prepared and approved by the Department.

(1) **Median Opening Spacing**: Median openings at intersections or full-access driveways should be spaced with a minimum frequency based upon the access category and posted speed of the highway as defined in Table 18.C-1. The following criteria should also be considered.

(a) **Speed Change Lanes**: Adequate storage, deceleration and taper lengths should be provided for each speed change lane installed at a median opening based on site-specific conditions (see Sub-Sections 18.K and 18.L).

(b) **Local Jurisdiction**: Where a local jurisdiction has established by ordinance or resolution a more stringent median opening spacing standard than required by the Department, the local standard should govern with the concurrence of the Department.

(2) **Median Opening Length**: Median openings should be designed to accommodate the largest design vehicle anticipated to use the opening. A median opening may be designed to permit U-turn movements. If the opening is too narrow to safely permit a U-turn, based upon storage and vehicle turning characteristics, U-turns should be addressed in design or restricted through signage (R3-4). Sign use and placement requires Department approval. Details regarding the design of median openings should be obtained from the AASHTO guideline, *A Policy on Geometric Design of Highways and Streets* (Sub-Section 9.C).

(3) **Access Restrictions**: Median openings typically accommodate left-turn ingress and egress at an access point. Restrictions to full left-turn access may be required due to safety or operational deficiencies that would be expected if a full access median were implemented. Restricted movements should be prohibited through geometric design and channelization supplemented by signing in accordance with the MUTCD. Schematic illustrations of access channelization alternatives are provided in Appendix E. U-turns should be prohibited at all partial-access median openings.

E. **Selection of Design Vehicle**: The design vehicle should be used to determine the geometric characteristics of a roadside access or a median opening, and to define the required design components for the adjacent highway. This vehicle should be the largest vehicle that is expected to access the site on a daily basis. Design vehicles should be consistent with the classifications specified by the AASHTO guideline, *A Policy on Geometric Design of Highways and Streets* (Sub-Section 9.C). Suggested design vehicles, generalized by land use type, are listed in Table 18.E-1. When a larger design vehicle than is suggested in Table 18.E-1 is expected to use a proposed access, design criteria for the larger vehicle should be used. For example, for developments near interstate highways, a WB-62 design vehicle should be used in the design of truck stops as well as the interchange that is used to access the truck stop instead of the WB-50 design vehicle. Selection of the design vehicle is subject to the approval of the District Traffic Engineer.

Table 18.E-1
Design Vehicle by Land Use

Land Use(s) Served by Access	Design Vehicle
Residential	Passenger Car/Pickup
Residential on Bus Route	Single Unit Truck
Office with Separate Truck Access	Passenger Car/Pickup
Office without Truck Access	Single Unit Truck
Commercial/Retail with Separate Truck Access	Passenger Car/Pickup
Commercial/Retail without Truck Access	WB-50 Truck
Industrial with Separate Truck Access	Passenger Car/Pickup
Industrial without Separate Truck Access	WB-50 Truck
Recreational without Water or Camping	Passenger Car/Pickup
Recreational with Water or Camping	Motor Home/Boat
Agricultural Field Access	Single Unit Truck
Municipal and County Roads	WB-50 Truck

- "with Separate Truck Access" indicates truck prohibition from primary access
- "without Water" indicates no recreational watercraft.

F. **Sight Distance**: Sight distance at all access locations shall be adequate to provide safe operating conditions for the motoring public. An access permit should not be issued unless adequate stopping sight distances are provided for motorists *passing* the access, and adequate entering and crossing sight distances are provided for motorists *using* the access. The permittee shall maintain adequate, unobstructed sight distance in both directions from the access. Any potentially obstructing objects such as but not limited to advertising signs, structures, trees and bushes, shall be designed, placed and maintained at a height not to interfere with the sight distances needed by any vehicle using the access. Roadway reconstruction may be required to provide adequate sight distance.

(1) **Stopping Sight Distance**: For the purposes of access design, stopping sight distance (SSD) is an estimate of the distance required for a motorist to perceive a vehicle in the roadway at the access and come to a complete stop before striking the vehicle.

(a) Table 18.F-1 should be used to determine the required SSD as measured from the vehicle traveling on the highway to the access. Grade-adjusted distances are provided in the table. The values are applicable to all design vehicles. The design SSD values are based on wet pavement conditions.

(b) For calculating and measuring SSD for *access design* purposes, a height of 3.5 feet shall be used for the driver's eyes and a height of 4.25 feet shall be used for a vehicle assumed to be on the centerline of the access, five feet back from the edge of the traveled way. The driver's eye shall be assumed to be at the centerline of the outside travel lane on the highway (i.e., the lane furthest from the highway centerline).

(c) For calculating and measuring SSD for *highway design* purposes, a height of 3.5 feet shall be used for the driver's eyes and a height of 2.0 feet should be used for an object in the traveled way.

Table 18.F-1
Stopping Sight Distance Design Values (feet)

Grade	Posted Speed (mph)									
	25	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**
> +5%	120	160	200	260	320	380	440	520	580	680
+3% to +5%	140	180	230	290	360	430	500	590	650	770
-3% to +3%	**150**	**200**	**250**	**325**	**400**	**475**	**550**	**650**	**725**	**850**
-5% to -3%	180	240	300	390	480	570	660	780	870	1,020
< -5%	200	270	340	440	540	640	740	880	980	1,150

Level terrain values are based on Table III-1 in AASHTO (see Sub-Section 9 C). These values are applicable to all design vehicles.

(2) **Entering Sight Distance:** Entering sight distance corresponds to the distance that an approaching vehicle, traveling at the posted speed limit, must be seen from the access point to permit a vehicle to safely enter the roadway and accelerate to the posted speed without being overtaken by an oncoming vehicle, or to cross the roadway. Entering sight distance applies to vehicles exiting a site by turning left or right, or crossing a roadway, from a stopped condition.

(a) Table 18.F-2 contains minimum and desirable criteria that should be used to determine the required entering sight distance for the design vehicle specified for the access.

i Minimum criteria are applicable to access points located in rolling or mountainous terrain or other situations where the desirable criteria cannot be reasonably attained.

ii Desirable criteria are applicable to access points located in level terrain and/or where 100 total trips are expected to utilize the access during the design hour.

(b) The entering sight distance values provided in Table 18.F-2 should be adjusted for any grade of three percent or greater using the grade adjustment factors for deceleration in Table 18.K-2.

(c) For calculating and measuring entering sight distance, a height of 3.5 feet shall be used for the driver's eyes at the access location, and a height of 4.25 feet shall be used for the oncoming vehicle. The entering driver's eyes should be assumed to be 15 feet back from the edge of the traveled way.

(d) If there is no median or if the median is too narrow to safely store a left-turning or crossing vehicle (a 20-foot minimum for passenger cars), both directions of through lane travel should be considered from the access location.

(e) If the median can safely store the turning or crossing vehicle, then sight distance may consider a two-stop condition. The vehicle will stop once at the outside edge of the outside lane and again within the median. Each one-way highway direction may be considered separately.

G. **Driveway Angle:** The access centerline should be perpendicular to the state highway centerline and extend tangentially for a minimum distance of 40 feet beyond the near-side edge line. An acute angle between 75 degrees and 90 degrees may be permitted if significant physical constraints exist. Acute angles less than 75 degrees shall require special approval of the Department.

H. **Access Radius:** The access radius should be designed to accommodate the design vehicle expected to use the access on a daily basis. Table 18.E-1 lists recommended design vehicles by type of land use. Access radii apply to driveways that are not urban section driveway cuts. The radius may be designed as a simple curve, a simple curve/taper

Table 18.F-2
Required Sight Distance for Vehicles
Entering and/or Crossing a Highway (feet)

Roadway Condition (see text, Paragraph 18.F.2.a)	Posted Speed of the Highway (mph)									
	25	30	35	40	45	50	55	60	65	70
PASSENGER CAR/PICK-UP										
Minimum Criteria										
2-lane highway	250	300	350	400	450	500	550	600	650	700
4-lane highway	300	360	420	480	540	600	660	720	780	840
6-lane highway	325	390	455	520	585	650	715	780	845	910
Desirable Criteria										
2-lane highway (no median)	250	300	390	490	600	750	870	1090	1280	1560
3-lane highway (incl. 16' median)	270	320	400	500	610	760	890	1110	1290	1580
4-lane highway (no median)	280	340	400	500	610	760	880	1100	1290	1570
4-lane highway (incl. 16' median)	310	370	430	520	630	770	900	1120	1310	1590
6-lane highway (incl. 16' median)	330	400	460	530	640	790	910	1130	1320	1600
SU TRUCK										
Minimum Criteria										
2-lane highway	325	390	455	520	585	650	715	780	845	910
4-lane highway	375	450	525	600	675	750	825	900	975	1050
6-lane highway	425	510	595	680	765	850	935	1020	1105	1190
Desirable Criteria										
2-lane highway (no median)	340	410	480	610	760	960	1120	1420	1680	2070
3-lane highway (incl. 16' median)	380	450	520	630	770	970	1140	1440	1690	2080
4-lane highway (no median)	390	470	550	630	770	970	1140	1430	1690	2080
4-lane highway (incl. 16' median)	420	510	590	680	780	990	1150	1450	1700	2090
6-lane highway (incl. 16' median)	460	550	640	730	830	1000	1160	1460	1720	2110
COMBINATION TRUCK										
Minimum Criteria										
2-lane highway	425	510	595	680	765	850	935	1020	1105	1190
4-lane highway	500	600	700	800	900	1000	1100	1200	1300	1400
6-lane highway	525	630	735	840	945	1050	1155	1260	1365	1470
Desirable Criteria										
2-lane highway (no median)	450	540	630	720	890	1130	1330	1690	1990	2460
3-lane highway (incl. 16' median)	490	590	680	780	910	1150	1350	1700	2010	2480
4-lane highway (no median)	510	610	720	820	920	1140	1340	1700	2000	2470
4-lane highway (incl. 16' median)	550	650	760	870	980	1160	1360	1720	2020	2490
6-lane highway (incl. 16' median)	590	710	830	950	1060	1180	1370	1730	2030	2500

The desirable criteria assumes near right-angle intersections and level cross-street intersection approaches, and is based on Intersection Decision Sight Distance, Cases III A and III B, AASHTO, Sub-Section 9.C.

combination, or a 3-centered compound curve. The simple curve/taper combination is preferred for driveways designed for large trucks. Table 18.H-1 contains the minimum radii for a 90 degrees turn by design vehicle. Criteria for other angles and design vehicles may be obtained from the AASHTO guideline, *A Policy on Geometric Design of Highways and Streets* (Sub-Section 9.C), Tables IX-1 and IX-2. The radius is measured from the travel lane edge line or curb line, or from the terminus of the speed change lane.

(1) **Delineation:** The edge of each access radius should be delineated with permanent edge line striping or curbing. The edge line striping material shall be approved by the Department.

(2) **Driveway Cuts:** Driveway cuts should only be installed in urban areas with curb, gutter and sidewalk along the frontage. If traffic volumes require a right-turn deceleration or acceleration lane, a driveway cut should not be used.

Table 18.H-1
Minimum Access Radius by Design Vehicle for 90-degree Turn (feet)

Design Vehicle	Simple Curve Radius	Simple Curve Radius with Taper	Compound Curve Radii and Offset
Passenger Car/Pickup	30	20 / 2.5 / 10:1	100 – 20 – 100 / 2.5
Single Unit Truck	50	40 / 2.0 / 10:1	120 – 40 – 120 / 2.0
WB-50 Truck	N/A	60 / 4.0 / 15:1	180 – 60 – 180 / 6.0

Simple Curve Radius with Taper: radius (ft) / offset (ft) / taper (ft:ft)
Compound Curve Radii: radius 1 – radius 2 – radius 3 / symmetric offset, in feet

I. **Driveway Width:** The width of a driveway should be measured exclusive of radii or tapers. Driveway widths should vary by design vehicle. All two-way driveways should accommodate a concurrent entering and exiting design vehicle, including the vehicle's off-tracking. Table 18.I-1 contains the driveway throat width criteria in feet. Paragraphs 18.I.1 through 18.I.3. provide further guidance on driveway widths.

Table 18.I-1
Driveway Throat Width Criteria (feet)

Design Vehicle	Driveway Cut	Two-way Access	One-way Access
Passenger Car/Pickup	16 - 30 ft.	20 - 30 ft.	16 - 24 ft.
SU Truck	30 - 40 ft.	25 - 35 ft.	16 - 24 ft.
WB-50 Truck	40 - 50 ft.	30 - 40 ft.	20 - 30 ft.

Driveway throat width varies based upon the return radius required for the design vehicle, see Table 18.H-1, and on the intensity of use

(1) **Turn lanes:** Left and/or right-turn lanes may be added to the standard driveway width at major generator sites. Where the need for an additional turn lane(s) can be demonstrated, the driveway throat width may exceed the ranges stipulated in Table 18.I-1. Turn lanes should only be added to driveways that require mitigation for LOS deficiency, but may be added for site circulation purposes

with approval of the Department. The need for additional driveway lanes should be documented in a traffic study report.

(2) **Driveway Medians:** Driveway medians should be used when two or more lanes are required for both the entering and the exiting movements at the driveway, or when an estimated daily traffic volume of 4,000 vehicles per day is expected to use the driveway.

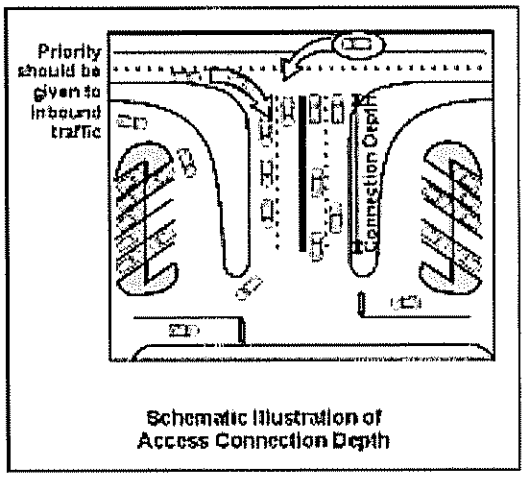
(a) Driveway medians may vary in width from a minimum of 4 feet to a maximum of 25 feet. Adjacent one-way drives should not be separated by more than 25 feet. The median width is not considered part of the driveway width.

(b) All curbing within the highway clear zone shall be of a type approved by the District Traffic Engineer and appropriate for the operational speeds of the facility. In addition, signs shall not be placed in the portion of a driveway median located within NMSHTD right-of-way, or within the highway clear zone, and shall not restrict intersection sight distances.

(c) A driveway median should not contain structures, signs, or landscaping which restrict sight distance. The desirable minimum size of a driveway median island is 100 square feet. The absolute minimum size of a driveway median island shall be 50 square feet.

(3) **Pavement:** Driveways should be paved with asphalt pavement, portland cement concrete or a combination thereof, from the roadway edge line to the right-of-way line. The pavement design is subject to approval by the Department.

J. **Access Connection Depth:** The access connection depth should be designed to facilitate the movement of vehicles off the highway to prevent the queuing of vehicles on the traveled way (see illustration below). An access shall not be approved for parking areas that require backing maneuvers within state highway right-of-way. All off-street parking areas must include on-site maneuvering areas and aisles to permit vehicles to enter and exit the site in forward drive without hesitation. Suggested connection depths, generalized by land use type, are provided in Table 18.J-1.



Schematic Illustration of Access Connection Depth

Table 18.J-1
Access Connection Depths (feet)

Land Use(s) Served by Access	Connection Depth
Regional Shopping Centers (malls)	250 feet
Community Shopping Center (supermarket, drug store, etc.)	80 feet
Small Strip Shopping Center	30 feet
Regional Office Complex	250 feet
Office Center	80 feet
Other Smaller Commercial Developments	30 feet

K. Speed Change Lanes: Speed change lanes should be designed based on the following specifications. The criteria for determining the need for speed change lanes are described in Section 17. Schematic illustrations of speed-change lanes are included in Appendix E.

(1) Length of Deceleration Lanes: Deceleration lanes typically consist of three components: transition taper, deceleration distance, and queue storage. Each of these components are described below. Deceleration lanes should be designed so that a turning vehicle will develop a speed differential of 10 mph or less at the point it clears the through traffic lane. The length of the lane should allow the vehicle to come to a comfortable stop prior to reaching the end of the expected queue in the lane. Table 18.K-1 contains standard deceleration distances and transition tapers. Vehicle queue storage lengths are discussed in Paragraph 18.K.1.c.

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

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

This table assumes level terrain and acceleration distances for the passenger car/pickup design vehicle. Refer to the text discussion of Sub-Section 18.K for additional guidance regarding the design of speed change lanes.

(a) Transition Taper: Deceleration tapers should be straight line tapers with rounded beginning and ending points. Deceleration taper lengths and ratios are provided in Table 18.K-1. Deceleration taper lengths do not require adjustment for grade. Exceptions to the deceleration tapers in Table 18.K-1 include:

i On urban highways with posted speed limits between 45 mph and 55 mph, left-turn deceleration tapers may be designed using 300-foot radius/600-foot radius asymmetric reverse curve tapers according to the width of the speed-change lane and/or median.

ii Minimum straight line tapers may be used on urban highways with posted speeds below 40 mph where space is limited and maximum vehicle storage is required.

iii Partial tangent tapers, symmetrical reverse curve tapers, or asymmetrical reverse curve tapers may be used on state highways with posted speeds below 45 mph provided that a radius of at least 150 feet is used in curve calculations.

(b) **Deceleration Distance:** Deceleration lanes are designed for two conditions; slowing a vehicle from the posted speed to 15 mph, or to a stop. For uncontrolled turning movements at an access point, deceleration lanes should include sufficient distance for vehicles to slow to 15 mph in the lane with the corresponding access turning radius adequate for a 15-mph turn. For turning movements controlled either by signs or a traffic signal, adequate distance for vehicles to stop should be provided in the deceleration lane. The deceleration distances in Table 18.K-1 may require adjustment where rolling or mountainous terrain exists, as stated in Paragraph 18.K.6, or where high truck use is expected, as stated in Paragraph 18.K.7.

i In some instances, physical or legal constraints may necessitate eliminating all or part of the deceleration distance and providing only the taper and queue storage lengths. This minimum design criterion should be used only on highways posted below 45 mph when the requirements of Sub-Section 18.K are not feasible, and the highway has four or more intersections per mile per side creating a driver expectancy of speed-change lanes, turning movements and weaving movements along the highway segment.

ii In urban areas, the deceleration lane length may be designed based on the greater of the required vehicle queue storage length or the required deceleration distance. Standard transition tapers should be used.

(c) **Queue Storage:** Left-turn deceleration lanes should provide adequate length for the storage of vehicles waiting to turn. Right-turn deceleration lanes should provide for vehicle storage only when there is a controlled stop condition. Queue storage needs should be based on site-specific conditions according to a methodology approved by the Department. The absolute minimum storage that should be provided in urban areas and in rural areas is 50 feet.

i To allow for the impact of larger trucks, buses and recreational vehicles, "passenger car equivalents" should be used. Use a passenger car equivalent of 3 for each bus and all trucks and truck combinations of 40 feet in length or longer. Use a passenger car equivalent of 2 for each vehicle or combination at or over 20 feet in length but less than 40 feet.

(2) **Length of Acceleration Lanes:** Acceleration lanes should consist of a full-width lane and a transition taper. Acceleration lanes should be designed so that a turning vehicle will reach a speed between 75 and 80 percent of the highway posted speed at the point where the full-width lane ends and the transition taper begins. Table 18.K-1 contains standard acceleration distances and transition tapers.

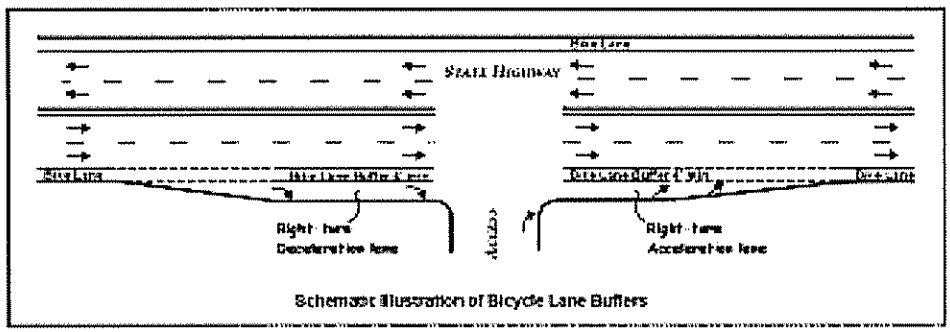
(a) **Acceleration Lane:** A stop condition should be assumed when determining the length of an acceleration lane for an at-grade access. The length of an acceleration lane is the same for a right-turn acceleration lane or for a left-turn acceleration lane.

(b) **Transition Taper:** Acceleration tapers should be straight line tapers with rounded beginning and ending points. Acceleration taper lengths and ratios are provided in Table 18.K-1, and do not require adjustment for grade.

(3) **Channelization:** Standard roadway signing and marking should be installed for all speed change lanes. Retro-reflective, white gore stripe, 8 inches wide, should separate the speed change lane from the travel lane. Acceleration lanes should have a gore stripe from the beginning to the end of the lane. Deceleration lane gore striping should begin 50 feet past the end of the approach taper and continue to the lane terminus. A minimum of two directional lane-use arrows should be placed in all deceleration lanes, one 5 feet past the beginning of the gore and one 30 feet before the terminus. Additional lane-use arrows should be installed at 200 foot spacing for long deceleration lanes. The pavement word marking "ONLY" may be used to supplement the lane-use arrows in deceleration lanes. Straight lane-use arrows, angled at 30 degrees from the travel direction toward the mainline, should be placed 50 feet before the end of the full width acceleration lane continuing in 200-foot placements over the length of the taper.

(4) **Shoulders:** Where shoulders are present along a roadway and speed change lanes are required, the shoulders should be continued along the speed change lanes. A minimum shoulder width of 4 feet should be provided adjacent to speed change lanes.

(5) **Bicycle Lane Buffers:** When a right-turn deceleration lane or acceleration lane is required on a roadway with designated bicycle lanes, a minimum buffer of 4 feet (5 feet desirable) should be provided between the outside travel lane and the speed-change lane. See illustration below.



Schematic Illustration of Bicycle Lane Buffers

(6) **Grade Adjustment:** Adjustments should be made to the speed change lane lengths based on the roadway grade. A level roadway is defined as a roadway with a grade greater than -3% and less than +3%. Adjustments should only be applied to the lane length, not the taper length. The adjustments are calculated by multiplying the length found in Table 18.K-1 times the appropriate factor from Table 18.K-2 and rounding the result to the nearest 10 feet.

Table 18.K-2
Grade Adjustment Factors

Type of Speed Change Lane	Grade			
	< -5%	- 5% to -3%	+3% to +5%	> +5%
Deceleration Lane	1.35	1.2	0.9	0.8
Acceleration Lane:				
25 to 45 mph	0.60	0.70	1.3	1.5
50 mph	0.55	0.65	1.4	1.8
55 mph	0.55	0.65	1.5	2.0
60 mph	0.50	0.60	1.5	2.3
65 mph	0.50	0.60	1.7	2.5
70 mph	0.50	0.60	1.8	3.0

(7) **Truck Design:** If a speed-change lane is designed for a site with 5 or more large trucks during the design hour, a combination truck design vehicle should be used.

(a) **Deceleration Lanes:** Deceleration lane lengths are typically not adjusted for different design vehicles, but may require adjustment for large trucks when horizontal sight restrictions exist on a downgrade.

(b) **Acceleration Lanes:** Where a combination truck is the design vehicle, the acceleration lane lengths in Table 18.K-1 should be adjusted based on the desired speed as follows: by a factor of 5 for 30 to 35 mph; by a factor of 6 for 40 to 50 mph; or, by a factor of 9 for 55 mph (assumes level terrain). Adjustments for grade should also be made consistent with Paragraph 18.K.6. Tapers do not require adjustment for truck design. If the resulting acceleration lane is unreasonably long, the access location may not be appropriate for use by large trucks and alternatives should be considered.

(8) **Pavement:** The speed change lane pavement section should be full depth and match the pavement section design of the adjacent roadway. All pavement designs require approval by the Department.

(9) **Width:** Speed change lanes should be 12 feet wide, measured from the adjacent travel lane to the gutter pan or shoulder. Additional width may be required where horizontal curvature exists. Where right-of-way or median width is limited or if local standards apply, a reduced width may be permitted with the approval of the Department provided that a minimum of 10 feet of width is attained. A minimum of 11 feet should be provided for speed-change lanes on highways with posted speeds above 40 mph or where there is a high percentage of large trucks using the highway.

(10) **Redirect Tapers**: Where it is necessary to establish a left-turn lane or median island, or otherwise redirect the vehicles on the traveled way, redirect tapers for redirecting through travel lanes should be installed. Redirect tapers should be constructed as straight line tapers, with the beginning and ending points rounded, based on a length-to-width ratio of the posted speed limit to one (SL:1). If the speed limit ratio would create a horizontal curve design deficiency for the through movement, the horizontal curve should be corrected in addition to the use of redirect tapers.

L. **Median Design for Turn Lane Installation**: Medians should be designed to accommodate the largest design vehicle anticipated to use the access, and may provide either partial or full access to a site (see Sub-Section 18.D.).

(1) **Median Width**: Where a single left-turn lane is necessary along a state highway, a minimum median width of 16 feet should be provided. The median width should consist of a 12-foot turn lane and a minimum 4-foot separator.

(a) Where a left-turn lane is required along a state highway and a median does not exist or the median is less than 16 feet wide, the roadway should be widened to provide a median of at least 16 feet to accommodate the left-turn lane. If it is necessary to widen a highway to construct a proper median and public right-of-way is made available, the highway should be widened equally on both sides to maintain the existing highway centerline alignment.

(b) If a barrier median is required, the median area should consist of a 12-foot lane exclusive of gutter, and a minimum 6-foot raised median divider (i.e., the 6-foot median is measured from inside edge line to inside edge line). Where the existing median is a non-traversable barrier design, any new median construction should also be of similar barrier design, and width, unless otherwise instructed by the Department.

(c) These design features may be modified at the discretion of the Department where physical constraints, curbs, sidewalks, structures, or lack of available right-of-way restricts installation.

(2) **Channelization**: Positive channelization should be provided for all median openings. Standard striping in accordance with the MUTCD should be used for all openings and speed change lanes in medians without raised channelization. Medians with raised channelization require mountable curbing on the nose

section and the mountable curb should be marked with yellow paint containing retro-reflective glass beads. If new curbing is required in addition to the nose sections, it should match the existing curb type of the median. Median openings on rural, high-speed highways should be signed with Do Not Enter (R5-1) and One-Way (R6-1) signs.

(3) **U-turns**: The median width may be designed to permit U-turn movements. If a facility is too narrow to safely permit a U-turn, these movements should be addressed in design or restricted through signage (R3-4). Sign use and placement require Department approval. Schematic illustrations of U-turn design options are provided in Appendix E.

(4) **Pavement**: Median paving should be full depth and match the pavement section design of the existing roadway.

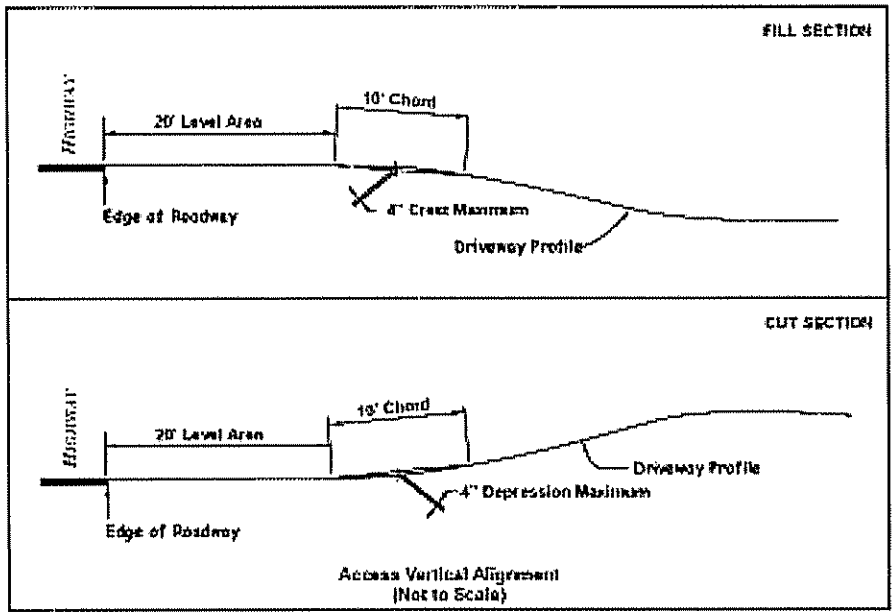
(5) **Drainage Function**: Medians frequently provide a conveyance, detention, or retention function for roadways. The installation of a median opening should not reduce the conveyance or storage capacity of the median.

M. **Setbacks**: Improvements on public or private property adjacent to the right-of-way should be located so that parking, stopping, and maneuvering of vehicles within the highway right-of-way will not occur. The minimum setback from the right-of-way line for all structures and sight obstructions should be the clear zone, but in no case less than 12 feet. At all driveways and intersections, an adequate sight triangle shall be provided. The minimum setback point for the sight triangle should be 20 feet from the near-side extended highway edge line or curb line.

N. **Access Vertical Alignment**: The vertical alignment of all access locations should be designed to minimize vehicle bounce and prevent high-centering of vehicles with a maximum clearance of 4 inches. The maximum grade for a driveway should be 10% for a low volume residential driveway and 8% for all other access locations. Steeper access drives require special Department approval. A level area (maximum 2% grade) 20 feet in length should be provided at each access to ensure proper sight distance from the access. The level area is measured from the highway edge of pavement or from the back of sidewalk, whichever is appropriate based on site-specific conditions. See the illustration on the following page.

(1) **Driveway Cuts**: The maximum vertical curve, crest or sag, should have a maximum 4-inch vertical offset over a 10-foot chord length. A standard vertical curve should be designed for all driveway profiles that exceed 3.3 %. Site runoff into state right-of-way shall be prohibited and access grades should reflect drainage considerations.

(2) **Driveway Drainage**: Drainage should be considered in the design of driveway grades. Roadways with curb-and-gutter sections that convey storm water runoff within the roadway prism should use driveway pans or valley gutters to carry the runoff across the driveway opening.



(3) **ADA**: Where pedestrian use may be expected across an access point, the vertical and horizontal design characteristics of the access shall be designed in accordance with the *Americans with Disabilities Act* (see Sub-Section 9.J) and applicable NMSHTD standards (see Paragraph 18.P.3).

O. Roadside Safety: Careful consideration shall be given to the roadside clear zone. The permittee shall provide adequate clear zones. The access permit may require that roadway hazards in the clear zone, such as fixed objects or steep embankments, be removed, reconstructed or shielded by a proper barrier. In urban areas with speeds of 40 mph or less and vertical barrier curbs, a clear zone of at least 18 inches should be provided beyond the face of the curb. Where there is no curb in urban and rural areas and the speed is 40 mph or less, a minimum 7-foot clear zone should be provided. At speeds of 45 mph or greater, the clear zone may vary from 8 to 50 feet according to average daily traffic volume, travel speeds, roadway and roadside design. The roadside clear zone should be designed per the AASHTO *Roadside Design Guide* (see Sub-Section 9.G). The design and installation of protective devices to shield obstacles is the responsibility of the permittee and is subject to approval by the Department.

P. Non-Motorized Considerations: Access designs should provide for the safe movement of all right-of-way users, including but not limited to pedestrians, bicyclists, and the handicapped. Where non-motorized facilities cross an access point, such as bicycle trails, appropriate modifications should be made to maintain safe operations for both facilities. Proper signing and markings of the access/non-motorized facility intersection is required.

(1) **Sidewalks**: Sidewalks should be constructed along urban arterial and collector state highways. Sidewalks are required where they exist on adjacent properties to maintain consistency along the highway facility. Sidewalk widths should match existing adjacent sidewalk widths, but in any case shall conform with all federal, state, and local regulations and ordinances.

(2) **Bicycle Facilities**: Bicycle facilities along urban arterials and collectors should be constructed in accordance with the AASHTO *Guide for the Development of Bicycle Facilities* (see Sub-Section 9.O). Bicycle facilities should only be signed where designated by the state or local jurisdiction, with approval of the Department.

(3) **ADA**: Non-motorized facilities shall be designed in accordance with the *Americans with Disabilities Act* (see Sub-Section 9.J) and applicable NMSHTD standards. Curb ramps shall be provided on urban sections where sidewalk and curb returns exist.

(a) **Ramps**: Access/curb ramps should be no steeper than 12:1 except on roadways with grades steeper than +6%. Where a road grade exceeds +6%, the maximum ramp length should be 25 feet. For steep down grades, the minimum ramp length should be 3.5 feet. Table 18.P-1 contains ramp lengths based upon a 6-inch barrier curb height. The equation for Table 18.P-1 is $H_c/(0.08333-G)$ where H_c is the curb height (in feet) and G is the grade of the roadway, access, or sidewalk. Curb ramps should be designed using the applicable NMSHTD standard drawings.

Table 18.P-1
ADA Ramp Lengths (feet)

Grade	Length	Grade	Length
-7%	3.50	0%	6.00
-6%	3.50	+1%	7.00
-5%	3.75	+2%	8.00
-4%	4.00	+3%	9.50
-3%	4.50	+4%	11.50
-2%	5.00	+5%	15.00
-1%	5.50	+6%	21.50

(b) **Curb Return Radius**: If the curb return radius is less than or equal to 20 feet, directional ramps should be installed. If the curb return radius is greater than 20 feet, diagonal ramps may be installed in the middle of the radius.

(c) **Signalized Access**: Where an access is signalized, curb ramps should be provided in all quadrants of the intersection.

Q. **Lighting**: Where lighting is required at an access point, the lighting design shall comply with NMSHTD and AASHTO standards and the *Night Sky Protection Act* (House Bill 39; see Appendix A). The lighting design shall use full cut-off fixtures, and be consistent with AD 226, Roadway Lighting (see Appendix B).

(1) **Signalized Access**: Illumination should be provided at all signalized intersections in accordance with AASHTO's *An Informational Guide to Roadway Lighting* (see Sub-Section 9.Q) or as otherwise approved by the Department.

(2) **Site Illumination**: Light beams from on-site lighting systems shall not be directed toward oncoming traffic along the adjacent roadway(s). All site illumination shall be constructed outside of the state highway right-of-way and outside of the roadside clear zone. Theater screens, lights, signs, billboards, signals or other illuminated structures should not be located adjacent to state highways, or in the vicinity thereof, which distract the attention of and impair the safety of the traveling public.

R. **Drainage**: Adequate drainage within state highway right-of-way shall be maintained at all access locations. Drainage of roadside ditches shall not be altered or impeded, and the applicant shall provide suitable and approved drainage structures as required by the Department. All site drainage shall be collected prior to entering state highway right-of-way. Site drainage shall not be permitted to drain into state right-of-way without written approval of the Department. Drainage mitigation design shall be in accordance with Administrative Memorandum 221, *Drainage Design Criteria*, and the NMSHTD *Drainage Manual* (Paragraph 9.B.5).

(1) **Documentation**: Access permit applicants shall submit drainage analysis documentation to the Department prior to changing site drainage conditions. The submittal should contain the following information:

(a) A report including a narrative description of the existing drainage conditions, the proposed revisions, and the effect of the proposed changes upon the existing conditions. This report should include but not be limited to the following information:

i. Maps and design plans;

ii. Hydrologic and hydraulic calculations;

iii Discussion of proposed drainage structures, demonstrating that they are adequate to carry the design runoff within the existing roadside system; and,

iv. Provision that the culvert end treatments within the roadside clear zone are designed in accordance with the Department's culvert end treatment design guidelines.

(b) Maps and/or drawings containing all drainage modifications. This may include but not be limited to a site plan, drainage area map, contour map, grading plan, roadway elevations, structure profiles and channel profiles.

(c) Hydrologic and hydraulic calculations where applicable for the design discharge, channel or culvert headwater and tailwater elevations, channel flow depths and velocities, culvert flow depths and velocities.

(2) **Local Standards**: Drainage design should conform to all applicable local regulations and requirements.

(3) **Pipe Culverts**: General requirements for pipe culverts installed parallel to roadways are as follows.

(a) The turnout embankment slope at the pipe culvert should not exceed 8:1.

(b) All pipes should have a concrete blanket placed on each end of the structure. The concrete blanket should be designed so that the grates can be raised or removed for cleaning purposes.

(c) All pipes greater than 30-inches in diameter should be constructed to terminate outside of the vehicle recovery area. Where this is not practical, the structure shall be protected from vehicle intrusion by traffic barrier. The traffic barrier should be designed in accordance with the AASHTO *Roadside Design Guide* (see Sub-Section 9.G) and requires Department approval.

S. Fencing:

(1) **Existing Right-of-Way Fencing**: Driveways shall not be permitted through an existing right-of-way fence, the continuation of which is necessary for the safety of the traveling public, unless the applicant first agrees in writing to construct and maintain a gate or a cattle guard, and additional fence, in good repair and to keep the gate closed to livestock. The Department shall determine whether a gate or cattle guard is required. All breaks in an existing right-of-way fence should have the end posts properly reinforced per NMSHTD Serial Drawing FAC-001. All cattle guards should be designed according to Serial Drawings CG-001-1/3.

(2) **New Fencing**: All new fencing along a state highway shall be constructed so that clear sight triangles are provided for ingressing or egressing vehicles. This may require an offset from the right-of-way line to meet the minimum setback standards (see Sub-Section 18.M). New fencing should be constructed according to NMSHTD Serials FAC-001 and FCL-001, and should be placed according to Serials FP-001 and FPS-001 through 003.

(3) **Gated Access**: Gated access should be permitted only where adequate storage is provided between the near-side roadway edge line or curb line and the front of the gate. The minimum length of the storage area should be 40 feet and gates should open inward or perpendicular to the driveway (on a slider or with wheels). Table 18.S-1 contains the design lengths for five design vehicles. Gates should be constructed according to NMSHTD Serials FG-001 and FG-002.

Table 18.S-1
Minimum Storage Lengths for Gated Access (feet)

Vehicle Classification	Storage Length
Passenger Car/Pickup Truck	40 feet
SU Bus	60 feet
SU Truck	50 feet
WB-50 Truck	75 feet
WB-62 Truck	90 feet

T. **Mailboxes**: Mailboxes installed within the state highway right-of-way shall be constructed in conformance with the rules and regulations of the U.S. Postal Service and the design standards of the NMSHTD (see Serial MB-001). AASHTO's *A Guide for Erecting Mailboxes on Highways* (Sub-Section 9.I), should also be used for the location and design of mailbox installations. General guidance is provided below.

(1) All mailboxes located within the roadside clear zone should have a breakaway design with the maximum sized single mailbox post being a 4" x 4" wood post or a 2-inch round steel post. The minimum offset from the near-side edge line to the front of the mailbox should be 8 feet. Where a shoulder of 6 feet or greater is constructed, the minimum offset from the edge of pavement should be 2 feet.

(2) Where a cluster of mailboxes is needed, the design and installation is subject to review and approval by the Department. Where installed along a state highway, a minimum usable shoulder or turnout width of 10 feet should be provided. The surface of the shoulder or turnout should be adequate for all weather conditions. The roadside face of the mailbox should be offset a minimum of 8 inches behind the edge of the shoulder or turnout. Mailbox clusters should be located based on the applicable access location and spacing criteria described in Sub-Sections 18.B and 18.C.

U. **Right-of-Way**: Improvements adjacent to state highway right-of-way shall conform to the pertinent State Highway Commission Policy regarding right-of-way.

V. **Utilities**: All utilities located within the state highway right-of-way shall comply with the utility accommodation policies defined in the NMSHTD's *Railroads and Utilities Manual*.