PREWITT - MILAN

TRANSPORTATION MASTER PLAN

Technical Report

September 30th, 2022

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1. Introduction

The Northwest New Mexico Council of Governments, in coordination with regional and tribal partners, is jointly conducting the *Prewitt-Milan Transportation Master Plan (PMTMP)*, to address the areas existing and future multimodal travel demand, identify market opportunities, evaluate priority investment areas, and identify improvements to the regional transportation system.

The Technical Report presents the findings of the existing conditions analysis of the study area's transportation network, demographics, and economic conditions and trends. A review of previous plans resulted in a preliminary list of proposed projects for improving transportation outcomes in the study area. The report also includes preliminary evaluation criteria on which proposed projects will ultimately be weighed. The project team has identified limited areas of analysis that require further study.

2. Project Overview

The Prewitt-Milan Transportation Master Plan (PMTMP) will coordinate the planning and delivery of road and rail infrastructure projects to improve access to the Prewitt and Milan industrial parks and to other economic development projects in nearby communities. The PMTMP will analyze the multimodal transportation system to support industrial and economic development needs between Prewitt and Milan and in communities such as Bluewater and Thoreau. The purpose of the PMTMP is to plan and identify next-step design needs and opportunities, and outline funding in order to construct the infrastructure needed to serve an emerging economic boom in Northwest New Mexico.

2.1. Project Goal and Objectives

Goal: Establish a common understanding of the current state of transportation needs and investments in the Prewitt-Milan corridor and to develop a blueprint for implementing projects.

Project Objective: Review and evaluate the area's transportation system to enhance the transportation network, facilitate freight movement, and improve access to and from major employment centers, all of which will improve regional connectivity.

2.2 Study Process

This study was conducted between January 2021 and July 2022. It was conducted with guidance and oversight from the Technical Working Group, which was comprised of members representing the following agencies:

- New Mexico Department of Transportation
- Navajo Division of Transportation
- McKinley County
- Cibola County
- Cibola Communities Economic Development Foundation
- Village of Milan
- Bluewater Village
- New Mexico Economic Development Department
- Navajo Nation Eastern Regional Business Development Office
- State Land Office
- Continental Divide Electric Cooperative
- Navajo Tribal Utility Authority
- Grants-Cibola School District
- McKinley Paper/Biopappel
- Northwest New Mexico Solid Waste Authority

Through the course of the study, the following areas of focus were analyzed:

- Identify transportation needs to support current and future economic development projects in the I-40 corridor between Prewitt and Milan, including the communities of Thoreau and Bluewater
- Enhance access for freight and rail
- Analyze transportation needs of residents and workers in the corridor to improve their access to employment opportunities and to better their quality of life
- Gather existing data on land use, economics, environmental
- Consider future transportation conditions/evaluate impacts of growth
- Understand the transportation and logistics industries more broadly, in order to enhance long-term economic development outcomes within the study area

- Develop prioritized recommendations for transportation needs
- Build consensus and support for PMTMP projects

2.2. Study Area and Regional Context

The Primary Study Area (PSA) for the Prewitt-Milan Transportation Master Plan is situated in the southwest portion of the state, within the Counties of McKinley and Cibola, and portions of the Navajo Nation. The study area extends for three miles in either direction of Interstate 40 (I-40) between Thoreau and Milan, New Mexico.

The PSA encompasses approximately 183 square miles of land. As depicted in Figure 2-1, the area is largely undeveloped. New Mexico State Routes 122, 371, and 605 are the primary regional connections into and through the study area.

Figure 2-1: Prewitt-Milan Transportation Master Plan Study Area

3. Existing Conditions

The purpose of this section is to understand existing infrastructure conditions, identify gaps, and understand future needs. Existing conditions are discussed for the following topics:

- Demographics
- Land use/economic development sites
- Transportation network (including road, rail, and other modes)
- Economic & employment conditions

3.1 Demographic Characteristics

Demographic data is information about the people living in an area. This section presents demographic information for this project's study area Like other data in this document, certain types of demographic information build an understanding of the transportation network and any gaps and needs in it. This data can show where population is concentrated, how much individual people or households earn in income, and which areas there are concentrations of households with no cars available for transportation. If demographic data shows that an area has a concentration of residents, but no jobs located there, a transportation project can help improve connection to existing jobs elsewhere. ***Transportation projects are more likely to be supported by competitive funding programs if they are shown to serve more residents or more residents in need, such as those living in lower-income households.*** This section also includes information on race, language, and environmental justice populations.

Data about employment and commuting is presented in Section 3.6 starting on page 44.

All socioeconomic data in this section was obtained from the 2019 American Community Survey (ACS) of the United States Census Bureau.[1] The ACS is a supplement to the decennial census that the Census Bureau conducts every ten years. The ACS involves annual surveys of a sample of the U.S. population that gather information on the same demographic characteristics that are evaluated in the decennial census. Every year, the Census Bureau releases estimates of population based on the results of the ACS surveys of the previous five years. Over those years, a significant portion of the population will have been sampled, producing a more accurate estimate in the fifth year. Because the ACS results are based on statistical estimates, they are less accurate than the results of the full census, but they provide a useful estimate of the characteristics of the population for the years between the decennial censuses. Although a decennial census was completed in 2020, the results of the survey have been delayed several times, in part because of the Covid-19 pandemic, and had not been released by the Census Bureau in time for release of this memo in November 2021.

As depicted in Figure 2-1 and Figure 3-1, the project study area is located within both McKinley County (McKinley) and Cibola County (Cibola), New Mexico. Data was analyzed for the census tracts (CTs) that intersect the study area boundaries. Tracts are the smallest geography at which key population and household data is available. Because the study area is a largely rural and sparsely populated area, the relevant tracts extend far beyond the study area limits. The relationship of the study area to the tracts included in this analysis is illustrated in Figure 3-1.

[1] U.S. Census Bureau, American Community Survey 2015-2019 5-year Estimates

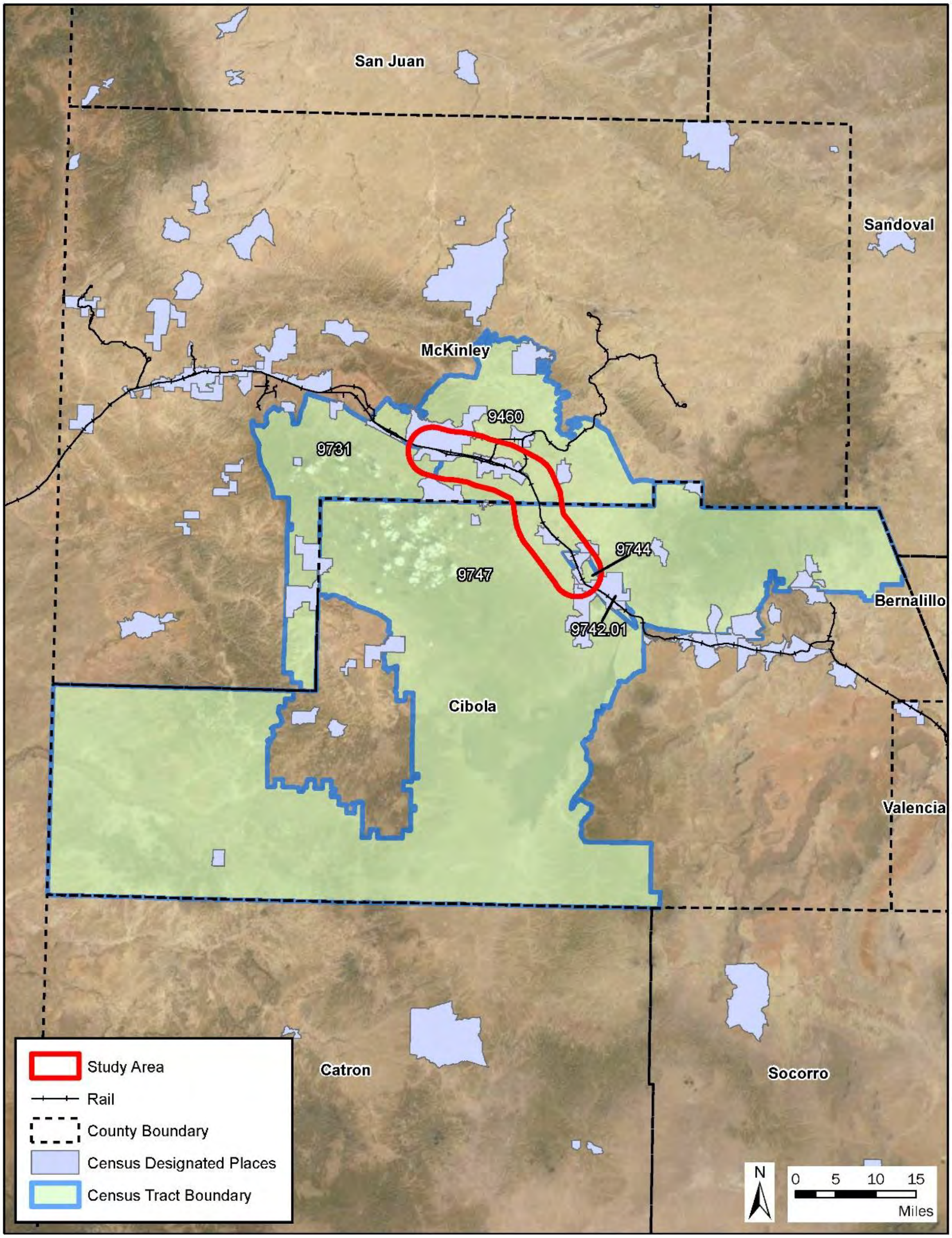

Figure 3-1: Primary Study Area and Intersecting Census Tracts

3.1.1 Household Income and Zero-Car Households

Compared to New Mexico's 2,096,829 total residents, McKinley has a population of 71,367 and Cibola recorded a total of 26,891 (see Table 3-1). Although McKinley has close to 2.5 times the total number of households as Cibola (21,719 to 8,708), Cibola residents are shown to have a higher median household income ($37,153 to $39,413). As seen in Table 3-1, New Mexico's median household income ($51,945) is over $12,000 greater than Cibola, and over $14,000 greater than McKinley.

Also depicted in Table 3-1 are the percentages of zero car households. Cibola County has 7.4% of their households (644) described as having zero vehicles. McKinley County, however, has 11.6% of their households (2,519) that were recorded as having zero vehicles, which by comparison is double the percentage of New Mexico at 5.8%.

Overall, Cibola County is shown to have fewer residents, a lesser number of total households, and a lesser percentage of zero car households than McKinley County but boasts a higher median household income.

Table 3-1: State and County Demographics

	New Mexico	McKinley County	Cibola County
Total Population	2,096,829	71,367	26,891
Number of Households (occupied)	793,420	21,719	8,708
Median Household Income (dollars)	$51,945	$37,153	$39,413
Zero Car Households (percentage)	5.8	11.6	7.4

Household income and car availability data is only available at the census tract level. **Error! Reference source not found.** and Table 3-3 list key socioeconomic data for each census tract within the study area. Two census tracts in McKinley County (tracts 9731 and 9460), and two in Cibola County (tracts 9744 and 9747) intersect the study area boundary and are included in this analysis. According to Table 3-2, the McKinley County tracts had a population total of 6,059, a total of 2,577 households, a median household income average of $35,958, and an average of 13 percent of households with zero vehicles. Table 3-3 shows that the Cibola County tracts had a population of 15,228, a total of 2,207 occupied households, a median income average of $42,692, and an average of seven percent of households with zero cars.

Table 3-2: McKinley County Study Area Demographics

	McKinley County Census Tracts Within Study Area			
	CT 9731	CT 9460	Total	Average
Total Population	1,088	4,971	6,059	--
Number of Households (occupied)	612	1,965	2,577	--
Median Household Income (dollars)	$50,703	$21,212	--	$35,958
Zero Car Households (percentage)	7.8	17.4	--	13

Table 3-3: Cibola County Study Area Demographics

	Cibola County Census Tracts Within Study Area			
	Tract 9744	Tract 9747	Total	Average
Total Population	4,580	5,235	9,815	--
Number of Households (occupied)	2,066	2,735	4,801	--
Median Household Income (dollars)	$43,713	$53,373	--	$48,543
Zero Car Households (percentage)	3.7	2.6	--	3.15

Data on educational attainment has limited implications for transportation projects. The information is useful for potential employers who want to understand the skillsets the labor force. ACS education data show that an average of 80% of residents aged 25 and up have at least a high school diploma, across all four study area census tracts. This is slightly lower than the statewide rate of 85%. The rate varies from a low of 67% in in McKinley County to a high of 88% in in Cibola County. In each of the Cibola County census tracts, just under 20% of residents aged 25 and up have a bachelor's or higher degree. The rate varies between the two McKinley County tracts, from just 5% in census tract 9460 to nearly 30% in census tract 9731. The statewide rate is 27%.

Another geographic unit by which to measure population is by place. Places include incorporated cities, towns, or villages, along with certain unincorporated communities, which the Census Bureau designates as "census-designated places" (CDPs). The population and household counts for communities within the study area, along with the city of Grants, are shown in Table 3-4. (City of Grants data is not reflected in other tables in this section.) Thoreau and Bluewater village are unincorporated places but are classified by the Census Bureau as CDPs. Several other CDPs exist within the study, but ACS data is not available for those communities.

Table 3-4: Population and Household Counts for Places within Study Area (2019 ACS)

	Thoreau (CDP)	Bluewater Village (CDP)	Milan	Grants
Total Population	1,641	174	3,660	20,140
Total Households	588	99	1,402	8,544

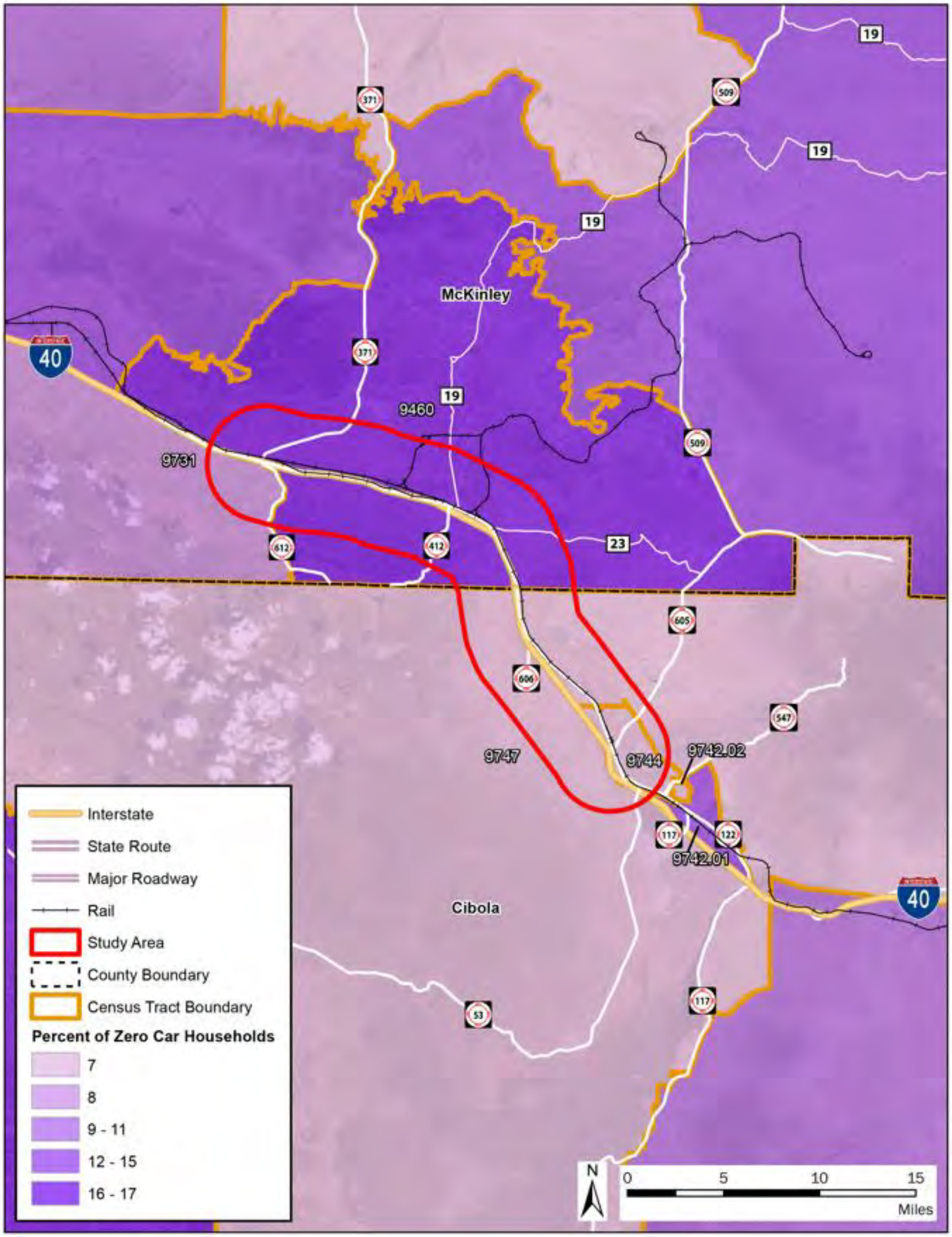

Figure 3-2: Study Area Zero Car Households Map

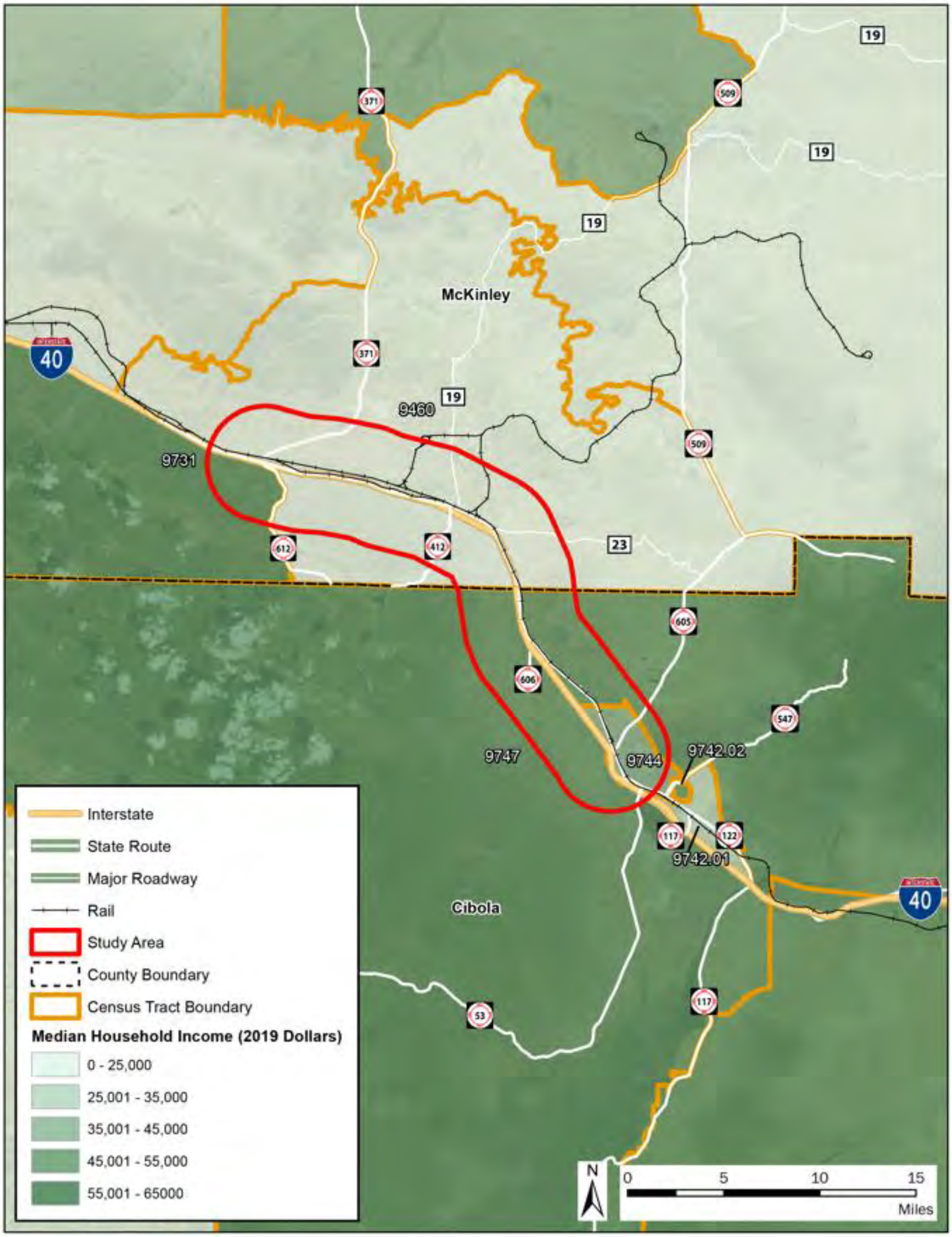

Figure 3-3: Study Area Median Household Income

3.1.1. Environmental Justice

The concept of environmental justice aims to ensure that impacts to the environment and human health are not disproportionately felt by underserved populations. Executive Order 12898, signed in 1994, directed federal agencies to identify and minimize the environmental and health impact of federal actions on minority and low-income populations. Transportation projects receiving federal funding must consider the negative impacts of a project on minority and low-income residents of and community and seek to minimize or eliminate them.

The U.S. Environmental Protection Agency has developed several metrics to evaluate potential environmental justice impacts. One of the most basic of these is the Demographic Index, which is explained as:

> "…[A] combination of percent low-income and percent minority, the two demographic factors that were explicitly named in Executive Order 12898 on Environmental Justice. For each Census block group, these two numbers are simply averaged together. The formula is as follows: Demographic Index = (% people of color + % low-income) / 2".[2]

The score is then expressed as a percentile rank, compared to national index scores. Figure 3-4 illustrates the Demographic Index scores for block groups near the study area. ***The populated block groups in the study have high-percentile scores, indicating that environmental justice populations are present in the study area.*** The areas north of I-40 in McKinley County have scores that rank between the 95th-99th percentile. In Cibola County, the populated areas in and near Milan and Grants have scores between the 80th and 95th percentile. Other areas are very sparsely populated.

[2] U.S. Environmental Protection Agency. "Demographic Indicators,"*EJScreen Map Descriptions*, from https://www.epa.gov/ejscreen/ejscreen-map-descriptions#category-demographics

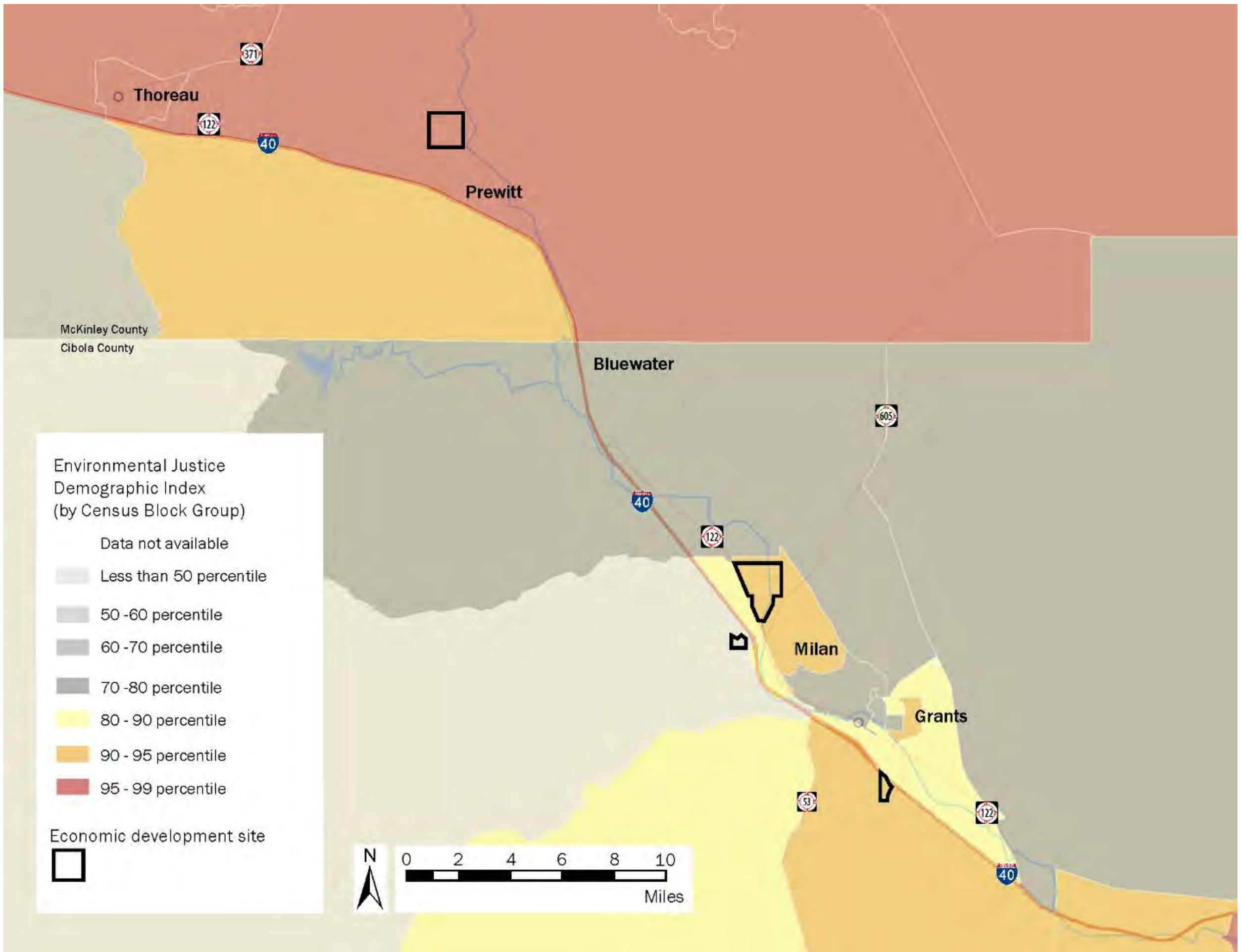

Figure 3-4: Environmental Justice Demographic Index - Study Area Block Groups

3.1.2 Race and Language

Race and language are discussed in this section. As noted in the previous section, federal environmental law requires projects to identify or avoid significant impacts to minority communities resulting from implementation of the project. These laws are designed so that a project's negative impacts do not disproportionate affect certain groups over others. This section provides a more detailed understanding of the racial makeup of the study area. Meanwhile, understanding whether significant numbers of limited English-speaking households are present in a community can also whether specific non-English public engagement & outreach efforts are needed as projects are developed.

Table 3-5 presents 2019 ACS data for population by race for census tracts in the study area, with results summarized for the tracts in each county. ***Tracts in both counties have significant Native American populations (though the share of population is not the same in both counties).*** In Cibola County, over two-thirds of the population identifies as white alone, and fifteen percent identify as Native American alone. In McKinley County census tracts, the pattern is flipped: nearly four-fifths of the population identifies as Native American alone, and sixteen identifies as white alone. This data reflects the fact that the study area is within or near Navajo Nation and is located near other indigenous communities such as Zuni, Acoma, and Laguna pueblos. It should also be noted that both census tracts in McKinley County encompass portions of either Ramah Navajo Reservation (including Ramah village) or Zuni Reservation. These reservations are not within the study area boundaries, but because of the extent of the census tracts, residents of those reservations are partly reflected in the population totals in Table 3-5.

Residents identifying as Black, Asian, or Native Hawaiian/Pacific Islander alone each account for two percent or less of the population in each county's study area census tracts. Approximately three to four percent identify as of two or more races in each county's study area census tracts. Close to ten percent of residents of the Cibola County study area tracts identify as "some other race alone."

Hispanic or Latino origin data (categorized separately from race by the Census Bureau) shows that the majority of residents in the Cibola County study area census tracts indicate Hispanic origin (an average of 62% between the two census tracts). The majority of these residents also identify as white. An average of 11% of residents between the two census tracts in McKinley County identify as being of Hispanic origin. Half of New Mexico residents identify as Hispanic or Latino.

In census tract 9744, which includes Milan, the most common language spoken at home in limited English-speaking households is Spanish. In the remaining study area census tracts, the most common language spoken in these households is classified by the Census Bureau as "Other languages," but this presumably includes indigenous languages such as Navajo and Zuni. Spanish is not spoken in limited English-speaking households in these tracts (conversely, "other languages" are not spoken in limited English-speaking households in census tract 9744). See Table 3-6.

Table 3-5: Population Race in Study Area Census Tracts

	Cibola County					McKinley County				Both counties	
	CT 9742.01	CT 9744	CT 9747	County total	%	CT 9460	CT 9731	County total	%	Total	% of total
Total population	5,413	4580	5,235	15,228	100	4,971	1,088	6,059	100	21,287	100
One race alone											
White alone	3,288	3,418	4,022	10,728	70.4	293	662	955	15.8	11,683	54.9
Black or African American alone	132	9	90	231	1.5	6	0	6	0.1	237	1.1
Native American* alone	1,269	544	447	2,260	14.8	4,437	342	4,779	78.9	7,039	33.1
Asian alone	0	5	11	16	0.1	7	0	7	0.1	23	0.1
Native Hawaiian and Other Pacific Islander alone	0	4	0	4	0.0	1	3	4	0.1	8	0.0
Some other race alone	554	358	426	1,338	8.8	65	57	122	2.0	1,460	6.9
Two or more races											
Two or more races	170	242	239	651	4.3	162	24	186	3.1	837	3.9

*American Indian and Alaska Native

Table 3-6: Percent Limited English-Speaking Households (2019 ACS)

	Cibola County			McKinley County	
Census Tract	CT 9742.01	CT 9744	CT 9747	CT 9460	CT 9731
Pct. limited English- speaking households	4.4	2.8	3.9	7.2	3.2

3.2. Land Use Overview

Existing land use was evaluated using site visits, aerial imagery, local planning and zoning documents (such as zoning maps), and state and federal land status maps. Most developed land in the study area is located within Milan and Thoreau. Each of these communities has low-density residential developments, with occasional commercial, civic, and light-industrial land uses. The area outside Milan and Thoreau is sparsely populated and developed. Residential communities exist near Bluewater village, Baca/Prewitt, and along the edges of Milan (e.g., Toltec, Homestake). Virtually of this residential development is characterized by single-family homes, many of which are located on large lots.

The largest employment site outside Milan and Thoreau is the Escalante Generating Station-Biopappel complex, north of Prewitt. Several inactive, former industrial sites line the route of NM-122. Commercial land uses such as restaurants or retail businesses are almost entirely located in Milan, and to a lesser extent, in Thoreau. The key exception is the Dairy Queen-Exxon (Bowlin's Bluewater Outpost) on NM-606 just north of Bluewater village. This small travel center hosts a high volume of passenger cars and trucks daily.

Some farms exist in or near the study area, mostly northwest of Milan and near Bluewater village. However, the vast majority of the other land in the study area is undeveloped scrubland. Some of this land is used for ranching/grazing. Although much of the study area is scrubland, views are dominated by striking geological features located beyond the study area, including the Zuni Mountains to the south of I-40 and the San Mateo Mountains to the north of the interstate. One feature visible from many points within the study area is Mount Taylor (Navajo: *Tsoodził*), the tallest peak of the San Mateo range. Located north of Grants, the mountain is an important cultural site for Navajo and other Indigenous communities near the study area.

3.2.1. Land Management and Jurisdictions

Land in the study area is defined by a checkboard pattern of ownership that alternates between government, tribal, and private owners. Most of this land is privately owned; however significant tracts are owned by government entities, including the New Mexico State Land Office (NMSLO) and the federal Bureau of Land Management (BLM). Most land within the Cibola National Forest is controlled by the U.S. Forest Service. A notable portion of the study area within McKinley County is located within Navajo Nation chapters of Baca/Prewitt, Haystack, and Thoreau. Most of the land within the boundaries of the chapters is Navajo tribal trust or fee land, with some private, state, federal ownership.[3] The land ownership in the study area is shown in Figure 3-5 and Figure 3-6.

[3] New Mexico State Land Office, *Land Status* {online interactive map], https://mapservice.nmstatelands.org/LandStatus/

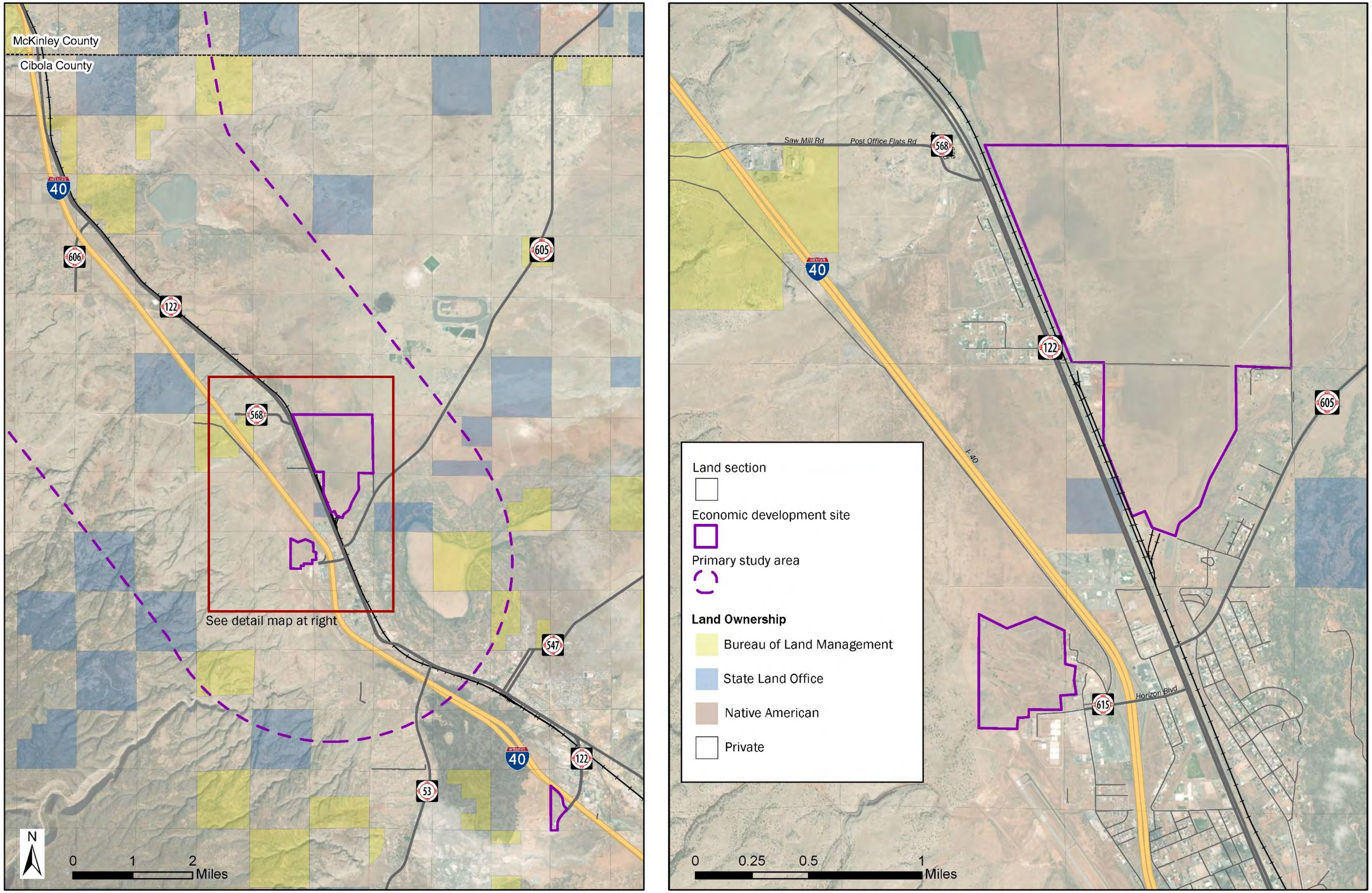

Figure 3-5: Land Ownership in the Cibola County Portion of the Study Area

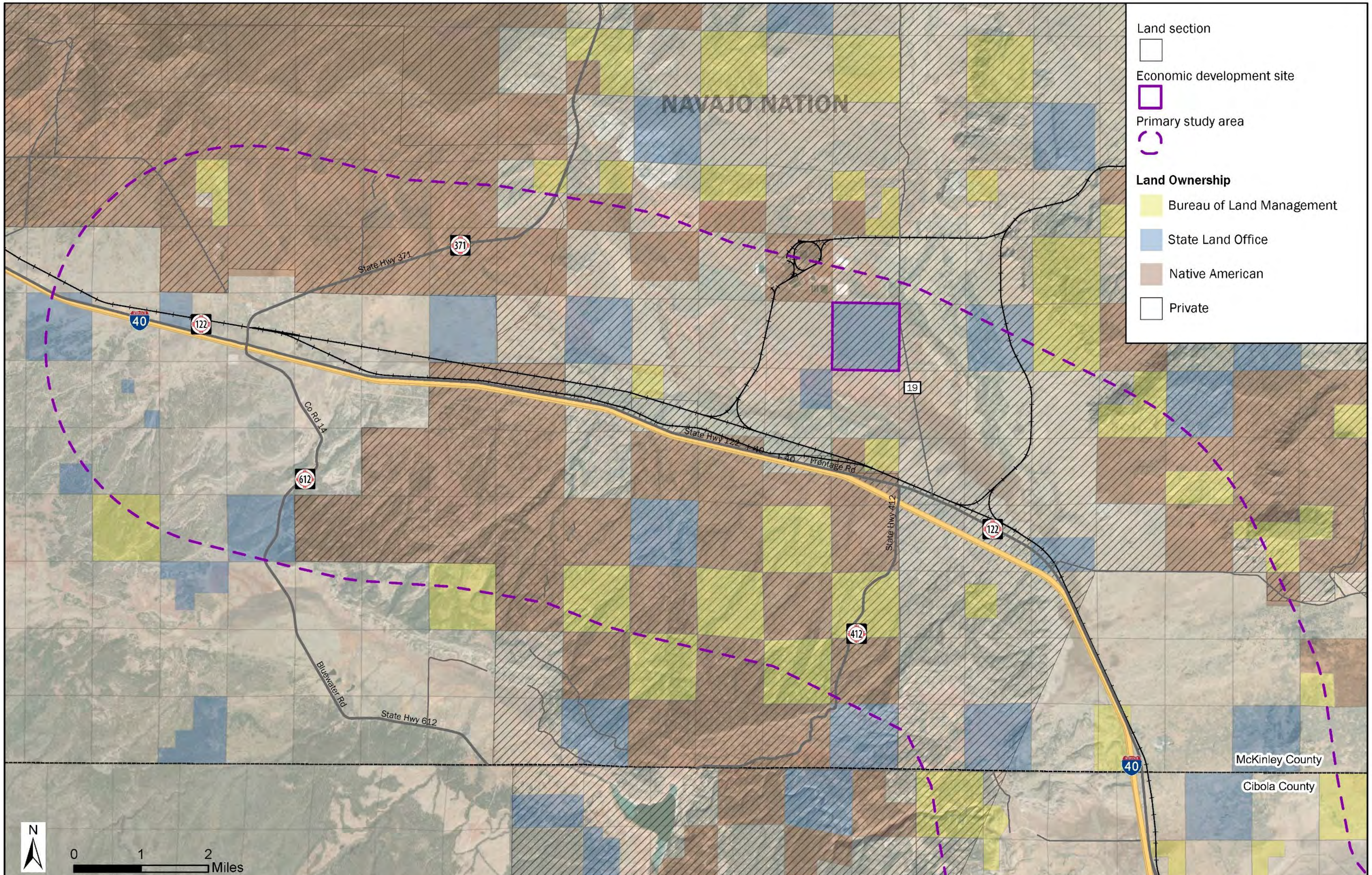

Figure 3-6: Land Ownership in the McKinley County Portion of the Study Area

3.3. Planned Development

3.3.1. Prewitt Industrial Park

The Prewitt Industrial Park is a planned rail-served industrial park development on a 626–acre site north of the community of Prewitt in McKinley County, New Mexico. The site would occupy one land section located directly south of the Escalante Generating Station-Biopappel complex and west of County Road 19. The site is located approximately one mile north of I-40. The industrial park's location offers flexible sites and good access to the interstate and rail infrastructure.

The site has been studied for years as a potential economic development site due to its size and location near major transportation routes, as well as local and regional interest in fostering development and job creation in the area. Planners envisioned that some future tenants of the industrial park could use steam generated by the nearby Escalante Generating Station to power manufacturing or other industrial machinery. Biopappel International's paper manufacturing plant had built next to the EGS for this reason.

A 2020 Master Plan and Preliminary Design document detailed a 30% design for the industrial park infrastructure and 90% architectural plans for a future 120,000-square-foot speculative building within the park.[4] Rail connections are proposed that would connect the park's future tenants to the BNSF Railway mainline. The plan proposes that a new rail spur be extended into the industrial park site from an existing spur located to the west that currently serves the Escalante Generating Station-Biopappel complex. The existing spur connects to the BNSF mainline roughly one mile to the southwest of the industrial park site.

Figure 3-7 and Figure 3-8 show two alternative layouts proposed in the 2020 master plan for the industrial park. The Initial Proposed Plat alternative proposes a number of large parcels oriented around a central rail yard. The rail yard would be served by a new spur that would be extended from the existing spur located to the west of the industrial park site. The elevation of the existing rail spur is significantly lower than the industrial park, so the cost of construction of the new spur would be significant.

The Revised Layout aims to reduce the cost of extending rail to the site with a smaller rail yard that is located on the north side of the park. The elevation difference between the north side of the park and the existing rail spur is less than the elevation difference in the that the new spur in the Initial Proposed Plat alternative would need to traverse. By shifting the proposed rail spur to the north, the amount of earthwork needed to build the rail up to the industrial park site would be significantly reduced.

At the time of this report, no additional study or design has taken place for the industrial park, although McKinley County has programmed $29 million in its infrastructure capital improvement program (ICIP) for 2024 for implementation of several industrial park projects across the county, including the Prewitt Industrial Park.

[4] NWNMCOG (2020), *Prewitt Industrial Park Master Plan and Preliminary Design*, http://www.nwnmcog.com/uploads/1/2/8/7/12873976/20-07-08_prewitt_industrial_park_report_-_final.pdf

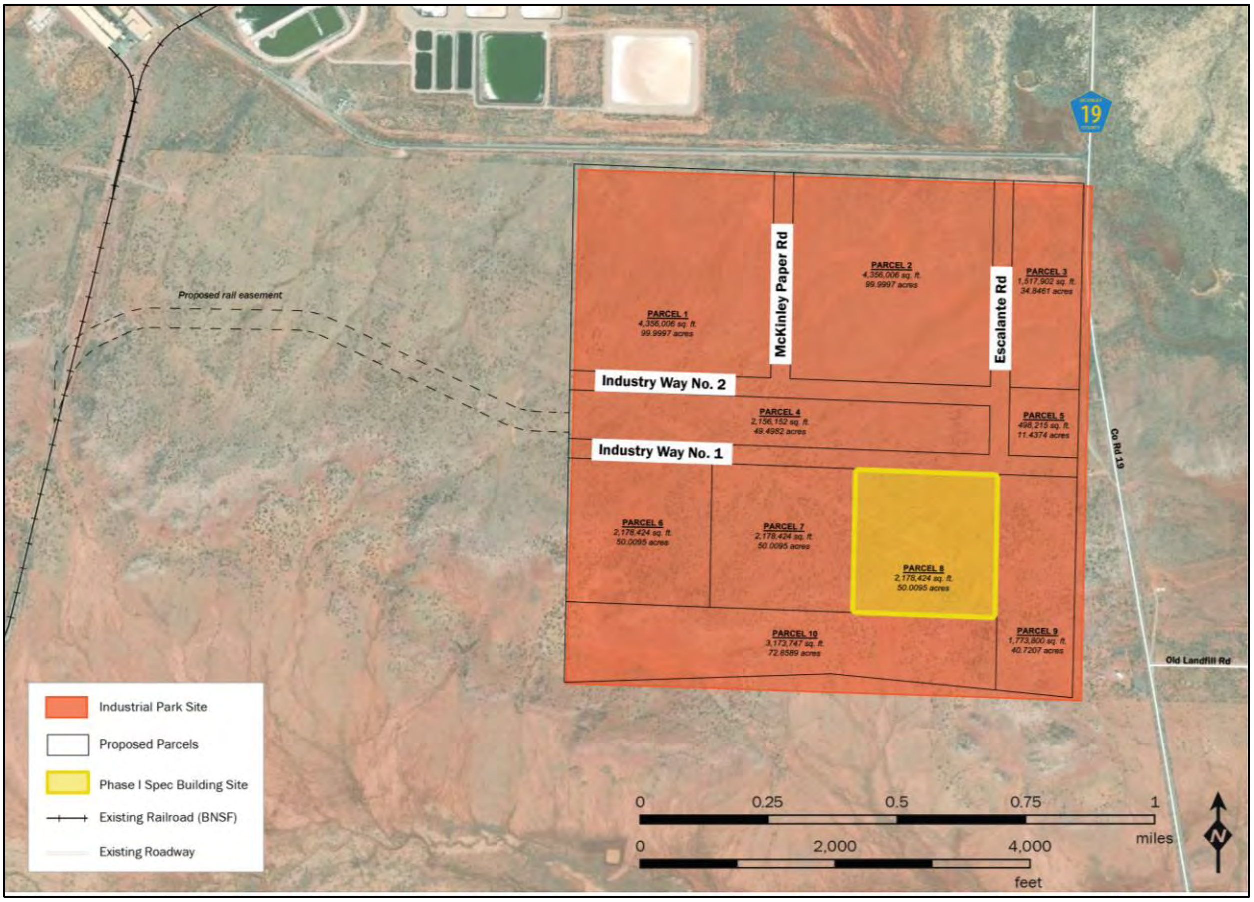

Figure 3-7: Initial Proposed Plat Alternative for Prewitt Industrial Park

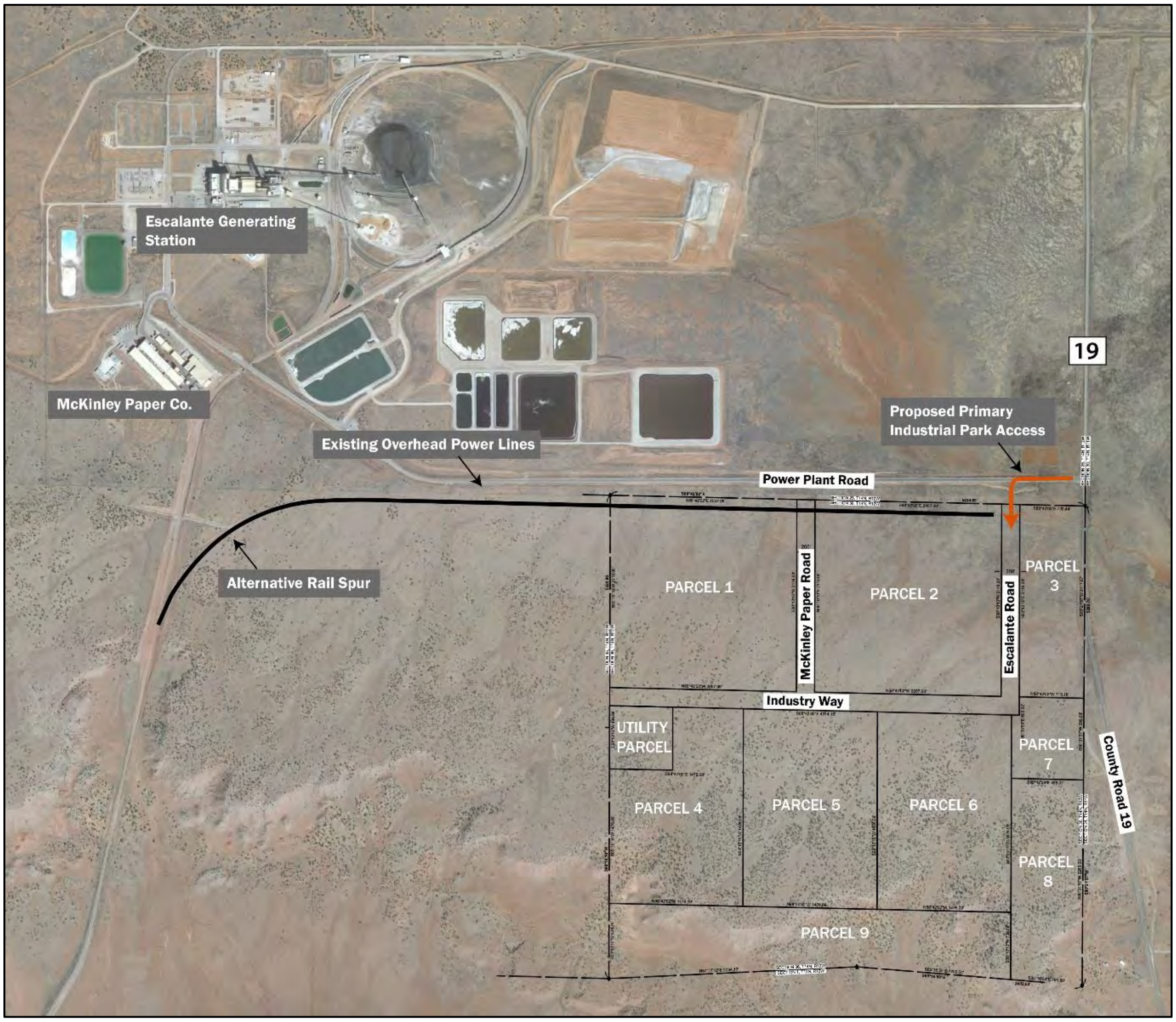

Figure 3-8: Revised Site Layout Alternative – Prewitt Industrial Park

A previous study of the Prewitt site (*Prewitt Industrial Cluster: Master Site Plan*, 2018) identified a number of "target industries" that would likely be successful on the site. The key target industries for the site are listed in Table 1.

Table 3-7: Summary of Potential Target Industries, *Prewitt Industrial Cluster: Master Site Plan*

Potential Target Industries	Key Reasons
Warehouse/Distribution	• Feasible with domestic sewer and water; • Rail sites advantageous • Large electric power loads may be required • Interstate highway access
Oil/Gas Supplier Operations	• Feasible with domestic sewer and water • Rail access advantageous • Large electric power loads may be required
Plastics Manufacturing	• Can be accommodated with domestic sewer and water • Rail access is often required • Large electric power loads are required
Paper (Paper products manufacturing)	• Feasible with domestic sewer and water • Often requires rail access • Large electric power loads are needed

3.3.2. Milan Industrial Park

The Milan Industrial Park is a planned 913-acre industrial park located in the northern part of the Village of Milan between NM 122 and NM 605. Like the proposed industrial development in Prewitt, this park would offer convenient access to the BNSF mainline, which runs along the western edge of the park, and to I-40, which is accessible via the Horizon Blvd interchange, less than a mile from the industrial park site. Also, like the Prewitt Industrial Park, a Master Plan and Preliminary Design document was published in 2020 for the Milan site.[5] This plan detailed the 30% design for the industrial park infrastructure and architectural plans for a future 120,000-square-foot speculative building within the industrial park.

Figure 3-9 shows the layout of the industrial park, as described in the 2020 master plan. An approximately 100-acre tract at the southern end of the site (south of Mill Road and Industry Way) has advanced to full design and will be developed as Phase 1 of the industrial park.

[5] NWNMCOG (2020), *Milan Industrial Park Master Plan and Preliminary Design, http://www.nwnmcog.com/milan-industrial-park.html*

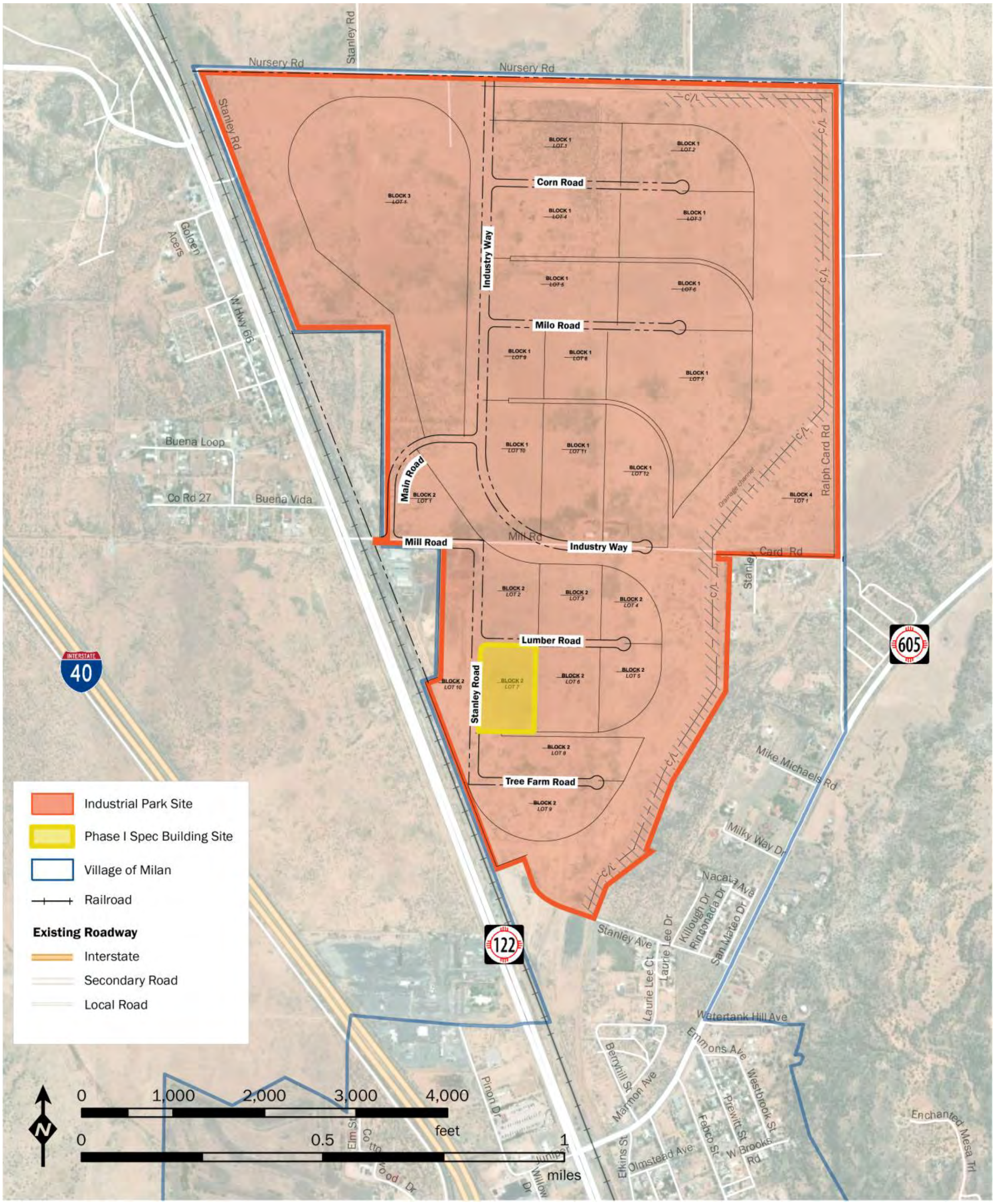

Figure 3-9: Proposed Layout for Milan Industrial Park

A key challenge with the Milan Industrial Park is access to I-40. As the industrial park develops, truck traffic associated with it is likely to grow significantly, and trucks will increasingly face two types of traffic bottlenecks. First, all road traffic entering or exiting the park must cross the BNSF mainline tracks at track grade. These tracks are busy, serving dozens of trains a day, and this train traffic presents the possibility of delays and safety hazard to freight trucks. Next, the only convenient access point for the industrial park to I-40 is at Horizon Boulevard. As the only interchange in the Village of Milan, this interchange is already busy, and the additional traffic will increase operational and safety issues there. Today, the interchange serves several popular destinations around it, including two truck stops/travel centers.

A 2021 traffic impact analysis (TIA) was conducted as part of the design of Phase 1 of the Milan Industrial Park. Although the TIA showed no need at present for substantial upgrades to roadways between the industrial park and the interchange, it indicated that major improvements might be needed at the Horizon Boulevard and at NM 122 to support additional phases of the industrial park.

3.3.3. Milan Golf Course Site

The Village of Milan's 2017 comprehensive plan describes the site of village's former golf course as a potential redevelopment area (see Figure 3-10). The plan highlights the roughly 100-acre site as among several "Major Opportunity Sites" in the Village, with different opportunities discussed for the northern and southern portions of site.[6]

Figure 3-10: Map from Village Comprehensive Plan Highlighting Major Opportunity Site on Golf Course Site (Exhibit 1-7)

Commercial or industrial uses are recommended for the southern part of the property, which lies close to the Core Civic detention center. Residential development and recreational uses are proposed for the northern portion of the site, further away from the detention center. Additional "travel center commercial services" would be appropriate in the northern portion as well, according to the plan.

The plan describes the possible recreational uses of the golf course property, in particular a trailhead that could eventually link to the Zuni Mountain Trail System to the west of Milan. According to the Zuni Mountains Trail & Conservation Master Plan, a trailhead should include a parking area, boundary fencing, vault toilets, and cattleguards[7].

The golf course lies directly adjacent one of three Village Activity Nodes. The plan states that infill development within these nodes should be a focus of the Village and should not be de-prioritized in favor of development on greenfield sites. The node near the golf course is the Truck-Travel Center/Detention Center Node. The plan states that "[t]he focus of this node is the continued efficiency of interstate traffic accessing the travel center from the I-40 exit, infill, accommodating pedestrians between uses, and modest landscaping beautification." [8]

[6] Village of Milan, New Mexico (2017), *Village of Milan Comprehensive Plan*, http://www.nwnmcog.com/uploads/1/2/8/7/12873976/milan_comp_plan.pdf

[7] Zuni Mountain Trail Partnership (October 2014), *Trails & Conservation Master Plan*. http://www.nwnmcog.com/uploads/1/2/8/7/12873976/zmtp_mtp_draft_final_ew103014.pdf

[8], Note 6, p. 1-10

The character of potential residential development on the golf course site is not described in detail. However, the housing chapter of the plan describes a need for mid-price workforce housing in the community. Several data points illustrate this need. First, most housing units are valued below $40,000 or above $100,000. Meanwhile, nearly half of housing units are mobile homes or RV's, which are widely considered to be hard to maintain over time and not a good investment. Half of renters in Milan are cost-burdened, meaning that they spend 30% or more of their incomes on housing costs.[9]

No additional study of the golf course site has taken place since the redevelopment concept was proposed in the 2017 comprehensive plan. However, it is probable that the redevelopment of the golf course would bring new demands to the transportation facilities around the Horizon Blvd interchange.

3.3.4. Cibola Industrial Park

The Cibola Industrial Park is a 72-acre industrial park located south of I-40 and west of NM-122/Santa Fe Avenue. The park is located across NM-122 from El Malpais National Monument Visitor Center. The entrance to the park is shown in Figure 3-11 and the location of the park is illustrated in Figure 3-12. (NM-122 dead-ends just south of the entrances to the industrial park and the visitor center.)

Figure 3-11: Entrance to Cibola Industrial Park from Santa Fe Avenue

Some sites within the park have already been developed, including a National Guard Armory, the Cibola Senior Citizens Center, and the Lavaland RV Park with a microbrewery. Approximately 17 acres are already developed. A 23-acre parcel in the northwest corner of the park is being developed into the new headquarters and maintenance yard for the Continental Divide Electric Cooperative (CDEC) electric transmission utility. Including the CDEC complex, the uses within the park generate relatively little traffic overall and very little freight traffic, compared with the anticipated volumes from Prewitt and Milan industrial parks. The Study Team is not aware of any future development projects within the park or plans to expand the park.

[9] Note 6, p. 3-1 to 3-8

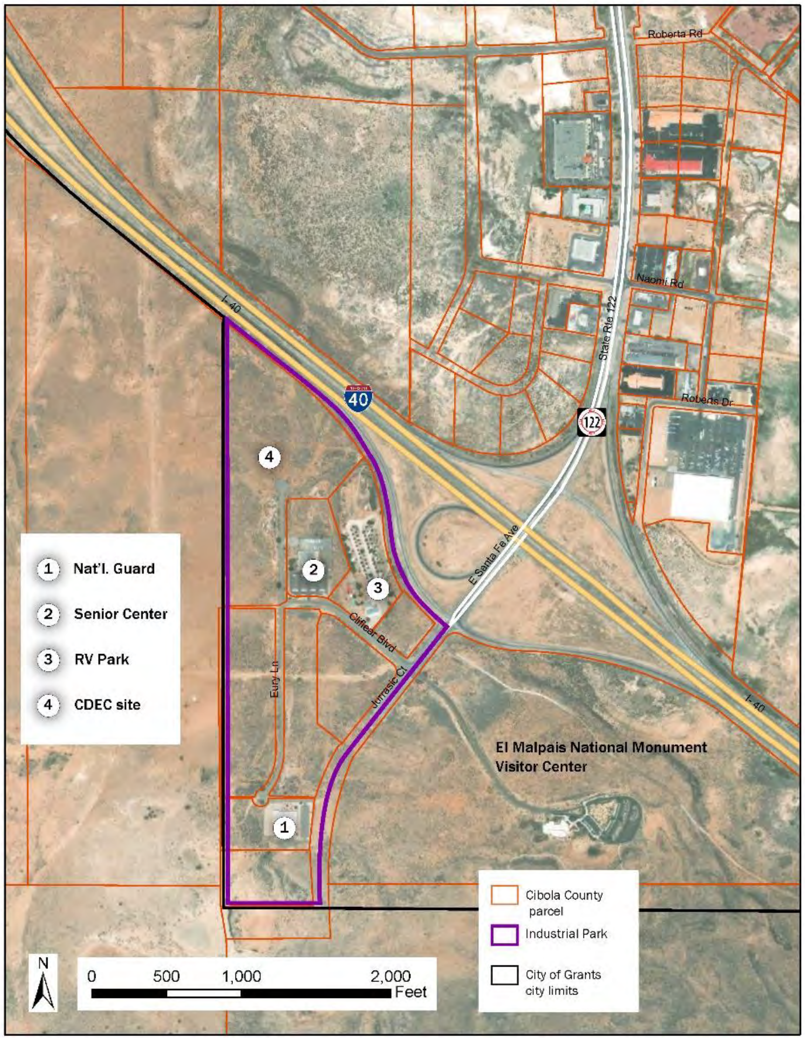

Figure 3-12: Cibola Industrial Park Site

3.3.5. Navajo Energy Hub

The 2016 New Mexico Freight Plan states: "A transloading center is under development at Thoreau in McKinley County on Navajo land. This 380-acre site is anticipated to meet the transloading needs of up to 20 companies when completed. Navajo Nation officials broke ground on Phase I of the project in May 2015." [10] The study team could not find more information about the project.

3.4. Freight-Related Land Use

3.4.1. Truck Stops/Travel Centers

The study area includes four truck stops/travel centers, three of them near the Horizon Boulevard interchange (Exit 79) in Milan as shown in Figure 6 through Figure 3-17. While they are not critical to freight mobility to the industrial park sites, they are an important amenity for truck drivers, and are important economic development sites in their own right. Each of the truck stops/travel centers in the study area is a significant activity center, attracting or generating notable flows of traffic. They are among the busiest commercial establishments in the study area and offer the best options in the vicinity for

[10] NMDOT (2015), *New Mexico Freight Plan: Moving Freight Forward, through 2040,* p. 67

truckers and other motorists to eat, shop, and rest. Retail and dining options and truck parking facilities are otherwise very limited within the study area.

The Petro Travel Center offers the most truck services, including showers and laundry, oil changes, and truck repair. The nearby Love's Travel Stop is a smaller facility and does not offer truck repair/maintenance services. Both truck stops are open 24 hours, seven days a week. The Chaco Canyon Travel Center, across the street from the Love's facility, does not offer any truck-specific services. The Bowlin's Bluewater Outpost at Exit 72 provides truck/RV parking on two gravel lots but no other truck-specific amenities.

The federal "11-hour rule" for truck drivers may offer opportunities for truck stop-related economic development in the study area. The existing truck stops may be over capacity, at least for truck parking, a vital amenity for truck drivers.

3.4.2. Study Area Travel Centers & Truck Stops

The four travel centers/truck stops in the study area are shown in Figure 6 through Figure 3-17. For each location, the following details are listed:

- Affiliated brand
- Location
- Acreage
- Facilities
- Truck parking spaces
- Hours of operation

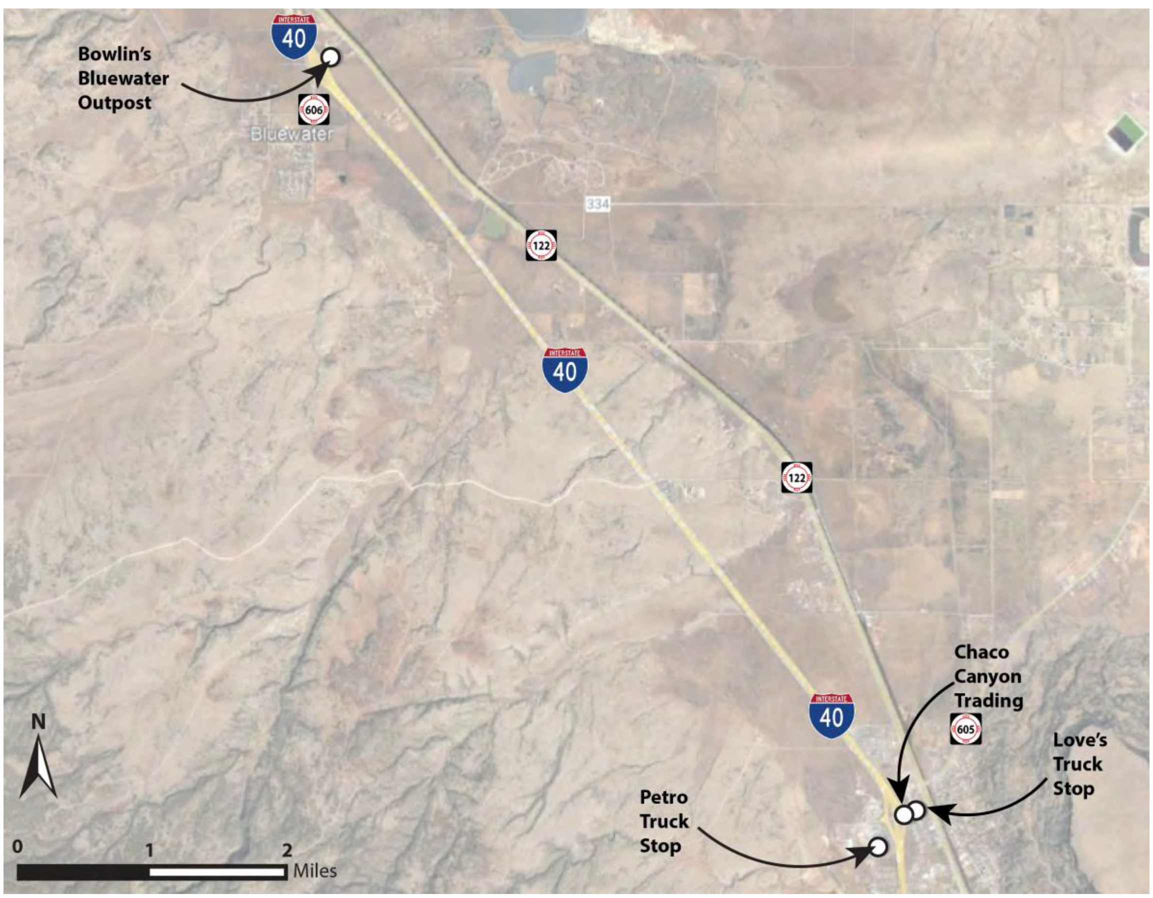

Figure 3-13: Location of Travel Centers & Truck Stops in Study Area

Table 3-8: Truck Stop/Travel Center: Bowlin's Bluewater Outpost

Truck Stop	Affiliated brand	Location	Acreage	Facilities	Truck parking spaces	Hours
Bowlin's Bluewater Outpost	Bowlin's Travel Centers	Bluewater, NM	5	Fueling, Convenience Store, Restaurant, Truck Parking	0; Unpaved Lots	7am – 7pm

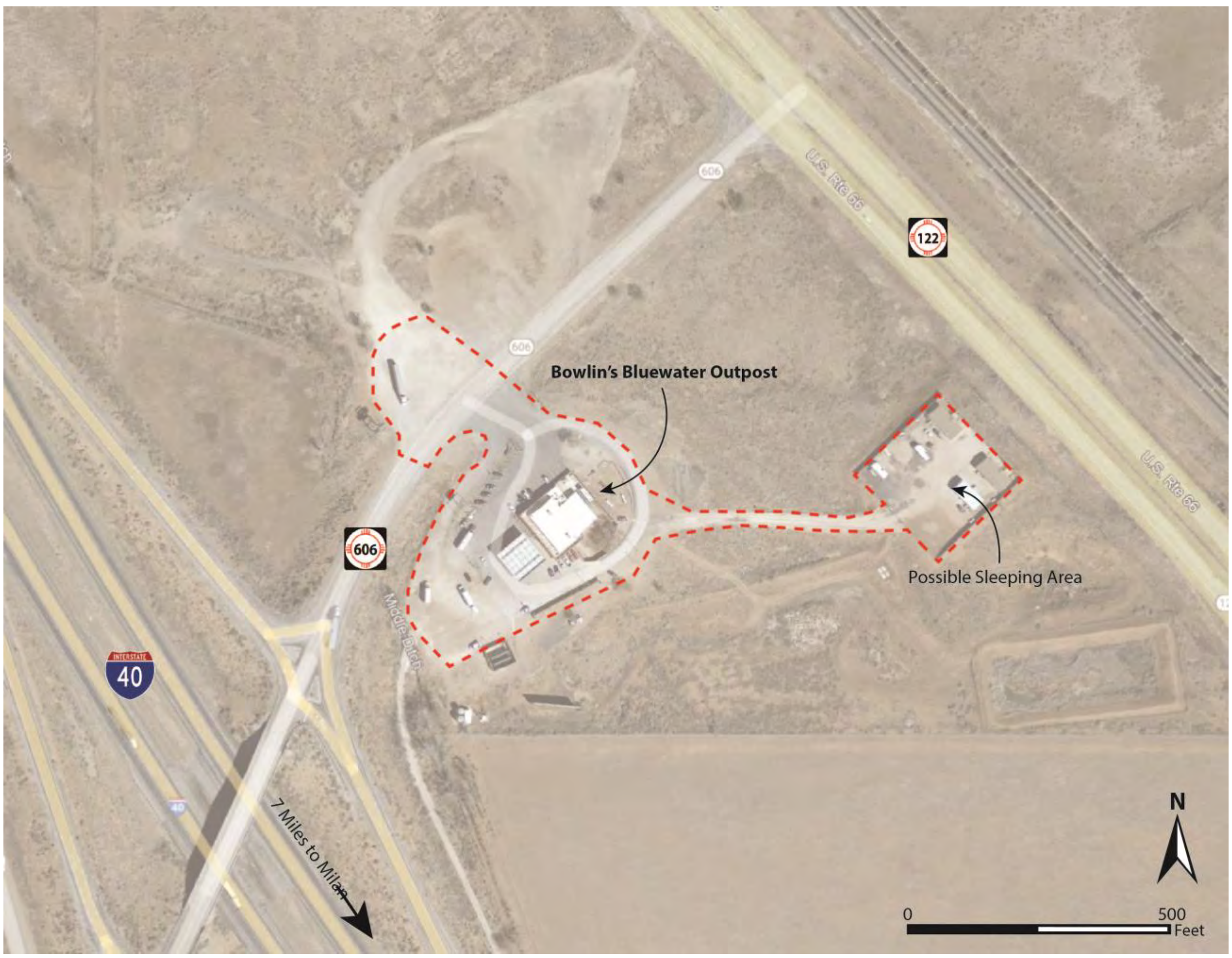

Figure 3-14: Facilities at Bowlin's Bluewater Outpost and Vicinity

Table 3-9: Truck Stop/Travel Center: Petro Travel Center

Truck Stop	Affiliated brand	Location	Acreage	Facilities	Truck parking spaces	Hours
Petro Travel Center	Travel Centers of America	Milan, NM – Horizon Blvd & Motel Dr	20	Standard*, Truck Repair Shop	225	24 hrs

*Standard = Standard truck stop facilities: Fueling facilities, convenience store, restaurant, showers, truck parking

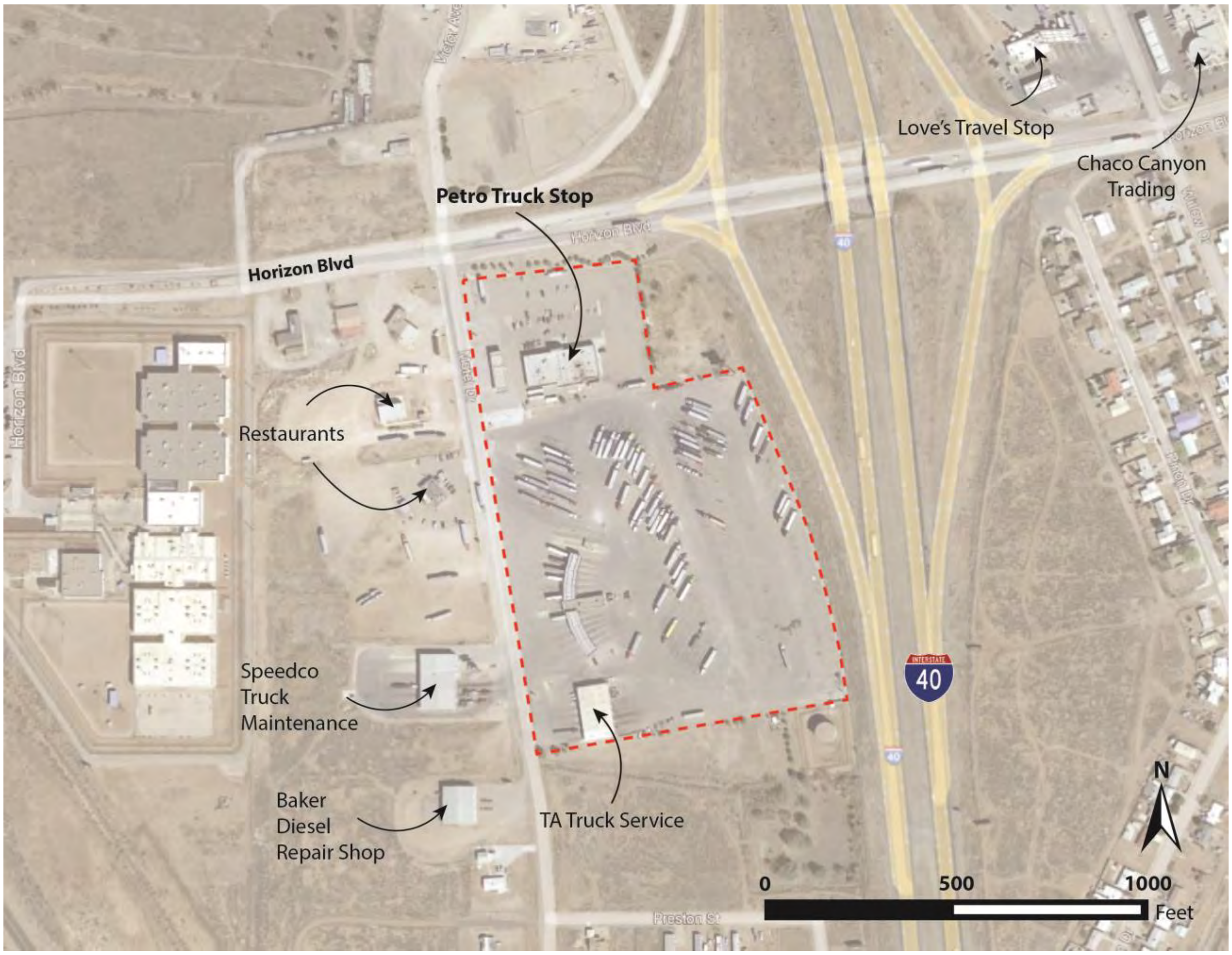

Figure 3-15: Facilities at Petro Travel Center and Vicinity

Table 3-10: Truck Stop/Travel Center: Love's Travel Stop

Truck Stop	Affiliated brand	Location	Acreage	Facilities	Truck parking spaces	Hours
Love's Travel Stop	Love's Travel Stops	Milan, NM – Horizon Blvd & Willow Dr	4	Standard	30	24 hrs

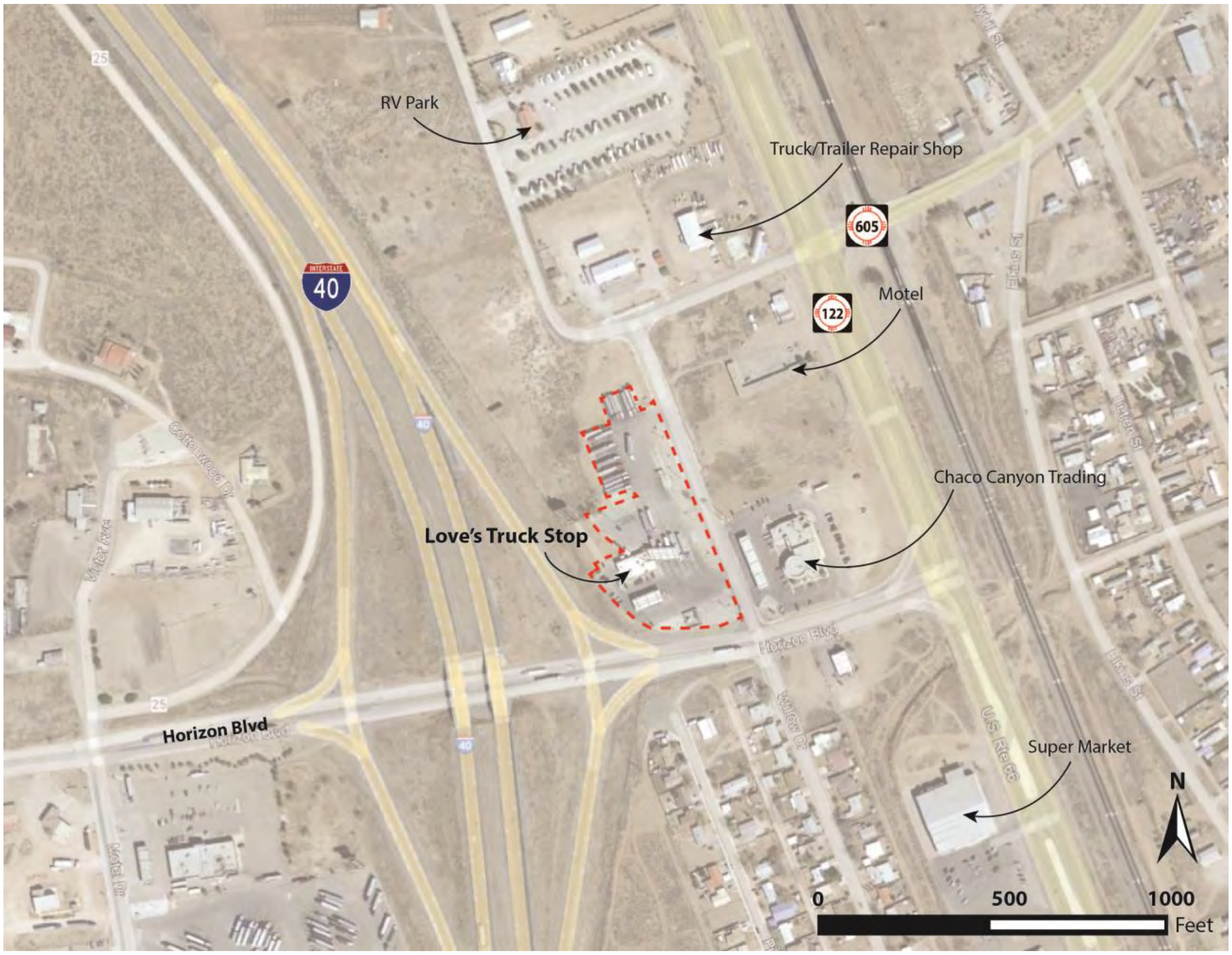

Figure 3-16: Facilities at Love's Travel Stop and Vicinity

Table 3-11: Truck Stop/Travel Center: Chaco Canyon Travel Center

Truck Stop	Affiliated brand	Location	Acreage	Facilities	Truck parking spaces	Hours
Chaco Canyon Travel Center	N/A	Milan, NM – Horizon Blvd & Willow Dr	2	Standard	None	6am – 6pm

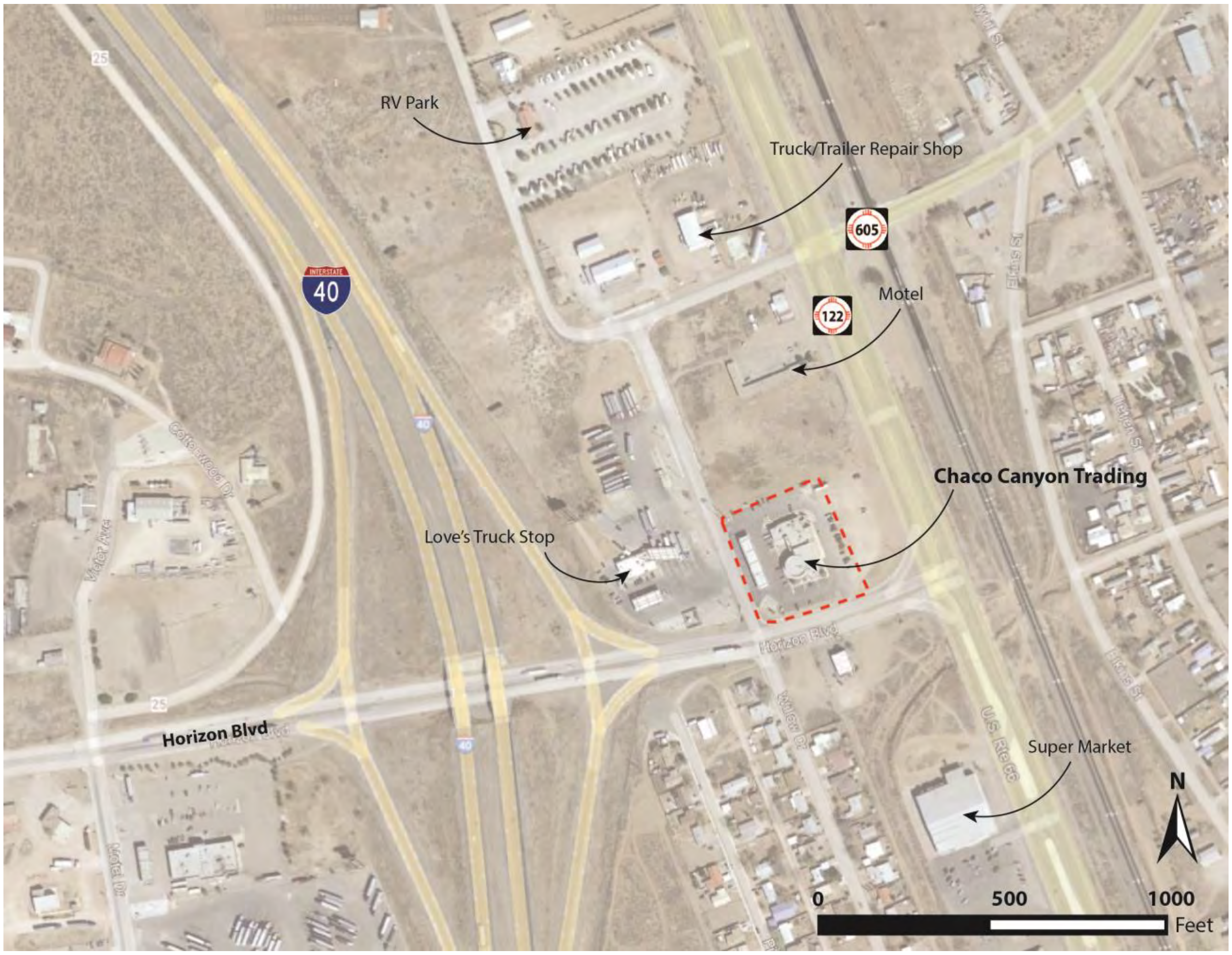

Figure 3-17: Facilities at Chaco Canyon Travel Center and Vicinity

3.3.2 Truck Stop Related Opportunities

A 2016 study examined the economic development potential for truck services throughout New Mexico.[11] At the time new federal regulations were close to going to into effect that would require truckers to rest after a certain number of hours spent driving. These rules, now in effect, require drivers to rest for at least 10 hours after 11 consecutive hours of driving. Because of New Mexico's location between major ports and markets like Los Angeles and Dallas-Fort Worth, truckers passing through on I-40 and I-10 are likely to need to stop and rest in the state. The study examined which locations would be most likely to support truck-related services and facilities. The report also described which services truckers were most in need.

[11] See Note 10

Areas along the east-west interstates (I-40 and I-10) and towards the state line were found to offer the most feasible sites for truck facilities. The study showed that safe truck parking was the most significant need for truck drivers.

Close to the study area, Gallup and areas west and east of the city were shown by the report to offer good sites for truck-related facilities, in large because these locations were approximately 11 hours from the ports of Los Angeles/Long Beach, a major starting point for many truck trips that pass through New Mexico. Communities in the Prewitt-Milan TMP like Thoreau and Milan were shown by the study to be located too far east to be a destination for many truckers affected by the 11-hour rule.

Still, there may be truck-related opportunities in the study area, as there are several indications that existing truck facilities in the study are beyond capacity. Study team site visits found trucks parked along the on-ramps to I-40 within the study area at night. An informal gravel parking area located west of the Bowlin's Bluewater Outpost near Exit 72 appears near capacity at night, even though the travel center is closed after 7 p.m. The study team will continue researching truck stop-related opportunities in the study area.

3.5. Existing Transportation Network

The following section describes the existing transportation network in the study area. When combined with other analyses in this document, the information in this section allows the study team to build an understanding of the gaps and issues in the transportation network. Because the Prewitt-Milan Transportation Master Plan is focused on identifying transportation improvements to support industrial park developments, this section goes into greater depth describing existing road and rail infrastructure, which would be the primary modes for moving freight and workers to and from the economic development sites

3.5.1. Roadway

The key roadways in the study area are described below. These are main roadways for the traveling public and are also the most important routes for movement of freight and workers to and from the planned economic development sites in the study area. The roadways described in this section are shown in

3.5.1.1. Interstate 40

The main roadway through the study area is I-40, an interstate freeway. I-40's alignment runs southeast-northwest through the study area (especially between Milan and Prewitt); however, the roadway is classified an east-west link within the Interstate system. The study area covers 32.5 miles of the freeway between the communities of Grants and Thoreau. I-40 is a vital transportation link for the study area, region, and the Southwestern United States and is one of the key east-west routes within the Interstate system. I-40 extends from North Carolina to California, passing through or near such metropolitan areas as Raleigh-Durham, Nashville, Memphis, Dallas-Fort Worth, Oklahoma City, Albuquerque, Phoenix, and Southern California. The interstate is an important route for goods moving from seaports in the Los Angeles region to points east.

Through the study area, I-40 has two lanes in each direction. The speed limit is 75 miles per hour. I-40 sees of thousands of trucks daily. Although exact truck volumes were not available at the time this report was completed, the portion of the freeway that passes through the study area is among the busiest in the state for truck traffic, with over 8,000 trucks daily. [12]

There are five interstate interchanges in the study area, listed below going west to east:

- Exit 53 (NM-371/NM-612, Thoreau)

[12] NMDOT (November 2016), *Freight-Related Economic Development Opportunity Study,* *http://dot.state.nm.us/content/dam/nmdot/planning/NM-HM96-2016-FreightStudy.pdf*, p. 16

- Exit 63 (NM-412, Prewitt)
- Exit 72 (NM-606, Bluewater)
- Exit 79 (NM-615/Horizon Boulevard, Milan)
- Exit 81 (NM-53, San Mateo)

I-40 interchanges are described in the following section.

3.5.1.2. I-40 Interchanges

The project team took a detailed look at each of the five I-40 interchanges in the study area to better understand any existing hindrances to existing freight traffic and any conditions that would be exacerbated with additional volumes. Per request of the Technical Working Group stakeholder group, the study team also analyzed Exit 85, the next interchange to the east of the study area limits. The interchange is an important feature of the local transportation network. It is just one of two interchanges serving Grants, along with Exit 81, and is located near the Cibola Industrial Park, a smaller industrial and commercial site under development.

The analysis included the turning radii at each interchange terminal, access and proximity to nearby frontage roads, sidewalks and lighting for pedestrian safety, on/off ramp lengths for acceleration and deceleration lengths, bridge deck heights, railroad crossings, and queue lengths at surrounding intersections. These factors all play a vital role in the final route recommendation to the industrial parks and weigh the pros and cons of each to understand a cost prohibitive solution to freight access.

Interchange #1: Exit 53, Thoreau, NM – I-40 & NM-512/Bluewater Road/NM-371

The Exit 53 interchange and its vicinity are illustrated in Figure 3-18. The existing interstate underpass has a clearance of 16 feet 8 inches. This provides no anticipated restrictions for freight traffic. ***The Route 66 frontage road along I-40 runs parallel roughly 75-100 feet north of the interstate, which would limit the ability for future on/off ramps between Continental Divide and Prewitt.*** With the frontage road being in close proximity to the interstate, this would also require any future overpass or underpass to be long and cost prohibitive. The needed span would be approximately 500 feet. The on/off ramps at this interchange are required to be closely spaced between the interstate and frontage road, which requires a very tight turning radii for access through the underpass. Interchange traffic control is currently provided by stop signs at the off ramps and along Bluewater Road/NM-371 at the Route 66 frontage road. There is a potential congestion issue for the stop sign at the Route 66 frontage road for northbound travelers along Bluewater Road/NM-371. The current spacing between the Route 66 frontage road and the westbound off-ramp is only 88 feet. However, the railroad crossing north of I-40 is accompanied by an overpass, so there are no current safety or congestion hazards with this railroad crossing.

The immediate area surrounding the interchange is primarily vacant land and the community of Thoreau, NM, does not begin until the north side of the railroad tracks, one-quarter mile, or 1,300 feet, away. However, the southwest quadrant of the interchange is occupied by the El Paso Natural Gas Company – Bluewater Station.

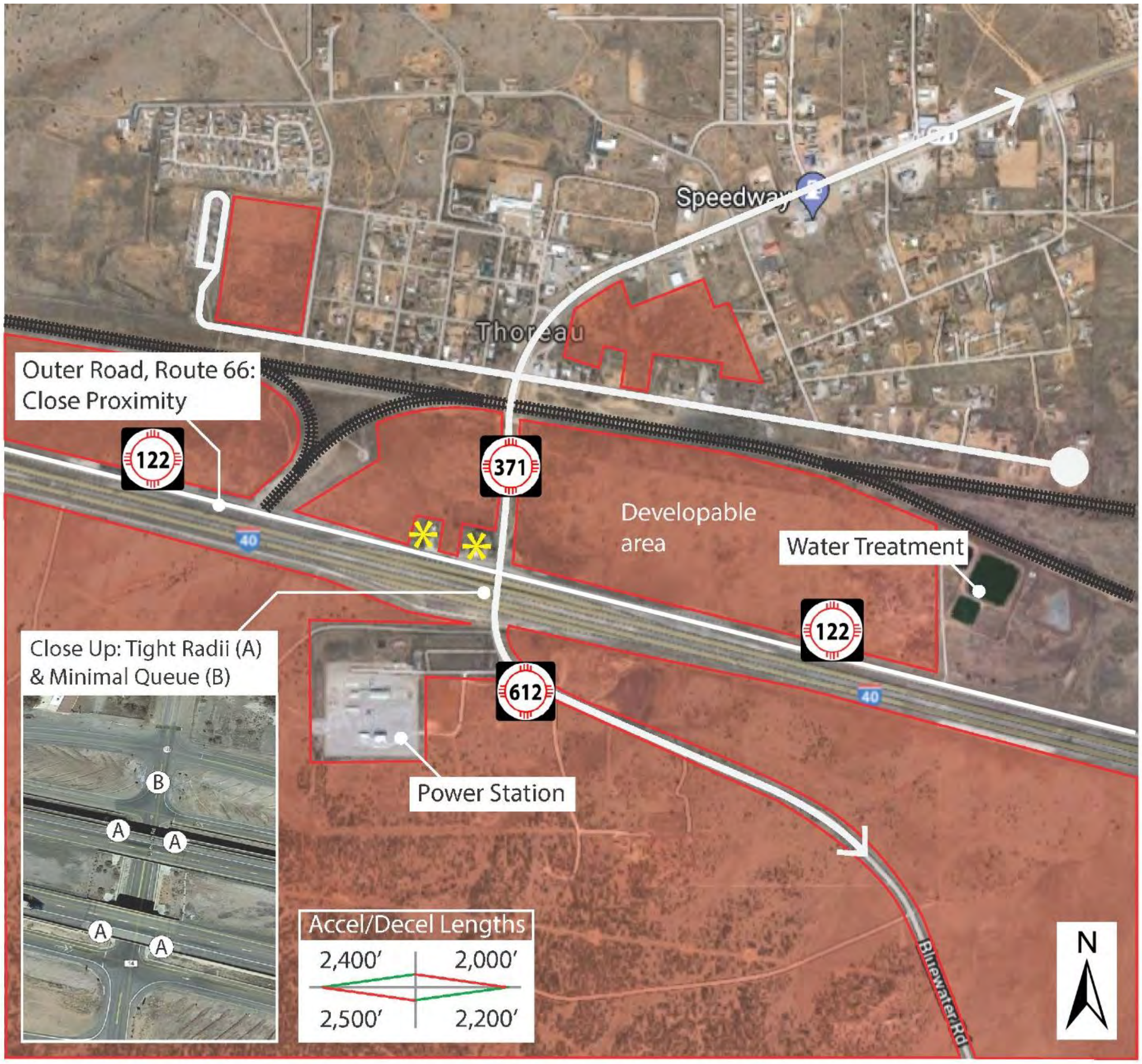

Figure 3-18: Interchange Analysis, Interchange #1, NM-371, Thoreau

Interchange #2: Exit 63, Prewitt, NM – I-40 & NM-412/Pillowcrest Rd.

The Exit 57 interchange and its vicinity are illustrated in Figure 3-19. The existing interstate underpass has a clearance of 16 feet 4 inches, provide no anticipated restrictions for freight traffic. Near the interchange, along CR-19 at the intersection of Route 66, is an at-grade railroad crossing. The distance between the stop sign and the railroad tracks is roughly 280 feet, providing the possibility for low visibility or stopped traffic on the at-grade railroad tracks. A potential realignment of Pillowcrest Road and CR 19 as an overpass over the railroad would negate this safety and congestion hazard and combine the two intersections into one. Further north along CR 19 is the recently close Escalante Power Plant and considerations should be made for higher traffic volumes as the site has the potential to be reused as a clean energy plant. The total crossing distance between the interstate and frontage roads is approximately 700-1,000 feet, making an overpass or underpass long and cost prohibitive.

Currently, two quadrants of the interchange are occupied by developed land uses. The Baca/*Dlo'Ay Ashi* Community School is located in the northwest quadrant and single-family residences are located in the southwest quadrants of the interchange. Along the north side of the interstate, development would be limited due to the tight spacing between the Route 66 frontage road and the railroad tracks. Larger or more cohesive developments would likely take place further north of the railroad tracks, approximately 1,600 feet from the interchange.

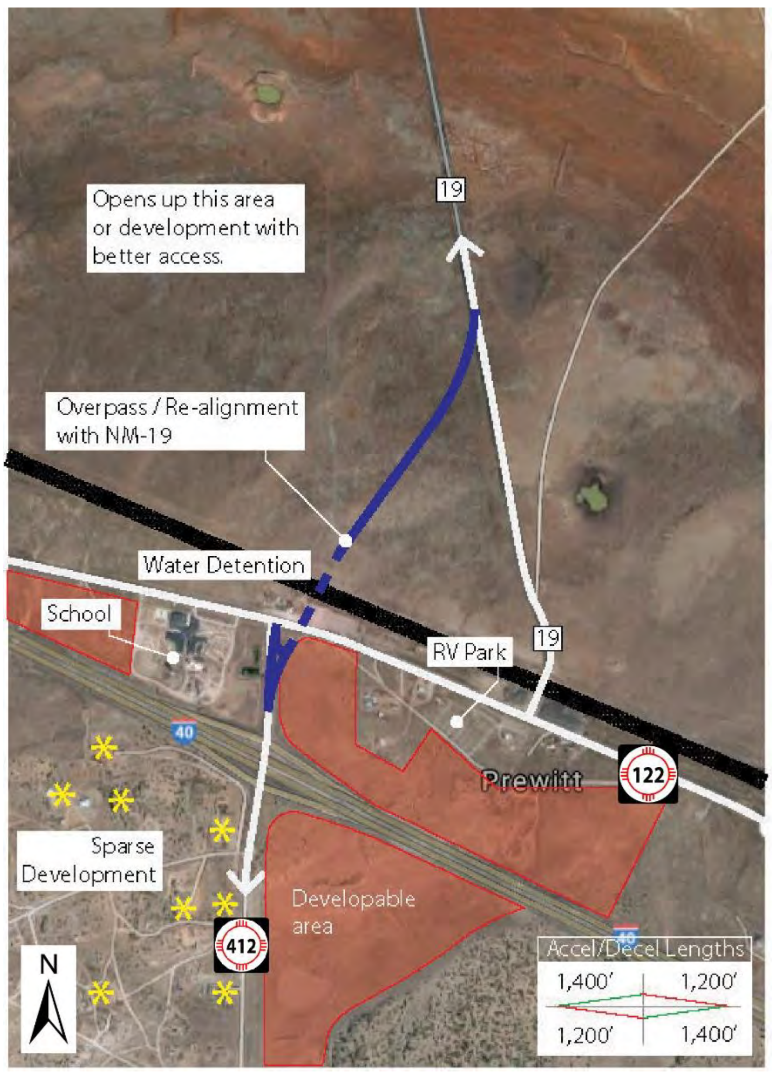

Figure 3-19: Interchange Analysis, Interchange #2, NM-412, Prewitt

Interchange #3: Exit 72, Bluewater, NM – I-40 & NM-606

The Exit 72 interchange and its vicinity are illustrated in Figure 3-20. The existing interstate underpass has a clearance of 17 feet 1 inch, provide no anticipated restrictions for freight traffic. The Route 66 frontage road provides greater separation from I-40 as it continues southwest to Milan, NM, which would allow for a future interchange to serve growth and additional development. As the railroad tracks parallel the north side of the Route 66 frontage road, there are limited options crossing the railroad tracks and accessing the area to the north. Currently, an at-grade crossing is present approximately one mile to the north and an underpass is located wo miles to the south via NM-334. There is an I-40 underpass located approximately 1.6 miles southwest of the interchanger, via Roberts Road. Roberts Road is a local narrow two-lane road.

There is limited developable land available at the southwest and northwest quadrants of the interchange. Exxon gas station is located in the northeast quadrant and single-family residence is located in the southeast quadrant . There is a dry creek bed that runs parallel to I-40, roughly 600 feet to the south that could impede development in both southeast and southwest quadrants.

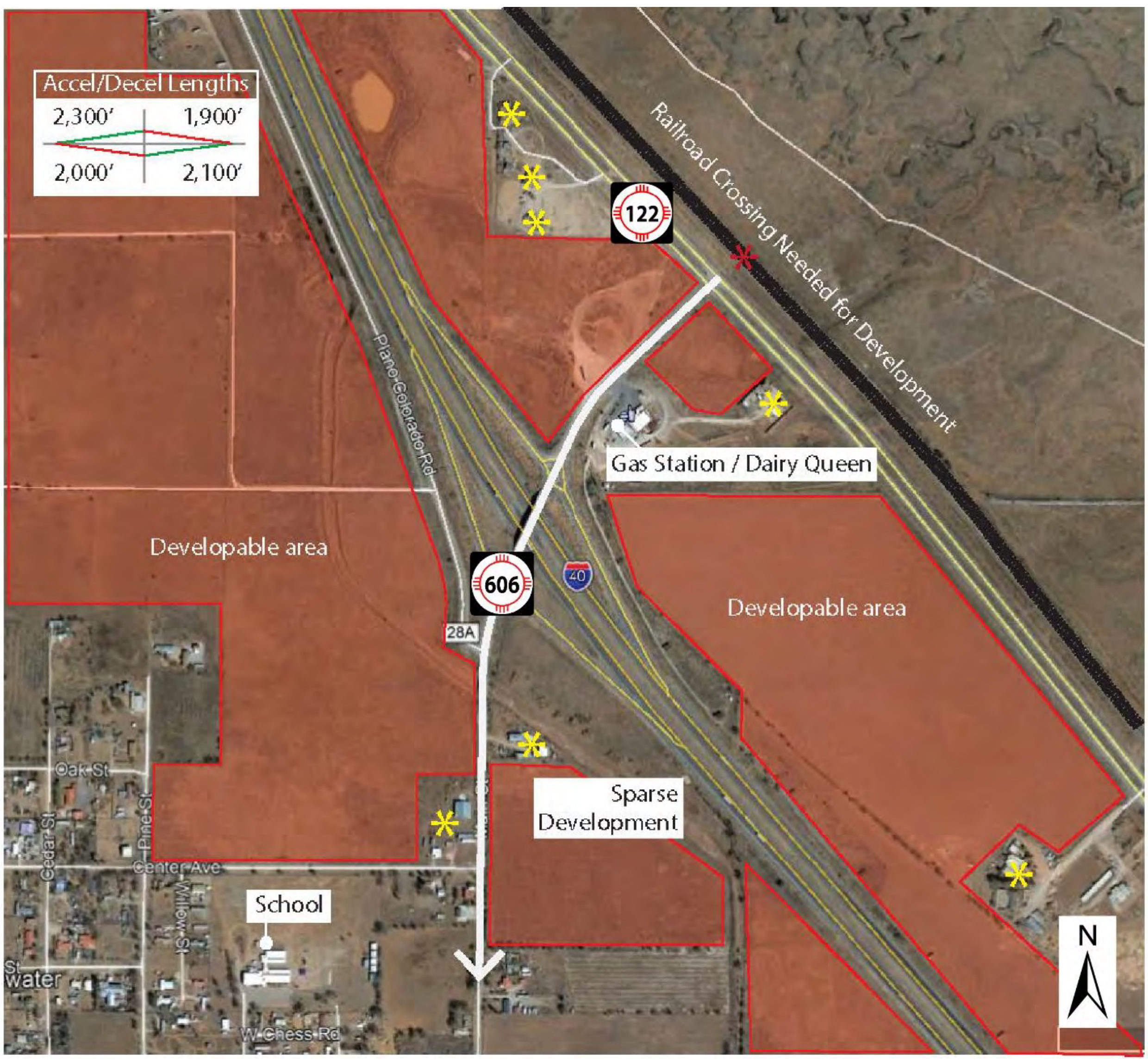

Figure 3-20: Interchange Analysis: Interchange #3, NM-606, Bluewater Village

Interchange #4: Exit 79, Milan, NM – I-40 & Horizon Boulevard

The Exit 79 interchange and its vicinity are illustrated in Figure 3-21. The existing Horizon Boulevard underpass has a clearance of 16 feet 1 inch, provide no anticipated restrictions for freight traffic. All four quadrants and the surrounding area of this interchange are primarily developed. The Village of Milan has studied redeveloping the nearby former golf course and vacant land to the north for industrial and mixed-use development. Currently, a pedestrian overpass for is present in alignment with Sand Street, roughly 2,500 to the south, providing a connection between the Milan Elementary School and area residences west of I-40.

Development restrictions may be present to the southwest of this interchange from the Grants-Milan Municipal Airport. Land to the east of the railroad tracks is serviced by an at-grade crossing roughly 2,300 feet east of the interchange.

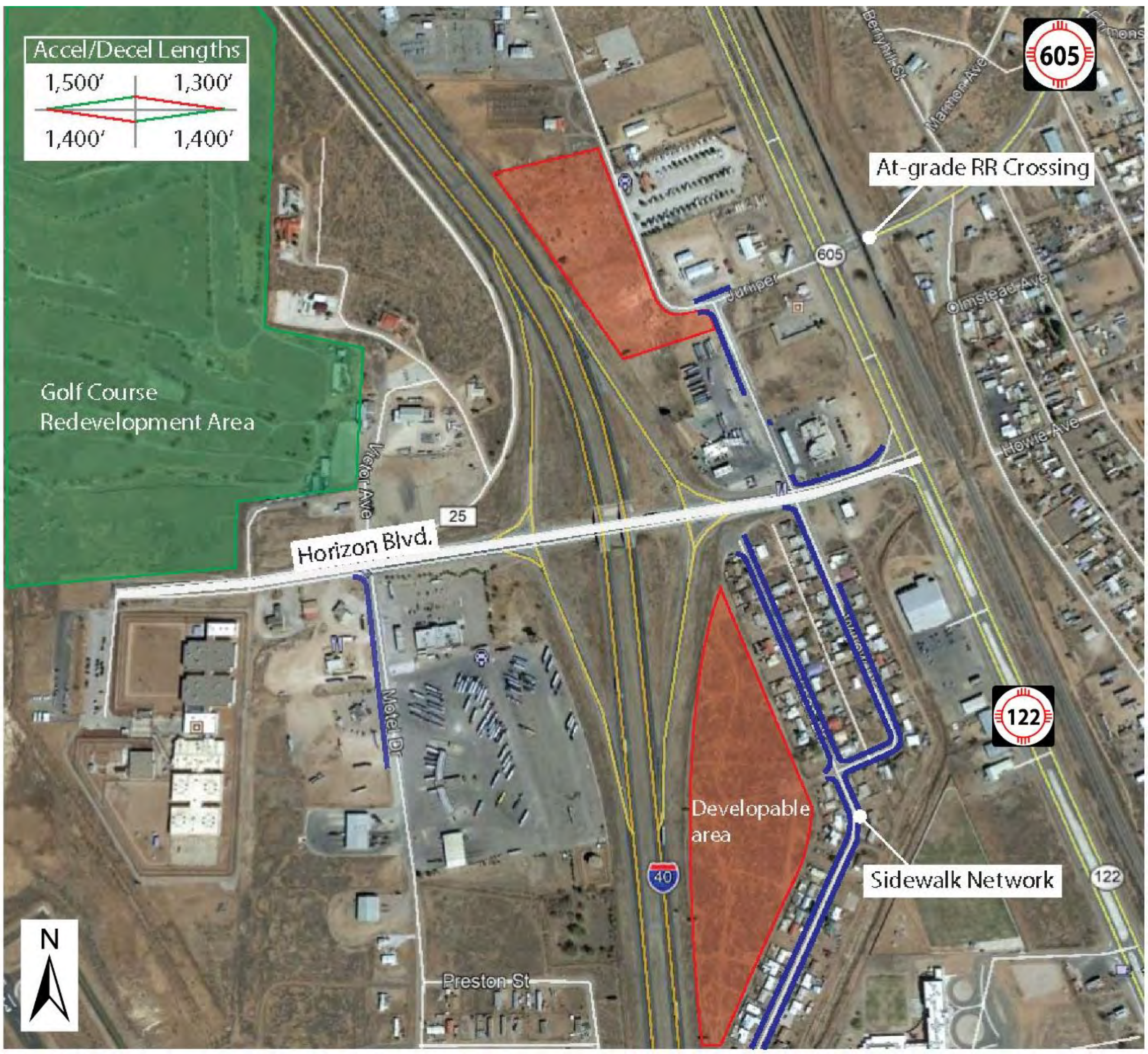

Figure 3-21: Interchange Analysis: Interchange #4, Horizon Boulevard, Milan

Interchange #5: Exit 81, Grants, NM - I-40 & NM-53

The Exit 81 interchange and its vicinity are illustrated in Figure 3-22. The existing interstate underpass has a clearance of 15 feet 8 inches, provide no anticipated restrictions for freight traffic. This interchange is unique in that an overpass is present to cross the railroad and San Jose Rio to the north, providing no access restrictions. Further northwest, the Route 66 frontage road crosses the railroad via an overpass, removing additional restrictions found at all other interchanges.

All four quadrants of the interchange are primarily developed with an RV Park, single-family residences and small businesses. Some limited land is available for development, but with elevation and run-off challenges. Developable land further to the north is limited due to the steep grades present from a nearby plateau.

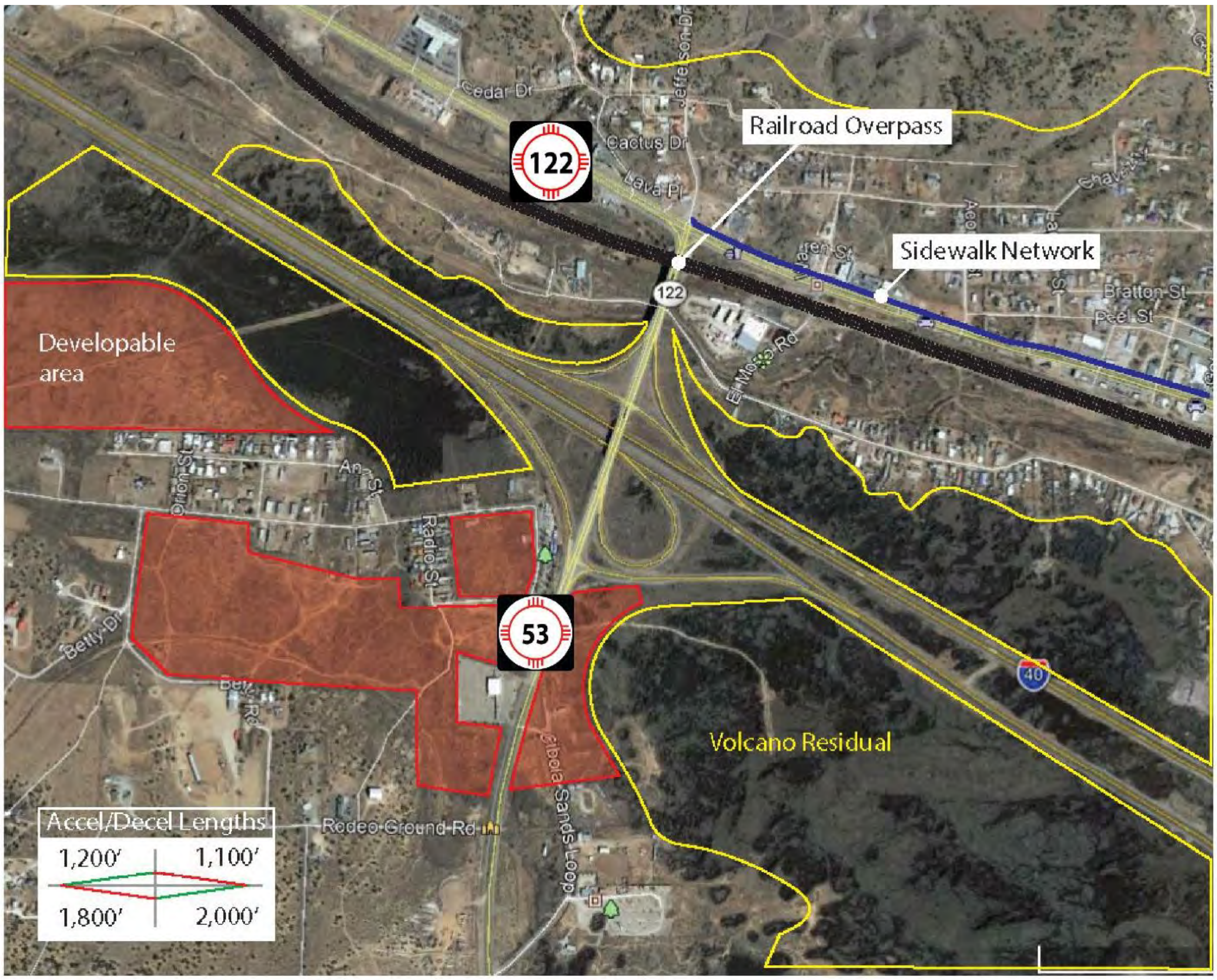

Figure 3-22: Interchange Analysis, Interchange #5, NM-53, Grants

Interchange #6: Exit 83, Grants, NM - I-40 & NM-117

The Exit 83 interchange and its vicinity are illustrated in Figure 3-23. The existing interstate underpass has a clearance of 16 feet 7 inches and provides no anticipated restrictions for freight traffic. The crossing street, NM-122, has a dead end and does not extend far south of the interchange. To the north, there is some commercial activity along the corridor and a grade separate overpass for the railroad. Further northwest, the Route 66 frontage road crosses the railroad via an overpass, removing additional restrictions found at all other interchanges. An issue was identified with the acceleration length for southbound vehicles on NM-122 entering southbound I-40. This distance was only 540’ after the 30 mph loop and by AASHTO guidelines should be 1,510’ for vehicles to merge with the 75 mph interstate traffic.

All four quadrants of the interchange provide ample opportunities for development, with some restrictions further west from the volcanic activity. Although through the stakeholder committee and public input, it has been stated that the volcanic ash may provide a solid base for development, with the additional need of topsoil for grass and vegetation.

Limited public sidewalks are found in the northern vicinity of this interchange at the three newer developments near Naomi Road. Further north, a sidewalk network begins on the north side of the railroad tracks and continues northwest along E. Santa Fe Ave.

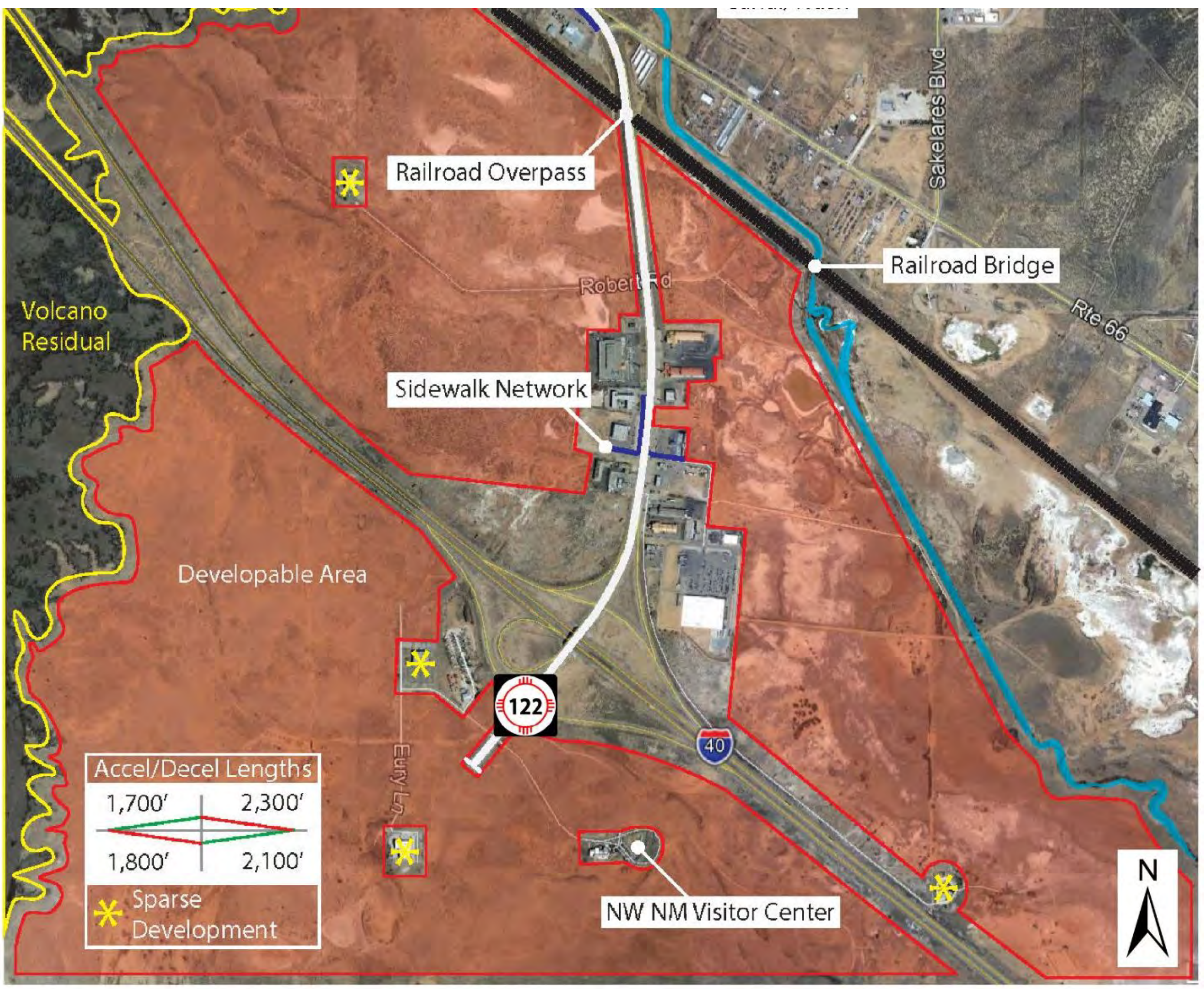

Figure 3-23: Interchange Analysis: Interchange #6, NM-122, Grants

3.5.1.3. Outer Roads along I-40

I-40 is the primary roadway through the study area, serving include volume here vehicles on a daily basis. However, as a freeway, the function of I-40 is to maximize mobility, rather than access. Consequently, there are limited access points to the freeway, and many properties with frontage on the interstate cannot directly access the roadway. NM-122 serves an important function as an outer or frontage road, providing vital access to the roadway network for properties along and nearby the interstate. ***NM-122 will be an important link from the interstate to the Prewitt and Milan industrial park sites.***

A similar frontage road does not exist on the south/west side of I-40. In Cibola County, CR-25 near Milan and CR-28A near Bluewater village provide frontage road access for short distances along the interstate. Both roads are unpaved. Development is sparser on this side of the interstate, likely in part because of the limited length of the county roads.

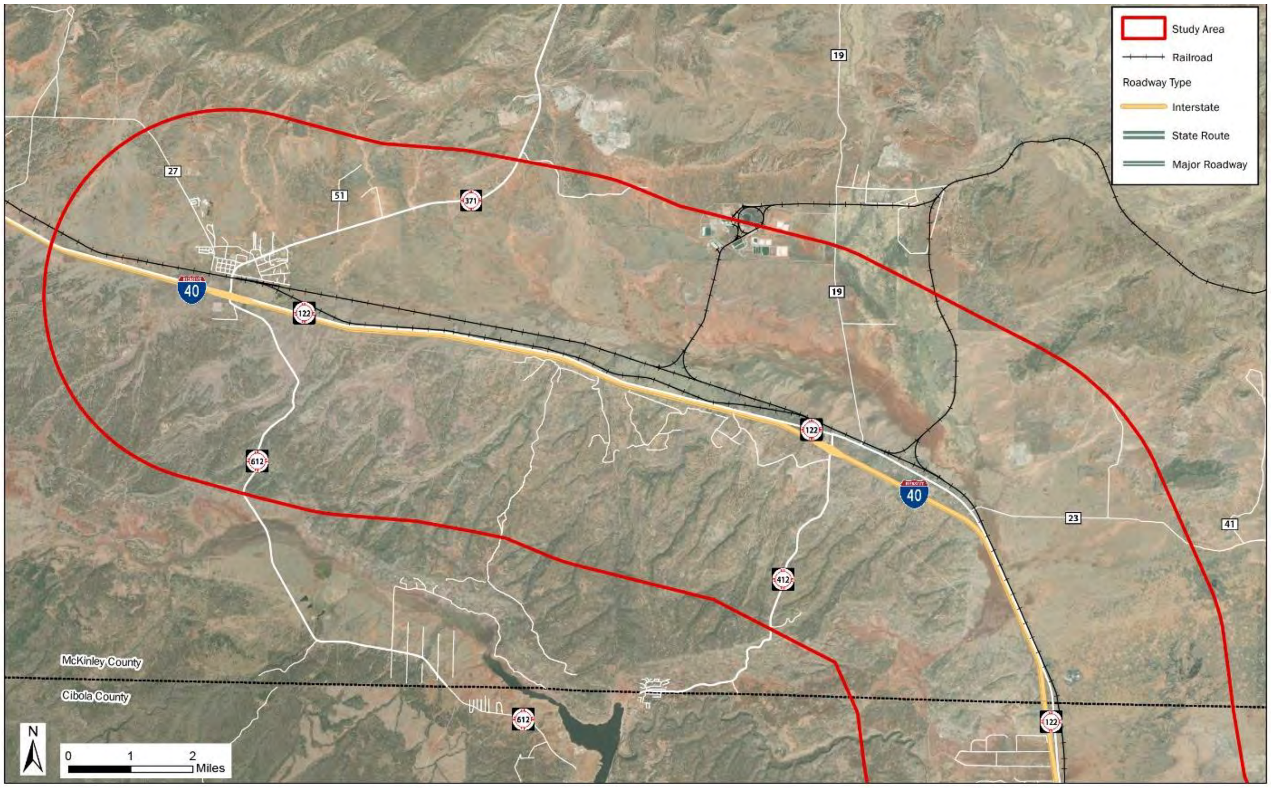

Figure 3-24: Key Roadways in the Study Area – McKinley County

Figure 3-25: Key Roadways in the Study Area – Cibola County

3.5.1.4. State roads

Beyond I-40, state roads form the backbone of the road network within the study area. The study team reviewed New Mexico Department of Transportation (NMDOT) public GIS maps[13] and legal descriptions of the roadways[14] to understand the alignment of state roads described here.

NM-122

The longest state road within the study is NM-122, which runs parallel to I-40 through the entire study area. NM-122 is the alignment of Historic US Highway 66 (Route 66). Outside of populated areas like Milan and Grants, NM-122 functions as a frontage road, providing connections from the freeway to properties along or near the freeway. Near Thoreau, the distance between NM-122 and I-40 becomes very small. Along NM-371, there is a distance of less than 90 feet between NM-122 and the interstate. This small distance could constraint future roadway improvements in this area.

Within the Village of Milan and City of Grants, NM-122 functions as a "main street." NM-122 is functionally classified as an urban major arterial roadway by the NMDOT, within the incorporated communities of the Village of Milan and City of Grants. Outside of the limits of these communities, it is classified as a rural minor collector roadway. The Village of Milan and City of Grants do not currently have separate functional classification of their roadways.

Within Milan and Grants, NM-122 has three lanes in each direction, separated by a raised median. North of Horizon Boulevard in Milan, the number of lanes reduces to two lanes in each direction. The raised median is present until approximately milepost 30.5, just north of the NMDOT District Maintenance Yard. This cross section continues until approximately milepost 23.4, which is located roughly 1.5 miles north of the intersection with NM-412. The study area ends near milepost 3, and NM-122 continues until just northwest of the Continental Divide I-40 interchange (Exit 47). NM-122 terminates about 0.5 miles west-northwest of the Continental Divide.

Many segments of NM-122, within the study area, appear to have limited to no shoulder or have shoulder that has become overgrown by vegetation. This is especially the case where the roadway is one lane in each direction.

NM-371

The busiest north-south roadway within the study area is NM-371. NM-371 begins at its junction with NM-122 and continues 107 miles north to US Highway 64 in Farmington. The study area encompasses a 5.5-mile portion of the roadway that runs southwest to northeast. NM-371 has one lane in each direction from NM-122 until Prewitt Street/Frontier Street in Thoreau, at which point the roadway widens to include a continuous two-way left-turn lane. The previous two-lane cross section resumes near the driveway entrance to the Thoreau Chapter House.

Serving as a vital transportation link between Farmington and I-40, NM-371 is functionally classified as a rural minor arterial. ***Along with Thoreau, the NM-371 serves Navajo communities such as Crownpoint and Smith Lake and is an important freight connection to the Navajo Agricultural Products Industry (NAPI) complex, south of Farmington.***

NM-605

NM-605 extends north from Milan and provides access from Milan and Grants to El Segundo Mine, located five miles northwest of NM-605 along NM-509. Past NM-509 to the east, NM-605 turns and

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[13] See NMDOT Public Map Gallery, https://nmdot.maps.arcgis.com/home/index.html

[14] NMDOT (2010), *Posted Routes, https://dot.state.nm.us/content/dam/nmdot/Data_Management/POSTED%20ROUTE-NM_Routes.pdf*

continues east for seven miles to the community of San Mateo. The study area encompasses 2.8 miles of NM-605 from NM-122 to Cibola County Road 22/Thunderbird Road, about 1.5 miles south of the Homestake-Grants Uranium Recovery Facility (EPA Superfund site).

NM-612 and NM-412

Other north-south state routes in the study area are NM-612 and NM-412. These two routes connect I-40 to, the west and east sides of ***Bluewater Lake State Park***. The park encompasses Bluewater Lake and features facilities for boating, fishing, camping, picnicking and hiking.[15] NM-612 begins on the south side of the I-40 Prewitt interchange (Exit 53) and continues south for nine miles, terminating at the Cibola-McKinley County line in the unincorporated community of Bluewater Acres. NM-412 begins at its junction with NM-122, crosses I-40 at the Prewitt interchange (Exit 63), continues south and southwest for six miles to the entrance of the state park. The roads both serve the state park and unincorporated residential communities next the park.

NM-412 serves Baca village just south of the Prewitt I-40 interchange. This is the primary residential area within Baca/Prewitt Chapter of Navajo Nation. NM-612 provides access to Bluewater Station of the El Paso Natural Gas Company, located just south of the Thoreau I-40 interchange. The facility is a compressor station that pressurizes adjacent portions of a natural gas pipeline, allowing natural gas to move through the pipeline. Both roadways pass through vacant/undeveloped land.

NM-606, NM-568, and NM-615

Three much shorter state highways are present in the study area. NM-606 extends 1.25 miles from NM-122, across the Bluewater I-40 interchange, and through Bluewater village. It is also known as Main Street in Bluewater.

NM-568 (Post Office Flats Road/Sawmill Road) extends east-west 1.24 miles between NM-122 and I-40, aligning with the north edge of the Milan Industrial Park site. At I-40, the road becomes Forest Service Road 1080, which passes over I-40 and continues west into the Cibola National Forest. An NMDOT patrol yard is located on the south side of NM-568, where it intersects with I-40.

NM-615 is Horizon Boulevard in Milan. It extends 0.5 miles from NM-122 west to Motel Drive/Victor Ave. (The Petro Travel Center is located at the southeast corner of this intersection.) NM-615/Horizon Boulevard is classified as an urban principal arterial.

All state roads described above are paved. The full study area is located with NMDOT's District 6.

3.5.1.5. County and Local Roads

The Village of Milan maintains approximately 21 miles of roads within its limits, all but one mile of which is paved. ***The Village's 2017 comprehensive plan notes that most roads are in fair to poor condition due to road age, sub-grade failure, and flooding resulting from lack of slope in the roadway cross section. The plan states: "These roadways lack a substantive cross-section capable carrying increased sustained traffic." [16].***

The other roads within the study area are maintained by county governments or Navajo Nation or are private roads. Some roads west of Milan and south of Bluewater are maintained by the US Forest Service and provide access to Cibola National Forest.

Several county roads are important routes for planned or future economic development projects in the study area. In McKinley County***, County Road (CR) 19 extends north from NM-122 for 29 miles to NM-***

[15] New Mexico Energy, Minerals, and Natural Resources Department State Parks Division (2022), "Bluewater Lake State Park," Retrieved June 28, 2022, from https://www.emnrd.nm.gov/spd/find-a-park/bluewater-lake-state-park/
[16] Note 6, p. 4-3

509. CR 19 provides the only roadway access to the Escalante Generating Station-Biopappel complex and to the site of Prewitt Industrial Park. Farther north, CR 19 serves the Navajo communities of Casamero Lake and Borrego Pass before linking with NM-509. CR 19 is a two-lane road for its entire length. It is paved from NM-122 to five miles north of Escalante Generating Station.

McKinley County Road 23 (Haystack Road) runs east-west just south of Haystack Mountain, connecting NM-122 to NM-605. ***It is approximately 12 miles long and is paved for 4.5 miles west of NM-122 until CR-41. The road offers a potential shortcut: The trip between the two endpoints of the road would take 24 miles if completed via NM-122 and NM-605.***

Cibola County maintains 51 miles of roadway in the study area. Most are local roads serving residential developments. ***Several routes stand out as relevant to this plan's discussions on economic development. These key roads include CR 23 (Ralph Card Road) which runs north-south along the east side of the Milan Industrial Park site.*** It continues as a county road for another mile north of the industrial park site's northern edge at Nursery Road. CR 23 is a paved, two-lane road. CR 23A (Nursery Road) runs west from Ralph Card Road to NM-122 and forms the northern limit of the Milan Industrial Park site. The road appears to have a chip-seal surface.

CR 25 runs east of the Golf Course redevelopment site along I-40 for approximately two miles. It is an unpaved, two-lane frontage road serving several residential properties. ***CR 25 is relevant to this study because it is near the location of potential infrastructure or economic development projects. Should any redevelopment of the Golf Course site take place, the alignment and design of CR 25 would likely need to be evaluated.*** A new I-40 interchange at NM-568 would introduce opportunities for development, in which case extending CR 25 to the interchange area may make sense.

North of Milan, CR 63 (Anaconda Road, also known as Highway 334) extends east-west between NM-122 and NM-605 for 5.8 miles, running north of the Homestake-Grants Uranium Recovery Facility. It is an unpaved, two-lane road. The trip between the two endpoints of CR 63 would take 10.6 miles if driven on NM-122 and NM-605.

3.5.2. Roadway Traffic Volumes

NMDOT annual average daily traffic (AADT) volume data is presented in this section. This data was obtained from the NMDOT Transportation Data Management System portal.[17] This data is available for I-40 and NM-122 and short segments of state roads between the interstate and NM-122. In general, the volumes are derived from counts collected in 2014-2015 and then grown to year 2020 based on statistical growth assumptions. Because the counts are artificially grown based on historical patterns, they are unlikely to reflect land use changes that could impact traffic volumes. The most significant of these changes in the study is the closure of Escalante Generating Station in 2020.

The highest volumes in the study area are on I-40. The busiest segment of the interstate is between Prewitt and Bluewater, where approximately 26,000 vehicles are observed daily. See volumes for I-40 and NM-122 and other key state roads on Figure 3-26 and Figure 3-27.

The highest volumes on NM-122 are seen in Grants and Milan. Approximately 12,000 vpd are seen on NM-122 south of NM-53. North of Horizon Boulevard, traffic volumes on NM-122 are progressively lower on each segment moving north. The NM-122 segment between NM-568 and NM-606 (Bluewater Village) has approximately 1,400 vpd and between NM-606 and NM-412 (Prewitt), traffic volumes are slightly higher with approximately 1,600 vpd. Traffic levels decrease west of NM-412, to approximately 900 vpd.

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[17] NMDOT, *Transportation Data Management System,* https://nmdot.public.ms2soft.com/tcds/tsearch.asp?loc=Nmdot. 2020 Annual Average Daily Traffic counts

These patterns suggest notable movement between Prewitt and Bluewater, possibly a result of workers traveling to/from the Escalante Generating Station (prior to its closure) or Biopappel facility.

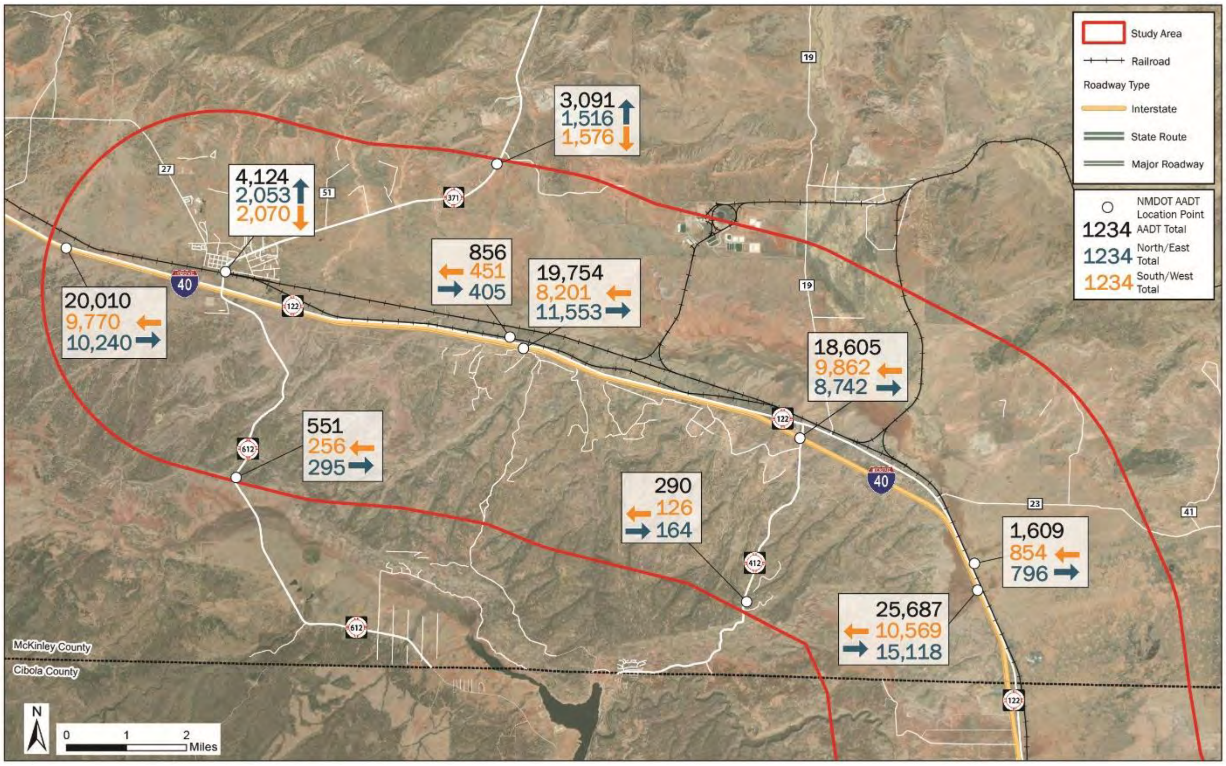

Figure 3-26: McKinley County Study Area Traffic Volume Map

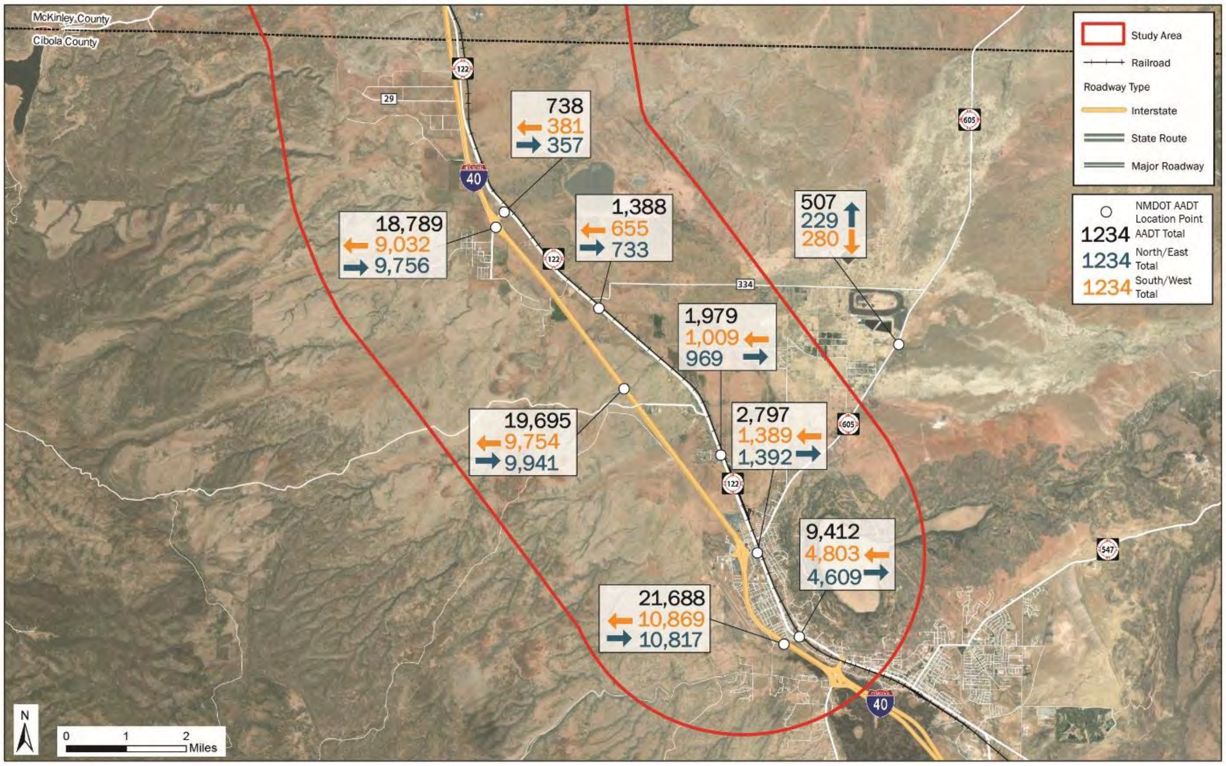

Figure 3-27: Cibola County Study Area Traffic Volume Map

3.5.2.1. Volumes near Interstate Interchanges

Daily traffic volumes on and around the NM-371/NM-612 interchange are shown in Figure 3-28. At the NM-371/NM-612 interchange, on/off ramp volumes appear to show a greater number of vehicles using I-40 to the west of the interchange. Approximately 1,100 vpd use the eastbound off-ramp, while only approximately 800 vpd use the eastbound on-ramp. The same relationship in reverse is present on the westbound access ramps. ***This may be partly explained by commuting data that shows that most Thoreau residents travel towards Gallup for work, rather than east towards Grants-Milan (see Section 3.7.4 on page 55 for a discussion of commuting patterns).*** Approximately 16,000 vpd travel along I-40 at the NM-371/NM-612 interchange.

Approximately 4,100 vpd drive daily on NM-371 north of the interchange. This is the highest daily volume observed on major roadways in the study area, after I-40 and NM-122. Volumes were not available for NM-612 south of the interchange.

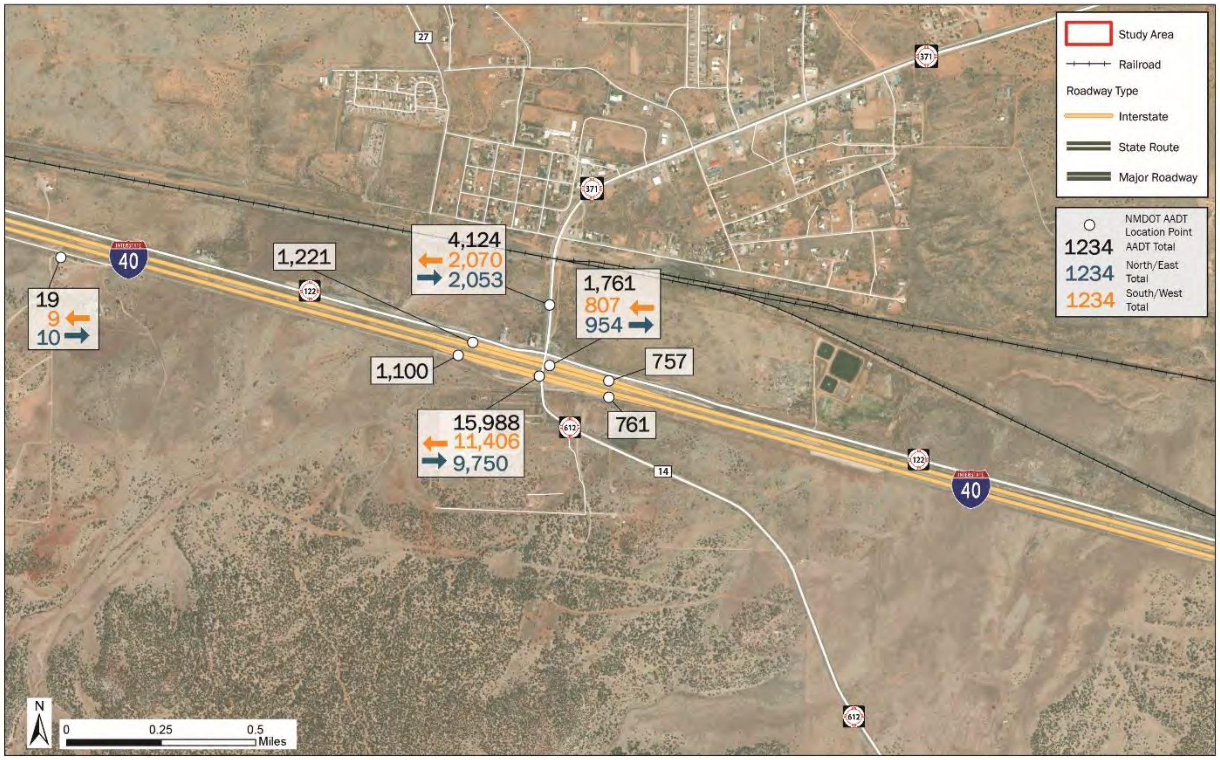

Figure 3-28: Study Area Interchange Traffic Volume Map: NM-371/NM-612

Daily traffic volumes on and around the NM-412 interchange (Prewitt) are shown on Figure 3-29. Approximately 860 900 vpd enter/exit the interstate daily at this interchange. Approximately 100 (30%) more vehicles enter the interstate to drive eastbound than westbound. This is the opposite of the pattern at the Thoreau interchange, where a greater share of traffic travels to/from the west. Approximately 1,000 vpd are observed on NM-412 north of the interchange.

Figure 3-29: Study Area Interchange Traffic Volume Map: NM-412

Daily traffic volumes for the NM-606 (Bluewater) interchange are shown on Figure 3-30. ***A higher number of vehicles use the interchange to travel to/from Bluewater village. This likely reflects vehicles accessing the gas station/restaurant north of the interchange.***

Figure 3-30: Study Area Interchange Traffic Volume Map: NM-606

Daily traffic volumes on and around the Horizon Boulevard interchange (Prewitt) are shown on Figure 3-31. ***The Horizon Boulevard (NM-615) interchange is the busiest in the study area***. Approximately 9,000 vpd enter/exit the interstate at this location. On/off ramp data show that more vehicles use the interstate to the east of the interchange than to the west.

On NM-122 through Milan, approximately 9,400 vpd pass daily between NM-53 and Airport Road. Between Horizon Boulevard and Airport Road in Milan, approximately 5,700 vehicles are observed daily. As previously stated, approximately 12,000 vpd travel on NM-122 south of NM-53.

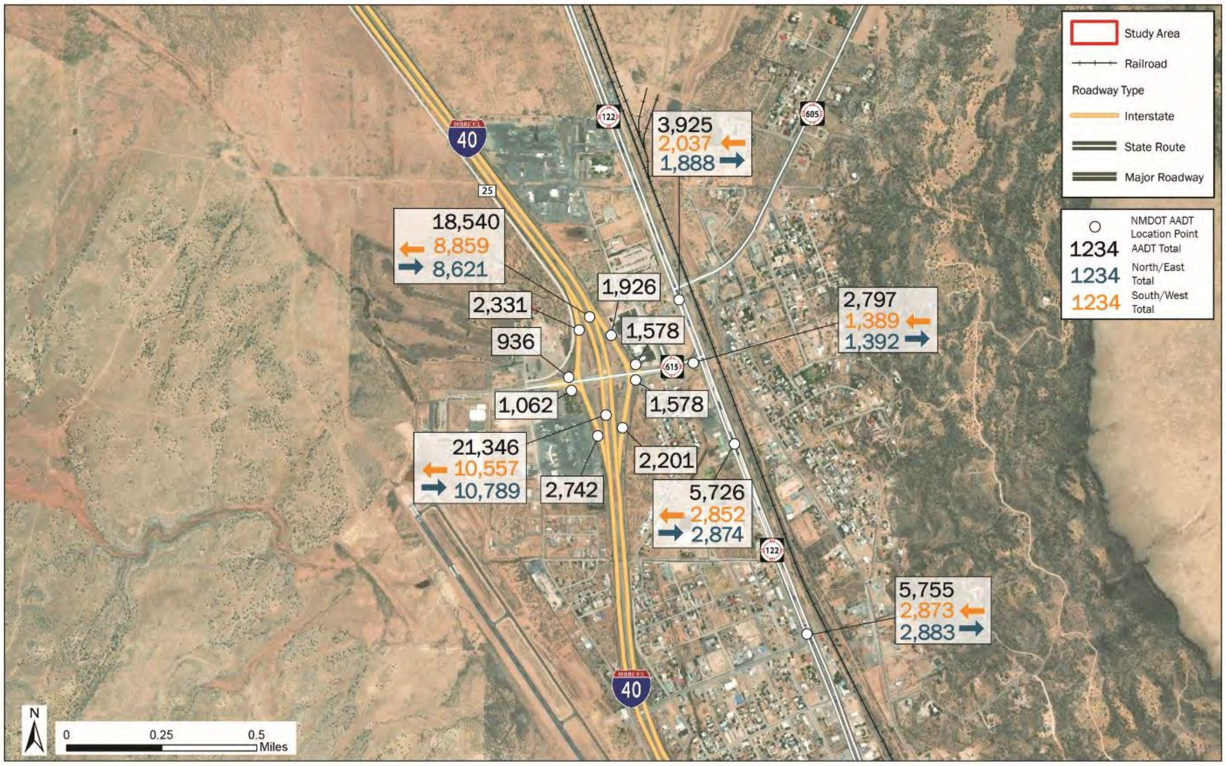

Figure 3-31: Study Area Interchange Traffic Volume Map: Horizon Boulevard/NM-615

Most vehicles travel north from the I-40 interchange at NM-53 (see Figure 3-32).

This interchange is designed to separate traffic exiting from eastbound I-40, depending on whether it is traveling north- or southbound on NM-53. Over twice as many vehicles travel northbound as southbound on NM-53 from eastbound I-40.

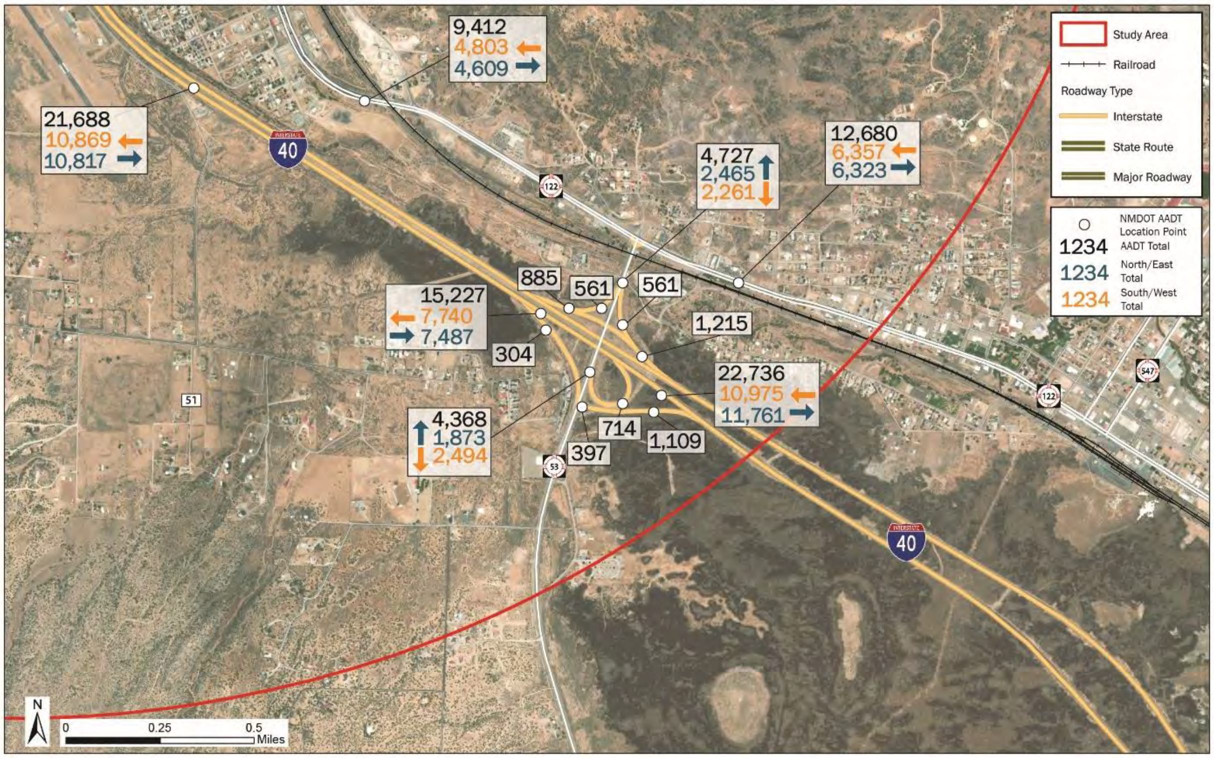

Figure 3-32: Study Area Interchange Traffic Volume Map: NM-53

3.5.3. Roadway Safety

3.5.3.1. Crash Analysis

The study team has completed a crash analysis for the I-40 and NM-122 in the study area. The study team evaluated crash data from the NMDOT Crash Records Bureau for the years 2015 through 2019. ***Crashes along the I-40 corridor cluster mostly near interchanges including the interchanges at NM-371, NM-412, Horizon Blvd, and NM-53***. The segment of I-40 between the NM-371 and NM-412 interchanges saw a consistent cluster of crashes compared to the other segments. ***Crashes along NM-122 occurred mostly within the Village of Milan,*** likely because of the increased traffic volumes and intersection density there. Crash hotspots along I-40 and NM-122 in the study area are shown in Figure 3-33.

Crashes along I-40, in Milan, cluster around the north side of the Horizon Boulevard interchange, near the overpass over Airport Road, and on a southern portion of the interstate near milepost 81, which has no clear distinction from other segments. ***Additionally, in Milan, crashes along NM-122 occur near the NM-605 intersection, East Ave intersection, and on the overpass over the railroad.*** Crash hotspots in Milan are shown in Figure 3-34.

The severe injury and fatal crashes cluster typically around the I-40 interchanges within the study are, while some crashes occur on segments between the interchanges. As with the map showing all crashes, the majority of severe injury crashes occur near Milan along I-40 and NM-122. The locations of severe injury and fatal crashes are shown in see Figure 3-35.

Most semi-truck involved crashes occurred along I-40 west of the NM-41 interchange and north of the Horizon Boulevard interchange. Hotspots of semi-truck involved crashes are shown in Figure 3-36.

The study team crash data for pedestrian involvement and made the following findings:

- There were seven total reported pedestrian involved crashes.
- There were six severe injury pedestrian involved crashes, with 3 of those being fatal.

- The only one property damage only (PDO) crash also involved a semi-truck
- Based on the initial location of the reported crash points, there were 4 pedestrian-involved crashes that occurred on NM-122, with the other three occurring on I-40.

The location of pedestrian-involved crashes is shown in Figure 3-37.

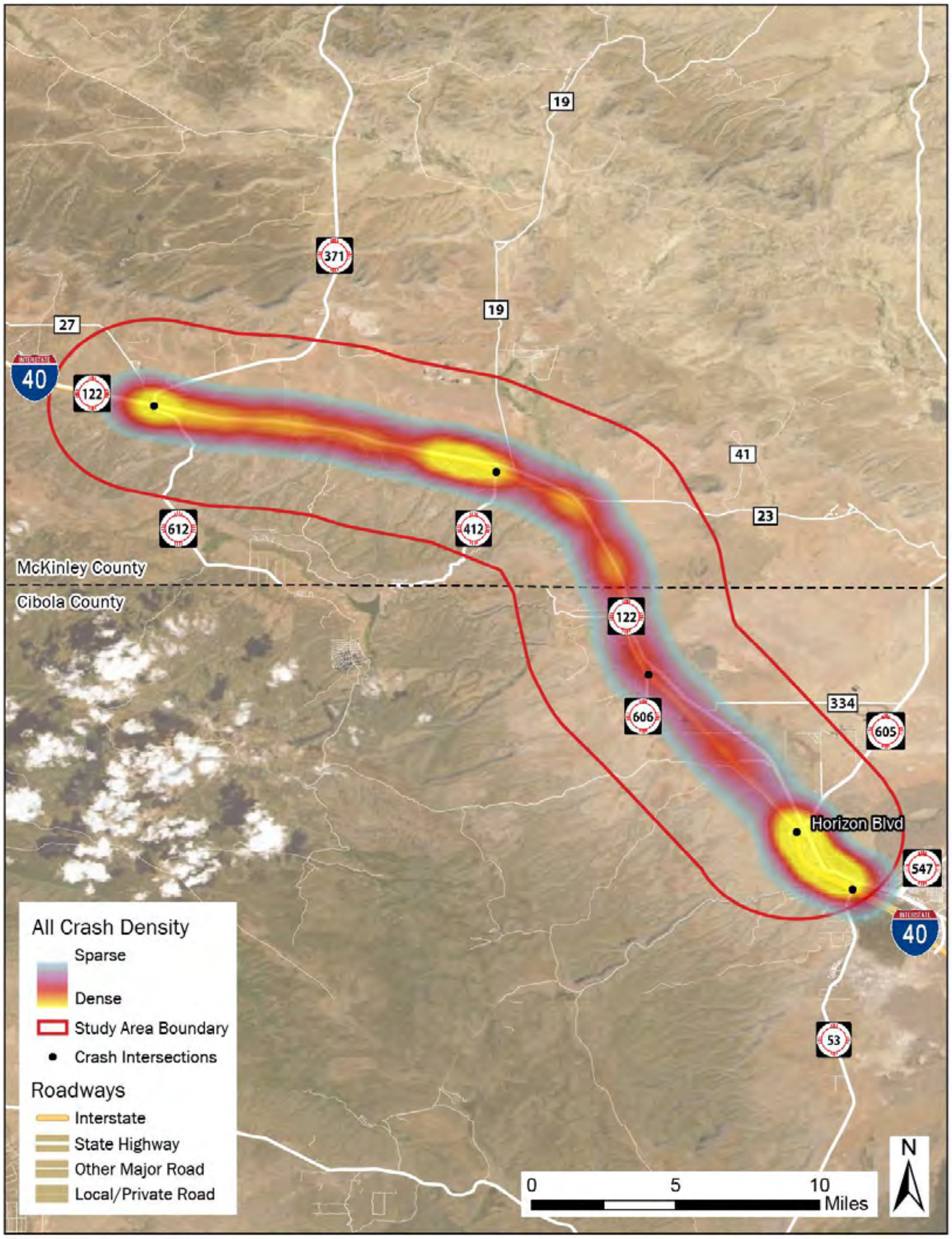

Figure 3-33: Hotspot Map – All Crashes on I-40 and NM-122 in Study Area (2015-2019)

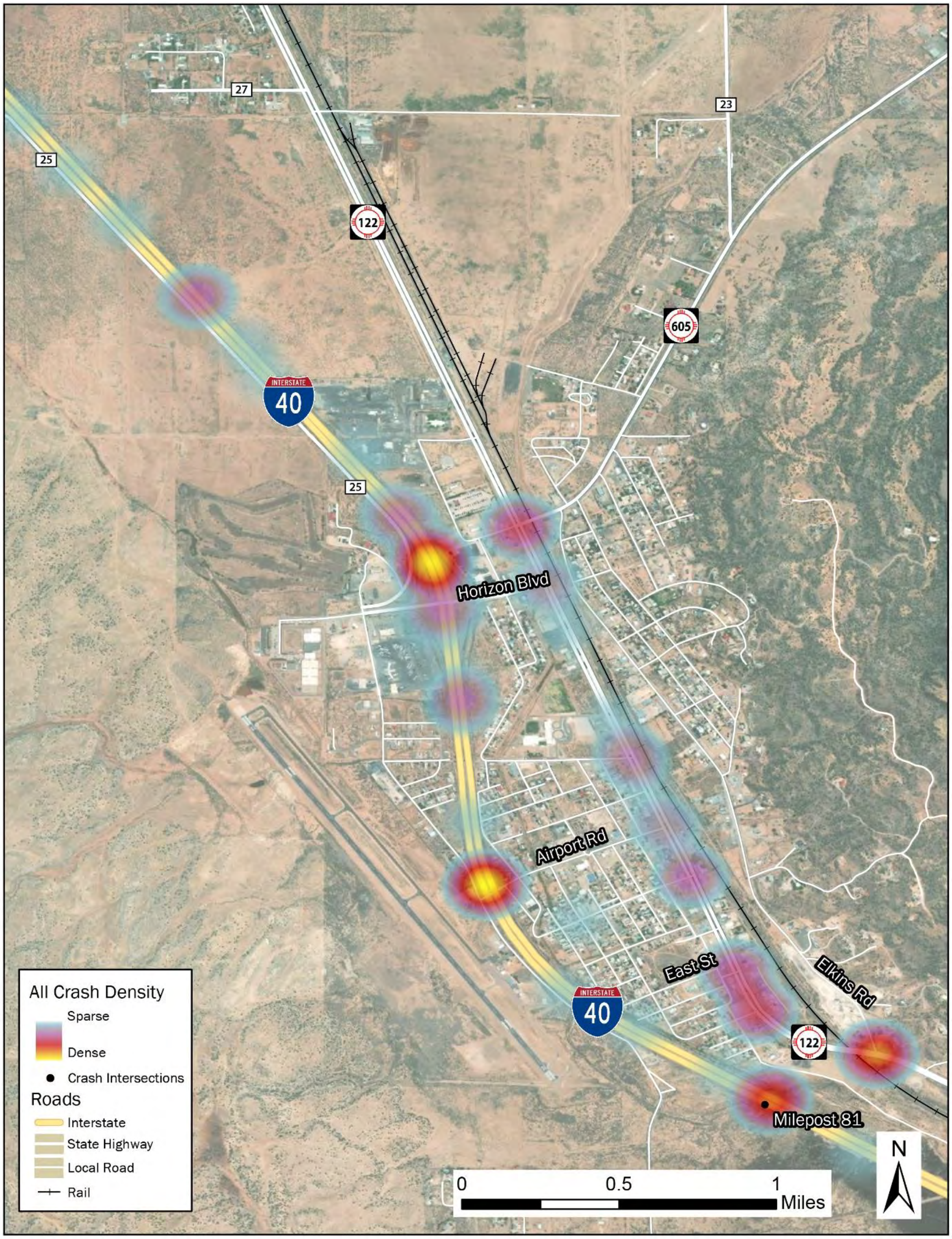

Figure 3-34: Hotspot Map – All Crashes on I-40 and NM-122 in Milan Area (2015-2019)

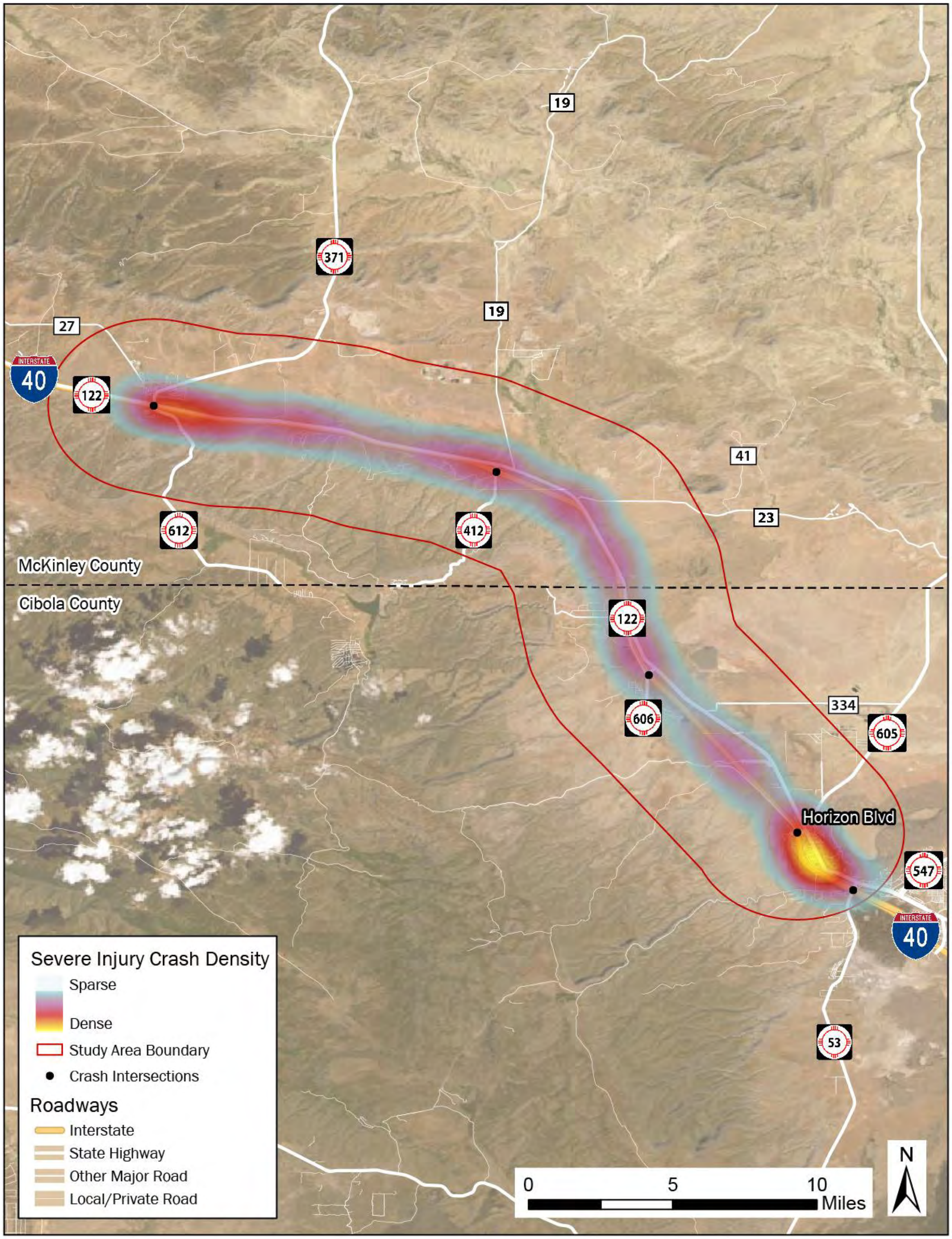

Figure 3-35: Hotspot Map – Serious-Injury and Fatal Crashes on I-40 and NM-122 in Study Area (2015-2019)

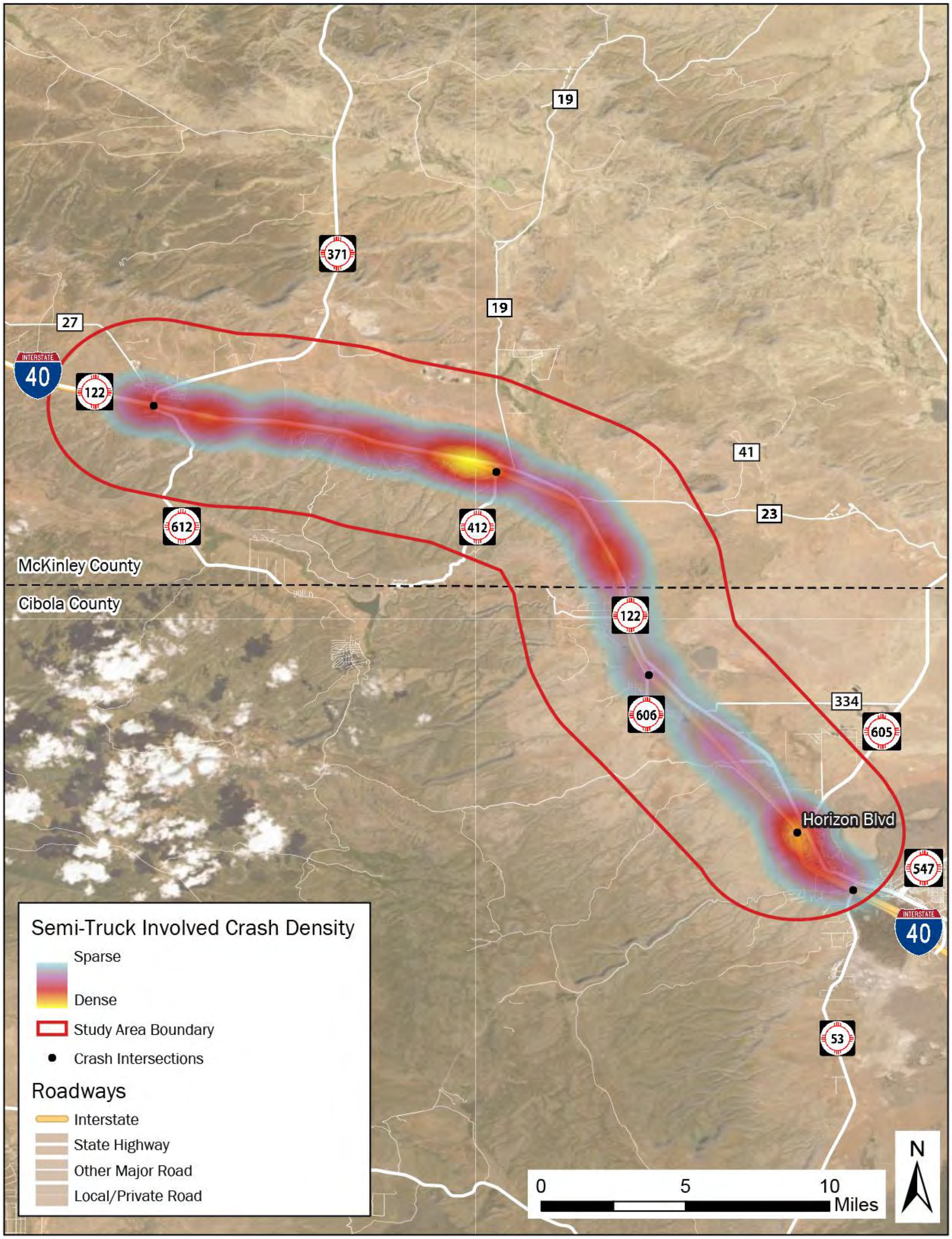

Figure 3-36: Figure 7: Hotspot Map – Semi-Truck Involved Crashes on I-40 and NM-122 in Study Area (2015-2019)

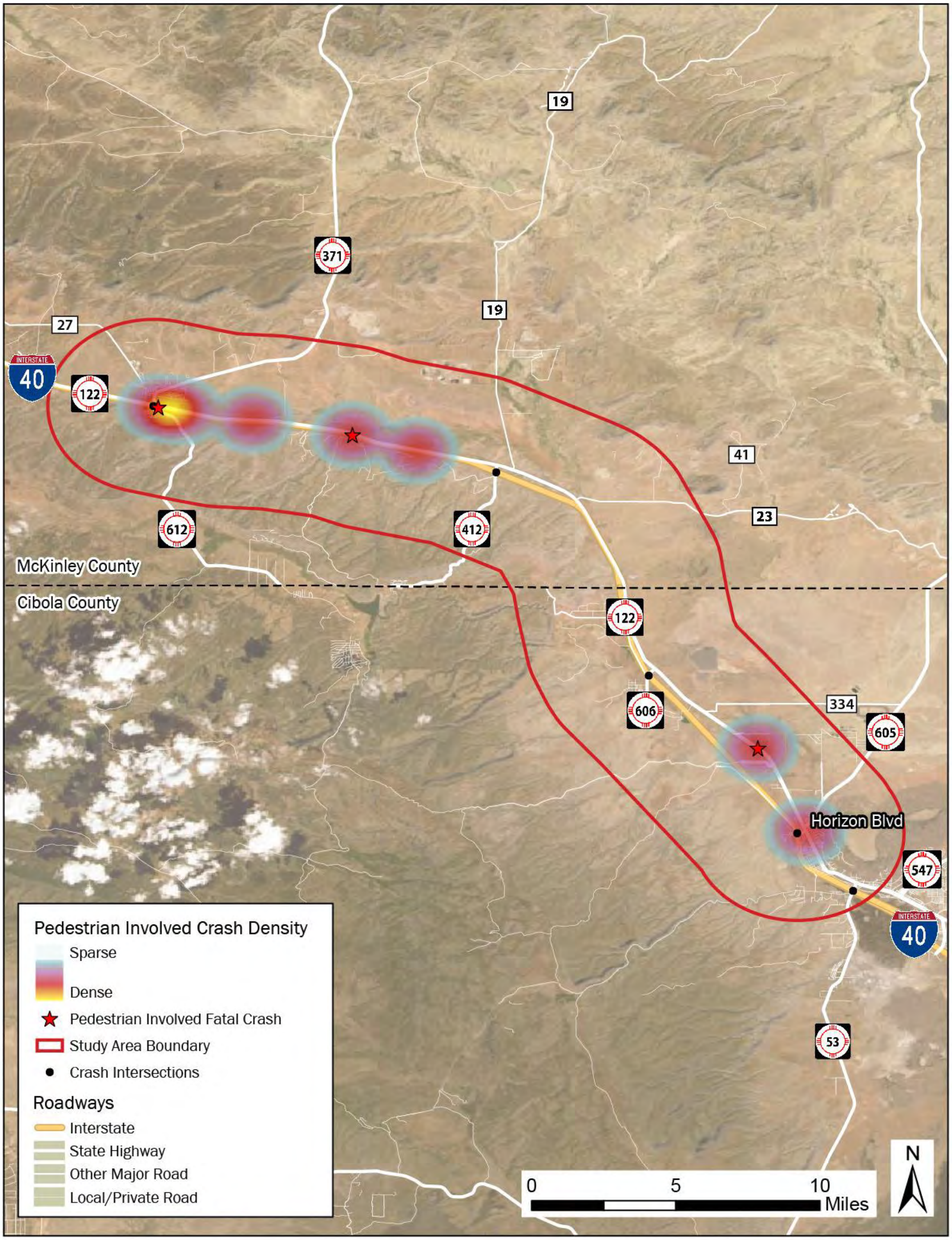

Figure 3-37: Crash Location Map – Pedestrian-Involved Crashes on I-40 and NM-122 in Study Area (2015-2019)

3.5.3.2. Dust and Visibility

A specific safety issue present in the study area relates to weather. Low-visibility conditions can occur on I-40 and NM-122 between Milan and Bluewater, the result of high-winds blowing dust from nearby fields across the roadways. Project stakeholders have indicated that, at times, visibility can be reduced to zero along this stretch of the road. Some signage indicates to motorists that these conditions are possible (see Figure 3-38: Sign Warning of Possible Limited Visibility, NM-122 North of Milan), although no signage directs motorist what to do when low visibility occurs.

Figure 3-38: Sign Warning of Possible Limited Visibility, NM-122 North of Milan

3.5.4. Rail

There are 109 miles of railroad track in and near the study area, including spur lines that extend north of the study area to mine sites in McKinley County. There are 43 miles of double-track mainline track within the study area, all of which is owned by BNSF. The spur lines are owned by the owners of the mines and a short line railroad that served the power plant when it was in operation. All current freight service in the study area and its vicinity is operated by BNSF.

The BNSF mainline tracks that pass through the Prewitt-Milan study area are part of the company's Southern Transcon mainline (a mainline is a principal artery of a railroad network). The Southern Transcon extends from Chicago to Los Angeles and is one of the backbones of BNSF's system, which covers much of the Western United States. Roughly 80 trains per day move through the study area.

3.5.4.1. Prewitt Area Tracks

At milepost 114 on the mainline, spur line track extends 27 miles north from the mainline. At this point, one line continues 14 miles east to the Lee Ranch Mine site. Another track extends north 7 miles to the El Segundo Mine. See Figure 3-39.

At milepost 118 of the mainline, a spur extends approximately 2.5 miles north to the Escalante Generating Station (EGS) and Biopappel complex. This rail spur allows for a unit train of coal to reach the EGS. This western spur is located approximately one mile west of the Prewitt Industrial Park site. ***To provide rail access to the Industrial Park site, a rail spur would need to be constructed for one mile through difficult topography.*** The BNSF would need to approve the new Industrial Park extension before they could provide rail service.

Tracks continue approximately 2.75 miles east from the EGS to the Lee Ranch Mine line (the spur that splits from the mainline at milepost 114), allowing coal from the mines to the north to be delivered to the EGS.

Figure 3-39: Rail Spurs to Escalante Generating Station and Mine Sites

3.5.4.2. Milan Siding

As depicted Figure 3-41, an existing runaround (siding) from the BNSF mainline begins near the intersection of NM 122 and Piñon Drive (BNSF Mile Post 99.671) and extends for just over a mile, where it rejoins the mainline just before Mill Road (milepost 100.704). This runaround is powered by an electric switch. Immediately after the initial runaround at Piñon Drive, two additional spurs split from the siding and extend roughly northward for about 800 feet, stopping at the edge of the Industrial Park site (see Figure 3-40). While intended for use, these spurs were built approximately 30 to 40 years ago and need updates to the existing ties as well as resurfacing.

Figure 3-40: Spur (left) Splitting from Siding (right) Near Milan Industrial Park Site

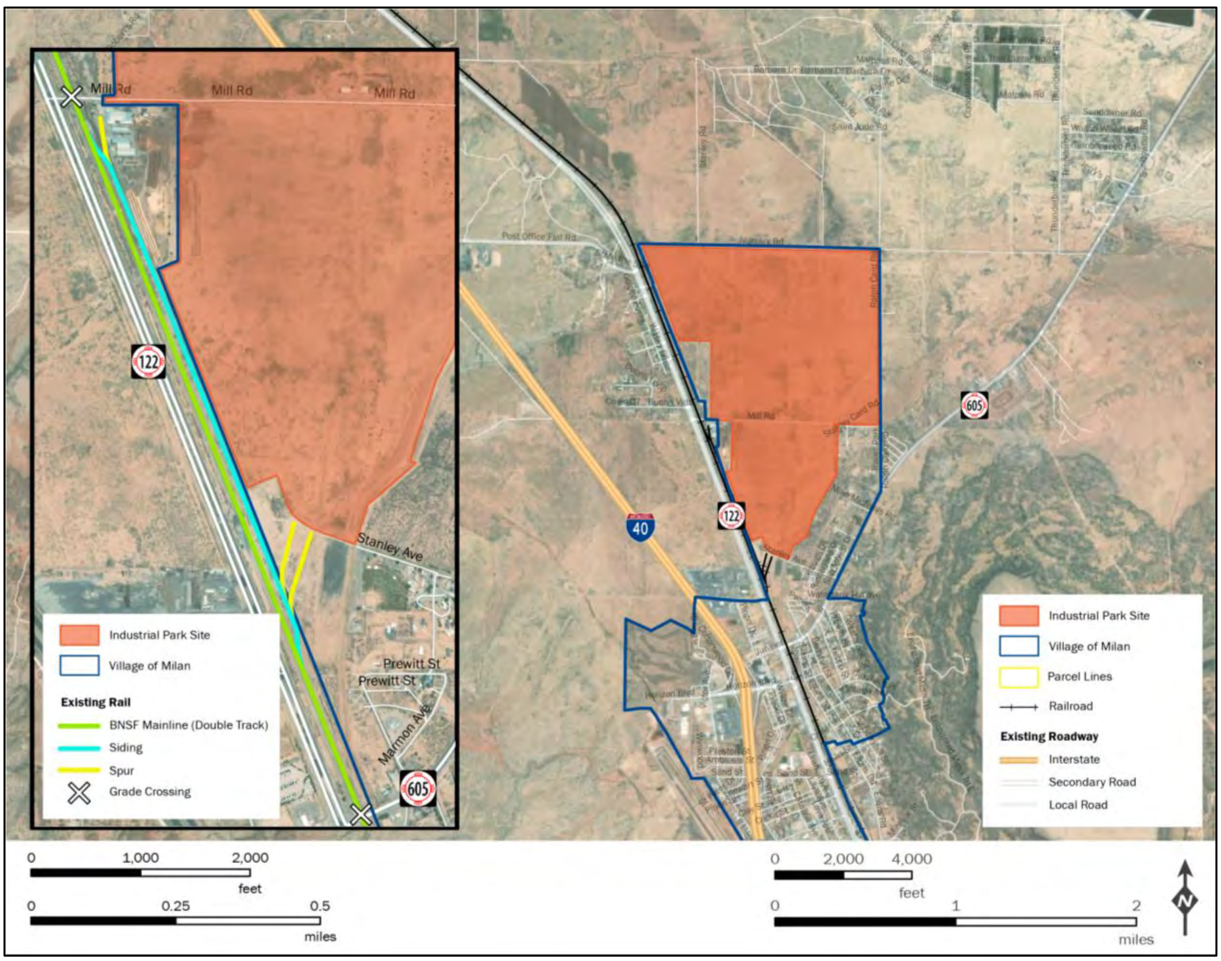

Figure 3-41: Existing Rail near Milan Industrial Park Site

3.5.4.3. Passenger rail

Amtrak has trackage rights on the BNSF mainline track through the study area for its daily Southwest Chief passenger service. The train does not have any stops in the study area – the nearest stops are in Gallup to the west and Albuquerque to the east.

3.5.4.4. Railroad crossings

There are twenty road-railroad crossings between Thoreau and Grants. Half (ten) of these are grade separated. The study team used aerial imagery and Federal Railroad Administration data to identify these crossings. Figure 3-42 shows the location and type of the crossings in this area.

Three of the grade-separated crossings involve a roadway overpass over the tracks. The remaining grade-separated crossings have the tracks passing over the roadway. ***Flooding is likely to occur on the roadways at these locations, although the roadway volumes there are low.*** Bridge clearance is low at these locations. Figure 3-43 shows standing water and low clearance at the grade-separated crossing of CR-63/Anaconda Road in Cibola Road, a few miles northwest of Milan.

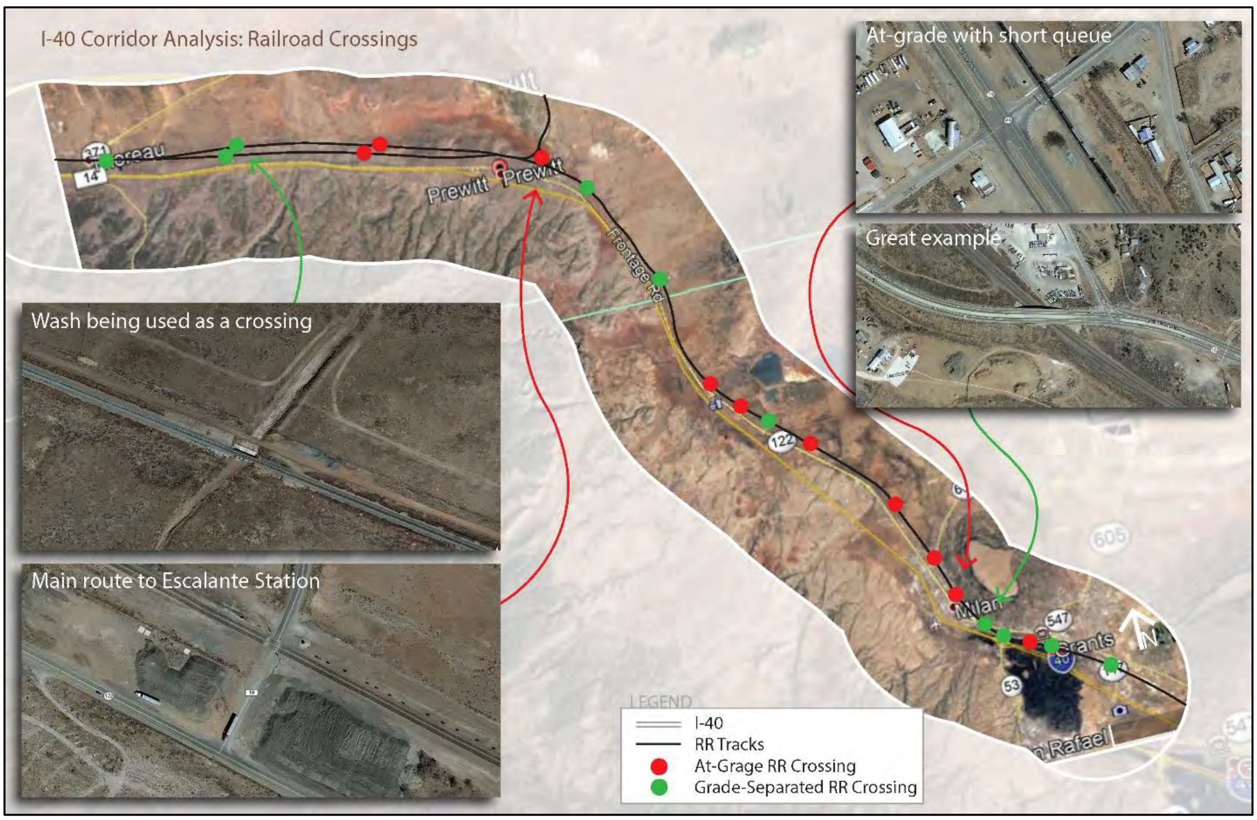

Figure 3-42: Railroad Crossings Between Thoreau and Grants

Figure 3-43: Railroad Bridge and Roadway Underpass at CR-63/Anaconda Road, Cibola County

3.5.5. Airport

The Grants-Milan Municipal Airport is a small general aviation airport located immediately west of the Village of Milan, on Motel Drive/Dale Carnutte Road (also referred to on some maps as Aspen Road). The airport's runway is 7,100 feet long. It has several small hangars. Eleven single-engine aircraft and one helicopter are based at the airport. Self-service fueling is available. The airport does not support air cargo operations. The airport funded and managed by the City of Grants and the Village of Milan.

3.5.6. Other

3.5.6.1. Non-Motorized

Dedicated pedestrian or bicycle infrastructure is limited within the study area. The only formal, dedicated infrastructure are sidewalks in Milan. ***The sidewalk network in the Village is being built out as funding becomes available and is currently piecemeal***. Near the Horizon Boulevard interchange area, there are short segments of sidewalk along Horizon Boulevard and some of the adjoining neighborhood streets. On the west side of the interchange, there are some sidewalks along Motel Drive south of Horizon. No sidewalks connect across the interchange. See the map in Figure 3-21 on page 19 for the location of sidewalks in this area.

3.5.6.2. Transit

The only public transit service available in the study area is the Rockin 66 Express (formerly the Carrot Express). This is a demand-response service serving Grants, Milan, San Rafael (south of Grants), and Bluewater village.

3.6. Environmental Characteristics

Several datasets were examined to understand the presence of environmental, historical, and cultural features in and near the study area. The Study Team reviewed information on important wildlife habitat, threatened and endangered species, floodplain and wetlands, contaminated sites, and historical and cultural properties located in or near the study area. Various federal and state laws and regulations determine the degree to which the planning and design of transportation projects should take these elements into consideration and should minimize impacts to them.

3.6.1. Wildlife Habitat

Transportation projects impact the habitat of wildlife. Projects should avoid destruction of habitat of sensitive species. Section 7 of the Endangered Species Act requires federal agencies to consult with the United States Fish & Wildlife Service (USFWS) before undertaking an action or making an approval that may affect a federally listed threatened or endangered species. A biological survey may be required depending on future project permitting and funding.

The exact species present in or near the study area will not be known until additional project-specific planning takes place. However, two key datasets point to possible threatened/endangered species and the location of their habitats in the study area.

The New Mexico Department of Game and Fish develops a Crucial Habitat index. The index identifies the "places that are expected to contain the resources necessary for the continued health of fish and wildlife populations or where important ecological communities are expected to provide high value for a diversity of fish and wildlife locations" [18]. The index defines areas on a scale from 1 (most crucial) to 6 (least crucial). The more crucial areas may be more likely to contain habitat of sensitive species. ***More crucial habitat near the study area exists along NM-371 northeast of Thoreau and near the Cibola Industrial Park site in Grants.*** See Figure 3-44.

While the specific habitat of a sensitive species would not be known until more detailed planning stages, the New Mexico Department of Game and Fish (NMDGF) provides county-by-county lists of threatened and endangered species through its Biota Information System of New Mexico (BISON-M). The federal and state threatened and endangered species are listed in Table 3-12 and Table 3-13. ***Two federal endangered species are found in both counties:*** *a fish, the* Zuni bluehead sucker, and a bird, the Southwestern willow flycatcher.

[18] New Mexico Crucial Habitat Data Set. New Mexico Crucial Habitat Assessment Tool: Mapping Fish and Wildlife Habitat in New Mexico. New Mexico Game & Fish Department and Natural Heritage New Mexico. Published 12/10/2013. Accessed 6/2/2022. http://nmchat.org/

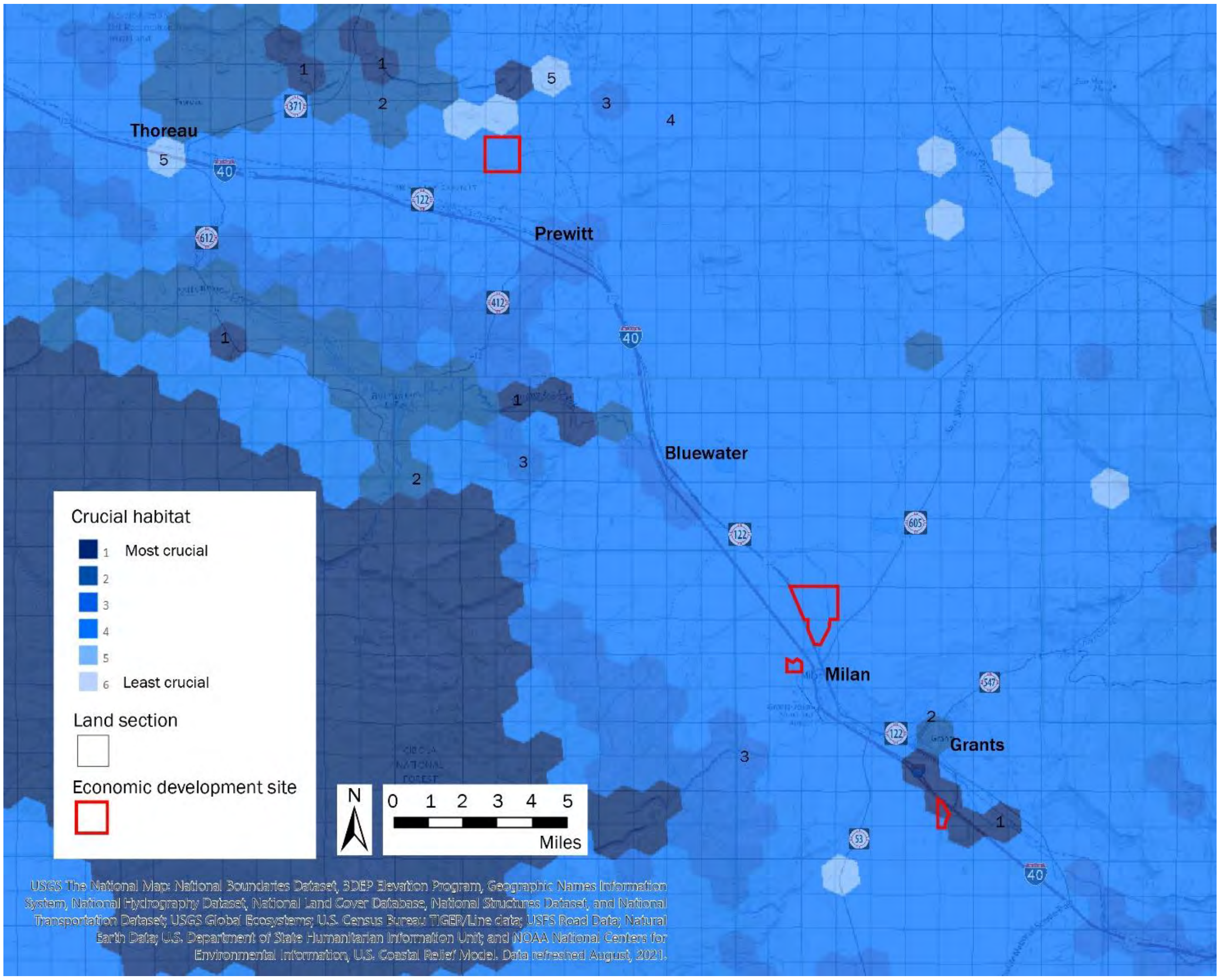

Figure 3-44: New Mexico Dept. of Game and Fish Crucial Habitat

Table 3-12: Federal and State Threatened and Endangered Species in McKinley County

Common Name	Scientific Name	Status[a]
Birds		
Mexican spotted owl	*Strix occidentalis lucida*	FT
Bald eagle	*Haliaeetus leucocephalus*	ST
Peregrine falcon	*Falco peregrinus*	ST
Gray vireo	*Vireo vicinior*	ST
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE; SE
Yellow-billed cuckoo	*Coccyzus americanus*	FT
Costa's hummingbird	*Calypte costae*	ST
Least tern	*Sternula antillarum*	SE
Fish		
Zuni bluehead sucker	*Catostomus discobolus yarrowi*	FE; SE
Flowering Plants		
Zuni fleabane	*Erigeron rhizomatus*	FT

[a] FT = federally threatened; FE = federally endangered; ST = threatened; SE = state endangered

Table 3-13: Federal and State Threatened and Endangered Species in Cibola County

Common Name	Scientific Name	Status[a]
Mammals		
Spotted bat	*Euderma maculatum*	ST
Birds		
Mexican spotted owl	*Strix occidentalis lucida*	FT
Bald eagle	*Haliaeetus leucocephalus*	ST
Peregrine falcon	*Falco peregrinus*	ST
Gray vireo	*Vireo vicinior*	
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE; SE
Yellow-billed cuckoo	*Coccyzus americanus*	FT
Fish		
Zuni bluehead sucker	*Catostomus discobolus yarrowi*	FE; SE
Flowering Plants		
Pecos sunflower	*Helianthus paradoxus*	FT
Zuni fleabane	*Erigeron rhizomatus*	FT

[a] FT = federally threatened; FE = federally endangered; ST = threatened; SE = state endangered

3.6.2. Floodplain and Wetland

Floodplains are areas of land that flood during storm events, usually located along the banks of a river or stream. The degree or severity of flooding that occurs in a floodplain depends on factors such as the land's elevation, climatic patterns, characteristics of the adjacent waterway, and other factors. These characteristics are used by the Federal Emergency Management Agency used to determine areas of flood risk. The key flood areas are known as 100-Year Floodplains (areas with a 1% chance of serious flooding every year) and 500-Year Floodplains (areas with a 0.2% chance of serious flooding every year). Owners of land within 100-Year Floodplains are required to purchase flood insurance for their properties. Building standards are likely to be higher for parcels located within one of these floodplains in order to protect development from flood damage. Such parcels may be considered less developable because of the higher cost of construction associated with the flood-related development standards.

Similarly, constructing a transportation facility in a floodplain can increase the complexity and cost of a project. A roadway may be less susceptible to flood damage than, for instance, a residential building; however, careful design of the facility is still needed to mitigate flood impacts to the facility and its users and to ensure that constructing the facility does not impact the floodplain in a way that puts nearby development at greater risk of flooding.

Figure 3-45 and Figure 3-46 illustrate the flood areas in the study area. ***The key 100-Year floodplain in the Cibola County portion of the study area follows the Rio San Jose from near Horizon Boulevard in Milan southeast through Grants.***

Wetlands are areas of land that are permanently or intermittently flooded by water, often found adjacent to rivers, lakes, or coastlines. They provide distinct habitat to flora and fauna that is often uniquely adapted to water or to a wetland environment. Wetlands are particularly important to human populations because their unique mix of plant life better absorbs stormwater and reduces flooding risks to people and their property. Transportation projects should avoid destruction of wetlands or identify ways to replace wetland that must be removed for a project.

The National Wetlands Inventory (NWI), maintained by the U.S. Fish & Wildlife Service, identifies wetland or wetland-like features like riparian areas, which are comprised of the land along streams. Most features in the NWI located within the study area are riparian areas located along small, ephemeral streams (only containing water during storms). The precise characteristics of wetlands are documented during project-specific planning. Figure 3-45 and Figure 3-46 illustrate the known wetland and wetland-like features in the study based on the NWI.

3.6.3. Hazardous Materials

Leaking underground storage tanks (LUSTs) hold toxic materials that are leaking into the surrounding environment. The leaks can be a major source of groundwater contamination and can lead to health issues for people living and working near the tanks. Planning of transportation projects must take the locations of LUSTs into account. Construction of a transportation facility can disturb a LUST, exacerbating the release of toxic substances, or interact with an area contaminated by a LUST leak.

The New Mexico Environment Department tracks the location of leaking underground petroleum tanks across the state. Figure 3-45 and Figure 3-46 show the location of these tanks within and near the study area. ***There are several dozen tanks within the study area, mostly in the municipalities of Milan and Grants south of Horizon Boulevard. Relatively few are found between Horizon Boulevard in Milan and NM-371 in Thoreau.***

Superfund sites are properties that are severely polluted and that require significant long-term clean up before they are developed or built upon. Transportation projects should avoid these sites. ***Figure 3-45 and Figure 3-46 show the location of two Superfund sites located in the study area: 1) at a former uranium mill along NM-605 north of Milan (Homestake Mining Company), and 2) at an abandoned petroleum refinery at Prewitt along NM-122 (Prewitt Abandoned Refinery). A third nearby Superfund site, the location of a former dry cleaner on First Street in Grants, is not shown on the map.***

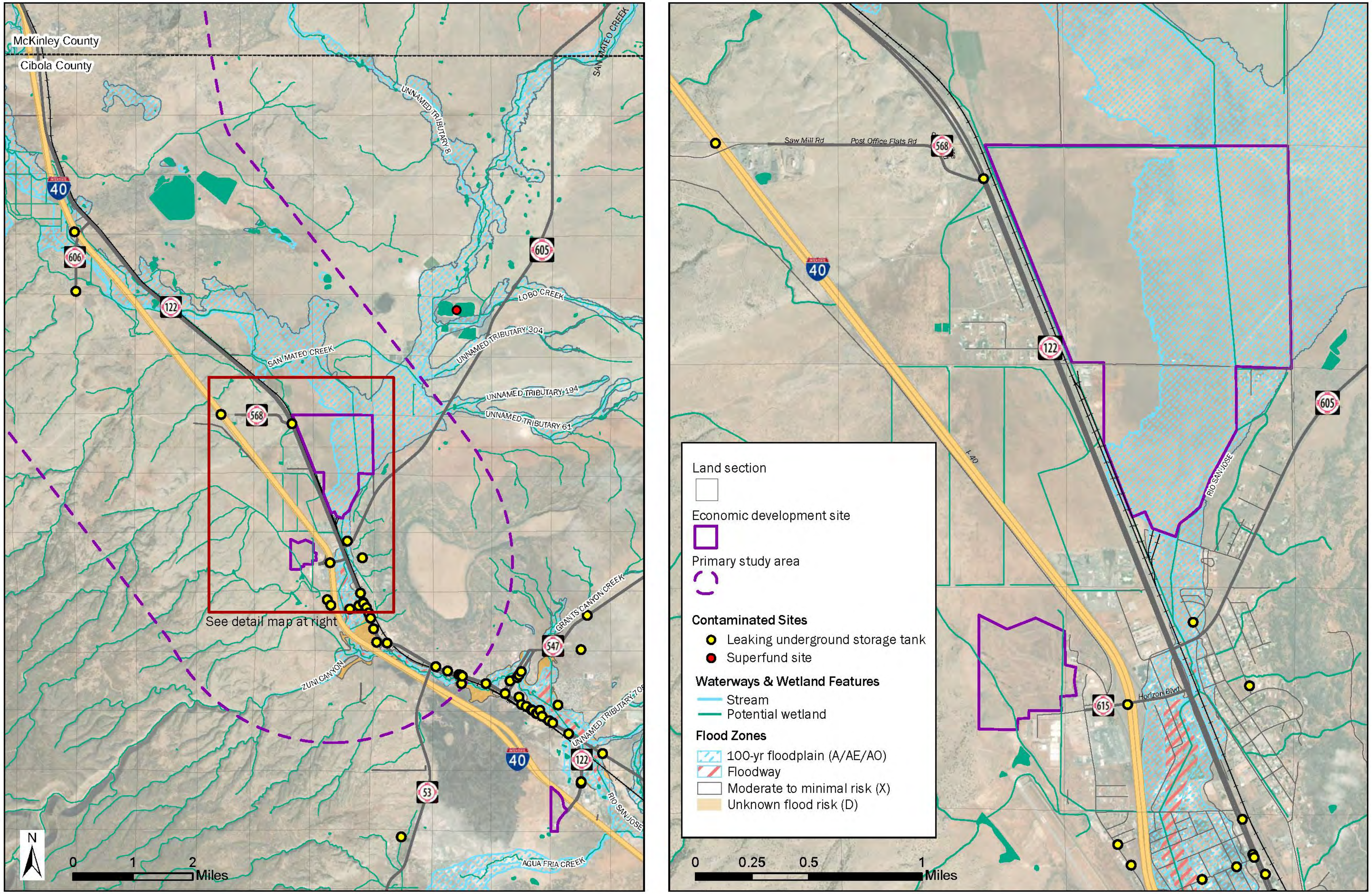

Figure 3-45: Floodplain, Wetland, and Contaminated Sites - Cibola County Portion of Study Area

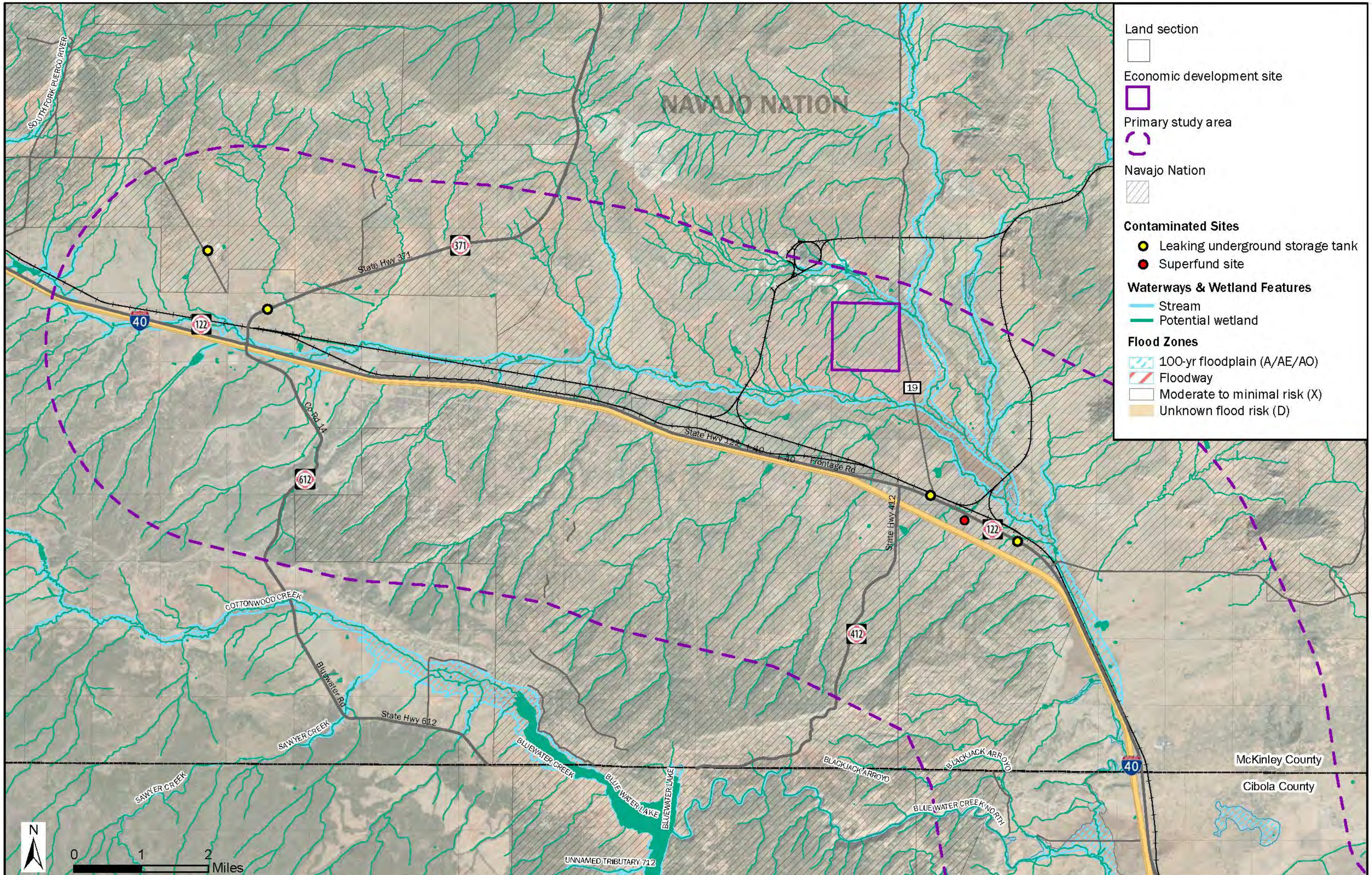

Figure 3-46: Floodplain, Wetland, and Contaminated Sites - McKinley County Portion of Study Area

3.6.4. Historical and Cultural Features

The study area has a rich human history, dating back at least to pre-Puebloan communities. Several historical/cultural sites included in the State Register of Cultural Properties and the National Register of Historic Properties dot the landscape of the study area.

Perhaps the best-preserved indigenous site is Casamero Pueblo, located just north of the Prewitt Industrial Park. This is a partially excavated community dating back to the 11th century.

Native American sites located in the study area that are listed on state or national registers include:

- ***Various sites related to Casamero Pueblo (State & National Registers)***
- ***Haystack Archaeological District, near Haystack, NM (State Register)***

Other sites or resources (e.g., particular plant species) used for traditional cultural practices by local Native American residents may be present in the study area.

These sites are linked to other historical indigenous sites throughout the wider region via the New Mexico Trail of the Ancients Scenic Byway. ***This network of roads forms a more than 600-mile-long loop extending between Farmington, Gallup, Zuni Pueblo, and Grants. The Byway includes most of NM-122 through the study area, County Road 19 along the Prewitt Industrial Park site, and NM-53 south of Grants***. The route is centered on Chaco Canyon, a National Historic Park and UNESCO World Heritage Site.[19]

The heritage of Route 66 is also celebrated within the study area. The former route of the roadway, now NM-122, runs through the length of the study area. ***Route 66-related site located in the study area that are listed on state or national registers include:***

- ***Bowlin's Old Crater Trading Post – Bluewater, NM-122, 1.5 miles north of NM-606 (National Register)***
- ***Route 66 between Milan and Continental Divide (State & National Registers)***
- ***Roy T. Herman's Garage and Service Station, NM-122, just west of NM-371 (State Register)-*** [20][21]

Transportation project planning must take potential impacts to historic and cultural properties into consideration. If there is a federal nexus (federal permitting, land, or funding) associated with the development of a project, Section 106 of the National Historic Preservation Act (NHPA) would apply and the federal agency would serve as the lead agency for the Section 106 process. This process includes the identification of cultural resources in the project's area of potential effect (which often requires field surveys), evaluation of eligibility for listing on the state and national registers, and assessment of potential effects from the project on significant properties. It also outlines a consultation process that invites applicable agencies, Native American tribes, and other entities with jurisdiction, special expertise, or interest in the properties to become consulting parties to the process. Consultation with the State Historic Preservation Officer (SHPO), the State Land Office, National Park Service, and other consulting parties would be required in order to identify potential adverse effects to the trail resulting from the construction or operation of the facility, and to establish measures that would avoid, minimize, or mitigate any such impacts.

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[19] New Mexico Tourism Department. *Trail of the Ancients Scenic Byway.* https://www.newmexico.org/places-to-visit/scenic-byways/trail-of-the-ancients/

[20] *New Mexico's Rich Cultural Heritage: Listed State and National Register Properties*, March 2012, from https://nmhistoricpreservation.org/assets/files/registers/2012%20Report_%20Section%202_%20Arranged%20by%20County.pdf

[21] National Parks Service. "Cibola County, NM" and "McKinley County, NM" *National Register of Historic Places NPGallery Digital Asset Search*. https://npgallery.nps.gov/nrhp

Absent a federal nexus for the project, state laws and regulations governing historic properties may still apply. These include New Mexico Cultural Properties Protection Act, New Mexico Prehistoric and Historic Sites Preservation Act, New Mexico Cultural Properties Act, and the State of New Mexico, Commissioner of Public Lands Historic and Cultural Resources Policy.

3.7. Economic Context

This section includes information on the economic conditions and trends of the Prewitt-Milan study area. A major reason for the Prewitt-Milan Transportation Master Plan being completed is that the region is experiencing an economic shift. With key historic industries evolving or contracting, the region is looking for new ways to use its resources and employ its residents. ***The Prewitt and Milan industrial parks that are a major focus of this plan are intended to spur private investment and job creation. Transportation is crucial "resource" to be harnessed to make these economic development projects successful.***

A number of recent studies have sought to describe the regional economy, its challenges, and its opportunities. Many of these reports describe the entire Northwest New Mexico region, or specific communities or sites in in the region. However, this section attempts to describe the Prewitt-Milan study area as a unit. This section synthesizes information from previous studies along with economic statistics and describes the major industries, growth trends/opportunities, and employment patterns for the study area. Further analysis is needed by the study team to understand implications from specific economic trends.

3.7.1. Overview

The economic patterns of the Prewitt-Milan corridor have mirrored those of the larger Northwest New Mexico region. ***The region's economy has been shaped by mineral resources of the San Juan Basin, a geological region that extends across the northwest corner of the state starting north of the study area***. Agriculture is another defining industry in the region, although its importance in the I-40 corridor and study area has diminished over the years. The regional economy has long followed this structure: a handful of industry clusters led by the energy and mining industries providing high-paying jobs, with limited opportunity for growth or employment in much of the rest of the economy. These conditions have resulted in chronically high unemployment and a brain drain of young, educated residents who might otherwise reinvigorate the regional economy. The region faces a moment in which the traditional mainstay sectors are shrinking and new sectors are emerging.[22]

Transportation has been at the center of the region's economic development. The largest population centers in the region, Grants and Gallup, were developed in 1880's as settlements for workers constructing and operating the railroad infrastructure that developed into BNSF's mainline today. The railroad supported the growth of the region's mining industry and helped established Gallup as a tourism destination known for Indigenous arts and crafts. Later, Route 66 was constructed along the railroad corridor, cementing Gallup's and other communities' role as tourism destinations – now reachable by automobile. Eventually, I-40 was built along the alignment of old Route 66, providing a high-speed, high-capacity roadway connection for people and freight to the wider region and to points beyond. As the region seeks to retool its economy, transportation will have an important role supporting new and growing sectors.

3.7.2. Key Industries

3.7.2.1. Agriculture

Agriculture and forestry were defining industries of the local economy. Grants first prospered because of logging in the Zuni Mountains.[23] The Village of Milan later formed as a town based around agriculture and

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[22] NWNMCOG (March 2021), *La Ristra Northwest Comprehensive Economic Development Strategy*, http://www.nwnmcog.com/uploads/1/2/8/7/12873976/ceds_final_october_2021.pdf

[23] New Mexico Tourism Department, "Grants-Milan", https://www.newmexico.org/places-to-visit/regions/northwest/grants-milan/

food processing. As far back as the late 1800's, farming and agricultural processing had been major business in the area surrounding the city of Grants. Modern settlement of Milan began when Salvador Milan, a wealthy local landowner, rented a large tract of land he owned just outside of Grants to farmers.[24] The creation of the Bluewater Reservoir in 1927 allowed agriculture to flourish. [25]

Starting in the 1940's and until the 1950's, carrot and vegetable farming was the main industry in the Grants-Milan area. In the book *Grants-Milan*, authors Donald Jaramillo and Paul Milan write, "Large farming operations from California and Arizona took advantage of a superior local carrot, naming Grants the 'Carrot Capital of the World'"[26].

Today, agriculture remains an important industry in Northwest New Mexico, although only a few small farms remain in or near the study area, mostly around Bluewater and San Rafael, south of Grants. The site of the planned Milan Industrial Park was the location of several farms previously. Larger agricultural operations in the region include the Navajo Agricultural Products Industry (NAPI) facility near Farmington.

3.7.2.1. Mining

The region has large energy and mining sectors, which have capitalized on the region's rich deposits of mineral resources. ***A belt of uranium deposits located north of Interstate 40 is one of the largest uranium deposits in the United States.*** The band of uranium deposits is roughly 25 miles wide, 100 miles long, extending east-west from Church Rock (north of Gallup) to Laguna Pueblo in the east. Between the late 1940's and 1990, this area, known as the Grants Mining District, was a prolific uranium mining area. Although no mining has occurred here since the 1990's, the extraction sites in the District provide two-thirds of the total uranium ever mined in the United States.[27] [28] [29]

While uranium may be the region's most distinctive export, coal has been the most sustained and lucrative. In New Mexico, coal is mainly found in the San Juan Basin, the area covering Northwestern New Mexico and southwestern Colorado, starting north of I-40. A 2009 New Mexico State University report on the economic impact of the industry on the state describes the industry as growing significantly beginning the 1960's, when large-scale strip mines became active in the state. [30] While the industry has employed many people, employment has not mirrored trends in coal production. By the time the industry reached its peak production in the 1990s and 2000s, changes in mining technology and techniques had vastly increased worker productivity. "[I]n 1934 New Mexico's 2,342 coal miners produced 1,150,825 short tons of coal or about 491 short tons per worker per year. In 2007, New Mexico's 1,390 coal miners produced 24.451 million tons of coal or 17,591 tons per worker per year"[31]. While mining production grew dramatically in the latter half of the 20th century, this growth was not directly reflected in a growth in employment.

A number of factors have contributed to a decline of coal's role in the regional economy. These factors include the decrease in price of natural gas, making it a more attractive energy alternative, and a 2014 California decision to end purchases of out-of-state coal-generated electricity[32]. In 2019, New Mexico passed the Energy Transition Act, which set a timeline for switching from fossil power generation to

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24 *Milan Industrial Park Master Plan and Preliminary Design*, 2020

25 Village of Milan Comprehensive Plan, 2017

26 Jaramillo, Donald, & Milan, Paul (2013), *Grants-Milan*. Mount Pleasant, SC: Arcadia Publishing, p. 7

27 U.S. Environmental Protection Agency (2016), *2015-2020 Five-Year Plan To Assess and Address Health and Environmental Impacts of Uranium Mining and Milling*, https://www.epa.gov/sites/default/files/2016-06/documents/gmd_2015_2020_five-year_plan_29mar16.pdf

28 Uranium Producers of America, "Uranium in America" http://www.theupa.org/uranium_in_america/

29 The Legacy of Abandoned Uranium Mines in the Grants Mineral Belt, New Mexico, https://www.epa.gov/sites/default/files/2015-08/documents/uranium-mine-brochure.pdf

30 Peach, J. and Starbuck, C.M. (2009), *The Economic Impact of Coal Mining in New Mexico,* https://www.osti.gov/servlets/purl/1110771

31 Ibid., p. 16

32 Energy Information Administration (March 2021), *New Mexico Profile Analysis*, https://www.eia.gov/state/analysis.php?sid=NM

renewable generation. The Act sets a goal of 50% renewable energy generation by 2030, and 100% by 2045.

The impact of these influences on the state's coal industry is already significant. In 1990, almost all electricity generated in the state was produced by burning coal. In 2020, only 37% of electricity was produced this way, with natural gas and renewables making up most of the difference. In the early 1990's, direct employment from coal mining reached a peak of slightly over 2,000 workers. However, by 2007, this employment had dropped to 1,390 workers.

According to the New Mexico Energy, Mineral, and Natural Resources Division, coal production in the state has been in steady decline since around the year 2005. Since 2016, production each year has been half of what it was in the years 2000 through 2005 [33]. Direct and contract employment in coal production had dropped to 1,089 workers statewide in 2019 (p. 44). The three operating coal mines in the state, Navajo, San Juan Underground, and El Segundo, are all located in Northwestern New Mexico. The El Segundo Mine is located 30 miles north of Milan, New Mexico via NM 605 and NM 509.

Electricity generation by coal is only the decline. The Escalante Generating Station located in Prewitt closed in 2020. After 2022, only the Four Corners Generating Station, located near Farmington in San Juan County, will remain in the state, and it is scheduled to be fully retired in 2031.

3.7.2.2. Oil & Gas

While coal has been in decline statewide for several years, oil and gas production has continued to grow dramatically, and Northwestern New Mexico has played a part in this boom. The federal Energy Information Administration states that crude oil and natural gas production hit an all-time high for the state in March 2021. The San Juan Basin is among the top-five producers of natural gas in the United States, according to the EIA.[34] Although there is activity in the industry in this part of the state, much of the recent investment has been in the in the Permian Basin, the geological region that encompasses southeastern New Mexico and much of western Texas. Several indicators show the industry is in decline in the Northwestern New Mexico region.

3.7.3. Economic Trends & Opportunities

The *La Ristra Northwest Comprehensive Economic Development Strategy* document prepared by NWNMCOG describes some of the key trends in the regional economy. A key datapoint that the report highlights is industry cluster data. Industry cluster trends for the years 2015-2019 are shown in Figure 3-47. This data uses a "location quotient" for employment. This number compares the share of local employment in an industry to the share of employment in that industry nationwide. An industry with a higher LQ is a base industry that likely contributes to the local economy by exporting its products or services to other markets. An industry with an LQ near or below 1.0 may employ many people, but its impact on the local economy is otherwise limited because it likely does not bring outside spending to the region.

Analyzing LQ data over time indicate reveals which industries are growing, and which are declining and may be a concern for the local economy. Industries that have a high LQ that is growing over time are considered bright spots for the local economy, referred to as "star" industries. Investment and employment in these industries is likely to grow. Industries with a high LQ that is dropping over time are referred to as "mature" industries. LQ trends for a mature industry can reveal falling employment in an industry that employs many people.

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[33] New Mexico Department of Energy, Minerals, and Natural Resources, *2020 Annual Report*, https://www.emnrd.nm.gov/wp-content/uploads/EMNRD_AnnualReport_2020.pdf, p. 51

[34] U.S. Energy Information Administration (November 2021), *New Mexico State Energy Profile*, https://www.eia.gov/state/print.php?sid=NM

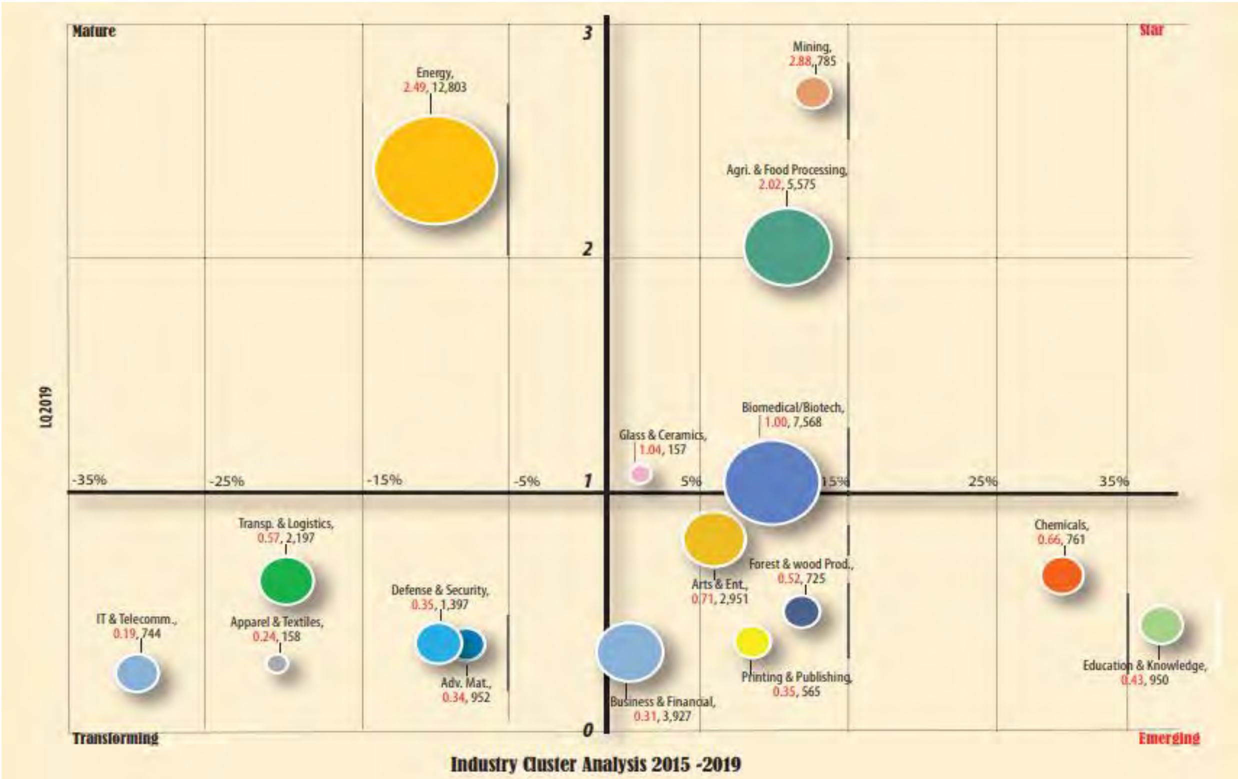

Figure 3-47: Industry Cluster Analysis from La Ristra Northwest Comprehensive Economic Development Strategy [35]

Industries with a low LQ that is rising are called “emerging” industries. These are of interest to economic development planners because they can show industries that offer promise for the local economy. Finally, “transforming” industries are those that have low and falling LQ’s, indicating that these industries are struggling or are not likely to grow soon.

Figure 3-47, from the *La Ristra* plan, illustrates LQ trends in the Northwest New Mexico economy. The size of the circles represents the total number of workers in that industry. Unsurprisingly, Energy, Mining, and Agriculture & Food Processing are the three high-LQ industries in Northwest New Mexico. While mining and agriculture show relatively moderate growth, energy – the industry that employs the most workers in the region -- is showing signs of decline.

The *La Ristra* document highlights the trend related biomedical/biotech cluster as one of the more surprising takeaways from the cluster analysis. The industry has historically not been large in the region but has recently shown steady growth.

3.7.3.1. Economic Opportunities

Although some of the narrative about the local economy reflects decline in key industries, notable bright spots are emerging, some related to historically important industries, some representing new types of business.

The *Regional Economic Assessment & Strategy for the Coal-Impacted Four Corners Region* document was created to address changes in the local economy due to disinvestment in the Four Corners region’s mining and energy production sectors. The report, compiled by Highland Economics, LLC, makes an accounting of the impact of the decline in the mining and energy sectors in San Juan, McKinley, and Cibola counties in New Mexico and recommends ways to strengthen the area’s economy. The decline in

[35] See note 22

the two industries is estimated to cost the region approximately 930 jobs and $122.1 million annually, or 1-2% of the region's jobs and annual income. The worst impacts are expected in San Juan County. [36]

The report identifies several key strategies to improve the regional economy, including workforce and business development, quality of life investments meant to retain talent and attract employers, and partnerships to improve branding and marketing of the local economy and communities.

The document also identifies "top targeting industries" for each county in the Four Corners region. These are industries for which efforts to attract investment should be focused because these industries are most likely to be successful. ***For McKinley County, the report identifies transloading/warehousing and tourism, and to a lesser extent, local food manufacturing. For Cibola County, greenhouse agriculture, tourism and forest products are identified.***

One key barrier that the region faces in being able to harness these opportunities relates to the lack of ready-to-develop sites. ***The NWNMCOG's La Ristra Northwest Comprehensive Economic Development Strategy states "The lack of available shovel ready sites (land, building, and utilities) for development prevents communities from capitalizing on opportunities when presented"*** [37]. The Prewitt and Milan industrial parks are envisioned as addressing this issue and providing the facilities to support many of these growing or emerging industries.

3.7.4. Study Area Employment and Commuting

This section describes employment characteristics and commuting patterns in the Primary Study Area. Employment data can help illustrate the state of the local economy compared with the larger Northwest New Mexico region. Commuting data – showing where workers live and how far they travel – can also add to the understanding of the local economy, as well as highlight potential transportation needs.

The analyses in this section use data from the US Census Bureau's Longitudinal Employment-Household Dynamics (LEHD) dataset. This data is made available for Census geographies as small as the block group. Because of the rural context of the study area, these block groups can be very large, and those that the study area's boundaries intersect extend well beyond the study. For clarity, this section refers to "study area block groups." Figure 3-48 illustrates the study area boundaries and the extent of the block groups included in this analysis. As described in the demographic analysis in Section 3.1, most residents and jobs are located within or near the study area boundaries.

Parts of this analysis focus on Milan and Thoreau. Most residents who work in and most jobs in the Primary Study Area (PSA) are located in these communities. About 78 percent of jobs in the PSA are located in the two communities. Meanwhile, while commuting patterns related to those communities are similar, they also differ in several key ways, making it worth analyzing them separately and comparing/contrasting them.

Grants is not included in this analysis. Labor and commuting patterns are different in the Primary Study Area than in Grants. Grants is an employment center for much of the surrounding area. Thoreau and Milan function as bedroom communities for larger cities nearby. To illustrate, half of Grants residents work in Grants, while almost none of the residents of Milan or Thoreau work in those communities, commuting primarily to Grants or Gallup instead. ***Unsurprisingly given that it is located directly west of Grants, one-third of Milan residents work in Grants, making it the largest single place employing Milan residents.***

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[36] NWNMCOG (2017), *Regional Economic Assessment & Strategy for the Coal-Impacted Four Corners Region*, http://www.nwnmcog.com/uploads/1/2/8/7/12873976/final_highland_economics_report_2017.pdf

[37] Note 22, p. 9

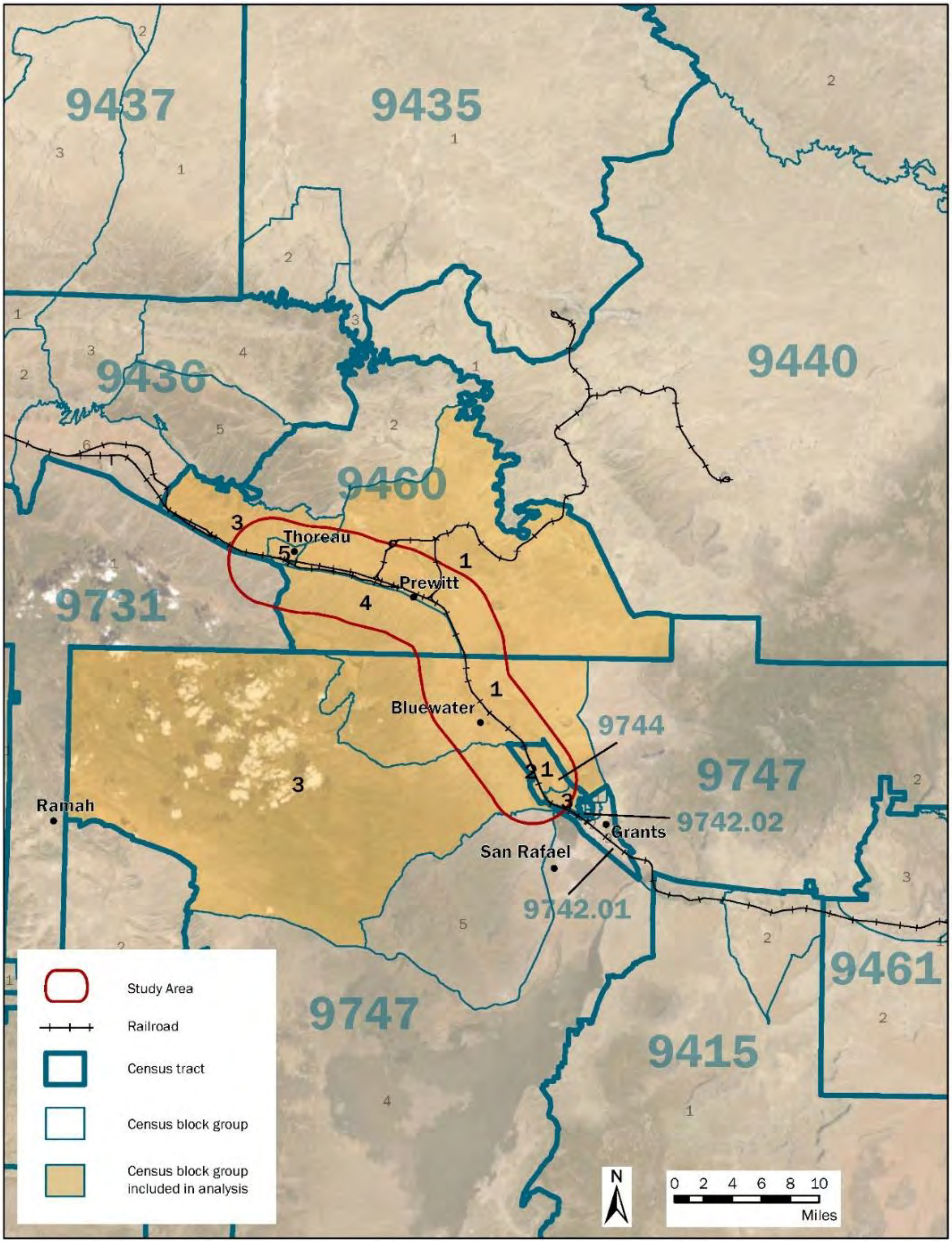

Figure 3-48: Primary Study Area and Intersecting Census Block Groups

Although Thoreau is roughly the same distance from Grants as it is from Gallup (about 30 miles from each), twice as many Thoreau residents work in Gallup (21%) as Grants (10%). More Thoreau residents work in Albuquerque (13%) than in Grants (10%).

Including all census block groups within the study area, ***83 percent of residents of the area work outside the study area*** block groups. Almost 90 percent of workers residing in Milan work outside of the village, and almost all workers residing in Thoreau work outside the community See Table 3-14 for data on inflow-outflow of workers and residents in the study area and the key communities of Milan, Thoreau, and Bluewater. Forty percent of residents of the study area travel more than 50 miles to their work, and 25 percent commute less than ten miles.

Table 3-14: LEHD Employment Inflow-Outflow Data for Study Area and Key Communities

	Study area census block groups		Milan		Thoreau		Bluewater	
Total employed in the area	2,202	100%	1,341	100%	375	100%	73	100%
Employed in the area, but living outside	1,848	83.9%	1,244	92.8%	365	97.3%	71	97.3%
Workers living in the selection area	2,114	100%	721	100%	371	100%	130	100%
Living in the area but employed outside	1,760	83.3%	654	87.1%	361	97.3%	128	98.5%
Both living and employed in the area	354	16.7%	97	12.9%	10	2.7%	2	1.5%

One-fifth of workers living in the study area block groups work in Grants, and about 12 percent work in Albuquerque and Gallup each. Just under ten percent work in Milan. Roughly as many workers living in the study area block groups work in Farmington as in Thoreau (roughly 3% or 70 workers each).

Although most residents in the study area block groups work outside the area, the area has employment opportunities. ***LEHD data shows 2,202 jobs in the study area block groups in 2018, although a number of these jobs listed in the mining sector are likely associated with El Segundo Mine, located north of the study area[38]. Most workers for these jobs come from outside the area.*** Many live nearby: About 40% percent of workers employed in study area block groups travel less than 10 miles. Still, others travel a long way to work: Another 40 percent of workers travel more than 50 miles.

Table 3-15 presents employment by industry for study area block groups. For residents, Retail Trade, Health Care, and Public Administration are the largest employers, together employing 44% of residents. For workers working in the study area block groups (who may not necessarily live in the same block groups), LEHD data shows that Mining employs the largest share of workers; however, as noted in the

[38] El Segundo Mine is located in McKinley County, but only 10 jobs are shown in that sector in that county, meaning the jobs may be misallocated to Milan. Peabody Energy has offices in Milan, so the mine jobs may have been assigned to that location, rather than the location of the mine.

previous paragraph, these jobs may have been misallocated to the study area. After Mining, Retail Trade, Health Care, and Manufacturing are the largest employers in the study area's block groups. The three largest employment industries for both study area residents and workers appear in boldface in Table 3-15.

LEHD data appears to show that resident workers are more educated (44% have at least some college) but earn less than workers who reside outside the area. This could be because of the high number of jobs in the mining, quarrying, and oil and gas extraction sector, who earn high wages but who all reside outside the study area. The problem with drawing these types of conclusions is that, as described above, these jobs may have been misallocated and are in not, in fact, located in the study area block groups.

Several points are still clear, however. ***Many residents of the study are willing to travel a long way to work. Some workers may be trading a longer commute for a lower cost of living***. Many of the jobs that residents have and the jobs available within study area communities are in sectors such as retail and public administration that do not offer high wages. Higher wages may be available in larger communities like Gallup and Albuquerque.

Table 3-15: Employment by Industry (2018), Workers vs. Residents for Primary Study Area and Milan

	Workers who reside in study area block groups			Workers who work in study area block groups		
	Workers/jobs	Share	Milan workers	Workers/jobs	Share	Milan workers
Total workers/jobs	2,114	100%	751	2,202	100%	1,341
Agriculture, Forestry, Fishing and Hunting	15	0.7%	6	10	0.5%	0
Mining, Quarrying, and Oil and Gas Extraction	75	3.5%	35	**336**	**15.3%**	336
Utilities	52	2.5%	25	111	5.0%	4
Construction	111	5.3%	42	147	6.7%	114
Manufacturing	89	4.2%	36	256	11.6%	3
Wholesale Trade	50	2.4%	19	112	5.1%	13
Retail Trade	**257**	**12.2%**	96	**265**	**12.0%**	180
Transportation and Warehousing	46	2.2%	17	15	0.7%	4
Information	12	0.6%	7	0	0.0%	0
Finance and Insurance	39	1.8%	14	37	1.7%	30
Real Estate and Rental and Leasing	14	0.7%	5	3	0.1%	2
Professional, Scientific, and Technical Services	46	2.2%	14	13	0.6%	13
Management of Companies and Enterprises	11	0.5%	6	1	0.0%	1
Administration & Support, Waste Management and Remediation	123	5.8%	35	213	9.7%	203
Educational Services	205	9.7%	61	79	3.6%	65
Health Care and Social Assistance	**412**	**19.5%**	142	**270**	**12.3%**	80
Arts, Entertainment, and Recreation	41	1.9%	18	20	0.9%	18
Accommodation and Food Services	215	10.2%	62	62	2.8%	37
Other Services (excluding Public Administration)	36	1.7%	13	28	1.3%	22
Public Administration	**265**	**12.5%**	98	224	10.2%	216

4. Project Identification

4.1. Literature Review Summary

The study team reviewed existing planning documents from the study area. Among the most relevant of these is ***the Northwest Regional Transportation Plan,*** created by the Northwest New Mexico Regional Transportation Planning Organization, which describes transportation needs in the Northwest region, especially as they relate to population trends and economic opportunities.

Other key plans reviewed include the comprehensive plans of McKinley and Cibola counties, the Village of Milan, and the City of Grants. These documents are summarized in Table 4-1 below.

The study team also reviewed several plans and studies that relate to transportation and economic development projects that are outside the study area but that could impact investments in the study area. These documents are summarized in Table 4-2 below. Several documents describe potential economic development investments that could compete with projects in the study area. These documents may also have findings/recommendations that apply to the study area. For instance, a study of a potential inland port in McKinley County found that the region may be too far from major metropolitan areas for a transloading facility to be successful. The study also points out that operations that use carload rail transportation could be successful (the Prewitt and Milan industrial parks would support these operations).

Finally, the study team identified specific projects that are recommended or described in the documents reviewed. These projects, along with a handful of other projects of which the study team was made aware, are listed in Section 4.4 on page 75.

Table 4-1: Summaries of Key Existing Plans

Document title (Year, Publishing Agency)	Summary	Takeaways for PMTMP
Northwest Regional Transportation Plan (2021, NWNMCOG/ NWNMRTPO)	The Regional Transportation Plan (RTP) provides a foundation for the Northwest region's transportation system over a period of 25 years. This region consists of the counties of San Juan, McKinley, and Cibola County. The RTP allows involved parties to use the state's mission and strategies regionally in the decision-making process. With this plan, future needs of the region are better served with more efficiency.	***Rural areas in Cibola County are expecting a 10-year growth in population from 15,268 to 15,418. Rural areas in McKinley County are expecting a 10-year growth in population from 41,980 to 42,012. The study area is also partially on Navajo reservation. A portion of McKinley County and Cibola County is considered an Opportunity Zone and that portion also encompasses a portion of the Prewitt-Milan study area. The City of Grants Comprehensive Plan also states a goal to examine reducing the speed of I-40 for safety reasons and/or creating a safety corridor in the Grants/Milan area. Also, A Milan interchange is being proposed that would***

Document title (Year, Publishing Agency)	Summary	Takeaways for PMTMP
		support access and build-out of the Milan Industrial Park. *There is a major railroad passageway through Cibola and McKinley counties. Vehicle-train crashes have occurred along this area. The RTP also indicates the study area has a high concentration of pedestrians without pedestrian-safe infrastructure. Accidents involving pedestrians occur mostly at night in this area. Implementing safe pedestrian crossings near railroad tracks and urban communities will aid in the reduction of accidents. Weather also contributes to vehicle crashes in the study area. Conditions such as black ice, blizzards, strong wind gusts, poor visibility from dust picked up by wind, and snow packing on the road contribute to recurring vehicle crashes.*
New Mexico Freight Plan (2015, NMDOT)	The New Mexico Freight Plan is an analysis of road and rail freight facilities across the state that are working well or need attention. Truck vehicle miles traveled are growing at a fast pace along freight corridors in the northwest and south east region of New Mexico.	*San Juan County and outside areas such as Gallup, Thoreau, Bernalillo, and Albuquerque serve as a rail-to-truck and/or truck-to-rail transfer point. Highways need to have designated freight corridors with highways built along it so that heavy truck traffic can have the proper clearance. The existing roads require repair in order to handle heavy traffic. Heavy trucks are also speeding on dirt roads. Most of the freight traffic is one-way and not bi-directional.* *Implementing a rail line would reduce the impact on roadways but right-of-way issues arise due to the many different landowners in the area.* *Portions of existing roadway right-of-way may be a likely option for a rail line. The freight*

Document title (Year, Publishing Agency)	Summary	Takeaways for PMTMP
		plan also mentions that an analysis is needed to identify specific bottlenecks to determine if commercial air service is needed. Constructing parallel routes may also aid in reducing truck impacts. The plan emphasizes making railroad crossings safer and supporting development efforts by determining intermodal facilities along existing rail lines.
Comprehensive Plan for Cibola County, New Mexico (2015, Cibola County)	The Comprehensive Plan for Cibola County contains strategies and objectives regarding the improvement and growth of the county by addressing issues related to land, natural resource management, development, infrastructure needs, and several other issues. The county maintains 88 roadways totaling approximately 364 miles of dirt, gravel, and paved roads. Public meetings and with representatives of Cibola County indicate commercial and residential growth is needed.	*Cibola County increased in population from 25,595 in 2000 to 27,213 as of 2010. The projection for the County for the year 2040 is a population of 33,290. A large proportion of the county population resides in Grants (33.74%) and Milan (11.92%) which is within our Prewitt-Milan study area that runs through the counties of Cibola and McKinley. Cibola County would like to promote safety, mobility, and commerce along State roads. This can be done by identifying areas that have frequent accidents and prioritizing road improvements projects based on their classification. Many roads are also dirt roads that require roadway and drainage planning.*
McKinley County Comprehensive Plan: Vision 2020 (2020, McKinley County)	The comprehensive plan lays out a vision for economic growth and diversification and cultural diversity. The document includes recommendations for expanding business opportunities, growing tourism, and enhancing partnerships with key partner entities, such as regional indigenous nations and the local school district, to improve quality of life for county residents.	*Implementation of the Prewitt Industrial Park and other large infrastructure is noted as key economic development objective of the County.*

Document title (Year, Publishing Agency)	Summary	Takeaways for PMTMP
Milan Comprehensive Plan (2017, Village of Milan)	The 2017 Milan Comprehensive Plan is the village's guide to improving existing infrastructures and new development strategies. The village's plan covers housing, economic development, transportation, infrastructure, and land use. The plan emphasizes that transportation systems need to meet the demands of the existing population and the 20-year projected growth (gaining 2,000 people).	*The primary transportation objectives identified in this plan are to continue supporting transit services in Milan, conduct a study to identify streets functional classification, improve walkability and multi-modal transportation, and improve streets in a phased approach that promotes sustainability. Majority of the roadway in Milan is hot mix asphalt pavement in fair to poor condition. The plan indicates that these roads are beyond the designed service life. The roadways also lack a cross section capable of carrying large traffic volumes. Roads are also experiencing ponding and flooding during precipitation events. The Milan roadway conditions are detailed in the following table.*
Prewitt Industrial Cluster Reports	See Section 3.3.	--
Prewitt Industrial Park Master Plan and Preliminary Design	See Section 3.3.	--
Milan Industrial Park Master Plan and Preliminary Design	See Section 3.3.	--

Table 4-2: Summaries of Other Economic Development-Related Plans

Document title	Summary	Takeaways for PMTMP
Regional Economic Assessment & Strategy for the Coal-Impacted Four Corners Region (2017, NWNMCOG)	The document was created to address changes in the local economy due to disinvestment in the Four Corners region's mining and energy production sectors. The report, compiled by Highland Economics, LLC, makes an accounting of the impact of the decline in the mining and energy sectors in San Juan, McKinley, and Cibola counties in New Mexico and recommends ways to strengthen the area's economy. The decline in the two industries is estimated to cost the region approximately 930 jobs and $122.1 million annually, or 1-2% of the region's jobs and annual income. The worst	*The report identifies several key strategies to improve the regional economy, including workforce and business development, quality of life investments meant to retain talent and attract employers, and partnerships to improve branding and marketing of the local economy and communities.*

Document title	Summary	Takeaways for PMTMP
	impacts are expected in San Juan County[39].	
Four Corners Intermodal Transloading Equinox (4CITE Master Plan) (2016, NWNMCOG)	The 4CITE initiative is intended to coordinate infrastructure and industrial development in the Gallup area to connect the energy and agricultural industries in the Four Corners to the BNSF Southern Transcon. The initiative focuses on two development projects, the Gallup Energy Logistics Park and the Navajo Nation Inland Port, both described below. The 2016 master plan analyzed transportation needs for these projects and recommended key roadway improvements to make them possible. This included upgrades to Carbon Coal Road. The 4CITE plan synthesized the findings of previous studies.	***The 4CITE initiative is meant to facilitate the implementation of two major planned industrial developments just north of Gallup.*** ***These projects are outside of the project area for the Prewitt-Milan TMP; however, the projects are likely to have an impact on the wider region's transportation needs and capacity. See also descriptions for Navajo Inland Port, Gallup Energy Logistics Park, and McKinley County Inland Port.***
McKinley County Inland Port Market Assessment (2020, McKinley County)	This study analyzed the feasibility of an inland port or intermodal terminal in McKinley County. The study examined the opportunities arising from 1) ocean cargo flows from the Port of Los Angeles/Long Beach and Houston, 2) truck traffic affected by the recent USDOT 11-hour rule, and 3) carload based rail traffic from local energy, agriculture, manufacturing and other industries. The report concluded that a truck-rail transloading facility would likely not be feasible in the county. The lack of population centers near McKinley County mean a facility there would not serve many markets, and would struggle to compete with major transloading facilities in Dallas and Phoenix and a smaller one in Los Lunas better positioned to serve population centers. Shippers also depend on planning backhaul (return) trips for their equipment, and for this reason, transloading facilities closer to the coast (and major ports) are desirable. The study found that an inland port facility that facilitated carload shipment of bulk products from local industries – such as agriculture and oil/gas – could be feasible. The Gallup area, meanwhile, is well-positioned to take advantage of the	***The project area's transloading capacity is not likely to increase. Projects that involve carload rail transportation may be successful and could increase volume of that type of traffic. The area may be well positioned to capitalize on the Super Truck Stop concept that would allow truckers to meet the requirements of the 11-Hour Rule; however, Gallup may be best positioned for this, and the Prewitt-Milan area is likely outside of the distance where truckers can meet the requirements of the rule.***

[39] See Note 36

Document title	Summary	Takeaways for PMTMP
	11-Hour rule by providing truckers with services within a Super Truck Stop.	
Gallup Energy Logistics Park (various documents, private sector project)	The Energy Logistics Park is a planned 2,500-acre rail-served industrial park located northwest of the City of Gallup. Described by developers Gallup Land Partners, LLC, as a "logistics hub," the park is designed to offer a site for industrial development near the key BNSF Transcon and I-40 corridors and will include light industrial, warehousing, transloading and logistics, and energy industries within the region. Phase I of the park consisted of installation of an 11,000-linear foot rail loop in 2017. A 365-acre parcel within the park has been certified as a BNSF Certified Site, among a handful of sites around the country that have been reviewed by the railroad company and deemed ready for rail service. Improvements to Carbon Coal Road are intended to enhance the developability of the industrial park site.	
Navajo Nation Inland Port Analysis (2015, New Mexico Economic Development Department & Inland Port Advisory Committee)	The Navajo Nation Inland Port is a potential port and industrial park complex that would be located near Gallup in Navajo Nation. As a port, the complex would be designed to facilitate the movement of material goods for local industries, especially energy/mining, warehousing/logistics, food processing, and manufacturing. The complex could include a large warehouse or distribution center, and manufacturing facility. The Inland Port is intended to be rail focused, capitalizing of the efficiency of rail and nearby existing rail infrastructure, including the BNSF Transcon. A 2015 *Inland Port Analysis* examined the feasibility of five sites northwest of the City of Gallup and near or within the Navajo Nation Chapters of Manuelito, Tsayatoh, and Rock Springs. A site west of the Carbon Coal Industrial Park site and north of the community of Mentmore was identified as the most feasible site for development of the Inland Port (see Figure 1-1) due to its existing rail infrastructure, road access, and topography. The study also included a market and labor analysis of the Inland	***The analysis found there was potential for an inland port in the studied area. The complex would have limited success as a distribution center for retail or e-commerce products, as it would not be located near major population centers.***

Document title	Summary	Takeaways for PMTMP
	Port area to understand potential users of the port and availability of labor.	
La Ristra-Northwest: Comprehensive Economic Development Strategy (CEDS) – (Spring 2021 Update, NWNMCOG)	La Ristra-Northwest is the latest update to the Comprehensive Economic Development Strategy (CEDS) for the NWNMCOG region, which covers San Juan, McKinley, and Cibola Counties. According to the US Economic Development Administration, a CEDS "is a strategy-driven plan for regional economic development." These plans must be renewed every five years by the federally-designated economic development district group – in this case, the NWNMCOG – in order to qualify the region for certain EDA assistance. A CEDS is intended to develop regional capacity, as the EDA states: "A CEDS is the result of a regionally-owned planning process designed to build capacity and guide the economic prosperity and resiliency of an area or region." The document identified slow progress on areas such as population growth, income, education, and employment. The area has continued to lose jobs as energy-related operations, such as coal-fired power plants in the region, shut down. Small business growth has remained very limited, and the area is experiencing a continued "brain drain" of younger residents. The plan identifies ten synergistic industry clusters that represent the areas of most economic opportunity for the region: • Transportation & Logistics • Agribusiness & Food Processing and Technology • Tourism, The Arts & Outdoor Recreation • Downtown Revitalization • Manufacturing • Professional, Scientific & Technical Services • Health • Defense & Security • Energy • Information Technology & Telecommunications	***The lack of shovel-ready sites was noted as one of the key economic weaknesses of the regional economy. (The Prewitt and Milan industrial park projects are aimed at addressing this weakness.) The region's location on transcontinental transportation routes is noted as a major economic opportunity for the area.***

Document title	Summary	Takeaways for PMTMP
Freight-Related Economic Development Opportunity Study (2016, NMDOT)	The study examined opportunities in New Mexico for truck-related economic development that would take advantage of the new federal “11-hour rule” requiring long-haul truck drivers to rest at regular intervals on their journey. The state’s location between the ports of Los Angeles and Long Beach and major markets, such as Dallas-Fort Worth mean that it is well positioned along key east-west interstate routes for this sort of development opportunity. The report identified locations within the state, mostly closer to the state lines, that would be best positioned for such type of development. Safe parking was identified by the study as the most in-demand service/facility for truckers.	***The Prewitt-Milan TMP study area is located outside the areas of best opportunity for freight truck-related economic development.***

4.2. Previously Identified Projects

Previously identified projects were collected from the plans & studies referenced in the literature review; the New Mexico State Transportation Improvement Program; the Infrastructure Capital Improvements Project (ICIP) for each county, the Village of Milan, and Thoreau and Baca/Prewitt Navajo chapters; and the Navajo Nation Tribal Transportation Improvement Program document. These projects do not reflect road and rail projects that would be the responsibility of private developers/tenants within the two industrial park sites. The projects are listed in Appendix A.

4.3. Transportation Needs Assessment

4.3.1. Future Generators

The study team analyzed the projected trip generation for the Prewitt and Milan industrial parks, the two largest known economic development projects in the study area. The team then performed a high-level assessment of what impacts the projected traffic would likely have on area roadway facilities.

Because a regional travel demand model does not exist, the ability to identify impacts far beyond the vicinity of the industrial parks is limited. ***Consequently, the majority of proposed roadway improvements are on the roads that directly serve the industrial park sites, or that connect the sites to I-40.*** However, given the sparsely developed patterns of the study corridor, the traffic impacts of the industrial parks are not thought to have far-reaching impacts on traffic operations on the regional roadway network.

4.3.1.1. Prewitt Industrial Park

A trip generation analysis was completed for Prewitt Industrial Park. This type of analysis identifies the number of vehicles entering and exiting a site daily based on standards associated with the site's land use. The future tenants and land uses of the industrial park site are not known at this time. The analysis performed for the Prewitt site used assumed land uses from the 2020 master plan for the site, which assumed that warehouse- and manufacturing-related operations would be the predominant type of tenant. See the locations of the proposed uses in Figure 4-1.

Trip generation was only completed for personal vehicles, not trucks. The amount of truck traffic depends more on the actual facility that is constructed.

The study team assumed the industrial park would be constructed in multiple phases. Phase 1 would include Parcel 8 only (see Figure 4-1). A build year of 2030 was assumed for Phase 1. Phase 2 would include the rest of the industrial. A build year of 2040 was assumed for this phase.

The trip generation analysis for the Prewitt Industrial Park yielded the following findings:

- ***Phase 1 would generate 1,820 vehicles entering the industrial park daily, with the same number exiting daily.***
- ***350 vehicles would enter the park in the AM peak hour. 341 vehicles would exit in the PM peak hour.***
- ***Phase 1 and 2 combined would see 6,025 vehicles entering the park, and the same number exiting, daily. 1,235 vehicles would enter in the AM peak hour, and 1,227 vehicles would exit in the PM peak hour.***
- ***Only minor improvements would be required to support Phase 1 traffic. This would include acceleration/deceleration lanes on County Road 19. A traffic signal at CR-19 and NM-122 would not be required at this time.***
- ***Much more significant improvements would be required to support the fully built out industrial park. This would include more access points to the park; signalized intersections on CR-19, at CR-19 and NM-122, and NM-412; and possibly improvements to the I-40 interchange.***

The revised industrial park layout described in Section 3.3 would make more land available for development than would the layout used for the trip generation analysis. The traffic impacts from implementation of the revised layout would be more significant, though the resulting improvements needed to address the improvements would generally be the same.

Figure 4-1: Assumed Land Uses, Prewitt Industrial Park

4.3.1.2. Milan Industrial Park

A traffic impact analysis (TIA) was completed by Wilson & Company for the NMDOT for Phase 1 of the Milan Industrial Park. Phase 1 will encompass the portion of the industrial park site located south of Mill Road. The TIA is being done to understand needed upgrades to the intersections (NM-122 and Horizon Boulevard and NM-605 and Stanley Road) that would provide ingress/egress to/from the park. The TIA also evaluates intersections that would facilitate connections between the park and I-40. These include the intersections of NM-122 & Horizon Boulevard, and Horizon Boulevard & the I-40 on/off-ramps. TIA assumes a 2024 opening year (when the first development in the park would be completed) and a 2034 horizon year (when Phase 1 would be fully developed). See Figure 4-2 for the location of Phase 1 and the intersections analyzed in the TIA.

The November 2021 draft TIA shows that the roadway network serving the park would operate at an acceptable level of service through 2034, meaning that no significant improvements would be needed. The evaluation also finds that no traffic control signals would be warranted at any of the intersections evaluated. ***The TIA recommends the addition of turn lanes and deceleration lanes at the intersections of NM-122 & Mill Road and NM-605 & Stanley Road. Improvements, including a crossing gate and signage, to the at-grade railroad crossing at Mill Road are recommended***.

The analysis shows that Stanley Road would be the busiest route into the park, as it provides the shortest route between the Interstate and the industrial park. Most trips to the industrial park would originate from the southeast (75%), with most traveling on westbound I-40 (55% of total trips). Twenty percent would originate to the northwest of the park, with 15% of total trips coming from eastbound I-40.

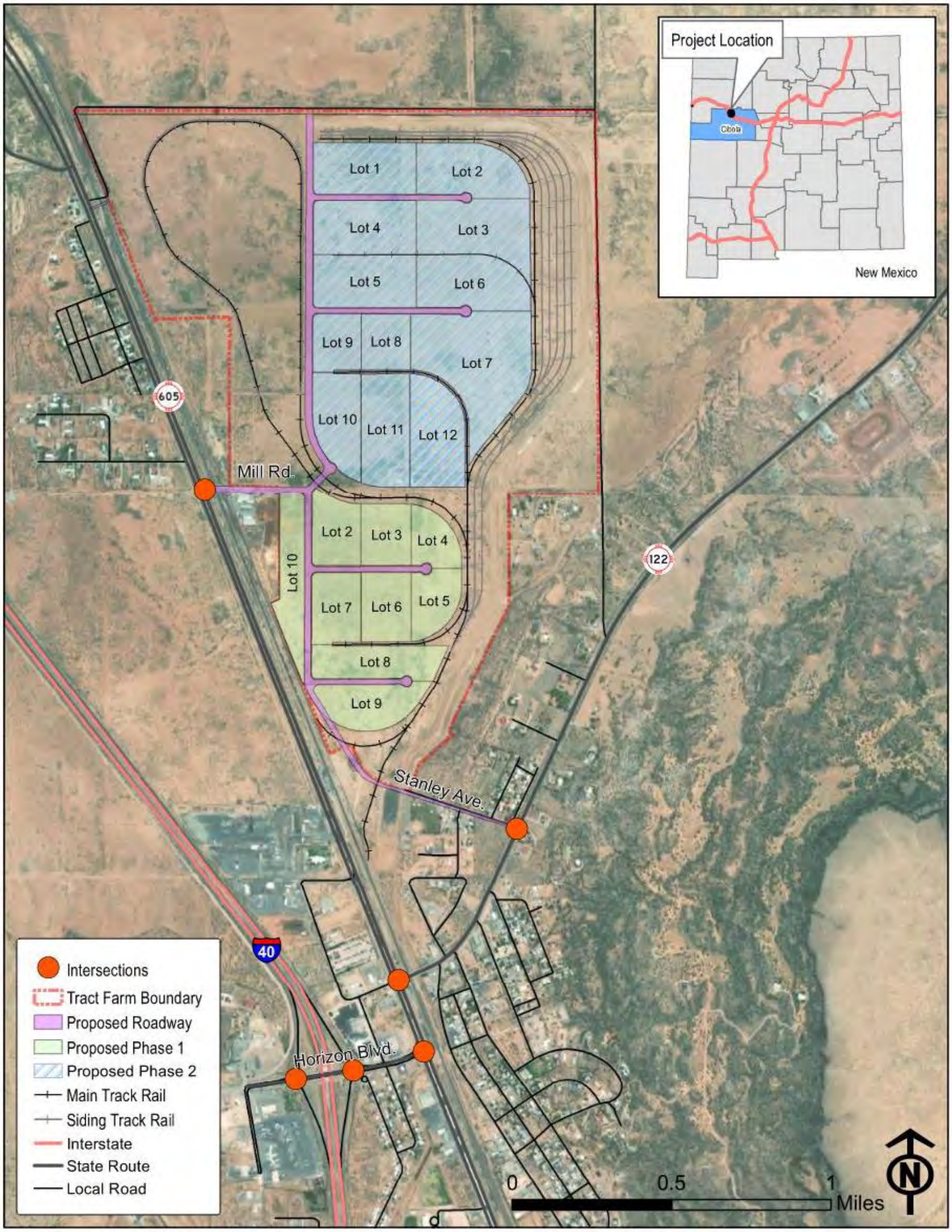

Figure 4-2: Milan Industrial Park Phases and Intersections Analyzed in Traffic Impact Analysis

4.3.2. Deficiencies

Existing deficiencies include the following:

- ***Minor deficiencies have been identified in the geometry of on/off ramps. The design of the I-40 Thoreau interchange does not provide enough space for the long turning radii of trucks.***
- ***Segments of NM-122 through rural portions of the study have very narrow shoulder or have shoulder that is in a poor state of repair or maintenance. This is especially the case on the portion of the road with a two-lane section. This presents a safety issue. When motorists need to pull off the roadway because of an emergency or bad weather, they may endanger themselves or passing vehicles if they cannot fully remove themselves from driving lanes. Enforcement of traffic laws cannot occur along these segments of the roadway because law enforcement cannot safely perform traffic stops.***
- ***There is limited roadway lighting at/near I-40 interchanges, especially Horizon Boulevard in Milan, NM-606 in Bluewater Village, and NM-371 near Thoreau. These areas serve a mix of pedestrians, personal vehicles, and trucks for which the lack of lighting presents a significant at night.***
- ***Pedestrian infrastructure is limited near these interchanges as well. Although pedestrian volumes are not thought to be very high, pedestrians lack any safe facilities on which to travel safely near or across these interchanges. At each of the interchanges in the study area, Pedestrians are forced to walk near or in the road, creating a hazard for all road users. This hazard will become more severe as more development occurs and automobile volumes increase.***

Additional deficiencies will emerge as the major economic development sites are developed. These are described in the previous sections that discuss anticipated traffic generation from each of the two planned industrial parks. The improvements needed to address these deficiencies will include capacity and intersection improvements between the industrial park sites and the nearest I-40 interchanges. A new interstate interchange may be needed to serve the Milan Industrial Park.

4.3.3. Opportunities

4.3.3.1. Solid Waste Authority Road Access to Prewitt Industrial Park

Through discussions with the project stakeholder groups, a new route option to the Escalante Station was discussed that would route truck traffic to the Prewitt Industrial Park via NM-371, avoiding some of the constraints north of the Prewitt interstate exit, including the existing at-grade railroad crossing of CR-19. The route, including NM-371 from Thoreau and the driveway to the Solid Waste facility, would take advantage of an existing grade separated railroad crossing. This route has better surface conditions and wider shoulders than the existing CR-19 that leads to the east side of the Escalante Station. Further, the railroad crossing along CR-19 is at-grade and has limited queue lengths between the stopped traffic at NM-122 and the rail line, thus creating a potential safety and operational issue. Using NM-371 as the main route to the Escalante Station would also provide a more direct route for freight traffic, where a majority of the trips are coming from, and going to, the north. There also appears to be a dirt road or “cow path” going around the southwest corner of the Solid Waste Facility, showing that some travelers are using this route today. Using this route would require the construction of a one-mile section connecting to the Solid Waste Facilities drive. Members of the Focus Group further showed support for this option stating that a one- to three-mile connection would be significantly less costly than a $20-30 million overpass over CR-19 and the BNSF tracks. Details of this route can be found in Figure 4-3.

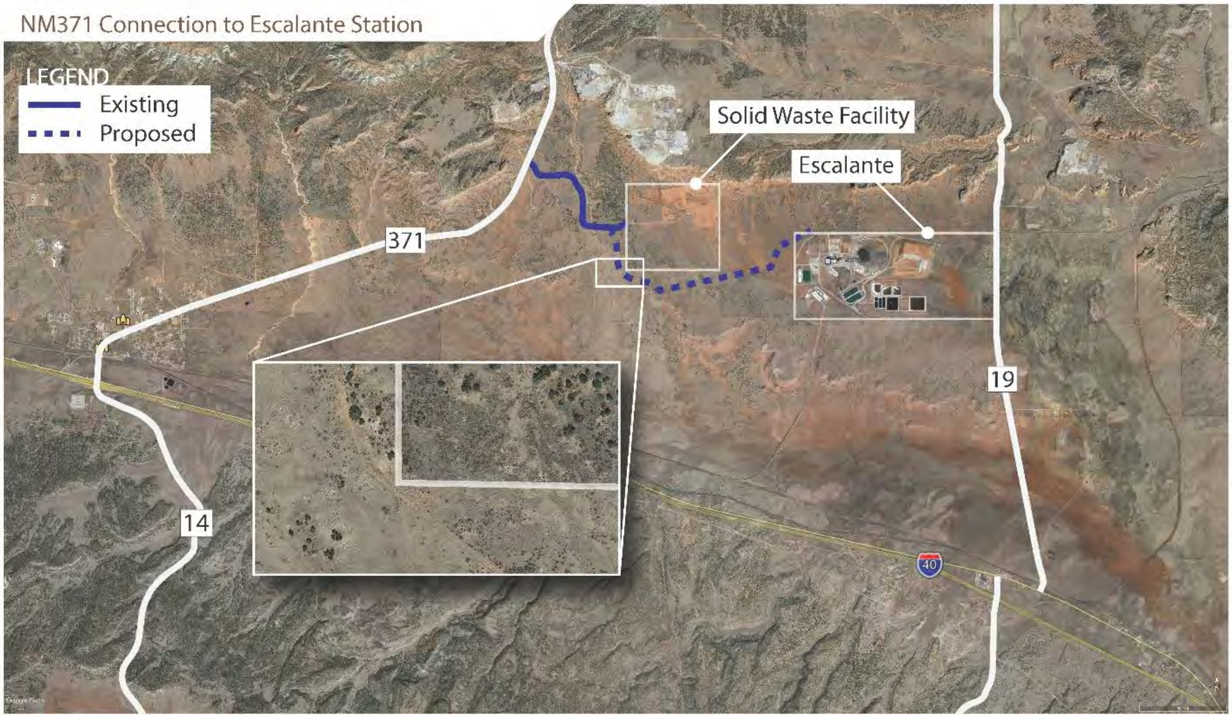

Figure 4-3: Alternative Truck Route to Prewitt Industrial Park via NM-371

4.3.3.2. Electric Vehicle Infrastructure

The Bipartisan Infrastructure Law, enacted as the Infrastructure Investment and Jobs Act (IIJA), Public Law 117-58 (Nov. 15, 2021), includes important new programs to address climate change by reducing carbon emissions. Among these programs is the National Electric Vehicle Infrastructure (NEVI) Formula Program that will provide funding to states to strategically deploy electric vehicle (EV) charging infrastructure and establish an interconnected network. These historic investments in EV charging infrastructure will put the United States on a path to a nationwide network of 500,000 EV chargers by 2030 and ensure a convenient, reliable, affordable, and equitable charging experience for all users.

New Mexico Department of Transportation (NMDOT) expects to receive around $38 million from this program over five years from the U.S. Department of Transportation (US DOT) to install EV charging infrastructure with a US DOT priority on Interstate highway locations.

The Prewitt-Milan study area is an excellent area to explore the installation of electric vehicle charging stations, specifically at the local truck stop locations. The demand for electric vehicle infrastructure, for both personal and freight vehicles, is poised to increase dramatically in the short to mid-term. ***Seven electric vehicle (EV) charging stations were found in the project area. (See Figure 4-4.) The following figure provides an overview of those locations. This information was made available through Plugshare.***

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Figure 4-4: Existing Electric Vehicle Charging Stations in the Study Area

4.3.3.3. Extended Frontage Roads

As noted in Section 3.5.1.3 on page 22, NM-122 provides continuous frontage road access on the north/east side of I-40. Only short, unpaved frontage roads exist on the south/west side of the freeway. Longer, improved frontage roads on this side of the interstate could provide certain benefits. These roads could serve as an emergency access route in the event of inclement weather, an accident, road closures or construction on I-40 or NM-122. Such a frontage road could make land on this side of the freeway more developable. The opportunity for this continuous route is highlighted in Figure 4-5.

Figure 4-5: Opportunities to Extend Frontage Roads on South/West Side of I-40

4.3.3.4. Village of Milan Zoning Code Changes

The study team evaluated the existing land use code for the Village of Milan to understand whether the code is supportive of the industrial park-type land uses proposed for the Milan Industrial Park and of transportation/logistics-type land uses elsewhere in the village needed to support the operation of the industrial park. The evaluation found that the current code by the study team showed that the code is somewhat restrictive of these land uses or imposes a burdensome approval process.

The study team recommends the following changes to the code:

- Update Subsection 153.044 “Use Table” of the Village of Milan Code of Ordinances to match the vision of uses for the Milan Industrial Park. There are several uses in the M-1 zoning district which requires a Conditional Use. This can create extra time for potential wanted types of land uses.
- Update Subsection 153.044 “Use Table” of the Village of Milan Code of Ordinances to allow for desired uses which are currently not permitted in an M-1 zoning district which can support allowed uses or mixed-use development.
- Update Subsection 153.044 “Use Table” of the Village of Milan Code of Ordinances to include uses which are not shown on the table.

- Consider the zoning designation for Milan Industrial Park to be a Planned Unit Development (PUD) to allow for more flexibility in the development and land uses for the properties.
- Consider incentives, such as expedited reviews, for development which is needed and desired in the Milan Industrial Park.
- Consider reevaluating parking standards to allow for semi-trucks to have spaces for temporary occupancy.
- Consider and review subdivision regulations for any potential issues.

4.4. Needs Summary

Safety improvements are needed at or near the interchanges within the study. The interchange at NM-371/NM-612 may need more significant improvements to accommodate trucks entering/exiting the interstate there. Shoulder improvements – including shoulder widening – are recommended for portions of NM-122 between Milan and Thoreau, particularly where the roadway narrows to two lanes.

Roadway improvements on the key roadways between the industrial park sites and the interstate will be needed to facilitate increasing vehicle volumes between I-40 and the parks. These include improvements to major intersections, including signalization, addition of turn lanes, construction of acceleration and deceleration lanes.

Rail improvements are needed to connect the two industrial park sites to the mainline. These improvements include a new spur at the Prewitt site and revamped sidings and spurs at the Milan site.

Programmatic needs largely include future studies to better understand different topics related to the transportation network.

4.5. Preliminary Projects List

This section presents proposed improvements based on the findings provided in the previous sections of the document. The following projects may require feasibility studies, preliminary engineering reports (PERs), NEPA clearance, and design prior to project implementation. A draft list of evaluation criteria is presented for review in Section 5 starting on page 82.

Projects are proposed for roadway infrastructure (Table 4-3) and rail infrastructure (Table 4-4), and several programs/future studies are also recommended (). Several pedestrian-focused improvements are included with the roadway recommendations.

As described in Section 4.3.1, because a regional travel demand model does not exist, the ability to identify impacts far beyond the vicinity of the industrial parks is limited. However, given the sparsely developed patterns of the study corridor, the traffic impacts of the industrial parks are not thought to have far-reaching impacts on traffic operations on the regional roadway network. Consequently, the majority of proposed roadway improvements are on the roads that directly serve the industrial park sites, or that connect the sites to Interstate 40.

This does not mean, however, that no improvements are needed in parts of the study located away from the industrial parks. For instance, the study team has identified important safety improvements on NM-122 miles from the industrial park sites. Lighting and/or pedestrian improvements are recommended at and around the I-40 interchanges in the study area. Most recommended improvements, therefore, are for limited portions of the roadway network that provided access to the industrial parks.

Rail-focused improvements are primarily intended to connect the two industrial park sites to the BNSF mainline. Neither site is currently directly served by spurs or other tracks that tie into the mainline. Other proposed rail improvements are focused on eliminating or consolidating at-grade railroad crossings in the study corridor.

Programmatic recommendations include proposals to study rail crossing safety and improved transit service in the study corridor.

Table 4-3: Proposed Roadway Improvements

Project ID	County	Facility	Project Extent/Location	Proposed Improvement	Cost
RD01	McKinley	County Road 19	Entrance to Escalante Generating Station/Biopappel to NM-122	Capacity improvements, including widened shoulder	$2,000,000
RD02	McKinley	County Road 19	Future entrance to Prewitt Industrial Park	Acceleration lanes for SB CR-19, NB turn lanes	$1,000,000
RD03	McKinley	County Road 19	Future entrance to Prewitt Industrial Park	Roadway lighting at entrance to industrial park driveway	$500,000
RD04	McKinley	NM-122	Intersection with CR-19	Intersection improvements, including turn lanes, acceleration/ deceleration lanes, roadway lighting	$2,000,000
RD05	McKinley	Red Mesa Bluffs Drive/Solid Waste Authority access road	Between NM-371 and EGS-Biopappel complex/Prewitt Industrial Park	Extend access road to industrial park site. Reconstruct to cross section needed for significant truck traffic.	$2,000,000
RD06	McKinley	NM-122 and NM-371	Intersection	Realign intersection and NM-122 to north of existing buildings.	$5,000,000
RD07	McKinley	I-40 Prewitt Interchange (exit 53)		Refit or reconstruct interchange for wider truck turn radii	$8,000,000
RD08	McKinley	NM-412 and NM-122		Construct overpass/interchange from NM-412 over NM-122 and railroad tracks, tying into CR-19 to the north; construct if trucks are not routed through Thoreau to Prewitt Industrial Park.	$40,000,000
RD09	McKinley	Underpasses under railroad bridges (along NM-122)		Drainage improvements as needed.	$2,000,000

Project ID	County	Facility	Project Extent/Location	Proposed Improvement	Cost
RD10	Cibola and McKinley	I-40 interchanges within study area	Between interchanges and NM-122	Roadway lighting at interchange and between interchange and nearest NM-122 intersection	$750,000
RD11	Cibola and McKinley	NM-122	Between Milan Industrial Park and NM-371	Widened shoulder on two-lane portion of NM-122, at least near major intersections.	$1,000,000
RD12	Cibola	NM-122	Between Milan Industrial Park and start of two-lane section	Spot shoulder improvements. Maintenance/mowing of existing shoulders.	$1,000,000
RD13	Cibola	I-40 at NM-568		Construct new interstate interchange	$30,000,000-50,000,000
RD14	Cibola	NM-122 at NM-568/Nursery Road		Construct overpass over NM-122 and railroad tracks	$30,000,000
RD15	Cibola	NM-122	Intersection with Mill Road	Industrial Park Phase I improvements. Phase I improvements are detailed in traffic impact analysis submitted to NMDOT	$1,000,000
RD16	Cibola	NM-605	Intersection with Stanley Road	Phase I improvements are detailed in traffic impact analysis (draft currently being reviewed by NMDOT)	$1,000,000
RD17	Cibola	NM-122 and NM-605	On NM-122: between Nursery Road and Horizon Boulevard; on NM-605: between NM-122 and Stanley Road	Industrial park Phase II & III capacity/safety enhancements at entrances to Milan Industrial Park, including traffic signals, turn lanes, acceleration/deceleration lanes.	$1,500,000-2,000,000
RD18	Cibola	Horizon Boulevard	Intersections with on-ramp/off-ramps	Operational enhancements, including traffic signals and lighting	$2,000,000
RD19	Cibola	Horizon Boulevard	Intersection of Motel Drive west to end of roadway	Various enhancements including intersection improvements, reconstruction of	$5,000,000-8,000,000

Project ID	County	Facility	Project Extent/Location	Proposed Improvement	Cost
				roadway, sidewalks, etc. as needed to support Golf Course site redevelopment.	
RD20	Cibola	Horizon Boulevard		Construct sidewalk/pedestrian path from existing sidewalk to Motel Drive	$2,000,000

Table 4-4: Proposed Rail Infrastructure Improvements

Project ID	County	Facility	Project Extent/Location	Proposed Improvement	Cost
RL01	McKinley	Escalante Generating Station railroad spur	Between existing spur and Prewitt Industrial Park	Construct new spur from existing spur to Prewitt Industrial Park	$1,300,000
RL02	Cibola and McKinley	Existing at-grade RR crossings	Between Milan and Thoreau	Consolidate existing at-grade crossings as shown to be feasible by crossings study or access management plan (see project P01 in .	To be determined by future study
RL03	Cibola	Existing sidings and spur west of Milan Industrial Park		Reconstruct existing siding and spur.	
				Siding (one mile)	$1,300,000
				Spur 1 (west)	$200,000
				Spur 2 (east)	$185,000
RL04	Cibola	Existing siding west of Milan Industrial Park		Extend siding one mile northwest to approximately NM-568 to accommodate unit train.	$2,000,000
RL05	Cibola	Mill Road at-grade crossing		Remove upon completion of NM-568 overpass/interchange (see project RD13)	To be determined by future study

Table 4-5: Proposed Policies, Programs, and Future Studies

Project ID	County	Facility	Project Extent/Location	Proposed Improvement
P01	Cibola and McKinley	NM-122	Between Milan and Thoreau	Access management plan. Include analysis to identify safety enhancements and opportunities to consolidate/eliminate existing at-grade crossings.
P02	Cibola and McKinley	N/a		Study of need or opportunities for new/expanded transit service between Grants, Milan, Bluewater, Thoreau, and Gallup. Study should also identify projects to improve transit stop access for pedestrians, and opportunities to interface with Navajo Transit System service.
P03	Cibola and McKinley	NM-122	Prewitt and Milan Industrial Parks	Perform traffic impact analyses when major development occurs within the industrial park sites. This will help to identify the timing of the proposed roadway improvements listed above.
P04	Cibola	Village of Milan	N/a	Update the village's zoning code to permit land uses envisioned for the Milan Industrial Park, streamline approval processes, and support transportation/logistics operations that serve the industrial park.

5. Project Evaluation and Prioritization

This section presents evaluation criteria for projects proposed in the Prewitt-Milan Transportation Master Plan. Proposed projects will ultimately be scored based on these criteria. The criteria are organized by the goals listed and described in Table 5-1. A summary of the project scores is found in Table 5-2. The criteria and the scoring methodology for each are listed in Table 5-3. A detailed scoring table is provided in the Appendix to this Technical Report.

Table 5-1: Project Goals

Project Goal	Description
Economic competitiveness	Projects should aim to improve access for enterprises in the study area to reach regional, national, and global markets. Projects should promote the efficient movement of goods/freight, and enhance access to the workplace for workers in the region. These criteria are closely related to Mobility and Connectivity and other criteria in this list but are focused on economic development.
Mobility and Connectivity	Projects should improve mobility and connectivity on the study area's transportation network, not just for freight movement but for other transportation modes as well.
Safety	Projects should improve safety for all modes of the transportation network. The study area faces safety challenges as freight traffic increases, often through communities where residents live. Projects should reduce potential for crashes, especially between freight trucks, trains, and other transportation modes. Projects should provide for safe, efficient movement of goods and freight, while allowing other modes, including non-motorized modes, that provide other quality of life benefits to safely coexist in study area communities.
Environment	The study area and its vicinity are home to unique natural features, including distinctive scrubland, Cibola National Forest, and geological features such as Mount Taylor/*Tsoodził* and Haystack Mountain. These features are important to the identity of local residents and support significant economic and recreational activities and cultural practices. Projects should avoid significant impacts to the natural environment and should mitigate any impacts that are identified.
Project Readiness/Delivery	Projects should be implementable in a relatively short timeline. Projects that face long planning clearances, significant legal barriers, and/or funding challenges will have a reduced benefit to the study area and will undermine the other goals described in this list.

Table 5-2: Summary of Project Scoring - Roadway Projects

		Project Number																			
	Highest Possible Score	RD01	RD02	RD03	RD04	RD05	RD06	RD07	RD08	RD09	RD10	RD11	RD12	RD13	RD14	RD15	RD16	RD17	RD18	RD19	RD20
SUBTOTAL for "Supports Growth & Economic Development"	8	6	6	6	6	8	6	6	6	2	2	2	2	8	8	2	2	2	2	6	2
SUBTOTAL for "Mobility & Connectivity"	18	11	11	11	15	10	16	16	16	5	6	6	6	16	16	3	3	3	6	9	11
SUBTOTAL for "Safety"	13	2	2	2	5	8	6	8	7	7	4	3	3	9	9	5	5	5	6	5	3
SUBTOTAL for "Environment"	12	12	12	12	11	7	8	7	9	9	12	9	12	10	10	11	11	11	12	12	12
SUBTOTAL for "Project Readiness"	5	2	2	2	2	1	1	1	1	2	2	2	2	2	2	5	5	5	2	2	2
TOTAL – All Criteria	56	33	33	33	39	34	37	38	39	25	26	22	25	45	45	26	26	26	28	34	30

Table 5-3: Project Criteria and Scoring

Economic Competitiveness (Supports Growth & Economic Development)	G-1	Does the project improve access for known economic development sites?	Mapping comparison of project extent to location of economic development sites	4 = Project provides new roadway access that connects to a specific existing or future employment sites not currently served by a roadway (or by an improved roadway). 3 = Project would significantly improve roadway capacity or operations on existing roadways that serve economic development sites (existing or planned). 2 = Project provides new roadway access to an area that contains economic development sites not currently served by a roadway (or by an improved roadway). 1 = Project would slightly improve capacity or operations on existing roadways that serve specific economic development sites.
	G-2	Does the project promote efficient movement of goods?	Overall operational improvements. Project types include ancillary intersection, signal, and ITS improvements.	4 = Project provides new roadway freightaccess that connects to a specific existing or future employment sites not currently served by a roadway (or by an improved roadway). 3 = Project would significantly improve roadway freight capacity or operations on existing roadways that serve economic development sites (existing or planned). 2 = Project provides new roadway freight access to an area that contains economic development sites not currently served by a roadway (or by an improved roadway). 1 = Project would slightly improve roadway freight capacity or operations on existing roadways that serve specific economic development sites.
Mobility & Connectivity	M-1	Improves access to existing residential areas	Comparison of project extents to: Available current/future land use maps; aerial imagery; on-the-ground observations of actual land use	3 = Project would significantly improve roadway capacity or operations on existing roadways that serve specific existing residential areas. 2 = Project would significantly improve roadway capacity or operations on existing roadways that serve areas with existing residential areas. 1 = Project would slightly improve capacity or operations on existing roadways that serve specific existing residential sites.
	M-2	Improves access to future residential areas	Comparison of project extents to available future land use maps	3 = Project would significantly improve roadway capacity or operations on existing roadways that serve specific future residential areas. 2 = Project would significantly improve roadway capacity or operations on existing roadways that serve areas with future residential areas. 1 = Project would slightly improve capacity or operations on existing roadways that serve specific future residential sites.
	M-3	Improves access to existing employment	Comparison of project extents to: Available current/future land use maps; aerial imagery; on-the-ground observations of actual land use	3 = Project would significantly improve roadway capacity or operations on existing roadways that serve specific existing employment sites. 2 = Project would significantly improve roadway capacity or operations on existing roadways that serve areas with existing employment sites. 1 = Project would slightly improve capacity or operations on existing roadways that serve specific existing employment sites.
	M-4	Improves access to future employment	Comparison of project extents to available future land use maps	4 = Project provides new roadway access that connects to a specific future employment sites not currently served by a roadway (or by an improved roadway). 3 = Project would significantly improve roadway capacity or operations on existing roadways that serve specific future employment sites (existing or planned). 2 = Project provides new roadway access to an area that contains future employment sites that is not currently served by a roadway (or by an improved roadway). 1 = Project would slightly improve capacity or operations on existing roadways that serve specific future employment sites.

	M-5	Improves access to existing/future services	Comparison of project extents to: Available current/future land use maps; aerial imagery; on-the-ground observations of actual land use. Services include: Medical facilities, schools, government buildings	4 = Project provides new facility that connects to a specific facility (existing or planned) not currently served by a roadway (or by an improved roadway). 3 = Project would significantly improve capacity or operations on existing roadways that serve specific facilities (existing or planned). 2 = Project provides new facility to an area that contains services (or may contain them in the future) that is not currently served by a roadway (or by an improved roadway). 1 = Project would slightly improve capacity or operations on existing roadways that serve specific facilities (existing or planned).
	M-6	Project supports existing or expanded transit service	Expansion of transit service frequency or new/longer routes versus current service	1 = Yes, project would improve future transit operations or improve transit stop access; 0 = No, project would likely not improve future transit operations or improve transit stop access
Safety	S-1	Improves safety on high-crash segment or intersection	Recent NMDOT crash data	4 = Creates improvements likely to improve safety on a roadway segment or intersection specifically identified as a high-crash location by NMDOT crash data 3 = Provides alternative route to high-crash segment or intersection, improving operations and safety at the high-crash location 2 = Creates improvements likely to improve safety on a roadway segment or intersection specifically identified as having recent known crashes by NMDOT crash data 1 = Creates improvements likely to improve safety on a roadway segment or intersection not identified as a high-crash location
	S-2	Improves safety related to potential conflicts related to trucks and trains	Recent NMDOT crash data; analysis of railroad crossing characteristics	4 = Eliminates an existing at-grade road-rail crossing 3 = Improves an existing grade-separated crossing that provides an alternative to using an at-grade crossing; OR creates a new route that provides an new or more viable alternative to using an at-grade crossing 2 = Improves roadway operations so that roadway bottlenecks across existing at-grade crossings are reduced
	S-3	Improves safety related to potential conflicts between pedestrians and vehicles	Recent NMDOT crash data	2 = Creates pedestrian infrastrcture at high-traffic locations or identified pedestrian crash locations where there is not currently such infrastructure 1 = Enhances existing pedestrian infrastructure, or creates new infrastructure in low-traffic areas where there is not currently such infrastructure
	S-4	Creates redundancy in network to improve evacuation routes & emergency responsiveness	Most applies to new roads or interchanges	3 = Creates new route/access for personal and freight vehicles, greatly enhancing emergency responsiveness 2 = Creates new access points to an existing site/area, somewhat improving emergency responsiveness; 1 = Improves an existing route/access (e.g. shoulders along an existing road) to allow for better evacuation or emergency response
Environment	E-1	Minimal disturbance or impacts to wetland/floodplain	Mapping overlay comparison of project extent and location of known wetland/floodplain	2 = Project avoids impacts to known wetland/floodplain 1 = Project would likely impact wetland/floodplain, requiring significant mitigation
	E-2	Minimal disturbance or impacts to significant geological features	Mapping overlay comparison of project extent and location of known signficant geological/topographical features	2 = Project avoids impacts to existing geological features 1 = Project would likely impact existing geological features, requiring significant mitigation

	E-3	Minimal disturbance or impacts to cultural/historical features	Mapping overlay comparison of project extent and location of known cultural features; State & National Historic Register listings	2 = Project avoids impacts to existing cultural/historical features 1 = Project would impact existing cultural/historical features, requiring significant mitigation
	E-4	Minimal disturbance or impacts to crucial wildlife habitat	Mapping overlay comparison of project extent and location of known habitat; New Mexico Environmental Review Tool online map. For project scoring purposes, crucial habitat is defined as areas scoring 1-3 in the New Mexico Critical Habitat Assessment Tool's Critical Habitat Index	2 = Project avoids impacts to existing crucial habitat 1 = Project would impact existing existing crucial habitat
	E-5	Mimimal disturbance or impacts to environmental justice (EJ) populations	Mapping overlay comparison of project extent and location of known EJ census tracts; US EPA EJScreen online map	2 = Project avoids negative impacts to existing environmental justice (EJ) populations 1 = Project likely negatively impact existing environmental justice (EJ) populations, requiring significant mitigation
	E-6	Mimimal disturbance or impacts to contaminated or hazardous materials sites, including Superfund sites or leaking underground storage tanks (LUSTs)	Mapping overlay comparison of project extent and location of known EJ census tracts; New Mexico Environment Department OpenEnviroMap tool	2 = Project avoids negative impacts to contaminated or hazardous materials sites 1 = Project likely impacts to contaminated or hazardous materials sites
Project Readiness	P-1	Planning/design for this project has begun		3 = Planning/design for project has taken place or is underway (equivalent to NMDOT Location Study Phase A-D, traffic impact analysis, or other detailed technical analysis) 2 = Project has been programmed in local ICIP or STIP 1 = Project has been identified/recommended in a separate plan
	P-2	The project is unlikely to face significant legal barriers/barriers to planning clearance	Issues could include need to acquire right-of-way; unclear jurisidiction/ ownership/ responsibility for project; probable need for advanced environmental study/clearance	2 = The project would not face any known significant legal barriers/barriers to planning clearance 1 = The project would face some legal barriers or barriers to planning clearance 0 = The project would face significant legal barriers or barriers to planning clearance

Appendix A

Previously Identified Projects

Previously identified projects were collected from the plans & studies referenced in the literature review (see Section 4 of ; the New Mexico State Transportation Improvement Program; the Infrastructure Capital Improvements Project (ICIP) for each county, the Village of Milan, and Thoreau and Baca/Prewitt Navajo chapters; and the Navajo Nation Tribal Transportation Improvement Program document. These projects do not reflect road and rail projects that would be the responsibility of private developers/tenants within the two industrial park sites.

County	Lead agency	Title/description	Project type	Funds	Total cost	Funding year /Construction Start	Project Limit	Source
McKinley	NMDOT	I-40 Improvements near Prewitt	Road - Reconstruction	Federal	$17,219,520	2020 start	I 40 from Chavez Loop to Old Windmill Trail milepost 56 to 61 (5 mile) Bridge 6512 Bridge 6513	STIP
McKinley	NMDOT	Construction of new drainage structures, NM 612 7.9 MILES SOUTH OF EXIT 53	Road - Other Improvement	Federal	$3,300,000	2023 start	NM 612 from Bluewater Road to WOLCOTT RD milepost 8 to 11 (3 mile)	STIP
McKinley	Navajo Nation	Navajo Energy Hub at Thoreau. A transloading center is under development at Thoreau in McKinley County on Navajo land. This 380-acre site is anticipated to meet the transloading needs of up to 20 companies when completed. Navajo Nation officials broke ground on Phase I of the project in May 2015.	Site development/Economic development	N/A	$21,000,000	N/A	Thoreau	NM Freight Plan
McKinley	Navajo Nation, Bureau of Indian Affairs, Chapter	Baca/Prewitt Chapter Residential Road Improvements. From ICIP: “Plan, design, construct and obtain all necessary right-of-ways, archaeological and environmental studies for community road improvements in Haystack and Prewitt communities of the Baca/Prewitt chapter of the Navajo Nation in McKinley County”	Road improvements	State (CAP, IA)	$1,000,200	2024	N/A	Chapter ICIP
McKinley	Navajo Nation, McKinley County, Chapter	Thoreau Chapter County Road 51 Improvements. From ICIP: “[P]lan, design, and construct County Road 51 improvements in Thoreau chapter of the Navajo Nation in McKinley county”	Road improvements	Unknown	$350,000	2022	1 mile of road improvement	Chapter ICIP
McKinley	McKinley County	Industrial site improvements. From ICIP: “To plan, design, and construct industrial development sites in McKinley County, including buildings and infrastructure for economic development especially within the opportunity zones at sites like Prewitt, SWA (Thoreau), and others.”	Site development	Unknown	$29,242,692	2024	Prewitt, Solid Waste Authority, and other industrial sites	County ICIP
McKinley, San Juan	San Juan County, Navajo Nation	San Juan Freight Rail Study: Study would examine feasibility of extending freight rail infrastructure to San Juan County, including parts of Navajo Nation. Study would examine corridors options for alignment between Gallup and Farmington.	Rail (study)	San Juan County, Navajo Nation	Unknown	2022 start	Multiple alternative alignments, Gallup to Farmington	San Juan County Five-Year Strategic Plan
Cibola, McKinley	NMDOT	Metal Beam Guardrail	Safety	Federal	$10,440,282	2020 start	I 40 from Giant Crossing to Rainfall RD milepost 40 to 105.5 (65.5 mile)	STIP

County	Lead agency	Title/description	Project type	Funds	Total cost	Funding year /Construction Start	Project Limit	Source
Cibola, McKinley	NMDOT	I-40 Widening Study: Study to examine the need to widen I-40 between west of Albuquerque to the NM-AZ state line.	Road (study)	Unknown	Unknown	2022 start	I-40 Atrisco Vista interchange (Bernalillo County) west to NM-AZ state line	Project RFP
Cibola	NMDOT	Bridge Over I-40 at exit 81	Bridge - Rehab	Federal	$2,457,585	2020 start	NM 53 Bridge 7143 milepost 85.25 to 85.9 (.65 mile)	STIP
Cibola	NMDOT	Bridge Over BNSF	Bridge - Rehab	Federal	$1,841,642	2022 start	NM 53 Bridge 7144 milepost 85.4 to 85.9 (.5 mile)	STIP
Cibola	Village of Milan	Curb & gutter drainage for Northside residents	Stormwater	State (DFA, NMED, NMFA)	$2,650,000	2024		Village of Milan ICIP
Cibola	Village of Milan	Street and sidewalk construction and reconstruction	Road - Reconstruction	N/A	N/A	N/A	Village of Milan	NWNMRTPO Regional Transportation Plan
Cibola	Village of Milan	Dedicated bike lanes and traffic calming	Safety	N/A	N/A	N/A	Village of Milan	NWNMRTPO Regional Transportation Plan
Cibola	Village of Milan	Railroad Service: determine if an overpass or bridge is justified as opposed to an at-grade crossing	Road/Bridge	N/A	N/A	N/A	Village of Milan	NWNMRTPO Regional Transportation Plan
Cibola	City of Grants	Examine reducing the speed of I-40 for safety reasons and/or creating a safety corridor in the Grants/Milan area	Safety	Local	N/A	N/A	Grants/Milan area	NWNMRTPO Regional Transportation Plan
Cibola	City of Grants	Signage, off-ramp development at I-40 bridge area, and alternative access study at Grants/Milan Airport	Road - Other Improvement	Local	N/A	N/A	Grants/Milan area	NWNMRTPO Regional Transportation Plan

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Appendix B

Detailed Project Scoring

PREWITT - MILAN TRANSPORTATION MASTER PLAN

Detailed Project Scoring - Roadway Projects

					Project Number																			
Categories		**Criteria**	**How it's measured**	**How it's scored**	RD01	RD02	RD03	RD04	RD05	RD06	RD07	RD08	RD09	RD10	RD11	RD12	RD13	RD14	RD15	RD16	RD17	RD18	RD19	RD20
Supports Growth & Economic Development	G-1	Does the project improve access for known economic development sites?	Mapping comparison of project extent to location of economic development sites	4 = Project provides new roadway access that connects to a specific existing or future employment sites not currently served by a roadway (or by an improved roadway). 3 = Project would significantly improve roadway capacity or operations on existing roadways that serve economic development sites (existing or planned). 2 = Project provides new roadway access to an area that contains economic development sites not currently served by a roadway (or by an improved roadway). 1 = Project would slightly improve capacity or operations on existing roadways that serve specific economic development sites.	3	3	3	3	4	3	3	3	1	1	1	1	4	4	1	1	1	1	3	1
	G-2	Does the project promote efficient movement of goods?	Overall operational improvements. Project types include ancillary intersection, signal, and ITS improvements.	4 = Project provides new roadway freightaccess that connects to a specific existing or future employment sites not currently served by a roadway (or by an improved roadway). 3 = Project would significantly improve roadway freight capacity or operations on existing roadways that serve economic development sites (existing or planned). 2 = Project provides new roadway freight access to an area that contains economic development sites not currently served by a roadway (or by an improved roadway). 1 = Project would slightly improve roadway freight capacity or operations on existing roadways that serve specific economic development sites.	3	3	3	3	4	3	3	3	1	1	1	1	4	4	1	1	1	1	3	1
				SUBTOTAL for "Supports Growth & Economic Development"	**6**	**6**	**6**	**6**	**8**	**6**	**6**	**6**	**2**	**2**	**2**	**2**	**8**	**8**	**2**	**2**	**2**	**2**	**6**	**2**
Mobility & Connectivity	M-1	Improves access to existing residential areas	Comparison of project extents to: Available current/future land use maps; aerial imagery; on-the-ground observations of actual land use	3 = Project would significantly improve roadway capacity or operations on existing roadways that serve specific existing residential areas. 2 = Project would significantly improve roadway capacity or operations on existing roadways that serve areas with existing residential areas. 1 = Project would slightly improve capacity or operations on existing roadways that serve specific existing residential sites.	0	0	0	2	0	3	3	3	1	1	1	1	2	2	0	0	0	1	1	2
	M-2	Improves access to future residential areas	Comparison of project extents to available future land use maps	3 = Project would significantly improve roadway capacity or operations on existing roadways that serve specific future residential areas. 2 = Project would significantly improve roadway capacity or operations on existing roadways that serve areas with future residential areas. 1 = Project would slightly improve capacity or operations on existing roadways that serve specific future residential sites.	0	0	0	2	0	3	3	3	1	1	1	1	2	2	0	0	0	1	2	2
	M-3	Improves access to existing employment	Comparison of project extents to: Available current/future land use maps; aerial imagery; on-the-ground observations of actual land use	3 = Project would significantly improve roadway capacity or operations on existing roadways that serve specific existing employment sites. 2 = Project would significantly improve roadway capacity or operations on existing roadways that serve areas with existing employment sites. 1 = Project would slightly improve capacity or operations on existing roadways that serve specific existing employment sites.	3	3	3	3	2	3	3	3	1	1	1	1	3	3	1	1	1	1	1	2
	M-4	Improves access to future employment	Comparison of project extents to available future land use maps	4 = Project provides new roadway access that connects to a specific future employment sites not currently served by a roadway (or by an improved roadway). 3 = Project would significantly improve roadway capacity or operations on existing roadways that serve specific future employment sites (existing or planned). 2 = Project provides new roadway access to an area that contains future employment sites that is not currently served by a roadway (or by an improved roadway). 1 = Project would slightly improve capacity or operations on existing roadways that serve specific future employment sites.	4	4	4	4	4	3	3	3	1	1	1	1	4	4	1	1	1	1	2	2
	M-5	Improves access to existing/future services	Comparison of project extents to: Available current/future land use maps; aerial imagery; on-the-ground observations of actual land use. Services include: Medical facilities, schools, government buildings	4 = Project provides new facility that connects to a specific facility (existing or planned) not currently served by a roadway (or by an improved roadway). 3 = Project would significantly improve capacity or operations on existing roadways that serve specific facilities (existing or planned). 2 = Project provides new facility to an area that contains services (or may contain them in the future) that is not currently served by a roadway (or by an improved roadway). 1 = Project would slightly improve capacity or operations on existing roadways that serve specific facilities (existing or planned).	3	3	3	3	3	3	3	3	1	1	1	1	4	4	1	1	1	1	2	2
	M-6	Project supports existing or expanded transit service	Expansion of transit service frequency or new/longer routes versus current service	1 = Yes, project would improve future transit operations or improve transit stop access; 0 = No, project would likely not improve future transit operations or improve transit stop access	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	0	1	1	1
				SUBTOTAL for "Mobility & Connectivity"	**11**	**11**	**11**	**15**	**10**	**16**	**16**	**16**	**5**	**6**	**6**	**6**	**16**	**16**	**3**	**3**	**3**	**6**	**9**	**11**

Safety	S-1	Improves safety on high-crash segment or intersection	Recent NMDOT crash data	4 = Creates improvements likely to improve safety on a roadway segment or intersection specifically identified as a high-crash location by NMDOT crash data 3 = Provides alternative route to high-crash segment or intersection, improving operations and safety at the high-crash location 2 = Creates improvements likely to improve safety on a roadway segment or intersection specifically identified as having recent known crashes by NMDOT crash data 1 = Creates improvements likely to improve safety on a roadway segment or intersection not identified as a high-crash location	1	1	1	2	2	2	4	2	1	2	2	2	3	2	2	2	2	4	2	1
	S-2	Improves safety related to potential conflicts related to trucks and trains	Recent NMDOT crash data; analysis of railroad crossing characteristics	4 = Eliminates an existing at-grade road-rail crossing 3 = Improves an existing grade-separated crossing that provides an alternative to using an at-grade crossing; OR creates a new route that provides an new or more viable alternative to using an at-grade crossing 2 = Improves roadway operations so that roadway bottlenecks across existing at-grade crossings are reduced	0	0	0	2	3	3	3	4	3	0	0	0	3	4	2	2	2	0	0	0
	S-3	Improves safety related to potential conflicts between pedestrians and vehicles	Recent NMDOT crash data	2 = Creates pedestrian infrastrcture at high-traffic locations or identified pedestrian crash locations where there is not currently such infrastructure 1 = Enhances existing pedestrian infrastructure, or creates new infrastructure in low-traffic areas where there is not currently such infrastructure	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	2	2
	S-4	Creates redundancy in network to improve evacuation routes & emergency responsiveness	Most applies to new roads or interchanges	3 = Creates new route/access for personal and freight vehicles, greatly enhancing emergency responsiveness 2 = Creates new access points to an existing site/area, somewhat improving emergency responsiveness; 1 = Improves an existing route/access (e.g. shoulders along an existing road) to allow for better evacuation or emergency response	1	1	1	1	3	1	1	1	2	1	1	1	3	3	1	1	1	1	1	0
				SUBTOTAL for "Safety"	**2**	**2**	**2**	**5**	**8**	**6**	**8**	**7**	**7**	**4**	**3**	**3**	**9**	**9**	**5**	**5**	**5**	**6**	**5**	**3**
Environment	E-1	Minimal disturbance or impacts to wetland/floodplain	Mapping overlay comparison of project extent and location of known wetland/floodplain	2 = Project avoids impacts to known wetland/floodplain 1 = Project would likely impact wetland/floodplain, requiring significant mitigation	2	2	2	2	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2
	E-2	Minimal disturbance or impacts to significant geological features	Mapping overlay comparison of project extent and location of known signficant geological/topographical features	2 = Project avoids impacts to existing geological features 1 = Project would likely impact existing geological features, requiring significant mitigation	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2
	E-3	Minimal disturbance or impacts to cultural/historical features	Mapping overlay comparison of project extent and location of known cultural features; State & National Historic Register listings	2 = Project avoids impacts to existing cultural/historical features 1 = Project would impact existing cultural/historical features, requiring significant mitigation	2	2	2	2	1	1	1	1	1	2	1	2	1	1	1	1	1	2	2	2
	E-4	Minimal disturbance or impacts to crucial wildlife habitat	Mapping overlay comparison of project extent and location of known habitat; New Mexico Environmental Review Tool online map. For project scoring purposes, crucial habitat is defined as areas scoring 1-3 in the New Mexico Critical Habitat Assessment Tool's Critical Habitat Index	2 = Project avoids impacts to existing crucial habitat 1 = Project would impact existing existing crucial habitat	2	2	2	1	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
	E-5	Mimimal disturbance or impacts to environmental justice (EJ) populations	Mapping overlay comparison of project extent and location of known EJ census tracts; US EPA EJScreen online map	2 = Project avoids negative impacts to existing environmental justice (EJ) populations 1 = Project likely negatively impact existing environmental justice (EJ) populations, requiring significant mitigation	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
	E-6	Minimal disturbance or impacts to contaminated or hazardous materials sites, including Superfund sites or leaking underground storage tanks (LUSTs)	Mapping overlay comparison of project extent and location of known EJ census tracts; New Mexico Environment Department OpenEnviroMap tool	2 = Project avoids negative impacts to contaminated or hazardous materials sites 1 = Project likely impacts to contaminated or hazardous materials sites	2	2	2	2	2	1	1	1	2	2	2	2	1	1	2	2	2	2	2	2
				SUBTOTAL for "Environment"	**12**	**12**	**12**	**11**	**7**	**8**	**7**	**9**	**9**	**12**	**9**	**12**	**10**	**10**	**11**	**11**	**11**	**12**	**12**	**12**

Project Readiness	P-1	Planning/design for this project has begun		3 = Planning/design for project has taken place or is underway (equivalent to NMDOT Location Study Phase A-D, traffic impact analysis, or other detailed technical analysis) 2 = Project has been programmed in local ICIP or STIP 1 = Project has been identified/recommended in a separate plan	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	3	3	0	0	0
	P-2	The project is unlikely to face significant legal barriers/barriers to planning clearance	Issues could include need to acquire right-of-way; unclear jurisidiction/ownership/responsibility for project; probable need for advanced environmental study/clearance.	2 = The project would not face any known significant legal barriers/barriers to planning clearance 1 = The project would face some legal barriers or barriers to planning clearance 0 = The project would face significant legal barriers or barriers to planning clearance	2	2	2	2	1	1	1	1	2	2	2	2	1	1	2	2	2	2	2	2
				SUBTOTAL for "Project Readiness"	2	2	2	2	1	1	1	1	2	2	2	2	2	2	5	5	5	2	2	2