

**X**

**DCU TEMPLATE**

**X**

PROJECT NUMBER: TPM-7543(2)

CONTROL NUMBER: 9183

PROJECT DOC CLASS: GENCORES

DOC TYPES: CORRESPONDENCE

DOCUMENT DESCRIPTION: INITIAL CORRIDOR STUDY REPORT

DOCUMENT DATE: 4/1/2001

SUBCONTRACT NUMBER:

CHANGE ORDER:

ESTIMATE NUMBER:

CUSTOMER NAME:

**X**

**XXYZY**

**X**

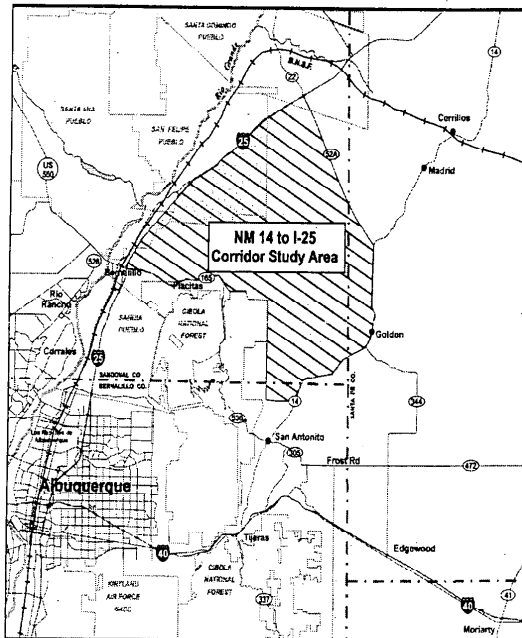
91830002

# PUBLIC MEETING ANNOUNCEMENT

## NM Highway 14 to Interstate 25 Corridor Study

The New Mexico State Highway and Transportation Department (NMSHTD) has completed an initial corridor study for a potential roadway connecting I-25 and NM 14 north of the Sandia Mountains. Public meetings will be held to present the findings and recommendations of this study and to provide the public with an opportunity to comment on the NMSHTD's recommendations.

Based on a review of 20-year growth projections and an initial evaluation of potential route alternatives, the NMSHTD has concluded that the existing highway system is adequate to meet the mobility needs of the Placitas area and north East Mountain communities. Therefore, the NMSHTD recommends that the corridor study for a potential new state highway linking I-25 and NM 14 not be advanced at this time. However, the needs assessment has found that growth beyond the 20-year projections may require improvements to NM 165 and NM 14 and/or the construction of a new highway link between I-25 and NM 14. Because a proposed land exchange between the Bureau of Land Management (BLM) and San Felipe Pueblo could preclude the ability to implement such a roadway in the future, the NMSHTD will request to the BLM that a potential alignment for a potential future roadway be preserved as part of their proposed public land exchanges.



The basis for the above findings and recommendations will be presented at two public meetings. The dates, times and locations of these meetings are as follows:

**Date:** Tuesday May 8, 2001

**Time:** 7:00 pm to 7:30 pm – Presentation  
7:30 pm to 8:30 pm – Public Comments

**Place:** Placitas Elementary School  
05 Calle de Carbon, Placitas

**Date:** Wednesday May 9, 2001

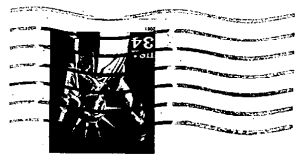
**Time:** 7:00 pm to 7:30 pm – Presentation  
7:30 pm to 8:30 pm – Public Comments

**Place:** San Antonito Elementary School  
12555 North New Mexico Highway 14

Additional information about the upcoming public information meetings or the initial corridor study can be obtained from: Michael Pope, P.E., NMSHTD Project Manager, PO Box 1149, Santa Fe, NM 87504, (505) 827-5122; or David Pennington, Parsons Brinckerhoff, 5801 Osuna Rd. N.E., Albuquerque, NM 87109, (505) 881-5357. Comments on the findings and recommendations of the initial corridor study should be sent to Parsons Brinckerhoff, Attention Northeast Corridor Study, no later than May 25, 2001. Persons with disabilities that require special accommodations for the meeting should direct their requests to Jessica Michel of Parsons Brinckerhoff at 881-5357 at least two days in advance of the meeting dates.

87504-1149

Robert Romero  
NMSHTD, Project Development  
P.O. Box 1149  
Santa Fe, NM 875041149



BARSON, BRINCKERHOFF  
87504-1149 P.O. Box 1149  
Santa Fe, NM 87504

91830004

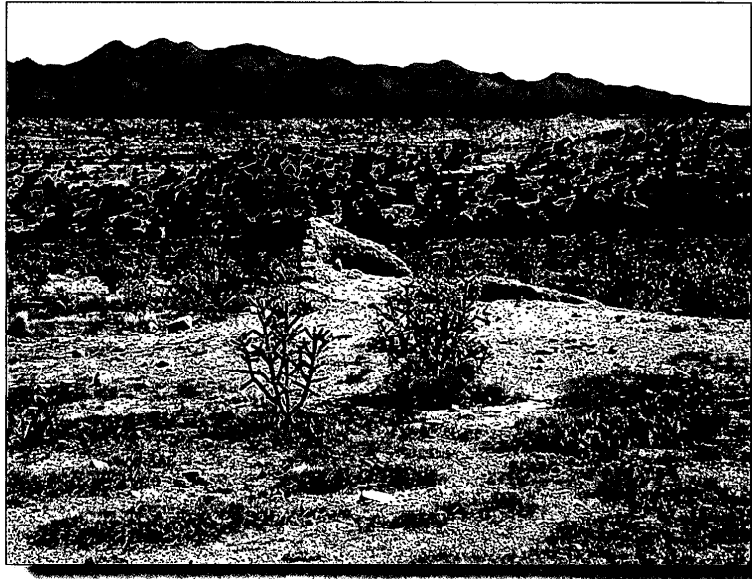
91830005

Max  
MMP

# NM 14 to I-25 Corridor Study Initial Corridor Study Report

Southern Sandoval and Santa Fe Counties

CN 9183 TPM-7543(2)



prepared for



New Mexico State Highway and  
Transportation Department

submitted by



5801 Osuna Road NE  
Suite 200  
Albuquerque, New Mexico 87109

91830006

91830007

# **NM 14 to I-25 Corridor Study**

Initial Corridor Study Report  
Southern Sandoval and Santa Fe Counties

**TPM-7543 (2), CN 9183**

*prepared for*

**New Mexico State Highway and  
Transportation Department**

*submitted by*

**Parsons Brinckerhoff  
5801 Osuna Road NE  
Suite 200  
Albuquerque, New Mexico 87109**

April 2001

**91830008**



91830009

**Chapter 1 — Purpose and Need**

1.0 Introduction ..... 1-1

    1.1 Project Setting ..... 1-1

    1.2 Need for the Project ..... 1-3

        Development and Growth ..... 1-3

        Growth Projections ..... 1-4

        Existing Transportation System ..... 1-6

        Travel Times ..... 1-8

        Traffic Volumes ..... 1-9

        Traffic Level of Service ..... 1-10

        Accident History ..... 1-11

    1.3 Summary of the Needs Assessment ..... 1-13

**Chapter 2 — Project Alternatives**

2.0 Introduction ..... 2-1

    2.1 Alternatives for Initial Evaluation ..... 2-3

        Alternative 1- No Build ..... 2-3

        Build Alternatives ..... 2-3

            Alternative 2 ..... 2-5

            Alternative 3 ..... 2-5

            Alternative 4 ..... 2-6

            Alternative 5 ..... 2-7

            Alternative 6 ..... 2-7

    2.2 Right-of-Way and Costs ..... 2-8

**Chapter 3 — Engineering and Environmental Feasibility**

3.0 Introduction ..... 3-1

    3.1 Mobility and Traffic Operations ..... 3-1

        Mobility and Access ..... 3-1

        Traffic Operations ..... 3-1

    3.2 Engineering Issues ..... 3-3

        Topography ..... 3-3

        Subsurface Geology ..... 3-3

        Drainage ..... 3-4

    3.3 Land Status and Ownership ..... 3-7

    3.4 Communities and Neighborhoods ..... 3-7

        Community Services ..... 3-9

    3.5 Cultural Resources ..... 3-9

    3.6 Biological Resources ..... 3-11

91830011

Special Status Plant and Animal Species..... 3-11  
 Water Quality and Wetlands..... 3-11

**Chapter 4 — Preliminary Evaluation of Alternatives**

4.0 Introduction..... 4-1  
 4.1 Need for the Study..... 4-1  
 4.2 Summary of Study Findings..... 4-1  
 4.3 Recommendations..... 4-3

**List of Tables**

Table 1-1 Population Growth Within the Region..... 1-3  
 Table 1-2 Workers by Location of Jobs..... 1-4  
 Table 1-3 Study Area Population Projections by Sub Area..... 1-4  
 Table 1-4 Existing Roadway Characteristics..... 1-8  
 Table 1-5 Travel Times from the La Madera Area to Various Locations..... 1-9  
 Table 1-6 Historic and Projected Average Weekday Traffic Volumes..... 1-9  
 Table 1-7 Expected Roadway Level of Service for the A.M. and P.M. Hours..... 1-10  
 Table 1-8 Severity of Accidents and Accident Rates for NM 165..... 1-11  
 Table 1-9 Severity of Accidents and Accident Rates for NM 14..... 1-12  
 Table 2-1 Summary of Preliminary Engineering Analysis..... 2-8  
 Table 3-1 Peak Hour Traffic Volumes and Level of Service (LOS)..... 3-2  
 Table 3-2 Protected Animal and Plant Species Potentially Occurring in the Project Area..... 3-12  
 Table 4-1 Summary Comparison of Alternatives..... 4-4

**List of Exhibits**

Exhibit 1-1 Study Area..... 1-2  
 Exhibit 1-2 Approved Subdivisions..... 1-5  
 Exhibit 1-3 Existing Transportation Network..... 1-7  
 Exhibit 2-1 Route Options Considered in Preliminary Screening..... 2-2  
 Exhibit 2-2 Alternatives for NM 14 to I-25 Connection..... 2-4  
 Exhibit 3-1 Study Area Geology..... 3-5  
 Exhibit 3-2 Preliminary Drainage Overview..... 3-6  
 Exhibit 3-3 Land Ownership for Study Area..... 3-8

91830013

## 1.0 INTRODUCTION

This report documents the findings of an initial corridor study being undertaken by the New Mexico State Highway and Transportation Department (NMSHTD). The objective of the study is to evaluate a possible new roadway that would connect NM Highway 14 with Interstate 25 in southeast Sandoval and southwest Santa Fe Counties, New Mexico. The elements of the initial corridor study include an evaluation of conditions that affect the transportation needs within the study area, and the identification and preliminary evaluation of potential roadway alignments.

The impetus for the need and timing of this study involves two factors. The first factor is the population growth within the Placitas area and in the communities along NM 14 immediately north and south of the Bernalillo County/Sandoval County boundary. The effect of growth on traffic flow and safety on NM 14 and NM 165 is a critical consideration in evaluating the transportation needs within the study area including the need for a new highway connection of I-25 and NM 14. The second factor affecting the timing of this study is a proposed land exchange by the Bureau of Land Management (BLM). The BLM is proposing to transfer public lands within Sandoval and Santa Fe Counties to San Felipe Pueblo and Santo Domingo Pueblo. Because the alignment options of a potential new roadway between I-25 and NM 14 would traverse lands encompassed by the proposed land exchange, any needed right-of-way for a new roadway must be identified and should be set aside before land ownership is transferred.

The general vicinity of the study corridor and the study area boundaries are illustrated in Exhibit 1-1 on the following page. The study boundaries include the area bounded by County Road (CR) 52A on the north, NM 165 and NM 536 on the south, NM 14 on the east, and I-25 to the west. While the study area encompasses several major transportation facilities, including NM 14, NM 165, and I-25, there are no major transportation facilities that connect NM 14 with I-25.

## 1.1 PROJECT SETTING

The study area is situated in the Mexican Highlands section of the Basin and Range physiographic province. The Sandia Mountains, the Rio Grande rift, and the Ortiz and San Pedro mountains are the dominant land features in the area. The southern portion of the project area is largely within the piedmonts of the Sandia Mountains with the northern portion partially within the broader flats of the Rio Grande Rift and the piedmonts of the Ortiz Mountains. This southern project area terrain is characterized as a moderate to steeply hilly landscape that is highly dissected, both by faulting and more recent erosion of surface sediments. Major features within this southern landscape, other than the Sandias themselves, consist of a series of arroyos and canyons (including Arroyo Coyote, Arroyo Cuchillo, Arroyo Tuerto, Arroyo Val Verde, Arroyo Una de Gato, Canon del Agua, Canon Tejon, and San Pedro Creek) and the ridge tops between them. The northern portion of the study area is similar to the southern portion with several arroyos and canyons (including Tonque Arroyo, Arroyo del Tuerto and Arroyo de la Vega de los Tanos) being the predominant land features.

Land ownership within the study area consists of a diverse mixture of private and public land holdings. The western portion of the project area includes lands owned by the Santo Domingo, San Felipe, and Santa Ana Pueblos. Substantial portions of the study area involve lands managed by the BLM, while lands managed by the U.S. Forest Service are present along the southern boundary of the study area. Other public entities with land holdings in the study area include the New Mexico State Land Office and the City of Albuquerque Open Space Division. A map that illustrates land ownership is provided in Chapter 3 as Exhibit 3-3.

91830015

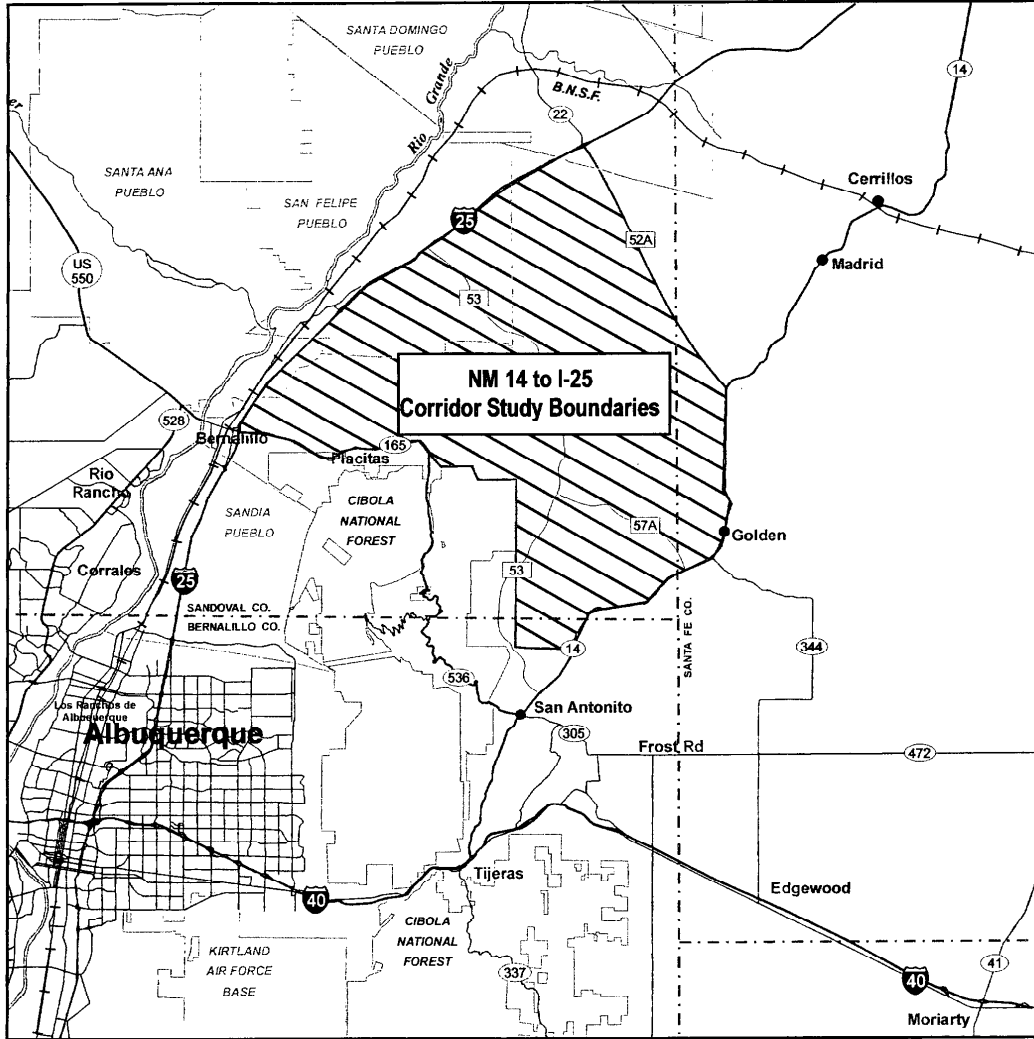


Exhibit 1-1  
Study Area



91830017

In addition to the public lands there are numerous private land holdings located throughout the study area, including several large ranches. Large private land holdings are mostly located in the central portion of the study area and along its eastern and southern boundaries. These large holdings include lands associated with the Diamond Tail Ranch, Ortiz Mine Grant, Lone Mountain Ranch, and Campbell Farms. Campbell Farms continues to be active in subdividing their holdings for residential communities such as Paa-Ko, San Pedro Creek Estates, and the proposed Campbell Ranch. The Diamond Trail Ranch has obtained master plan approval for 294 residential lots to be built in five phases just east of Placitas. The remainder of the study area consists of smaller, privately-owned parcels and residential lots of various sizes located in a number of different subdivisions.

**1.2 NEED FOR THE PROJECT**

Factors evaluated to assess the need for the proposed roadway focused on growth and development within the study area, and the effect of this growth on travel demand and operation of the existing roadway network. Key findings of the evaluation are summarized in the following sections.

**Development and Growth**

Studies of regional development and projected growth are an important aspect of the transportation study process and provide valuable insight into the future transportation needs for specific areas. A review of population data for six subareas within or near the study area (see Table 1-1) shows substantial growth between the years 1990 and 1995.

**Table 1-1  
Population Growth Within The Region**

	1990	1995	2020	2025
Southeast Sandoval Co. (west of Sandia Mtns.)	9,731	11,533	30,884	18,661
Southeast Sandoval Co. (east of Sandias Mtns.)	162	209	1,587	714
Northeast Bernalillo Co. (north of I-40)	7,432	9,983	17,810	12,203
Southeast Bernalillo Co. (south of I-40)	12,480	16,672	30,237	19,855
Edgewood area	N/A	8,041	15,101	N/A
Moriarty area	5,397	7,237	15,592	13,903
<b>Total</b>	<b>35,202</b>	<b>53,675</b>	<b>111,211</b>	<b>65,336</b>

**Note:** 1990 data are from U.S. Decennial Census; 1995 and 2020 data are from TR-125, MRGCOG; 2025 data are preliminary unofficial MRGCOG forecasts reflecting Focus 2050 adopted policies. Edgewood data is from SPR-280, MRGCOG.

While population growth has been substantial, few employment opportunities or services are available within the Placitas and East Mountain area, making the small rural communities dependent on the Albuquerque metropolitan area for employment and most services (see Table 1-2). For example, 1990 census data shows only 20% of the workers in the Edgewood area were employed in Santa Fe County, while almost 80% worked in the Albuquerque area or Rio Rancho. Similarly, 93% of the workers living in the North 14 area worked in Bernalillo County with 67% employed in the City of Albuquerque. The situation is similar in the Placitas area where only 21% of the workers were employed in Sandoval County, most likely in Bernalillo and Rio Rancho. An estimated 60% of the workers in the Placitas area are employed in Albuquerque while an estimated 13% are employed in Santa Fe. The reliance on employment in Albuquerque, Rio Rancho, and Santa Fe results in the residents of Placitas and the East Mountain area being highly dependent on the roadway system to access their jobs and services.

91830019

**Table 1-2  
Workers by Location of Jobs**

	Workers	Worked in County	Worked at Home	Worked Out of County	Worked in Albuquerque	Worked in Santa Fe
Edgewood Area	1,437	20%	7%	80%	59%	1%
North 14 Area	959	93%	6%	7%	67%	3%
Placitas Area	811	21%	8%	79%	60%	13%

Note: Data available from 1990 Census except for Placitas area workers employed in Albuquerque and Santa Fe. Values included in the table are based on reported travel time and other place of work data.

**Growth Projections**

Because of its proximity to the growing Albuquerque metropolitan area and the availability of numerous platted lots, it is highly likely that the study area will continue to grow. The Middle Rio Grande Council of Governments (MRGCOG) has responsibility for growth projections within State Planning and Development District 3. MRGCOG has prepared several different forecasts that apply to the I-25 to NM 14 study area. These include adopted regional forecasts for the year 2020, preliminary regional forecasts for the year 2025, and year 2020 forecasts specific to the Placitas and North NM 14 area prepared as part of the *North Area Transportation Study* (NATS) conducted by MRGCOG in the late 1990's. As is shown in Table 1-3, the population forecasts are highly variable, although all indicate substantial growth within the study area.

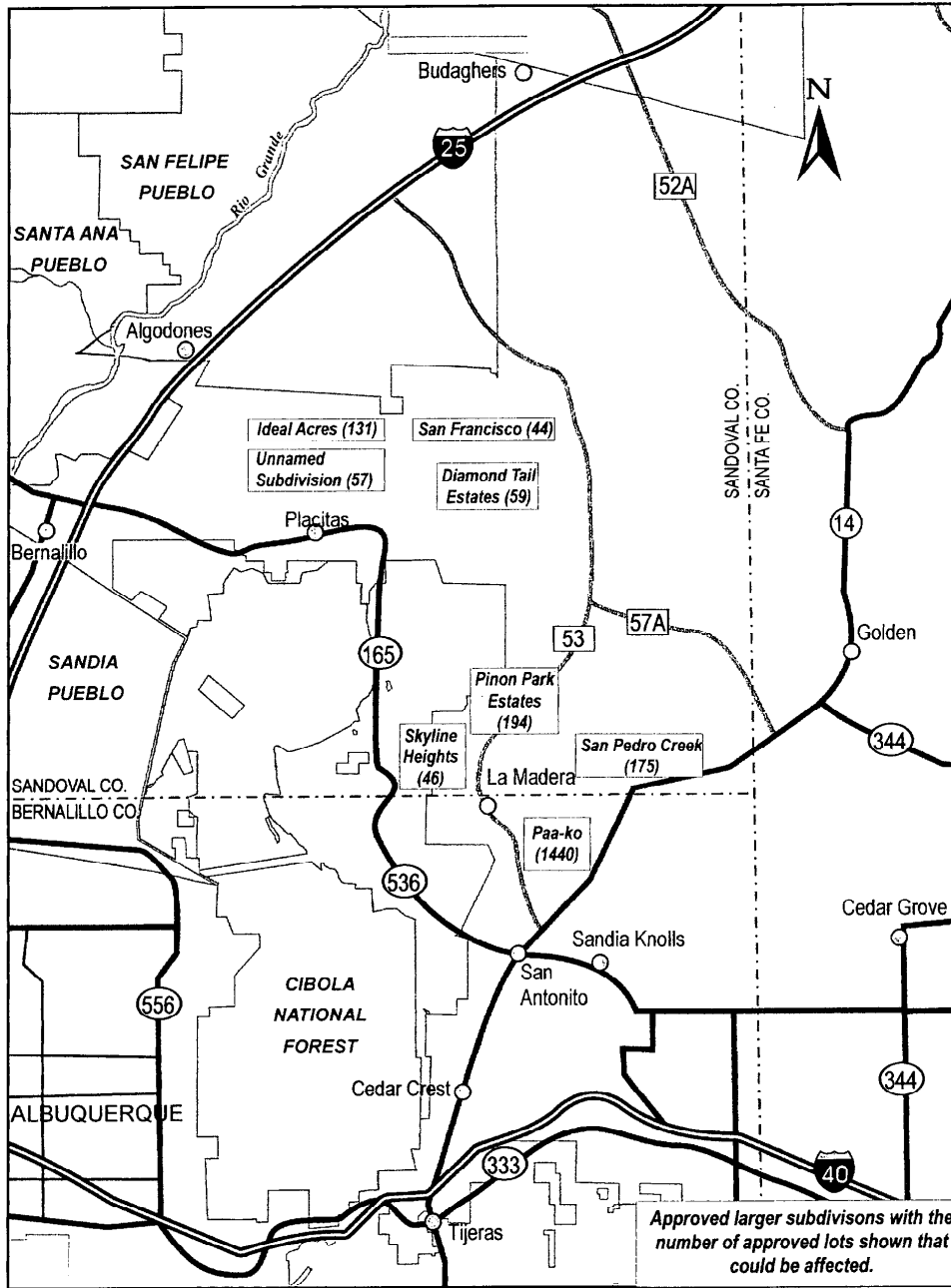
**Table 1-3  
Study Area Population Projections by Sub Area**

	1995	2020	NATS 2020	2025
Bernalillo County Northwest of NM 14/536	459	2,318	3,578	1,875
Bernalillo County Northeast of NM 14/536	1,888	4,425	4,425	1,816
Sandoval County East Mountain	175	1,532	6,756	649
Placitas Area	3,146	18,033	8,885	5,673
Total	5,668	26,308	23,644	10,010

The adopted projections for the year 2020 reflect a continuation of past growth and development trends and therefore indicate greater growth in the study area. The projections for 2025 reflect growth patterns consistent with the *Focus 2050 Regional Plan* recently adopted by the MRGCOG Board of Directors. The high variation in growth projections for the study area are indicative of the uncertainty of the amount and location of growth on the fringe of the Albuquerque metropolitan area. They are however, useful in evaluating ranges of growth and how each estimate affects the need for transportation improvements.

In the North 14 portion of the study area, growth projections vary from an increase of 1,818 under the Focus 2050 influenced 2025 dataset to 5,753 under the adopted MRGCOG 2020 dataset. As illustrated in Exhibit 1-2, there are approximately 1,800 platted lots suitable for development in the area north and west of the NM 14/536 intersection. This does not include the area to the east of NM 14 within Bernalillo County where most of the previous growth has occurred, nor does it include the Campbell Ranch proposal that is currently before the Bernalillo County Planning Commission for approval. While the amount of development that may be allowed within Campbell Ranch is currently undetermined, it is likely that this area will be subdivided in the future and result in additional lots for development. If only half of the existing developable lots northwest of NM 14/536 and half of the lots currently proposed northeast of NM

91830021



**Exhibit 1-2  
Approved Subdivisions**

91830023

14/536 were to be developed, 2,650 new residences would be built in Bernalillo County alone. The resulting population estimate would then approach or exceed that shown in the table under the 2020 growth scenario.

In the Placitas area, growth forecasted for the future ranges from 2,527 under the 2025 dataset to 14,887 under the adopted dataset. While it appears unlikely that the growth will approach the 18,000 people forecasted in the 2020 adopted dataset, even the more conservative forecasts show a substantial increase in population. When the amount of land available for development is considered, it is apparent that the potential for additional population growth within Placitas is high. For example, the Placitas area includes approximately 2,200 lots in approved subdivisions. According to 1995 estimates of total housing in Placitas, approximately 1,312 of the 2,200 lots were occupied, leaving roughly 1,000 vacant platted lots for future development. While development on some of these lots may be constrained by the availability of water, the potential for population growth remains high.

While some employment growth within the study area and nearby communities is likely, the residents of the north East Mountain area and Placitas area will continue to depend primarily on the Albuquerque metropolitan area for jobs and major services. Although employment in the southeast area and Downtown of Albuquerque is anticipated to increase in the future, the fastest growing employment areas in the metropolitan area are in the North I-25 Activity Center and in Rio Rancho. Travel distances from the North 14 area via a new alignment through the northern end of the Sandias to I-25 and employment in Rio Rancho and north of Paseo del Norte in the North I-25 corridor would be similar to that of using I-40 and I-25. Additional employment opportunities will also be available in the Santa Fe metropolitan area.

#### **Existing Transportation System**

The transportation network serving the East Mountain area is listed in Table 1-4 and illustrated in Exhibit 1-3. Major paved roadways that provide access to the Albuquerque metropolitan area from the north East Mountain area include I-40, NM 333, and NM 14, all of which pass through Tijeras Canyon. Congestion on I-40 and NM 333, as well as the segment of NM 14 between Cedar Crest and I-40, is increasing as a result of growth in the East Mountain communities. These roadways are subject to occasional closures due to accidents and winter storms resulting in East Mountain residents often being unable to access jobs and services within Albuquerque.

Travel from the East Mountain area to Santa Fe is limited to NM 14. This highway includes 5-lanes from I-40 to San Antonito and 2-lanes from San Antonito to its intersection with I-25 just south of Santa Fe. NM 14 traverses hilly terrain for most of its route and passes through several small communities including Golden, Madrid, and Los Cerrillos. While improvements to this segment of NM 14 are under development, the vast majority of this highway will remain 2-lanes with design speeds of 35 to 45 miles per hour. Consequently, NM 14 is not an efficient commuter route for travel to Santa Fe. While not an all-weather road, there is a small amount of traffic that uses CR 52A to travel between I-25 and NM 14. However, the current condition of this road prevents it from being a dependable and efficient connection between I-25 and NM 14.

To the east of the study area, Edgewood and Moriarty area residents are only able to access the Albuquerque area via I-40 and NM 333. NM 344, which extends north from I-40 at Edgewood, provides access for Edgewood residents to north NM 14. On the very eastern edge of the region, NM 41 continues north from Moriarty to join US 285 and provides access to Santa Fe for residents of the Estancia Basin.



91830025

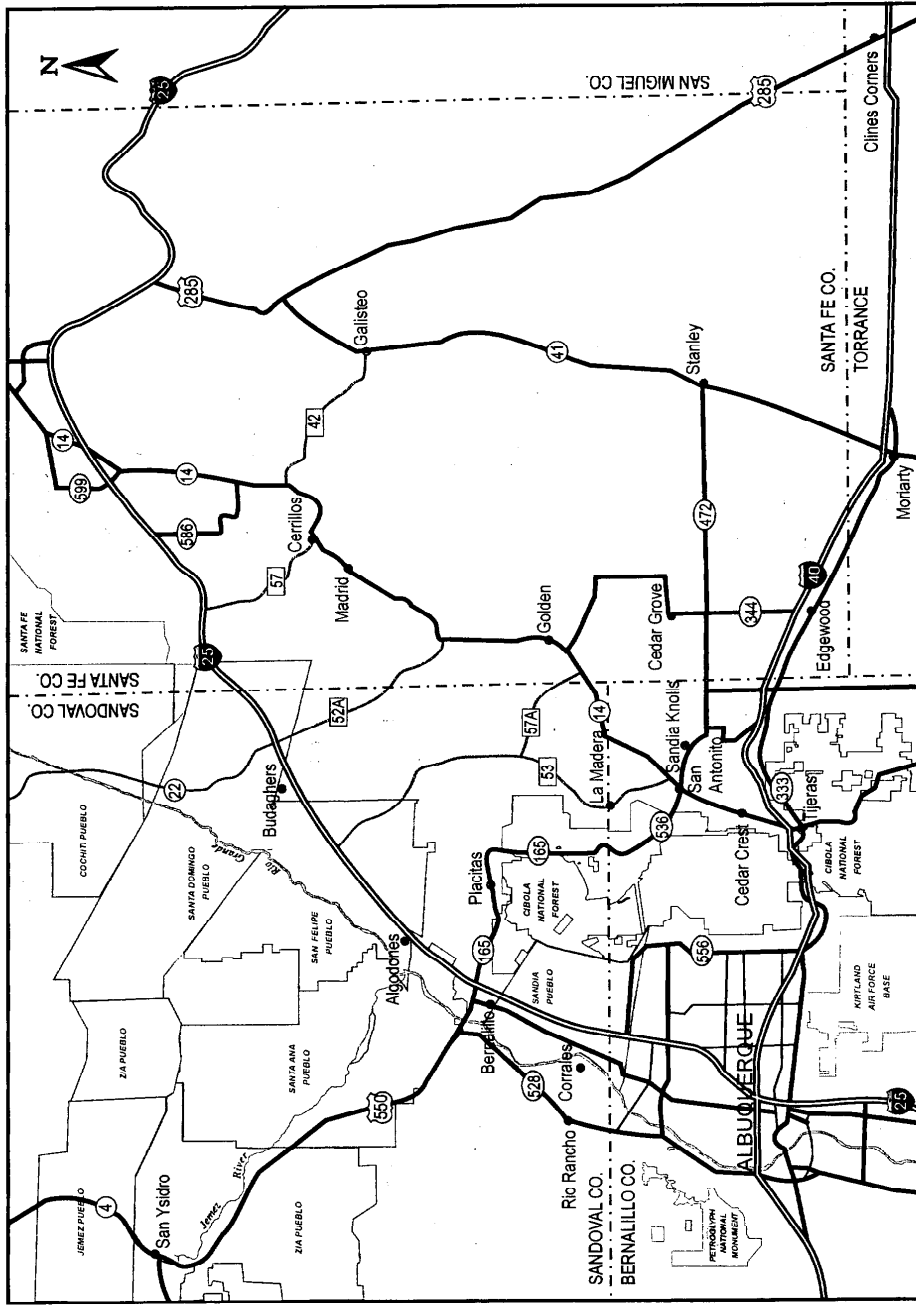


Exhibit 1-3  
Existing Transportation Network

91830027

**Table 1-4  
Existing Roadway Characteristics**

Roadway	# of Lanes	Posted Speed	Surface	Terrain
I-25 (NM 165 to Albuquerque)	4	70-75	Paved	Rolling
I-40 (NM 14 to Albuquerque)	6	65	Paved	Rolling
NM 344	2	45-55	Paved	Rolling
NM 536 (West of NM 14)	2	35-45	Paved	Mountainous
NM 14 (North of Frost Rd.)	2	45-55	Paved	Rolling
NM 14 (I-40 to Frost Rd.)	5	50	Paved	Rolling
NM 165	2-4	50	Paved	Rolling
NM 165 (South of Placitas)	1-2	25	Gravel	Mountainous
CR 52A	2	30	Graded	Rolling
CR 53 (La Madera Road)	2	35	Paved /Gravel	Rolling
CR 57A (Puertecito Road)	2	25-35	Graded	Rolling
Frost Road	2	40-50	Paved	Rolling

Other roadways between NM 14 and I-25 are limited to several dirt and graveled roads including CR 53 (partially paved and named La Madera Road in Bernalillo County), CR 52A, CR 57A, and NM 536/165. CR 53 begins in Bernalillo County just north of the NM 14/536 intersection in San Antonito. From this point, it continues northwest around the northern end of the Sandia Mountains to the Tonque Arroyo. It then follows the Tonque Arroyo, passing through San Felipe Pueblo lands, to its intersection with I-25 at the San Felipe interchange about 10 miles north of the NM 165/I-25 (Bernalillo) interchange. County road CR 57A (Puertecito Road) is also a graded dirt road connecting NM 14 near the Sandoval/Santa Fe county line (about 8 miles north of the NM 14/536 intersection) with CR 53. Although passable during dry weather, CR 53 and CR 57A have numerous arroyo crossings that require considerable maintenance following major rainstorms. CR 52A begins in Santa Fe County about 16 miles north of the NM 14/536 intersection and travels northwesterly to the Santo Domingo interchange on I-25 about 17 miles north of the NM 165/I-25 interchange.

On the western side of the Sandia Mountains, the Placitas area is accessed by NM 165. Paved from I-25 through the community of Placitas, NM 165 continues south and east of Placitas as a gravel road climbing the east side of the Sandia Mountains ultimately intersecting with NM 536 on the east slopes of the Sandia Mountains. NM 536 continues eastward and intersects NM 14 at San Antonito. The section of NM 165 between Placitas and NM 536 is generally impassable during much of the winter season. In addition, because of its grades and narrow section, NM 536 is not suitable for trucks and other larger vehicles.

**Travel Times**

While travel distances are an important consideration in selecting a route, travel times are usually of more importance, especially for commuter trips. Assuming a starting point near the point where NM 14 crosses the northern boundary of Bernalillo County, travel distance and travel time were calculated to several locations within the Albuquerque metropolitan area. Travel times were calculated based on the distance and the posted speed limits for currently built facilities. Travel times were also calculated assuming a new I-25 to NM 14 connection that would be approximately in the middle of the study area. For this route, a length of 17 miles and an average travel speed of 50 mph were assumed.

91830029

As shown by Table 1-5, destinations within the Albuquerque metropolitan area can, in general, be reached quicker by using NM 14 to travel south to I-40, and then into Albuquerque. Travel to Intel in Rio Rancho is about the same regardless of the route used. For travel from NM 14 to NM 165 at Bernalillo, a possible new alignment south of CR 52A would reduce travel time by about 10 minutes when compared to travel on CR 52A to access I-25 and then south to NM 165 at Bernalillo. Travel times to Santa Fe were also calculated and compared to an improved CR 52A in combination with NM 14 and I-25 rather than NM 14 exclusively. Improving CR 52A would provide about 5 minutes of travel time reduction even though the new route would be about 5 miles longer than the route that follows NM 14. It should be noted that the calculated travel times assume uncongested travel speeds. Congestion on existing facilities, especially NM 14 between San Antonito and I-40 and NM 165 from Placitas to I-25 may add substantial time to the estimated travel times.

**Table 1-5  
Travel Times from the La Madera Area to Various Locations**

	Existing Routes		New Route	
	Distance	Travel Time	Distance	Travel Time
I-25 at NM 165	39 miles	39 minutes	27 miles	29 minutes
I-25 at Paseo del Norte	33 miles	35 minutes	37 miles	38 minutes
I-25 at I-40	26 miles	28 minutes	44 miles	46 minutes
Intel	42 miles	46 minutes	37 miles	43 minutes
Uptown	22 miles	24 minutes	41 miles	43 minutes

**Traffic Volumes**

As the population increases in areas to the east and north of Albuquerque, traffic volumes will also increase. Trip-making characteristics are slightly different for residents in these growing areas when compared to those within the urban area. Because of the lack of services close to their homes, trip chaining is more common in developing areas as exurban residents combine shopping and other non-work trips with their daily commute trips. Nonetheless, the population increases in the developing areas will result in more traffic on the local and regional roadways, especially during peak commute periods.

Past, current, and projected traffic volumes for key roadways in the region assuming the existing roadway network are summarized in Table 1-6. The historical and existing (1999) traffic flows were obtained from MRGCOG and reflect actual counts.

**Table 1-6  
Historic and Projected Average Weekday Traffic Volumes**

	1994	1999	2020	2025
I-40 east of Tramway	46,700	52,700	74,500	N/A
I-40 east of NM 14	26,500	32,200	41,900	N/A
NM 14 north of I-40	11,400	12,300	23,800	16,500
NM 14 south of NM 536	4,500	9,900	16,800	11,800
NM 14 at Bernalillo/Sandoval County line	1,300	1,700	4,900	2,200
NM 165 east of I-25	6,500	6,700	39,100	12,900
US 550 west of I-25	19,200	25,000	43,600	N/A
I-25 south of NM 165/US 550	33,600	45,500	54,300	N/A

91830031

Past traffic flows were obtained from traffic flow maps published by the Middle Rio Grande Council of Governments. The future year data in Table 1-6 include traffic projections developed for two horizon years (2020 and 2025) consistent with the population projections discussed earlier in this chapter. Projections were developed for a No Build scenario, which assumes additional roadways will not be constructed, and a Build scenario, which assumes a new connection between I-25 and NM 14 is constructed. The projections are based on unadjusted link volumes prepared by MRGCOG and post-processed by the NMSHTD. Post-processing of travel model outputs considered land use and development patterns and how the location of development could shift if a new connection between I-25 and NM 14 were constructed. While changes in where development could occur were considered, an increase in total development was not assumed beyond those reflected in the population projections.

Depending on the population projections used (2020 or 2025), projected traffic on a new route through the Placitas area would range from 800 to 1,500 vehicles per day on the eastern end near NM 14 and from 4,000 to 21,000 vehicles per day at the western end of the route near I-25. If the new highway followed the alignment of CR 52A, traffic volumes would range from 800 to 1,000 vehicles per day. Depending on the frequency of intersections and percentage of traffic occurring during the peak traffic hour, traffic flows of approximately 15,000 vehicles per day can generally be accommodated on a 2-lane roadway. Thus, the western portion of a new highway would require 4-lanes to accommodate the projected demand.

**Traffic Level of Service**

Existing major roadways adjacent to the study area and those roadways servicing the population of the study area were evaluated to assess their operational conditions under existing and future traffic flows. The analysis included an evaluation of traffic operations for roadway segments at spot locations on NM 14, NM 165, I-25 and I-40 as well as on a new east-west roadway connecting NM 14 and I-25. Roadway segments were evaluated using the 1997 *Highway Capacity Software (HCS)*.

The results of the operations analyses for existing roadway segments under existing and future traffic flows are summarized in Table 1-7. The results are stated in terms of "level of service" (LOS) which is a term used to describe roadway congestion levels. Level of service is expressed as letters A to F, with LOS A representing the best operating conditions and LOS F the worst. When feasible, roadways and intersections are designed to achieve a LOS C or D to ensure that an acceptable quality of traffic is provided to facility users. For the purpose of this project, a deficiency is defined at LOS E or worse.

**Table 1-7  
Expected Roadway Level of Service for the A.M. and P.M. Hours**

Roadway	Existing	2020 No Build	2025 No Build
I-25 north of NM 165	B/B	C/C	n.a.
I-25 south of NM 165	C/C	C/C	n.a.
I-40 east of NM 14	C/B	C/C	n.a.
I-40 west of NM 14	C/C	D/D	n.a.
NM 165 (2-lane section)	D/D	F/F	E/E
NM 165 (4-lane section)	A/A	C/C	A/A
NM 14 north of CR 53	A/B	C/C	B/B
NM 14 south of NM 536	A/A	B/B	A/A
NM 14 south of Cedar Crest	A/B	C/B	B/B

X/X = morning and evening peak hours



91830033

As shown in the Table 1-7, there are no major roadway segments currently operating under congested conditions (LOS E or worse). The two-lane portion of NM 165 is at LOS D in both the morning and evening and is the most congested facility in the study area. By the year 2020 (No-Build Alternative), the 2-lane portion of the arterial serving Placitas (NM 165) is expected to have segments that fail during both peak hours. The same stretch of roadway is also expected to operate under congested conditions under the 2025 scenario. Even more critical is the I-25/US 550/NM 165 interchange where the much higher volumes of traffic to and from the Rio Rancho/Bernalillo area substantially impact the function of the interchange, both currently and in the future. Although, traffic forecasts were not done for I-25 and I-40, under the 2025 No-Build Alternative these facilities are expected to be operating at acceptable levels in the year 2025. This is based on the fact that the 2020 No-Build Alternative forecast resulted in acceptable freeway operations and the 2025 forecast assumes significantly less population than the 2020 forecast for outlying areas (e.g., Edgewood and Placitas).

**Accident History**

A review of the accident history for the major roadway facilities serving the study area was conducted to determine if any roadways or roadway segments have a higher than normal accident rate and to identify high accident locations. Accident data were obtained from the NMSHTD for the five-year period of 1995 through 1999. The accident data review for NM 165 included the portion of highway from I-25 through Placitas. A summary of the accident data is provided in Table 1-8.

**Table 1-8  
Severity of Accidents and Accident Rates for NM 165**

Year	PDO	Severity of Accident		Total	Accident Rate*	Fatality Rate*
		Injury	Fatal			
1995	6	6	1	13	0.86	0.07
1996	9	2	0	11	0.66	0.00
1997	3	2	0	5	0.31	0.00
1998	6	5	0	11	0.70	0.00
1999	2	3	0	5	0.31	0.00
Total	26	18	1	45		
Average					0.57	0.01

\* Rates for roadway segments expressed as accidents per million vehicle miles traveled (MVM)  
 PDO = property damage only

For the five years evaluated, 45 accidents were reported. These included 1 fatal accident, 18 involving injuries, and 26 with property damage only. A comparison of the accident data for NM 165 with statewide accident statistics show this highway to have normal to a lower than normal accident rates. The statewide average accident rate for rural "major collector" undivided highways is approximately 1.04 accidents per million vehicle miles (MVM) of travel. The same statistic for NM 165 is approximately 0.57 accidents per MVM.

The most commonly reported accidents include collisions with fixed objects (i.e., collisions with roadside objects such as trees, guardrails, embankments, etc.), vehicles overturning, and accidents that are associated with turns at driveways and other intersections. In general, accidents were spread out along NM 165 except for an apparent concentration in the Placitas community (between MP 6 and MP 7) where 13 accidents were reported. That particular stretch of NM 165 has several driveways that service high uses

91830035

areas including the post office, a general store, the school, and churches, all of which generate turning maneuvers to and from the highway.

The accident data review for NM 14 looked at the portion of this highway between I-40/NM 333 and the community of Madrid. This analyses was broken into three segments with the first segment (I-40/NM 333 to La Madera Road) located to the south of the study area, the second segment (La Madera Road to CR 52A) adjacent to the study area, and the third segment (CR 52A to Madrid) located to the north of the study area. The segments to the north and south of the study area were included to provide a comparison of accident rates. A summary of the accident data for NM 14 is provided in Table 1-9.

**Table 1-9  
Severity of Accidents and Accident Rates for NM 14**

Year	Severity of Accident			Total	Accident Rate*	Fatality Rate*
	PDO	Injury	Fatal			
Segment 1: I-40/NM 333 to La Madera Road - South of the Study Area						
1995	27	13	1	41	1.71	0.04
1996	21	9	1	31	1.17	0.04
1997	17	12	0	29	1.02	0.00
1998	13	15	0	28	0.98	0.00
1999	12	8	0	20	0.69	0.00
Total	90	57	2	149		
Average					1.09	0.01
Segment 2: La Madera Road to NM 22/CR 52A - Adjacent to Study Area						
1995	7	8	0	15	1.47	0.00
1996	12	9	1	22	1.77	0.08
1997	7	8	0	15	1.10	0.00
1998	8	7	1	16	1.57	0.10
1999	6	4	0	10	1.04	0.00
Total	40	36	2	78		
Average					1.39	0.04
Segment 3: NM22/CR 52A to Madrid - North of the Study Area						
1995	7	2	0	9	n/a	n/a
1996	3	4	0	7	n/a	n/a
1997	6	2	0	8	n/a	n/a
1998	3	6	0	9	n/a	n/a
1999	8	3	0	11	n/a	n/a
Total	27	17	0	44		
Average					n/a	n/a

\* Rates for roadway segments expressed as accidents per million vehicle miles traveled (MVM)  
 PDO = property damage only

For the five years evaluated, 271 accidents were reported on NM 14. These included 4 accidents involving fatalities, 110 involving injuries, and 157 with property damage only. A comparison of the accident data for NM 14 with statewide accident statistics indicate slightly higher than normal accident rates, particularly for the segment adjacent to the study area. The statewide average accident rate for rural "major collector" undivided and divided highways are approximately 1.04 and 0.81, respectively, acci-

91830037

dents per MVM of travel. The same statistic for the segment adjacent to the study area (undivided highway) and south of the study area (divided highway) are approximately 1.39 and 1.09, respectively, accidents per MVM.

In the first segment between I-40/NM 333 and La Madera the reported accidents include a fairly high number of accidents involving collisions with fixed objects, centerline accidents (i.e., head-on and sideswipe collisions), and accidents that can be attributed to turning maneuvers. This segment of highway has a continuous two-way left-turn lane that could be a contributing factor to the relatively high number of centerline collisions. In general, the high number of driveways and roadways that intersect with the highway and the related turning maneuvers contribute to a large percentage of the accidents that have occurred on this segment of NM 14.

In the segment of NM 14 adjacent to the study area (La Madera Road to CR 52A) the most common reported accidents include vehicles overturning, collisions with fixed objects, and accidents at access points. The overturn accidents on this segment of highway resulted in several injuries and one fatal accident. For the segment of NM 14 north of the study area (CR 52A to Madrid) the most common reported accidents included vehicles overturning.

### 1.3 SUMMARY OF THE NEEDS ASSESSMENT

Several factors were assessed that affect the need for a new/improved roadway connection between I-25 and NM 14. These include growth and development within Placitas and the north East Mountain area near the Bernalillo County/Sandoval County boundaries, access to jobs and services for these developing areas, and safety and traffic operations of the existing major roadway network. The evaluation identified the following:

- Official growth estimates for the Placitas area and north East Mountain area near the Bernalillo County/Sandoval County boundary vary. Official population projections for the study area indicate a population of approximately 26,000 in this area by the year 2020. Recently updated but as of yet unofficial population projections for the year 2025 indicate a much lower population within the study area (approximately 10,000). The lower numbers for 2025 reflect a recently adopted growth management vision for the region that directs most growth within the urbanized portions of Bernalillo and Sandoval Counties and less growth in fringe areas. However, based on the number of remaining lots within approved subdivisions, it is likely that considerable additional growth will still occur in both Placitas and the NM 14 communities, which in turn, will generate additional traffic on the major roadways serving these areas.
- The limited employment and services available in the Placitas area and East Mountain area results in the residents of these subareas being dependent on jobs and services in Albuquerque and Rio Rancho, and to a lesser extent, on Santa Fe. The highway system serving these communities is limited to NM 14 and NM 165. While other local roads are available, they are generally unpaved and are affected by weather-related closures. Alternative routes to access the Albuquerque area are not available for East Mountain residents when temporary closures of I-40 and NM 333 through Tijeras Canyon occur due to accidents or weather.
- An analysis of traffic operations on the primary roads serving the Placitas area and East Mountain communities indicates that future year congestion levels are generally acceptable, except for the 2-lane portions of NM 165 through Placitas and at the I-25/US 550/NM 165 interchange. Accident

91830039

rates and severity rates for NM 165 and NM 14 are generally consistent with statewide averages for similar type roadways and are not indicative of major deficiencies that would affect public safety.

- A comparison of travel times for trips originating in the communities along NM 14 and near the Bernalillo County/Sandoval County boundary indicates that travel to major employment sites in Albuquerque is generally quicker using NM 14 and I-40 as compared to a new route from NM 14 to I-25. Access to employment centers in Rio Rancho would be comparable to or faster using a new route between NM 14 and I-25.

Based on the factors evaluated, the following needs have been identified.

- Additional access to the Placitas area, or improvements to NM 165, will be needed if growth beyond the pending 2025 projections occurs. Growth beyond the 2025 projections will result in substantial congestion on NM 165 from Placitas to I-25 and at the I-25/NM 165 interchange.
- While the need for a state highway connection between I-25 and NM 14 is marginal at this time, preserving the ability to implement such a roadway in the future is an important consideration in long-range planning for the Placitas area and north East Mountain area. This is especially important when the uncertainty of growth projections is considered. Future land subdivisions and the proposed BLM land exchange with San Felipe Pueblo could prevent the implementation of a roadway in the future. Therefore, any land exchanges between the BLM and San Felipe Pueblo should preserve the ability to acquire rights-of-way for a new State highway across the study area. The preservation of right-of-way should also be considered as part of all County government approvals of master plans or subdivision plans within the study area.



91830041

## 2.0 INTRODUCTION

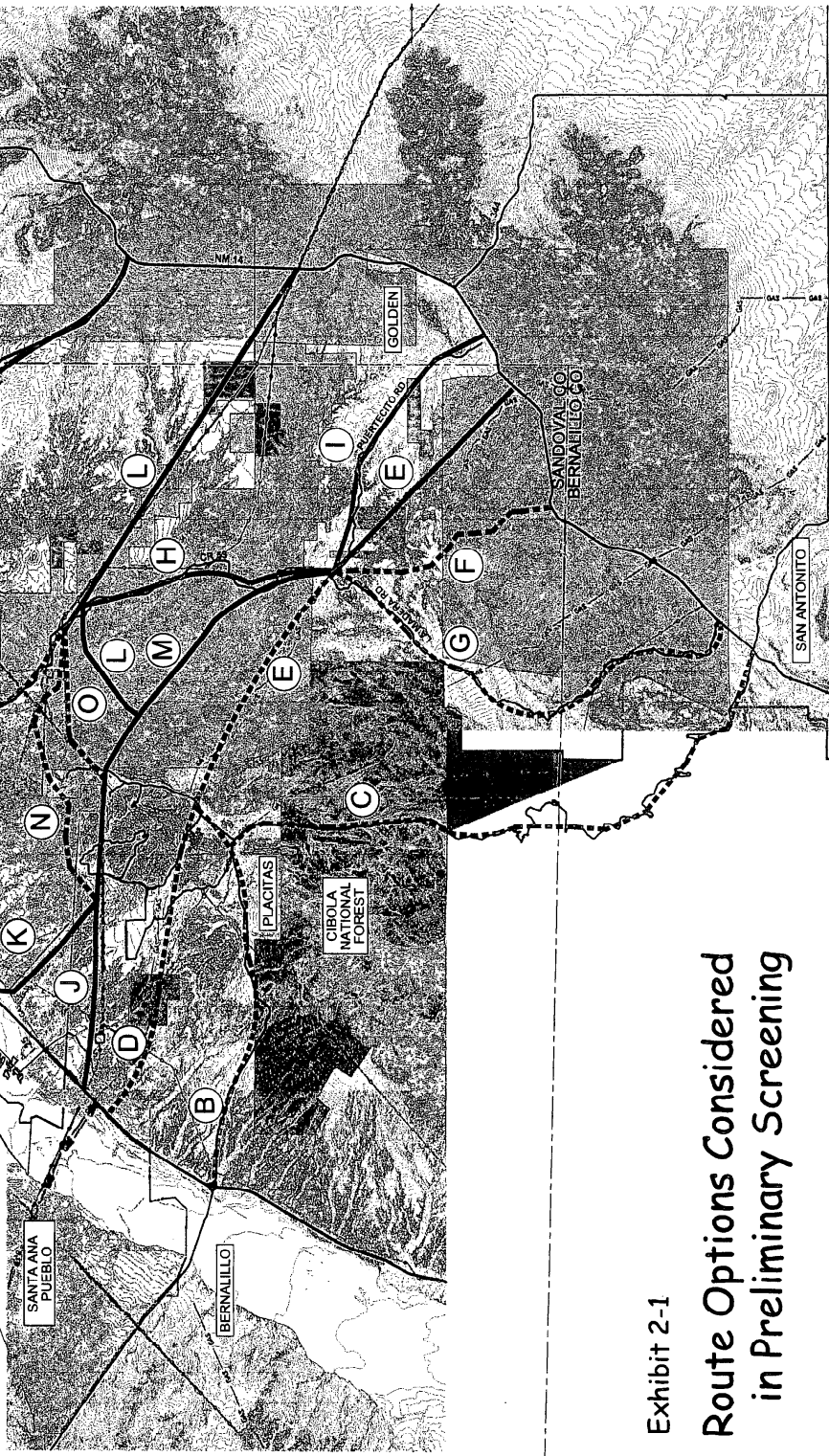
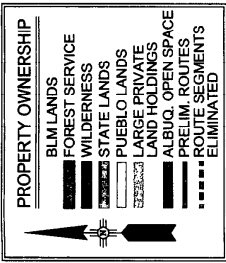
If right-of-way is to be preserved, potential route alternatives must first be identified. At this stage of the corridor study process, the level of detail is limited to general information about each alignment and is not based on detailed engineering investigations. Potential route alignments were identified using existing information and considered various factors including terrain, land ownership, the location of existing and planned developments and subdivisions, and environmental conditions. Potential route alternatives followed existing roadways and utility corridors to the extent feasible.

As an initial step in the identification of route alternatives, sixteen segments were identified within the study area that could be aggregated to form continuous routes between I-25 and NM 14. The segments are illustrated in Exhibit 2-1 and described as follows.

- Route A (CR 52A): This route begins at the existing I-25/NM 22 interchange and follows CR 52A, which is an existing unpaved roadway.
- Route B (NM 165): This route begins at the existing I-25/NM 165 interchange and follows NM 165 to the east to the existing Camino del Tecolote intersection. The route then heads in a northeasterly direction along Camino del Tecolote to connect with routes D/E.
- Route C (NM 165/NM 536): This route begins at the existing intersection of NM 165 and Camino del Tecolote. From this point, NM 165 continues south of Placitas as a gravel road to the east side of the Sandias where it joins NM 536. NM 536 is a paved roadway, with many low speed curves, that intersects NM 14 at San Antonito.
- Route D (gas line easement/Las Huertas Creek): This route begins at I-25 where the gas line easement and Las Huertas Creek cross the interstate then generally follows the gas line easement and Las Huertas Creek to the east to the community of Tecolote.
- Route E (gas line easement): This route begins in the general vicinity of the Tecolote community and continues in a southeasterly direction along a gas line easement to NM 14.
- Route F (old railroad grade / San Pedro Creek): This route begins in a canyon located to the south-east of the CR 53 / CR 57A intersection and generally follows an old railroad grade that lies next to the San Pedro Creek. This route intersects NM 14 near the existing NM 14 bridge that crosses the San Pedro Creek.
- Route G (La Madera Road – CR 53): This route begins at the intersection of CR 53 (La Madera Road) and CR 57A (Puertetico Road) and follows CR 53 to the south through the community of La Madera to its intersection with NM 14. This roadway is paved in Bernalillo County and is a dirt road in Sandoval County.
- Route H (CR 53): This route begins at the existing I-25/San Felipe interchange and continues in a southeasterly direction following CR 53 through San Felipe Pueblo lands. After leaving San Felipe Pueblo lands, this route follows CR 53 along the Arroyo Una de Gato to its intersection with CR 57A.
- Route I (Puertetico Road – CR 57A): This route begins at the intersection of CR 53 (La Madera Road) and CR 57A (Puertetico Road) and generally follows Puertecito Road to the east to its intersection with NM 14.

91830043

**NM 14 to I-25 CONNECTION  
CORRIDOR STUDY**



**Exhibit 2-1  
Route Options Considered  
in Preliminary Screening**

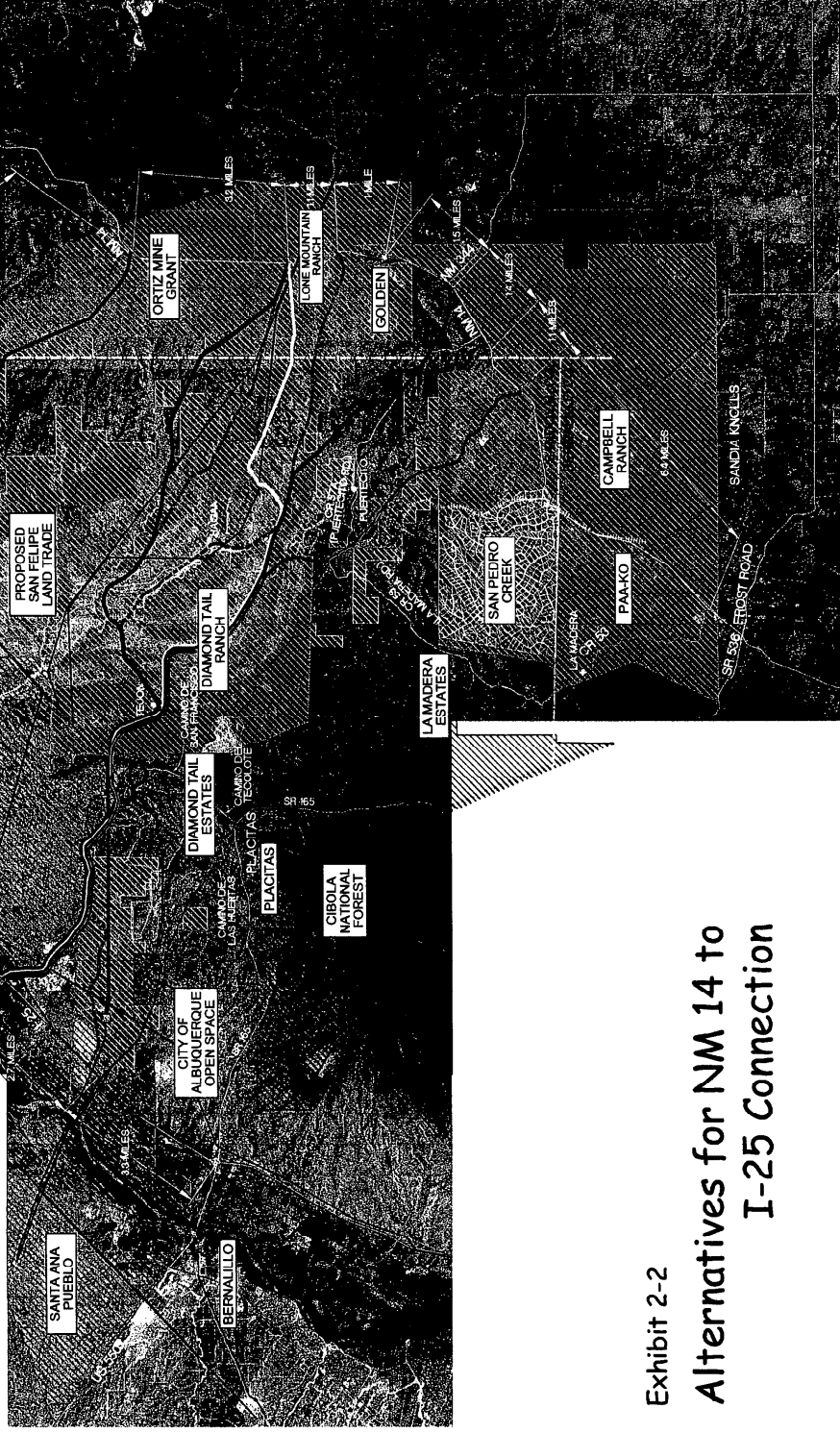




**NM 14 to I-25 CONNECTION  
CORRIDOR STUDY**

**PROPERTY OWNERSHIP**

- BLM LANDS
- FOREST SERVICE
- WILDERNESS
- STATE & MUNICIPAL LANDS
- PUEBLO LANDS
- ALBUQ. OPEN SPACE
- LARGE PRIVATE LAND HOLDINGS
- ALTERNATIVE 2
- ALTERNATIVE 3
- ALTERNATIVE 4
- ALTERNATIVE 5
- ALTERNATIVE 6
- ALIGNMENT OPTIONS
- POWER LINE
- GAS LINE

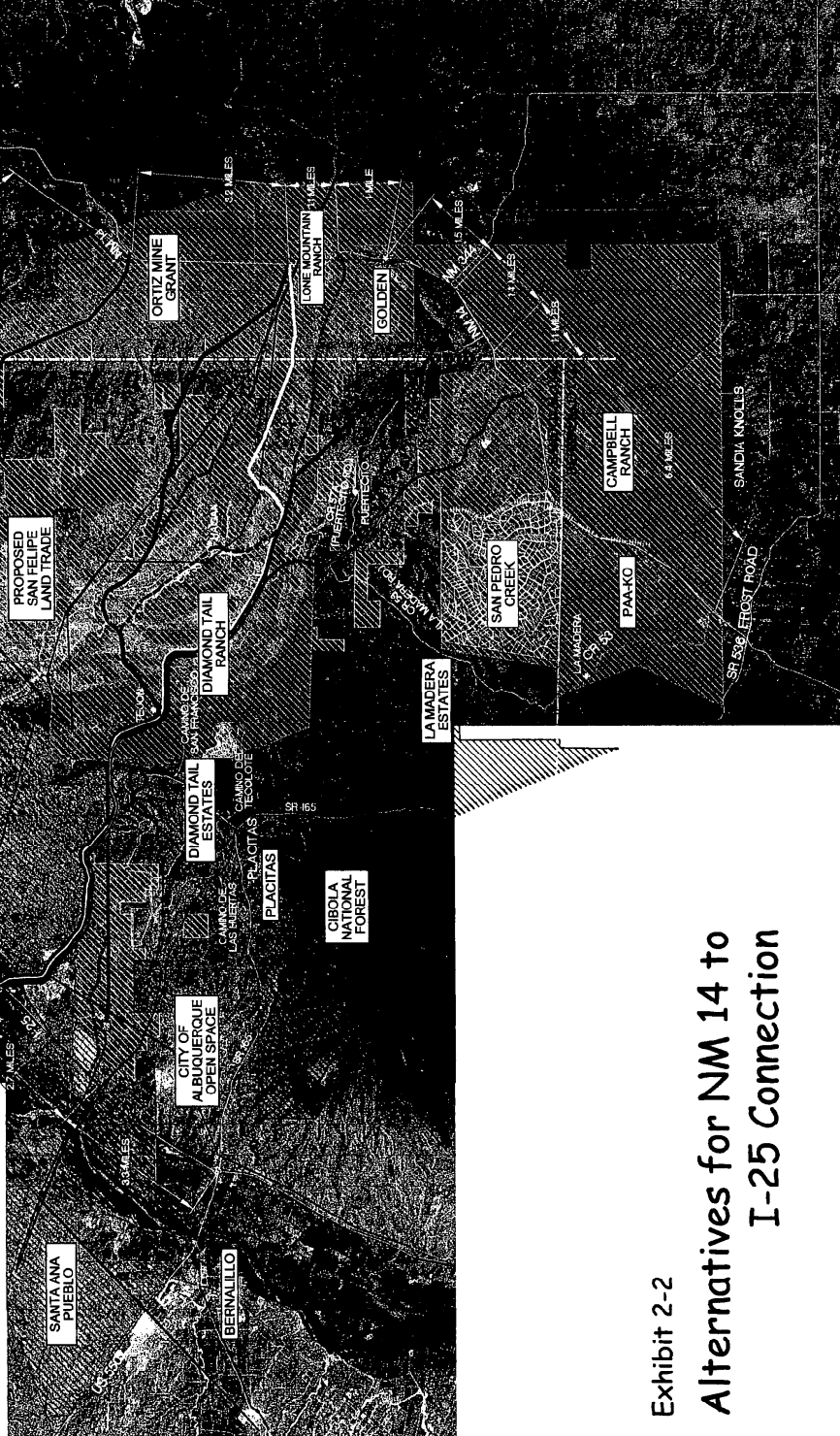


**Exhibit 2-2  
Alternatives for NM 14 to  
I-25 Connection**



NM 14 to I-25 CONNECTION  
CORRIDOR STUDY

PROPERTY OWNERSHIP	
[Symbol]	BLM LANDS
[Symbol]	FOREST SERVICE WILDERNESS
[Symbol]	STATE & MUNICIPAL LANDS
[Symbol]	PUEBLO LANDS
[Symbol]	ALBUQ. OPEN SPACE
[Symbol]	LARGE PRIVATE LAND HOLDINGS
[Symbol]	ALTERNATIVE 2
[Symbol]	ALTERNATIVE 3
[Symbol]	ALTERNATIVE 4
[Symbol]	ALTERNATIVE 5
[Symbol]	ALTERNATIVE 6
[Symbol]	ALIGNMENT OPTIONS
[Symbol]	POWER LINE
[Symbol]	GAS LINE



**PB** Parsons Brinckerhoff

Exhibit 2-2  
Alternatives for NM 14 to  
I-25 Connection



- Route J (power line easement): This route begins where the power line easement crosses I-25 on Santa Ana Pueblo lands and continues east along the power line easement to Camino de San Francisco near San Francisco Hills Road.
- Route K (Algodones): This route begins at the existing I-25/Algodones interchange and continues in a southeasterly direction along the San Felipe Pueblo boundary and ends at the power line easement described as Route J.
- Route L: This route begins in the vicinity of Tejon and continues to the northeast where it intersects CR 53 just south of the existing power line easement. From here the route follows a power line easement in a southeasterly direction to its crossing of NM 14, a few miles north of Golden.
- Route M (old wagon trail): This route begins in the general vicinity of Camino de San Francisco and San Francisco Hills Road and generally follows an old wagon trail that heads east through a pass that comes out at the old Tejon settlement. From here the route continues in a southeasterly direction that ends near the intersection of CR 53 (La Madera Road) and CR 57A (Puertetico Road).
- Route N (San Felipe): This route begins near the power line easement (Route J) and Camino de la Rosa Castilla and goes to the northeast onto the San Felipe Pueblo lands where it continues to the northeast through several valleys before intersecting CR 53 near the Tonque Pueblo site.
- Route O (power line easement): This route begins in the general vicinity of Camino de San Francisco and San Francisco Hills Road and follows the power line easement a short distance to the northeast, then heading in an easterly direction along the power line to just past CR 53 where it joins Route L as previously described.

## 2.1 ALTERNATIVES FOR INITIAL EVALUATION

Based on an initial review and evaluation of the various route segments, several of the segments were discarded due to obvious flaws in their engineering feasibility, known environmental limitations, land status, or other factors that would severely limit their practicality. The remaining segments were then aggregated to form continuous route alternatives. The aggregated route alternatives are described under the Build Alternatives section below.

### Alternative 1 -- No-Build

The No-Build alternative assumes that a new or improved connection between NM 14 and I-25 would not be constructed, although other improvements to the regional transportation system already planned and programmed are assumed to be in place (e.g., widening of I-25 to 6-lanes between Albuquerque and Bernalillo). The No-Build alternative is a viable option and is the basis for the comparison of the alternatives considered in the Initial Evaluation of Alternatives.

### Build Alternatives

Based upon the initial screening of potential route segments, a number of alternatives were developed for further evaluation. The approximate alignment of each alternative is illustrated in Exhibit 2-2. The route alternatives are based on preliminary engineering information and uncontrolled mapping. Thus, substantial refinement will be needed if they are advanced for additional analysis in subsequent phases of the corridor study process. Preliminary right-of-way needs and cost for each alternative have been estimated and are summarized later in this chapter. For Alternatives 3, 4, 5, and 6, the cost and right-of-

91830050

### 3.0 INTRODUCTION

A variety of factors must be considered in the evaluation of feasibility of a new roadway linking I-25 and NM 14 including consistency with the need for a new facility, engineering feasibility, and potential social, cultural, and environmental effects. The information in this chapter provides an overview of these factors and a discussion of how critical issues affect the feasibility of each alignment. The discussion of engineering and environmental issues is based on preliminary investigations including field reconnaissance and a review of existing databases and records. Additional information including detailed mapping, geotechnical investigations, and alignment specific surveys for cultural and biological resources will be needed for any alignment alternative advanced for further study.

### 3.1 MOBILITY AND TRAFFIC OPERATIONS

For purposes of evaluating their mobility benefits and operational characteristics (i.e., consistency with the need for a new roadway), the five build alternatives described in Chapter 2 were grouped into two subsets of alternatives—a northern alternative (Alternative 2) and a southern alternative (Alternatives 3 thru 6). Although there are key differences between each group of alternatives, both the northern and southern alternatives are consistent with the project need.

#### Mobility and Access

As discussed in Chapter 1, growth statistics as well as future growth projections in and around the project study area indicate that the region will continue to grow at a substantial rate. In addition, the vast majority of jobs held by area residents will continue to be located in and around the Albuquerque metropolitan area with a substantial, but smaller percentage of workers traveling to Santa Fe. A new connection between NM 14 and I-25 would distribute and better accommodate the increasing number of daily commutes in and out of the project area as well as improve overall access and mobility to and within the study area. Because of its more northerly connections with I-25 and NM 14, the northern alignment would not be an efficient route for the north East Mountain communities to access the Albuquerque area. It would however, be an efficient route for travelers destined to Santa Fe. Conversely, the southern alternatives would provide competitive travel times for commutes from the northern portion of the East Mountain area to the north I-25 corridor, Rio Rancho, and Bernalillo. They would also provide an alternative route for motorists that currently use NM 14 to access Santa Fe, especially when inclement weather or accidents affect NM 14.

#### Traffic Operations

The existing highway system and proposed new roadway alternatives were evaluated to assess the operational conditions under 2020 and 2025 future year traffic forecast. The traffic analyses were performed using the same assumptions and methodologies used for the Existing Conditions and No-Build Alternatives discussed in Chapter 1. Table 3-1 summarizes the directional peak hour traffic volumes and the operating level of service associated with those volumes for the roadway segments analyzed.

Under the Build Alternatives it was assumed that the new roadway between NM 14 and I-25 would be primarily utilized by commuter traffic. Thus the peak period traffic would constitute a higher percentage of the total daily traffic and would be highly directional. This was assumed because of the lack of commercial and other services in the study area that would limit the number of shopping and non-work trips utilizing the new roadway. It was also assumed that the southern alternatives would be 4 lanes from I-25 through the Placitas area and 2 lanes for the remainder of the route. The northern route would be 2 lanes for its entire length. It was further assumed that a southern alternative roadway would be connected

91830052

to north/south streets within the Placitas area providing diversion of traffic from NM 165 to the proposed roadway.

**Table 3-1  
Peak Hour Traffic Volumes and Level of Service (LOS)**

Roadway	Segment	2020 (AM/PM)		2025 (AM/PM)	
		Volume	LOS	Volume	LOS
<b>Southern Alternatives</b>					
NM 14	Bernalillo/Sandoval C.L.	380/430	C/C	200/230	B/B
NM 14	South of Frost Rd.	750/630	A/A	590/510	A/A
NM 14	North of I-40	1280/1070	B/B	950/800	A/A
NM 165	East of I-25 (4-lanes)	1360/1270	B/B	430/420	A/A
NM 165	Placitas segments (2-lanes)	1360/1270	E/E	430/420	C/C
I-40	East of NM 14	2550/2290	C/C	N/A	N/A
I-40	West of NM 337	3820/3610	C/C	N/A	N/A
I-25	North of NM 165	2680/2530	D/C	N/A	N/A
I-25	South of NM 165	3270/3380	D/D	N/A	N/A
South Alt.	West of NM 14 (2-lanes)	540/540	C/C	290/290	B/B
South Alt.	I-25 to Placitas (4-lanes)	1890/1810	B/B	720/700	A/A
<b>Northern Alternative</b>					
NM 14	Bernalillo/Sandoval C.L.	210/230	B/B	150/170	B/B
NM 14	South of Frost Rd.	950/830	A/A	620/540	A/A
NM 14	North of I-40	1480/1270	B/B	980/830	B/A
NM 165	East of I-25 (4-lanes)	2710/2540	C/C	870/830	A/A
NM 165	≈ MP 1 (2-lanes)	2710/2540	F/F	870/830	E/E
I-40	East of NM 14	2550/2290	C/C	N/A	N/A
I-40	West of NM 337	4020/3810	D/C	N/A	N/A
I-25	North of NM 165	2550/2040	C/C	N/A	N/A
I-25	South of NM 165	2640/2560	C/C	N/A	N/A
North Alt.	NM 14 to I-25 (2-lanes)	340/340	B/B	270/270	B/B

Notes: LOS based on Highway Capacity Software  
 Traffic volumes for 2025 for I-25 and I-40 not available.  
 Volumes are for the peak direction by time period only.

As discussed in Chapter 1, the major point of congestion in both 2020 and 2025 under the no-build scenario is the 2-lane segment of NM 165 serving the Placitas area. As shown in the above table, the 2-lane portion of NM 165 is projected to be congested in 2020 even with a new alternative route. While the LOS is better with the southern alternatives, it remains congested (LOS E). Under the 2025 projections, NM 165 would be congested with the northern alternative but would have an acceptable LOS with the southern alternatives. The 4-lane segment of NM 165 functions at an acceptable level of service either with or without a new alternative roadway. Although not part of this analysis, it is highly likely that the existing interchange of NM 165 at I-25 will continue to experience severe congestion during the peak traffic periods.

91830054

Another notable consequence of the southern alternatives is their effect on I-25 traffic flows. The added access to I-25 created by the southern alternatives increases traffic on I-25 and lowers the level of service from C to D in the 2020 time frame.

### 3.2 ENGINEERING ISSUES

The potential highway corridors traverse an area of complex terrain that will affect the cost, constructability, and feasibility of the various route alternatives. The most critical engineering issues include the complex topography within the study area and drainage. These issues and their effect on the route alternatives are discussed below.

#### Topography

The study area is situated in the Mexican Highlands section of the Basin and Range physiographic province. The Sandia Mountains, the Rio Grande Rift, and the Ortiz and San Pedro Mountains are the dominant land features in the area. The Sandia Mountains are an east-tilted fault block of Precambrian granite capped with sedimentary rock. The gently sloping east side of the Sandias has a shallow to deep soil cover while the faulted west side is very steep to vertical with the underlying granite and sedimentary cap rock exposed. The Rio Grande Rift runs along the west side of the Sandia Mountains. The Ortiz and San Pedro Mountains are situated to the northeast and east of the Sandia Mountains. These low mountains consist of tertiary rock intrusions that pushed up through fault zones associated with the Rio Grande Rift. Granite, sedimentary, and basaltic rock can be found on the surface in some areas as well as underlying the dark-colored shallow to deep soils found in these mountains.

The southern portion of the project area is largely within the piedmonts of the Sandia Mountains, with the northern portion partially within the broader flats of the of the Rio Grande Rift and the piedmonts of the Ortiz Mountains. This southern project area terrain is characterized as a moderate to steeply hilly landscape that is highly dissected, both by faulting and more recent erosion of surface sediments. Major features within this southern landscape, other than the Sandias themselves, consist of a series of arroyos and canyons (including Arroyo Coyote, Arroyo Cuchillo, Arroyo Tuerto, Arroyo Val Verde, Arroyo Una de Gato, Canon del Agua, Canon Tejon, and San Pedro Creek) and the ridge tops between them. The northern portion of the study area is similar to the southern portion with several arroyos and canyons (including Tonque Arroyo, Arroyo del Tuerto and Arroyo de la Vega de los Tanos) being the predominant land features.

Because of the complex topography, all of the southern build alternatives (i.e., Alternative 3, 4, 5, and 6) will involve substantial vertical and horizontal curves and will require substantial cut and fill sections. Substantial earthwork and structures will be needed to construct a safe roadway consistent with highway design standards. The topography for the northern alignment (Alternative 2) is much gentler in comparison to the southern alignments and will involve fewer and less substantial cut and fill sections.

#### Subsurface Geology

Sub-surface features and conditions must also be considered in evaluating the various alternatives. The sub-surface features affect the construction feasibility of the various alternatives (see Exhibit 3-1). With the exception of Alternative 2, the considerations are generally the same for all alternatives. For Alternative 2, beginning at I-25, this corridor gradually climbs in elevation along its length before connecting to NM 14 at the base of the Ortiz Mountains. The first 1.5± miles of this corridor is situated on mildly-sloping sandy to gravelly soils of the Santa Fe formation. Earthwork for roadway construction

91830056



in this area would be anticipated to entail normal excavation and embankment conditions. The next 9± miles is situated on mildly to steeply-sloping gravelly pediment deposits of the Quaternary period. Soils in this reach may be more prone to sliding on steep slopes and may dictate the need for somewhat flatter cut and fill slopes. The last 0.5± miles of the corridor is situated on alluvial fan deposits at the base of the Ortiz Mountains. These alluvial deposits are typically sandy, gravelly soils that may be shallow or deep and overlay intrusive granite, sedimentary, or basaltic rock. Roadway excavation in this area could encounter underlying rock formations requiring removal of the underlying rock.

The subsurface conditions are similar for Alternatives 3, 4, 5, and 6. Beginning from the west, the proposed corridors would traverse the northern foothills of the Sandia Mountains for about 5 miles. The initial 2.5 miles is situated primarily on mild to steeply-sloping soils of the Santa Fe formation. These sandy and gravelly soils can be excavated using normal excavation methods. The next 2.7 miles is situated primarily on gravelly Quaternary period pediment deposits. These soils are generally more prone to sliding on steep slopes and may require somewhat flatter cut and fill slopes in this area or the use of retaining structures to prevent slides. In the middle portions of the corridor where the alignments cross ridges and steeper canyons, the substrate includes areas characterized by old Permian rock and Triassic period rock. Most of the rock formations have shallow soil cover and would likely require special excavation techniques. Although the alternatives split to the east of the Tejon area, in general they would encounter Triassic period rock along the base of the ridges, alluvial soils in the valleys, Mancos shale in the ridges between Canon Tejon and Arroyo Una de Gato, and Mesa Verde group soil and rock in the ridges between Arroyo Una de Gato and Arroyo Coyote. Excavations in areas of Triassic period rock, Mancos shale and Mesa Verde group soils would likely require the removal of underlying rock. The eastern termini of the alternatives would encounter soils of the Santa Fe formation, gravelly pediment deposits, and alluvial fan deposits at the base of the Ortiz Mountains. The alluvial deposits in this area may overlay intrusive granite, sedimentary, or basaltic rock that would require removal in areas of excavation.

As described in the preceding section, the subsurface conditions will affect slope grades and, in some areas, will require the use of special construction methods and the use of retaining structures. Alternative 2 will involve fewer rock cuts than the other alternatives and would be simpler and less costly to construct. Subsurface conditions for the remaining alternatives are generally similar.

#### **Drainage**

Numerous streams and arroyos separated by prominent ridges occur throughout the study area (see Exhibit 3-2). These drainages generally begin in the Ortiz Mountains, San Pedro Mountains, and Sandia Mountains and flow to the northwest towards the Rio Grande. The streams present in the study area are typical of those found in southwestern mountain ranges, in that they tend to flow above ground in the higher elevations before developing into subsurface flows as they drop in elevation. Although there is some sheet flow, storm runoff in the study area is generally channelized and carried by an extensive system of arroyos.

A preliminary hydrologic analysis was performed to quantify the magnitude of storm water flows that occur in the study area. The analysis was conducted in accordance with the NMSHTD Drainage Manual. Analysis points were established at locations where proposed roadway corridors would cross major arroyos or streams. A total of eighteen analysis points were established. To estimate flows at

91830058

# STUDY AREA GEOLOGY

## EXPLANATION

QUATERNARY	CRETACEOUS	JURASSIC	TRIASSIC	PERMIAN	PENNSYLVANIAN	MISSISSIPPIAN & DEVONIAN	PRECAMBRIAN
<ul style="list-style-type: none"> <li>Alluvium (Qal)</li> <li>Alluvial Aprons (Qab)</li> <li>Terrace deposits (post glacial) (Qtc)</li> <li>Terrace deposits (early Bull Lake) (Qte)</li> <li>Bolson deposits (Qob)</li> <li>Landslide debris (Qld)</li> <li>Alluvial fan deposits (Qof)</li> <li>Pediment deposits (Qpd)</li> <li>Older Pediment deposits (Qopd)</li> <li>Pediment deposits (Qpd)</li> <li>Basalt (Ob)</li> <li>Santa Fe Formation (Ofs)</li> <li>Espinosa Volcanics (Oev)</li> <li>Gallisteo Formation (Og)</li> <li>Intrusive rocks undivided (I)</li> <li>Nacimiento Formation (Tn)</li> <li>Monzonite (M)</li> </ul>	<ul style="list-style-type: none"> <li>Rhyolite (Trh)</li> <li>Mesa Verde Group (MVG)</li> <li>Mancos Shale (MnS)</li> <li>Dakota Sandstone (Kd)</li> <li>Jurassic rocks undivided (J)</li> <li>Triassic rocks undivided (T)</li> <li>San Andres Limestone (SAL)</li> <li>Lower Permian undivided (P)</li> <li>Madera Limestone (ML)</li> <li>Sandia Formation (SF)</li> <li>Mississippian and Devonian rocks undivided (MD)</li> <li>Quartzite (pcq)</li> <li>Granite (pcg)</li> <li>Metamorphic rocks undivided (pcm)</li> </ul>	<ul style="list-style-type: none"> <li>Established pit or quarry (●)</li> <li>Prospect pit or quarry (○)</li> <li>Fault (—)</li> <li>downthrown side (—)</li> <li>Anticline (∩)</li> <li>Syncline (∪)</li> </ul>					

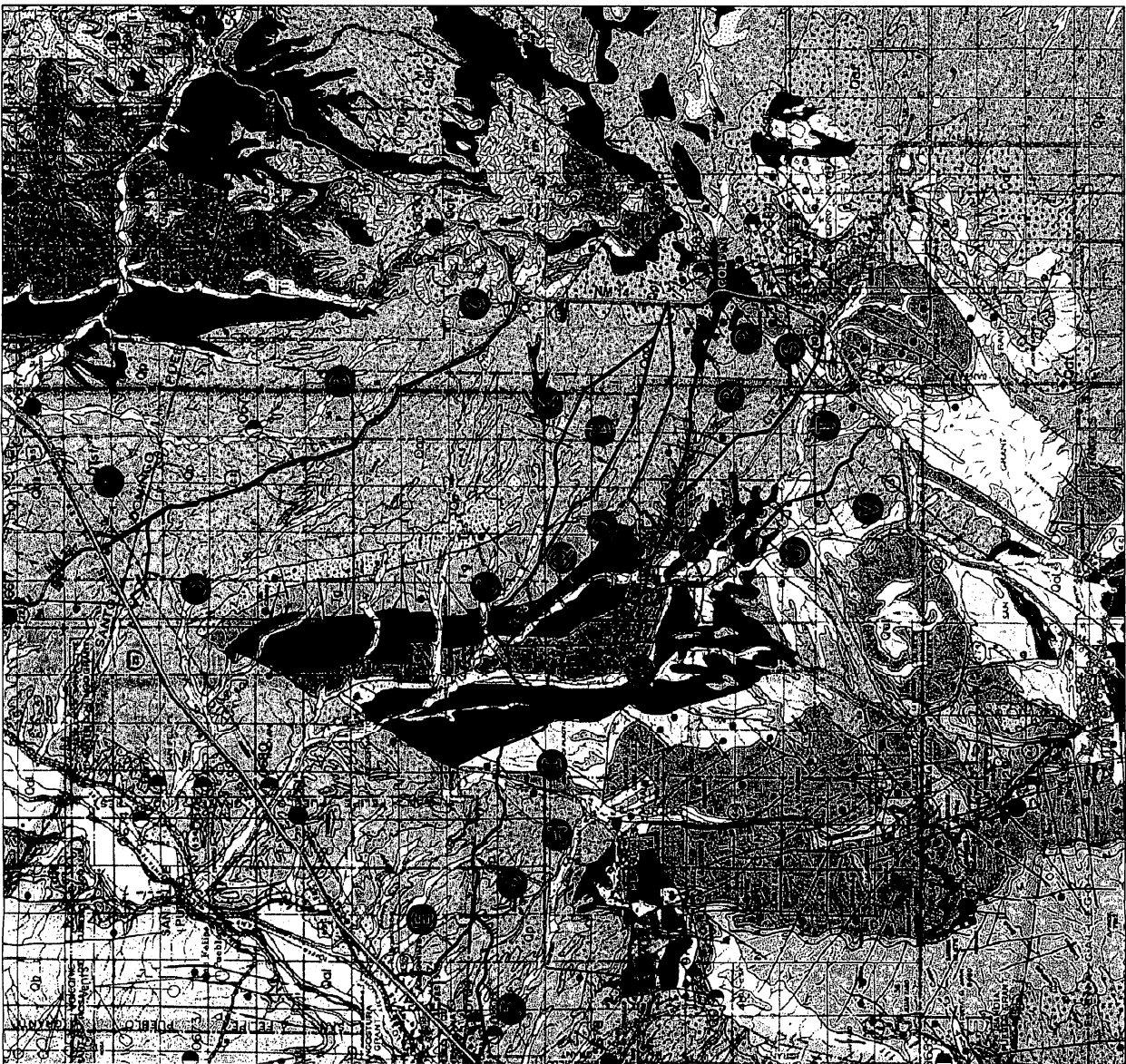
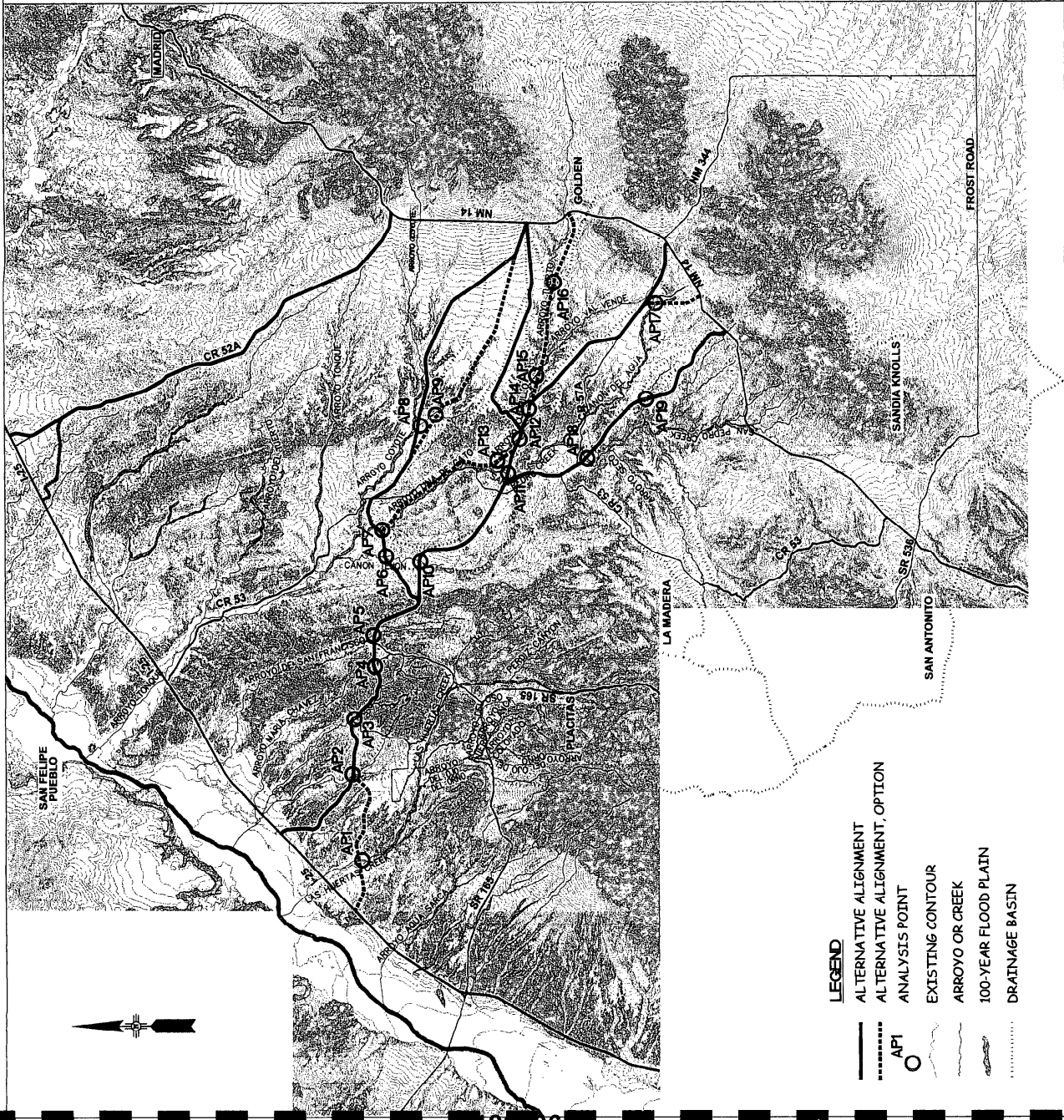


EXHIBIT 3-1





**Preliminary Drainage Analysis**

Alternative	Analysis Point	Arroyo Name	Drainage Area (sq. mi.)	Q <sub>100</sub> (cfs)	Q <sub>15</sub> (cfs)	Probable Structure Type
Alternative 3	AP2	Unnamed	1.24	871	1135	Culvert
	AP3	Unnamed	1.37	912	1190	Culvert
	AP4	Arroyo Maria Chavez	0.22	400	512	Culvert
	AP5	Arroyo de San Francisco	15.66	4745	6320	Bridge
	AP6	Canon Tejon	1.84	1042	1363	Culvert
	AP7	Arroyo Una de Gato	120.49	7288	9261	Bridge
	AP8	Unnamed	7.07	1524	1739	Culvert
Alternative 3A	AP1	Las Huertas Creek	28.73	7273	9494	Bridge
	AP9	Unnamed	6.60	1260	1659	Culvert
Alternative 3B	AP2	Unnamed	1.24	871	1135	Culvert
	AP3	Unnamed	1.37	912	1190	Culvert
Alternative 4	AP4	Arroyo Maria Chavez	0.22	400	512	Culvert
	AP5	Arroyo de San Francisco	15.66	4745	6320	Bridge
	AP10	Canon Tejon	1.44	933	1218	Culvert
	AP11	San Pedro Creek	87.98	7730	10026	Bridge
	AP12	Arroyo Cucuhillo	25.34	3078	3965	Culvert
	AP1	Las Huertas Creek	28.73	7273	9494	Bridge
	AP6	Canon Tejon	1.84	1042	1363	Culvert
Alternative 4B	AP7	Arroyo Una de Gato	120.49	7288	9261	Bridge
	AP13	Arroyo Cucuhillo	25.67	3230	4145	Culvert
	AP14	Arroyo Cucuhillo	24.12	2470	3865	Culvert
Alternative 4C	AP15	Arroyo Cucuhillo	22.89	2900	3746	Culvert
	AP16	Arroyo Tuerto	14.65	2238	2920	Culvert
	AP2	Unnamed	1.24	871	1135	Culvert
Alternative 5	AP3	Unnamed	1.37	912	1190	Culvert
	AP4	Arroyo Maria Chavez	0.22	400	512	Culvert
	AP5	Arroyo de San Francisco	15.66	4745	6320	Bridge
	AP10	Canon Tejon	1.44	933	1218	Culvert
	AP11	San Pedro Creek	87.98	7730	10026	Bridge
	AP12	Arroyo Cucuhillo	25.34	3078	3965	Culvert
	AP14	Arroyo Cucuhillo	24.12	2470	3865	Culvert
Alternative 5A	AP1	Las Huertas Creek	28.73	7273	9494	Bridge
	AP6	Canon Tejon	1.84	1042	1363	Culvert
	AP7	Arroyo Una de Gato	120.49	7288	9261	Bridge
Alternative 5B	AP13	Arroyo Cucuhillo	25.67	3230	4145	Culvert
	AP17	Canon del Agua	6.65	2039	2767	Culvert
Alternative 5C	AP2	Unnamed	1.24	871	1135	Culvert
	AP3	Unnamed	1.37	912	1190	Culvert
Alternative 6	AP4	Arroyo Maria Chavez	0.22	400	512	Culvert
	AP5	Arroyo de San Francisco	15.66	4745	6320	Bridge
	AP10	Canon Tejon	1.44	933	1218	Culvert
Alternative 6A	AP18	San Pedro Creek	70.30	6452	8448	Bridge
	AP19	Unnamed	0.52	624	830	Culvert
Alternative 6A	AP1	Las Huertas Creek	28.73	7273	9494	Bridge

**EXHIBIT 3-2  
PRELIMINARY DRAINAGE  
OVERVIEW**



these analysis points, drainage basins were delineated upon the USGS base contour map, and predicted storm runoff flows were calculated for both a 50-year and a 100-year frequency storm.

Predicted peak flow values for a 50-year return frequency storm range from approximately 400 to 7,700 cubic feet per second (cfs). Predicted peak flow values for a 100-year return frequency storm range from approximately 500 cfs to 10,000 cfs. This information was utilized in forming a preliminary determination of drainage issues and type of drainage infrastructure that would be required for each of the alternatives. The most probable structure type required at each of the crossings identified was determined based upon the predicted peak flow, conceptual roadway grades at that location, and the nature of surrounding terrain and arroyo configuration at the proposed crossing. Probable structure types were categorized as either a bridge or a culvert.

### **3.3 LAND STATUS AND OWNERSHIP**

The study area includes a diverse mixture of private and public land holdings (see Exhibit 3-3). Property boundaries and apparent ownership is based upon available county records, tribal boundary maps, Bureau of Land Management maps, and other agency records. The project area is primarily situated among Federally-owned lands, State lands, Tribal lands, and privately-owned lands. Federally-owned lands include Cibola National Forest lands within the Sandia Mountains and large portions of BLM-owned lands disbursed throughout the study area. The State of New Mexico also has scattered land holdings throughout the study area. The Santo Domingo, San Felipe, and Santa Ana Pueblos each have very large land holdings primarily situated along Interstate 25 along the northwest boundary of the study area. The City of Albuquerque also has acquired an Open Space area located in the southwest quadrant of the study area. The balance of the remaining property within the study area is privately owned. Four large private landholdings are present here. They include the Ortiz Mine Grant, the Lone Mountain Ranch, and Campbell Farming Corporation, all located along NM 14. The Diamond Tail Ranch is situated in the central portion of the study area. There are also several subdivisions located throughout the study area.

The Bureau Of Land Management (BLM) is in the process of finalizing a proposed land trade encompassing approximately 15,000 acres of land between the BLM and the Pueblos of Santo Domingo and San Felipe. The proposed trade lands are located adjacent to CR 52A and NM 14 in the easternmost portion of the study area. Once completed, this action will substantially change current land ownership patterns within the study area.

All of the alternatives cross BLM lands in various locations. Other large land holdings affected by the alternatives include State lands, pueblo lands, and the large ranches. Alternative 2 (CR52A) crosses the Santo Domingo Pueblo, BLM and State lands, and the Ortiz Mine Grant. Alternative 3 crosses BLM lands, the Diamond Tail, the Ortiz Mine Grant, and the northern portion of the Lone Mountain Ranch, and potentially the Santa Ana Pueblo with the new I-25 interchange. Alternative 4 crosses BLM and State lands and the Diamond Tail and Lone Mountain Ranches. Alternative 5 crosses BLM and State lands and the Diamond Tail Ranch. Alternative 6 crosses BLM and State lands and the Diamond Tail Ranch and Campbell Farms.

### **3.4 COMMUNITIES AND NEIGHBORHOODS**

According to the 1990 US Census data, a total of 5,228 persons live within the six census block groups within the overall study area. In all block groups the majority of the population is classified as

91830064



**NM 14 to I-25 CONNECTION  
CORRIDOR STUDY**

PROPERTY OWNERSHIP	
[Stippled pattern]	BLM LANDS
[Dotted pattern]	FOREST SERVICE WILDERNESS
[Horizontal lines]	STATE & MUNICIPAL LANDS
[Vertical lines]	PUEBLO LANDS
[Diagonal lines]	ALBUQ. OPEN SPACE
[Cross-hatch]	LARGE PRIVATE LAND HOLDINGS
[Wavy lines]	OLD RAILROAD LAND TRADE
[Dashed line]	PROPOSED B.L.M. LAND TRADE
[Solid line]	BOUNDARIES

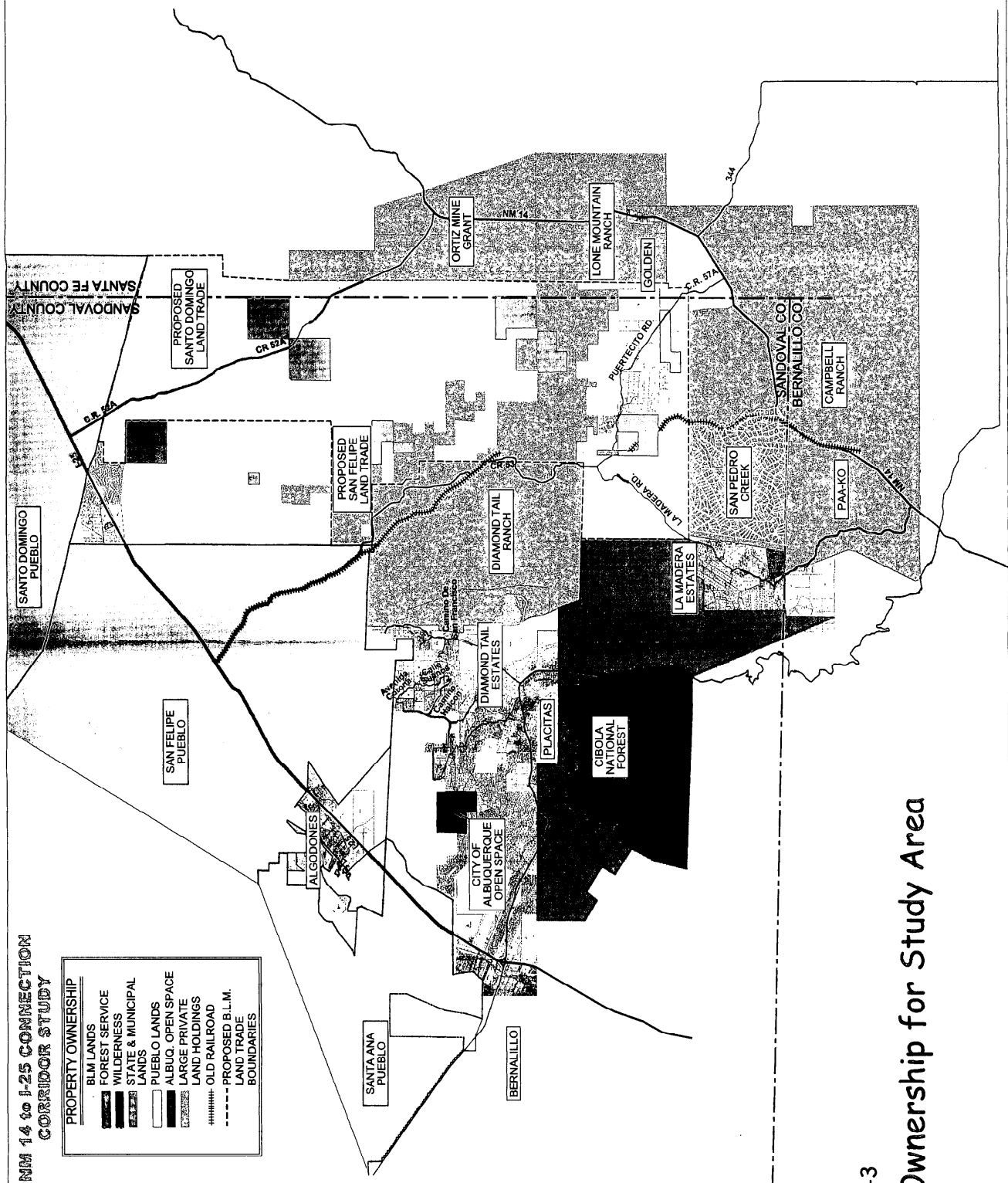


Exhibit 3-3  
Land Ownership for Study Area



NM 14 to I-25 CONNECTION  
CORRIDOR STUDY

PROPERTY OWNERSHIP	
[Stippled pattern]	BLM LANDS
[Dotted pattern]	FOREST SERVICE
[Cross-hatched pattern]	WILDERNESS
[Horizontal line pattern]	STATE & MUNICIPAL LANDS
[Vertical line pattern]	PUEBLO LANDS
[Diagonal line pattern]	ALBUQ. OPEN SPACE
[Dark solid pattern]	LARGE PRIVATE LAND HOLDINGS
[Dashed line pattern]	OLD RAILROAD
[Dotted line pattern]	PROPOSED B.L.M. LAND TRADE
[Dashed line pattern]	BOUNDARIES

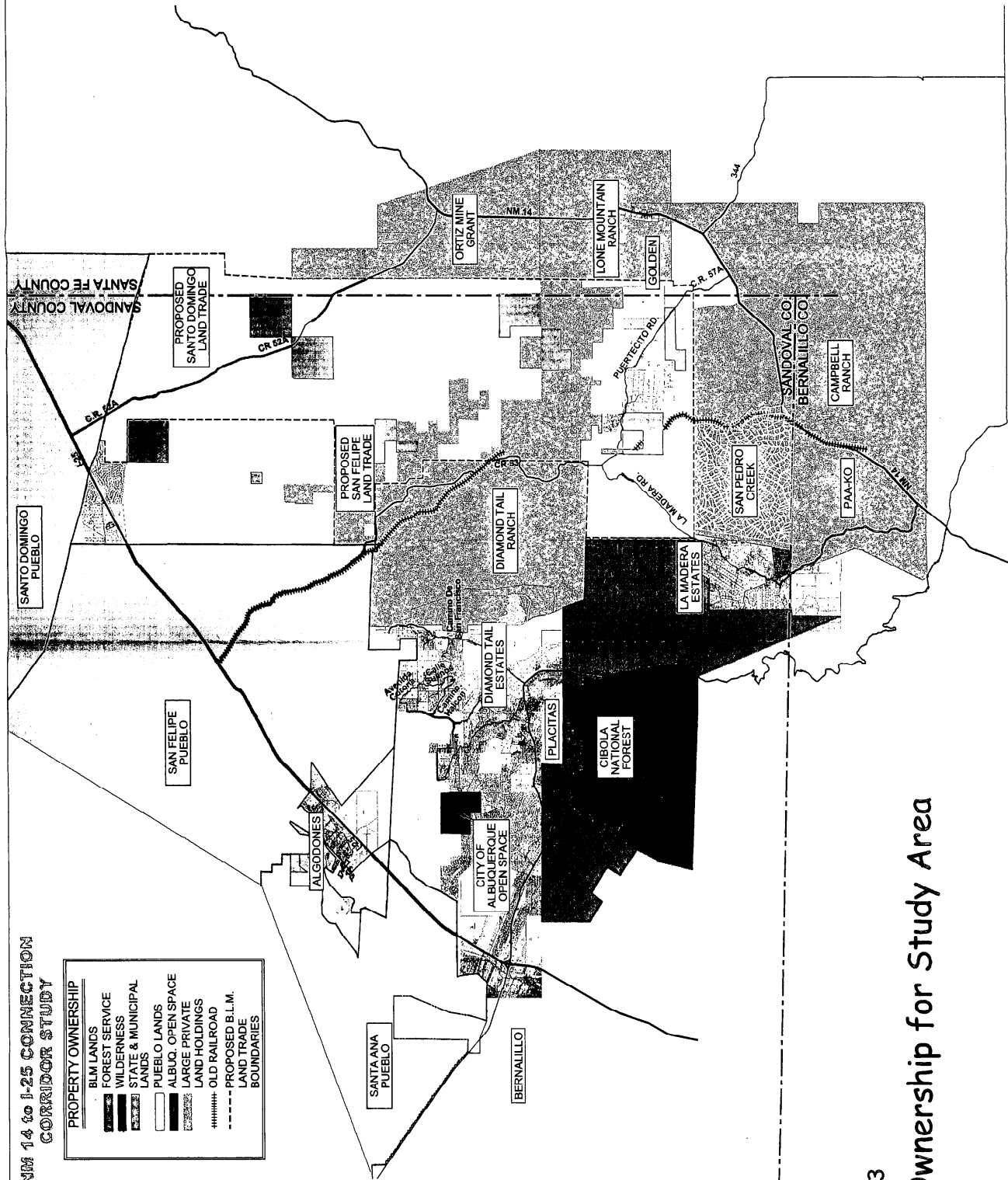


Exhibit 3-3  
Land Ownership for Study Area



white. Almost 20% of the population is identified as being of Hispanic origin, which is below the percentages for the three counties or the State as a whole. Only the Placitas block group has a higher percentage of Hispanics (37%) than the county (Sandoval) in which it is located. In general, the populations within the selected block groups have lower percentages of both children (under 18) and elderly (over 64) than either the State or the counties in which they are located.

Income within the study area varies widely, with per capita income ranging from \$4,574 per year for those living in the block group east of I-25 in the northwest corner of the study area (Budagher area) to \$23,753 per year for the block group surrounding Placitas in the southwest portion of the study area. Median family income also follows this general trend and ranges from \$8,815 per year to \$53,454 per year for the same two block groups respectively. With the exception of the block group in the northwest corner of the study area, the median family income within the remaining block groups exceeds that for the State as a whole.

Based on the 1990 data, none of the alternatives would have a disproportionate affect on minority, low income, or elderly individuals or communities.

### **Community Services**

Public facilities and services within the project area include schools, parks, the Cibola National Forest and the Albuquerque Open Space, and police, fire, and emergency medical services. The public school districts serving the project area include the Bernalillo and Albuquerque Public School Districts. While there are no schools immediately within the proposed alignment corridors, the area is served by many public and private facilities. San Antonito Elementary School on NM 14 just north of the NM 14/NM 536 intersection is the only public school located in the study area on the east side of the Sandias. Placitas Elementary School located on NM 165 is the only public school located on the west side of the mountains.

Police protection within the project area is provided by the Bernalillo County Sheriff's Department, Sandoval County Sheriff's Department, and the New Mexico State Police. Fire and emergency medical services are provided by the Bernalillo County Fire Department District 6 and the Sandoval County Fire Department district in La Madera. The closest hospitals to the project area are located in Albuquerque.

Two recreation sites, the Placitas Community Center in Placitas and the La Madera Community Center on La Madera Road north of the NM 14/NM 536 intersection, are located within the project area. Cibola National Forest is located south of the project area to the west of NM 14 and south of NM 165, and the Albuquerque Open Space is located within the project area south of the proposed alternatives.

None of the alternatives adversely affect access to any of the public facilities in the area, nor have an adverse effect on police, fire, or other emergency service. On the contrary, a new roadway would improve access for police, fire, and emergency services both to and between the communities located in the eastern and western portions of the study area.

### **3.5 CULTURAL RESOURCES**

Preliminary investigations of cultural resources consisted of a records search of the New Mexico Cultural Resource Information System records, which is the state repository for information regarding cultural resource investigations within the state. In addition, records held at the state Historic Preservation

91830070

Division for properties listed on the State and National Register of Historic Places and documents held at the University of New Mexico library were also searched for information on previously identified cultural resources within the study area.

Preliminary investigations identified close to one thousand cultural properties within the study area. While only 10% or so of the study area has been surveyed, site densities are as high as one site every 8 acres in some areas. These properties include prehistoric and historic resources and areas of traditional cultural importance. The majority of these contain intact features and/or structures. At least two cemeteries are located in the area. Archaeological sites range from prehistoric artifact scatters to large structural prehistoric pueblos and historic communities. Several large prehistoric and historic pueblos are in the area and are listed on the National and/or State Registers of Historic Places. These include Tonque Pueblo in Tonque Arroyo, and Casa Acequia, San Jose de las Huertas, and Tecolote Hill in the Las Huertas Creek area. Some areas, such as the old town of Tejon, show evidence of Hispanic and prehistoric Native American occupation dating back several centuries. Towns such as Coyote and Hagan were associated with mining activities of the late 19<sup>th</sup> and early 20<sup>th</sup> centuries.

Alternative 2 could affect cultural resources in the area. A wide variety of sites have been previously identified within the immediate vicinity of the proposed corridor. Site densities in the vicinity of CR 52A have been calculated based upon previous surveys conducted in the area, with site density values approximating 1 site for every 43 acres of surveyed land. Using this figure one could expect to find, at minimum, 8 prehistoric and historic archaeological sites within the proposed corridor. It is likely that improvements to Alternative 2 would have some affect on cultural resources.

Alternatives 3 through 6 could also have an impact on cultural resources. A variety of sites have been previously identified within the vicinity of the proposed corridors including several prehistoric properties listed on the State and National Register of Historic places, several cemeteries located at abandoned town sites (including Tejon and Uña de Gato), and several abandoned towns once associated with mining activities (Tejon and Hagan). Archaeological resources identified within the proposed corridor are generally more dense in the western portions of the study area for the simple reason that this is the area that has been most intensively investigated.

Site density calculations within the southern alternative are divided into two zones. Within the first zone, which begins at I-25 and ends roughly at Tejon, site density is high with nearly 1 site every 7.7 acres. From Tejon east, survey coverage is less dense than for areas to the west. However, because the potential corridors generally correspond to either a ridge top or arroyo bottom, relatively specific site per acre values can be extrapolated from other areas within the vicinity. For ridge tops, site densities can approach 1 site per acre, although realistically one may expect densities closer to those found west of Tejon (1 site per 7.7 acres) while densities in valley bottoms occur at around 1 site per 35 acres. Overall it should be expected that regardless of the particular option selected for analysis, one should expect to find approximately 70 archaeological sites within the selected alternative, with approximately 31 of those site located west of Tejon. It is therefore likely that selection of any of the southern alternatives would result in affecting a larger number of cultural resources.

Two abandoned cemeteries are located near Alternatives 4, 5, and 6. It is possible that these cemeteries, associated with the towns of Tejon and Uña de Gato, may be affected if one of these alignments is selected. Also, the Sandia Mountains are known as an area of traditional cultural importance for several

91830072



groups, and the presence of several springs near the Tejon area also suggests extensive prehistoric, historic, and traditional use by Native American groups. Alternatives 3 through 6 could affect these traditional cultural resources.

### **3.6 BIOLOGICAL RESOURCES**

#### **Special Status Plant and Animal Species**

The diversity in elevation and topography provides microhabitats for a number of plant and animal species. Dominant vegetation types in the study area include Plains-Mesa Grassland, Desert Grasslands, Juniper Savanna, Coniferous Woodland, Arroyo Riparian, and unique plant communities that grow on gypsum and clay deposits. Studies of similar habitat types in central New Mexico have documented upwards of 400 species of plants and over 100 species of vertebrate animals.

A review of databases and agency listings for protected and special status plant and animal species in the study area was undertaken as part of this study. The preliminary evaluation for the study area was based upon lists maintained by the U.S. Fish and Wildlife Service (USFWS), the US Forest Service (USFS), the Bureau of Land Management (BLM), the New Mexico State Forestry Division (NMSF), and the New Mexico Department of Game and Fish (NMDGF). Specific habitat requirements for each species were reviewed to determine the likelihood of occurrence for each species in the study area. Based on background research and preliminary field reviews of the study area, 22 species of animals and six species of plants with special status are anticipated to have potential habitat within the study area. A list of plant and animal species with the potential to occur in the study area is provided in Table 3-2.

Implementation of all of the alignment alternatives will result in the loss of plants and will remove habitat used by wildlife. Because of the longer route length and habitat diversity, the southern alignments would likely have the greatest impacts on plants and animals. If an alignment is advanced for further consideration, alignment-specific field surveys will be conducted to determine if special status plant and animal populations are affected and the extent of these impacts.

#### **Water Quality and Wetlands**

Transportation projects in New Mexico must comply with New Mexico water quality standards, Sections 401, 402, and 404 of the Clean Water Act, and Executive Order 11990: Protection of Wetlands. Within the study area perennial streams are located along the upper portions of Las Huertas Creek at Placitas and along the upper San Pedro Creek. In addition, the study area includes many ephemeral drainages (arroyos) that qualify as waters of the United States. Based on the preliminary review of the project area, wetlands are expected in areas associated with seeps and springs, in areas along perennial streams, and along low flow channels of large arroyos. Seeps and springs within the study area are likely to qualify as jurisdictional wetlands. Seeps and springs in the study area include a small spring along Arroyo de la Vega de los Tanos, a spring at the head of Arroyo de San Francisco northeast of Placitas, and a cluster of springs at Tejon. Additional springs and seeps are likely within the study area and will be identified in alignment-specific field surveys of the project area.

All of the alternatives except Alternative 2 are likely to affect wetlands associated with the springs at Tejon and the head of Arroyo de San Francisco. If an alignment is advanced for further consideration, wetland determination and delineation investigations will be conducted for the selected alignment(s).

91830074

**Table 3-2  
Protected Animal and Plant Species Potentially Occurring in the Project Area**

<b>Animal Species</b>	<b>Federal</b>	<b>State</b>	<b>Known/Unk*</b>
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	T,FSS,BLMS	T	K
Bell's Vireo ( <i>Vireo bellii</i> )	FSS	--	U
Big Free-Tailed Bat ( <i>Nyctinomops macrotis</i> )	SOC,BLMS,SS	--	U
Common Black-Hawk ( <i>Buteogallus anthracinus</i> )	FSS	T	U
Ferruginous Hawk ( <i>Buteo regalis</i> )	SOC,BLMS	--	K
Fringed Myotis Bat ( <i>Myotis thysanodes thysanodes</i> )	SOC,BLMS,SS	--	K
Gray Vireo ( <i>Vireo vicinior</i> )	--	T	U
Little Brown Myotis Bat ( <i>Myotis volans interior</i> )	SOC,BLMS,SS	--	K
Little Brown Occult Myotis Bat ( <i>Myotis lucifugus occultus</i> )	SOC,FSS,SS	--	U
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )	SOC,BLMS	--	K
Long-Legged Myotis Bat ( <i>Myotis volans interior</i> )	SOC,BLMS	--	K
Mountain Plover ( <i>Charadrius montanus</i> )	PT,FSS,BLMS	--	K
NM Meadow Jumping Mouse ( <i>Zapus hudsonius luteus</i> )	SOC,FSS,BLMS	T	U
Petegrine Falcon ( <i>Falco peregrinus anatum</i> )	FSS,SOC,BLMS	E	U
S.W. Willow Flycatcher ( <i>Empidonax trailli extimus</i> )	E,FSS,BLMS	E	U
Small-Footed Myotis Bat ( <i>Myotis ciliolbbrum melanothinus</i> )	SOC,BLMS,SS	--	U
Spotted Bat ( <i>Euderma maculata</i> )	FSS,BI,MS,SOC	T	U
Texas Horned Lizard ( <i>Phrynosoma cornutum</i> )	SOC,BLMS	--	U
Townsend's Big Eared Bat ( <i>Pleconstus townsendii pallescens</i> )	SOC,BLMS,SS	--	U
Western Burrowing Owl ( <i>Athene cucularia hypugaea</i> )	SOC,BLMS	--	K
White-Faced Ibis ( <i>Plegadis chihi</i> )	SOC,BLMS	--	U
Yuma Myotis Bat ( <i>Myotis yumanensis yumanensis</i> )	SOC,BLMS,SS	--	U
<b>Plant Species</b>	<b>Federal</b>	<b>State</b>	<b>Known/Unk.</b>
Santa Fe Milkvetch ( <i>Astragalus feenis</i> )	--	SSOC	K
Gypsum Scorpionweed ( <i>Phacelia Sp. nova</i> )	--	--	K
Parish's Alkali Grass ( <i>Puccinellia parishii</i> )	SOC	E	U
Great Plains Lady Tresses ( <i>Spiranthes magnicamporum</i> )	--	E	U
Grama Grass Cactus ( <i>Toumeyia papyracantha</i> )	BLMS	--	K
Gypsum Aster ( <i>Townsendia gypsophila</i> )	SOC,BLMS	SSOC	U

E-Endangered, T-Threatened, SOC-Species of Concern, FSS-Forest Service Sensitive, BLMS-BLM Special Status Species, FS-Concern (removed from FSS list but of concern to local district), P-Rep-not found during the field survey but reported in the area from past surveys, Sens-State Sensitive Species.

K-This species has either been formally documented or has been reported by undocumented sightings in or immediately adjacent to the study area.

U-This species is currently undocumented or reported from the study area, but based on potential habitat could frequent or inhabit the study area.

91830076

#### 4.0 INTRODUCTION

This section summarizes the findings and recommendations of the initial corridor study undertaken by the New Mexico State Highway and Transportation Department to evaluate a possible new highway connection between I-25 and NM 14.

#### 4.1 NEED FOR THE STUDY

The impetus for the need and timing of this study involves two factors. First, projected growth in both the Placitas area and the northern East Mountain area may ultimately require transportation improvements and expansion of the existing highway network. Although currently at acceptable levels, traffic on both NM 165 and NM 14 continues to grow with recurring congestion during peak traffic periods. Second, the proposed land exchange between BLM and the pueblos may preclude any future roadways through the area if provisions for roadway right-of-way or easements are not included in the agreements. While the need for a State roadway connecting I-25 with NM 14 in the near future appears to be marginal at this time, the need to preserve the ability to implement such a road in the future is crucial to long range planning for both the Placitas area and the northern East Mountain area.

#### 4.2 SUMMARY OF STUDY FINDINGS

The findings of the initial corridor study are summarized below. A summary comparison of the No Build Alternative and the five build alternatives is provided in Table 4-1.

- Based on growth rates over the last decade and the number of remaining lots available for development, substantial additional growth within the Placitas area and in the north East Mountain area is likely to occur. Official growth estimates for the study area indicate that a population of up to 26,000 may be living in the area by 2020. More recent but currently unofficial projections reflecting a growth management vision for the Albuquerque region indicate a much lower population of approximately 10,000 persons by the year 2025. While population growth is expected to be substantial, the availability of jobs and services within the study area is expected to be limited. Thus, residents of the study area will continue to commute to the Albuquerque and Rio Rancho area for employment and most services.
- Travel times from the northern portion of the East Mountain area to the major employment centers in the Albuquerque area are generally less using NM 14 and I-40. Using one of the southern alternatives, travel times to the growing employment areas in Rio Rancho, Bernalillo, and north of Paseo del Norte would be similar to those for NM 14 and I-40.
- Highway facilities to accommodate the future commuter traffic to the Albuquerque area are limited to NM 14 from the East Mountain area and NM 165 from the Placitas area. Closures of NM 14 or NM 165 due to weather or accidents leave the East Mountain communities or Placitas inaccessible for indefinite periods of time.
- Current traffic levels and accident rates do not indicate any major operational or safety deficiencies under normal operating conditions. Future traffic volumes for the year 2020 indicate that congestion will occur on the 2-lane segment of NM 165 serving the Placitas area and at the I-25/NM 165 interchange.
- Numerous alternative routes connecting I-25 and NM 14 were identified and evaluated for feasibility. Of these routes, 5 alternative "build" routes are considered to be feasible based on the

91830078

preliminary analysis. These alternatives along with potential variations of them are shown on Exhibit 2-2. A summary of the alternatives including needed right-of-way, approximate costs, and other information is included in Table 4-1. Table 4-1 provides information only for the alternatives and does not include information for any identified options.

- Property ownership within the study area is diverse and includes large land holdings of the Santa Ana, San Felipe, and Santo Domingo Pueblos. In addition, there are scattered large and small BLM, State, and City of Albuquerque tracts and several large privately owned ranches. All of the highway alternatives cross BLM lands. Alternatives 3 and 4 cross BLM lands included in a proposed land exchange with San Felipe Pueblo. Alternative 6 crosses a portion of BLM land included in a possible future exchange with San Felipe Pueblo. There are also smaller individually owned properties especially in the Placitas area, southeastern portion of the study area, and along Puertecito Road (CR 57A) in the community of Puertecito and just west of NM 14.
- The northernmost alternative, (Alternative 2) will not provide relief to NM 165, but will provide an alternative connection between I-25 and NM 14. Alternative 2 provides a more efficient route from the East Mountains to Santa Fe and from I-25 to the communities of Golden, Madrid, and Cerrillos. Alternative 2 would involve substantial out-of-direction travel for motorists destined to the Albuquerque area and would therefore, have limited use for travel between the East Mountains and the Albuquerque area.
- All of the southern alternatives (Alternatives 3, 4, 5, and 6) will provide relief to NM 165. Traffic projections for the western portion of the alternatives indicate that a 4-lane roadway from I-25 to Camino de San Francisco will be needed to accommodate the anticipated diverted traffic volumes. Estimated traffic volumes for the remainder of the route could be accommodated by a two lane facility. Improvements to the I-25/NM 165 interchange and the portion of NM 165 through Placitas will most likely be needed under any of the future scenarios because of demand for access to I-25 from the combined Placitas, Bernalillo, and Rio Rancho areas.
- Key environmental and engineering factors that have been identified include:
  - There are numerous major arroyos in the area. Predicted peak flows in the arroyos for a 100 year frequency storm range from 500 cfs to 10,000 cfs indicating a need for bridges and major culverts on all alternatives except for Alternative 2, which is not anticipated to require either;
  - Alternatives 3, 4, 5, and 6 cross areas of complex geotechnical conditions. The rock and soil conditions along these routes will likely require special slope treatments and the use of retaining structures, especially in the canyon/pass west of Tejon;
  - The area contains substantial numbers of cultural properties including prehistoric and historic sites and areas of traditional cultural importance;
  - There are numerous wetlands including springs and perennial streams within the study area;
  - As many as 22 species of animals and six species of plants with special status may occur within the study area; and
  - None of the proposed alternatives will disproportionately affect minorities or low income individuals.

91830080



### 4.3 RECOMMENDATIONS

Based on the findings of the initial corridor study, the need for a State highway connecting I-25 and NM 14 is marginal at this time. However, preserving the ability to construct such a facility in the future, if and when it is needed, is an important consideration in long range planning. The ability to implement a future roadway could be precluded by a proposed land exchange by the Bureau of Land Management. The BLM is proposing to exchange public lands within Sandoval and Santa Fe Counties with San Felipe Pueblo and Santo Domingo Pueblo. Because all of the southern alignment options (Alternatives 3, 4, 5, and 6) for a potential new roadway would traverse lands within the proposed land exchange area, any needed right-of-way for a new roadway should be identified and excluded before land ownership is transferred. Alternative 2 also crosses lands within the proposed land exchange area, but provision for that alternative has been specifically included in the joint San Felipe Pueblo/BLM proposal. In addition, any future subdivisions or master plans subject to approval by the governing counties should reserve right-of-way for a new facility, as appropriate.

Based on the traffic analysis, improvements to the portion of NM 165 from Placitas to I-25 including the interchange at I-25 are likely to be warranted within the 20-year planning horizon. The timing and extent of improvements will depend on the amount of growth that occurs in the Placitas area. An alignment study and environmental document should be conducted by the NMSHTD when population growth in the Placitas area approaches the estimates (5,673) identified in draft 2025 population projections prepared by the Middle Rio Grande Council of Governments.

91830082

**Table 4-1**  
**Summary Comparison of Alternatives** (Does not include information for identified options)

Alternative	Length	Cost (in millions)	Right-of-Way Needed	Land Ownership of Right-of-Way Needed	Other Considerations
No-Build	N/A	0	0	N/A	<ul style="list-style-type: none"> <li>Does not alleviate future congestion on NM 165 nor improve travel from East Mountain to Santa Fe or Albuquerque/Rio Rancho.</li> <li>Follows existing gravel road.</li> <li>No traffic relief for NM 165.</li> <li>Results in most out-of-direction travel between East Mountain and Albuquerque areas. More efficient route to Santa Fe from East Mountains. Provides alternative route to NM 14</li> <li>May impact cultural resources and biological resources.</li> </ul>
Alternative 2	11 miles	\$22 M	0	Existing ROW	<ul style="list-style-type: none"> <li>Relieves NM 165 by providing additional access to I-25.</li> <li>Would not improve East Mountain travel to Santa Fe.</li> <li>Eastern terminus north of Golden causing increased traffic through community.</li> <li>May impact cultural resources, biological resources, and wetlands.</li> <li>Crosses area of small-lot subdivisions in northern Placitas area.</li> <li>East of Tejon, generally follows arroyos before climbing to uplands about 2.5 miles east of NM 14.</li> </ul>
Alternative 3	18.2 miles	\$51 M	441 acres	BLM (85 ac.; 49 ac. in land exchange area) Private (356 ac.)	<ul style="list-style-type: none"> <li>Same effects on NM 165 and East Mountain travel as Alternative 3.</li> <li>Same effects on northern Placitas area and Golden as Alternative 3.</li> <li>Similar effects on cultural, biological, and wetlands as Alternative 3.</li> <li>East of Tejon, generally follows arroyos and low ridges before climbing to uplands about 4.5 miles east of NM 14.</li> <li>Follows existing power line corridor on uplands.</li> </ul>
Alternative 4	18.1 miles	\$49 M	438 acres	BLM (52 ac.; 16 ac. in land exchange area), SLO (29 ac.), Private (357 ac.)	<ul style="list-style-type: none"> <li>Same effects on NM 165 and East Mountain travel as Alternative 3.</li> <li>Same as Alternative 4 to just east of San Pedro Creek crossing.</li> <li>Utilizes approximately 1 mile of CR 57A east of the community of Puertecito.</li> <li>Eastern terminus south of Golden does not add traffic through this community.</li> </ul>
Alternative 5	18.6 miles	\$51 M	440 acres	BLM (36 ac.), SLO (11 ac.), Private (393 ac.)	<ul style="list-style-type: none"> <li>Same effects on NM 165 and East Mountain travel as Alternative 3.</li> <li>Same as Alternative 4 to just east of San Pedro Creek crossing.</li> <li>Utilizes approximately 1 mile of CR 57A east of the community of Puertecito.</li> <li>Eastern terminus south of Golden does not add traffic through this community.</li> </ul>
Alternative 6	18.1 miles	\$49 M	440 acres	BLM (47 ac.; 11 ac. in future land exchange) SLO (13 ac.) Private (380 ac.)	<ul style="list-style-type: none"> <li>Same effects on NM 165 and East Mountain travel as Alternative 3.</li> <li>Same as Alternative 4 to CR 53 corridor.</li> <li>Utilizes about 1.5 miles of the CR 53 corridor to intersection with gas line easement. Follows easement to NM 14. Eastern terminus south of Golden and closest to potential East Mountain development.</li> </ul>

All quantities such as lengths, costs, and rights-of-way are approximate.

*NM 14 to I-25 Corridor Study*

91830084