CHAPTER 3 - EXISTING CONDITIONS

3.1 Existing Transportation System

3.1.1 Regional System

US 550 currently runs from I-25, approximately 8 miles north of the Tramway Boulevard/I-25 interchange, all the way to US 64 near Farmington, New Mexico. Within the study area, the US 550 corridor is a significant commuter, local, and regional roadway operated by The New Mexico Department of Transportation (NMDOT). This corridor serves regional commuting needs of Rio Rancho, Santa Fe, and Albuquerque via the US 550/I-25 interchange. Additional regional connectivity is provided between Rio Rancho, Bernalillo, and the Santa Ana Pueblo with San Ysidro, Cuba, and the Farmington area.

3.1.2 Local System

The east-west connector locally serves the Town of Bernalillo as well as access needs of Rio Rancho, and Santa Ana Pueblo. The NMDOT categorizes this roadway as a limited access principal urban arterial from Paseo del Volcan to NM 313. The corridor traverses several different governmental boundaries, including Sandoval County, Town of Bernalillo, City of Rio Rancho, and borders the Santa Ana Pueblo.

3.1.2.1 Existing Pedestrian Facilities

Currently, there is a mixture of 4, 5, and 6-foot sidewalks located on both the north and south side of the corridor from the Rio Grande Bridge to NM 313. There are no sidewalk facilities along US 550 from Paseo del Volcan to the Rio Grande Bridge, where, the corridor takes on a more rural characteristic incorporating a 10 to 14-foot wide shoulder on both sides of the road. During the field survey, there were several locations (five) along the corridor where street lights have been placed in the sidewalk thus significantly reducing the effective walking width. Effective sidewalk widths were reduced anywhere from 2.5 to 3.5 feet, which is not ADA or PROWAG compliant.

Additionally, pedestrian facilities at intersections were field-reviewed and assessed on July 8, 2012 to make sure that pedestrian ramps were in accordance with the latest Americans with Disabilities Act (ADA) and the more recent (PROWAG) requirements. Several deficiencies have been identified with photographs provided in the **Transportation and Operations Report**:

- In general, there are no detectable surfaces at existing pedestrian ramps except at Sprint Boulevard, although the detectable surface at Sprint Boulevard appears damaged.
- There are no true pedestrian ramps at all corners of the NM 528 intersection. Although pedestrian facilities will have been added since our field survey on the south leg as part of the NM 528 construction project that was recently completed. Facilities will have included pedestrian ramps and tactile detectible surfaces.
- There are no pedestrian ramps at the Jemez Dam intersection as there are no sidewalks at this location.
- There are some locations (SE corner of NM 528 and NE corner of Jemez Dam) where existing pedestrian buttons have been placed on the wrong side of the pole making them less accessible to users.

- Pedestrian ramps at the north corners of Camino Don Tomas do not have a landing area. The Town of Bernalillo has an ongoing project improving pedestrian facilities in the area.
- It is anticipated that detectable surfaces will be added at the east leg of the NM 313 intersection as part of the I-25/US 550 interchange reconstruction project.
- None of the existing pedestrian facilities comply with PROWAG requirements. Specifically, there are currently no audible or vibro-tactile pedestrian indications. It should be mentioned that this standard is currently out for review and is not yet finalized.

3.1.2.2 Existing Bicycle Facilities

Currently there are no specific facilities for bicycle traffic along the US 550 corridor. Bicyclists would either need to use the existing shoulder or ride within vehicular lanes. Vehicular counts collected for this project also collected bicycle data and found a total of 68 bicycles traveling eastbound during the combined AM, Midday, and PM peaks along US 550 at NM 313. Much of the US 550 bicycle traffic was observed to be sourcing from/to NM 313 and NM 528. Additionally, US 550 and NM 528 are identified as bicycle corridor routes on the NMDOT bicycle facilities map.

According to their Bicycle Master Plan, The City of Rancho is proposing a bike path along Paseo del Volcan, a bike trail that would run parallel to US 550 (The Jager alignment) from Paseo del Volcan to Sprint Boulevard, and proposed bike lanes along Enchanted Hills Boulevard. There is an existing bicycle path that runs along Enchanted Hills Boulevard.

3.2 Topography

The terrain within the project area is generally level except on the east end of the corridor as one approaches I-25. There is a significant elevation gain between NM 313 and the I-25 interchange of approximately 46 feet.

3.3 Existing Travel Characteristics

3.3.1 Data Collection

Lee Engineering deployed pneumatic tube data collectors on US 550 at four locations collecting 48 hours' worth of data on Wednesday, May 8, 2013 and Thursday, May 9, 2013 at Camino Don Tomas. Resulting daily traffic was the following:

East of Sprint Boulevard	23,516 ADT
West of Jemez Dam	32,292 ADT
At Rio Grande Bridge	32,315 ADT

ADT = Average Daily Traffic

24-hour tube counts were collected at both Dimas Way and Santa Ana Road with the following results:

Dimas Way	3,258 ADT
Santa Ana Road	959 ADT

Turning movement counts were also collected by Lee Engineering on May 8th and 9th for the following study US 550 intersections:

- NM 347 (Paseo del Volcan)
- Sprint Boulevard
- NM 528 (Pat D 'Arco Hwy/Tamaya Boulevard)
- Jemez Dam
- Kuaua Road
- Sheriff's Posse Road
- Camino Don Tomas
- NM 313 (Pan American Central)

Raw data collection sheets for these turning movement counts are included in **Appendix A** of the Transportation Operations Report. All existing counts, lane geometry, and traffic control are summarized in **Figure 3.1** of that report.

Figures 3.2 through 3.4 graphically illustrate the weekday hourly traffic volume data at each count location for a 24-hour period. Shown in the graphs are the westbound, eastbound, and total hourly volume at each count location. As expected, all location directional demands indicate a definite eastbound AM peak and a westbound PM peak. As indicated, these peaks become more defined between the Rio Grande Bridge and NM 313. Additionally, traffic demands in general appear to reduce the farther west along the study corridor. For all locations, there appears to be a less defined midday peak demand.

Figure 3.1 Existing 2013 Peak Hour Traffic Demands

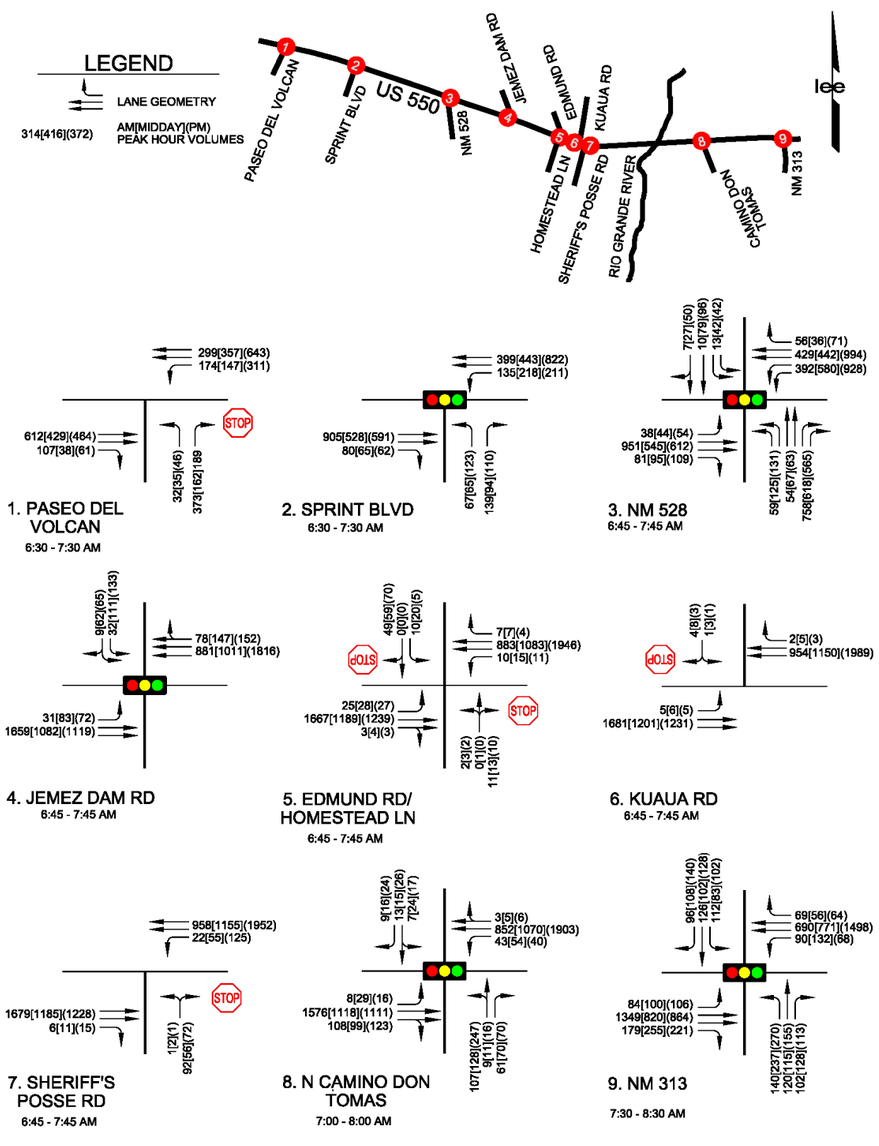


Figure 3.2 Count Data East of Sprint Blvd

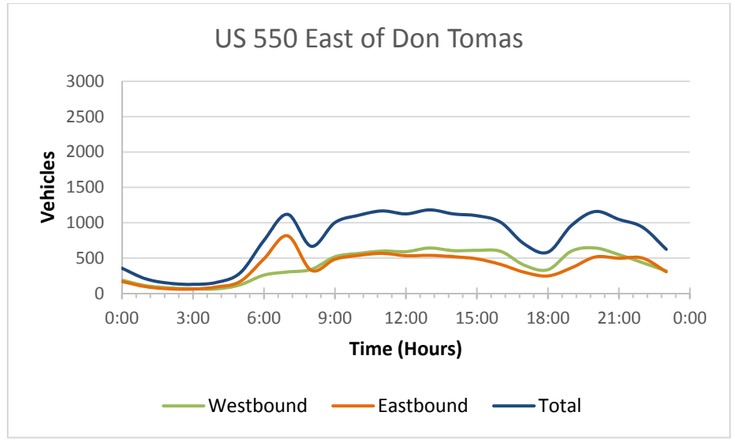


Figure 3.3 Count Data West of Jemez Dam

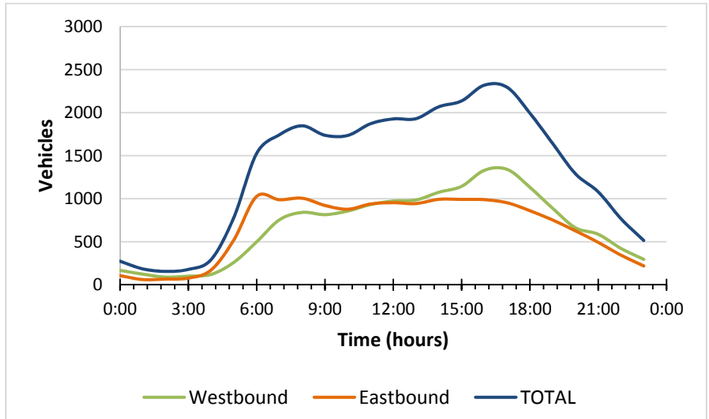
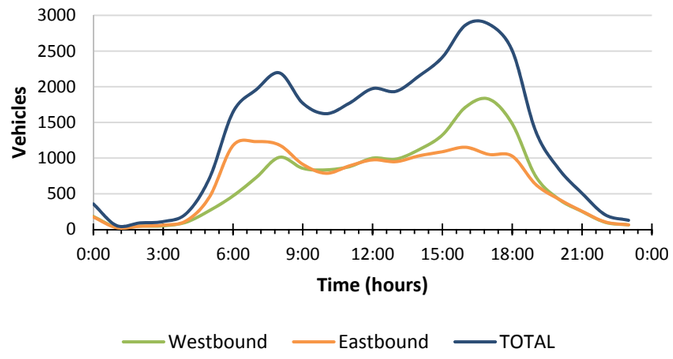


Figure 3.4 Count Data at Rio Grande Bridge



3.3.2 Historical Growth

Historical traffic counts were researched and correlated with the count locations chosen for this project. As indicated in **Table 3.1**, a declining trend in traffic volume is observed each year over the past four years with the exception of the segment between Paseo del Volcan and NM 528, which indicated steady growth between 2007 and 2010. The observed traffic demand reduction is likely due to the economic recession that began around 2009, and is considered anomalous. The US 550 corridor has great commercial and residential development potential with many adjacent parcels currently undeveloped. Therefore it is expected that traffic demands will significantly grow over the next 20 to 25 years as the City of Rio Rancho, Santa Ana Pueblo, and Town of Bernalillo continue to develop.

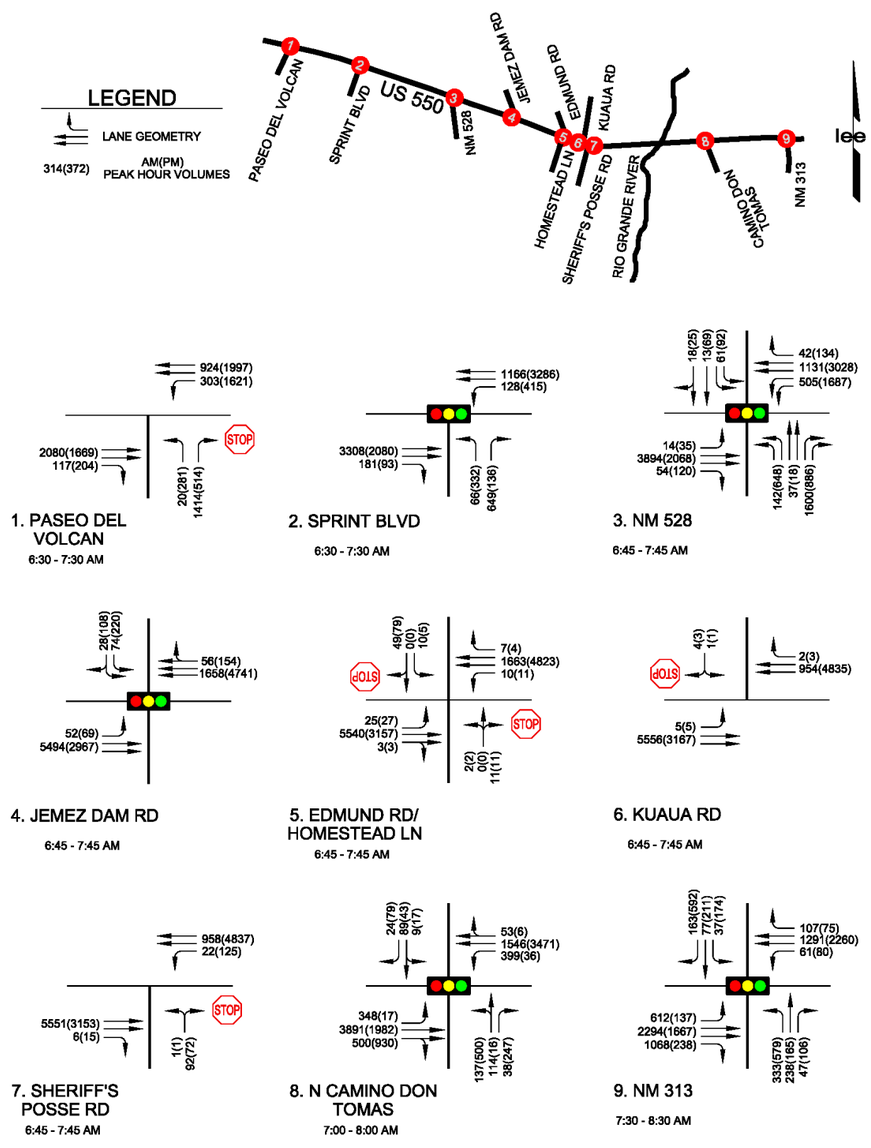
Table 3.1 Historical Growth along US 550

Year	Segment							
	PDV to 528		528 to Jemez Dam		Jemez Dam to Don Tomas		Don Tomas to 313	
	ADT	Growth	ADT	Growth	ADT	Growth	ADT	Growth
2007	16,100		42,300		41,900		40,800	
2008	19,500	21.1%	41,600	-1.7%	42,800	2.1%	39,500	-3.2%
2009	19,600	0.5%	40,600	-2.4%	42,900	0.2%	39,300	-0.5%
2010	20,400	4.1%	40,500	-0.2%	42,100	-1.9%	38,200	-2.8%
2011	20,000	-2.0%	39,900	-1.5%	41,400	-1.7%	37,100	-2.9%
2012	21,600	8.0%	37,300	-6.5%	42,200	1.9%	37,100	0.0%
Average Annual Growth Factor	7.6%		-3.1%		0.2%		-2.3%	

3.4 Future Traffic Demands and Trip Characteristics

2035 projected peak hour directional traffic demands for the study area were obtained from the MRCOG traffic model. Raw data is provided by the MRCOG in **Appendix A.** By knowing the entering and exiting traffic demands for all approaches at an intersection and utilizing existing traffic data turning movement proportions, 2035 directional demands were converted to intersection turning movements using an algorithm known as the “Fratar” or “Furness” method. This algorithm maintains 2035 entering and exiting demands and finds a unique algebraic solution for left, through, and right-turn movements on each approach that match existing turning proportions as closely as possible. For this study, the “TurnsW32” program was used to develop 2035 turning demands at major study intersections. Calculation sheets indicating input and output at each intersection are provided in **Appendix A**. Resulting 2035 AM and PM peak hour projected turning movement demands are depicted in **Figure 3.5**.

Figure 3.5 Projected 2035 Traffic Demands (MRCOG Model)



A review of the 2035 model was undertaken to determine projected trip characteristics through the US 550 corridor. 2035 trip characteristics by purpose are summarized as follows:

Table 3.2 "No-Build" LOS and Capacity Analysis

	AM	PM
Commuter	48.1%	32.5%
Local	35.1%	42.5%
Inter-Regional	16.8%	24.9%
Total	100.0%	100.0%

As indicated the majority of trips are commuter trips sourcing from outside of the US 550 corridor and passing through to their work destination. 2035 origin and destination exhibits are provided in **Appendix A** of this report. In general the following is origin/destination characteristics are evident in the 2035 model:

- The majority of AM peak eastbound origins are expected to source from residential areas immediately south of US 550 similar to today.
- The largest US 550 eastbound AM destinations include, Santa Fe, east side of I-25 along US 550, and Albuquerque employment centers.
- PM westbound origins and destinations are the reverse of what is observed for the eastbound AM peak demands.
- The off-peak direction westbound AM and eastbound PM appear to be more local in nature with more destinations closer to the US 550 corridor.

3.5 Existing 2013 and "No Build" 2035 Capacity Analysis

Table 3.3 shows the intersection capacity analysis results under Existing 2013 and No-Build 2035 conditions. Methodology and data output sheets are provided in the Transportation Operations Report.

Table 3.3 "No-Build" LOS and Capacity Analysis

Intersection	Traffic Control	Timing Plan	AM Peak			Mid-day Peak			PM Peak		
			v/c	Delay[1]	LOS[2]	v/c	Delay	LOS	v/c	Delay	LOS
Paseo Del Volcan/ US 550	Stop Control	Existing	0.68	70.8	E	0.36	37.4	D	1.75	-	F
	Signal	2035 "No Build"	Over Cap.	-	F	NA			Over Cap.	-	F
Sprint Blvd NE/US 550	Signal	Existing	0.77	12.6	B	0.63	9.3	A	0.81	11.3	B
		2035 "No Build"	Over Cap.	264.1	F	NA			1.59	236.8	F
NM 528/US 550	Signal	Existing	0.82	22.0	C	0.61	31.7	C	0.84	30.9	C
		2035 "No Build"	Over Cap.	-	F	NA			Over Cap.	-	F
Jemez Dam Rd/US 550	Signal	Existing	0.60	4.6	A	0.72	8.6	A	0.64	9.2	A
		2035 "No Build"	Over Cap.	-	F	NA			1.56	196.2	F
Homestead Ln-Edmund Rd/US 550	Stop Control	Existing	0.59	255.1	F	1.44	-	F	1.98	-	F
		2035 "No Build"	Over Cap.	-	F	NA			Over Cap.	-	F
Kuaua Rd/US 550	Stop Control	Existing	0.07	26.2	C	0.19	35.7	D	0.24	115.7	F
		2035 "No Build"	0.60	-	F	NA			2.00	-	F
Sheriff's Posse Rd/US 550	Stop Control	Existing	0.54	38.1	D	0.25	20.9	C	0.41	27.7	C
		2035 "No Build"	Over Cap.	-	F	NA			Over Cap.	-	F
Camino Don Tomas/US 550	Signal	Existing	1.07	24.6	F[3]	0.68	18.3	B	1.89	93.2	F
		2035 "No Build"	Over Cap.	-	F	NA			Over Cap.	-	F
NM 313/US 550	Signal	Existing	0.77	20.4	C	0.64	16.8	B	0.83	27.6	C
		2035 "No Build"	1.70	135.8	F	NA			1.87	173.0	F

[1]Volume to capacity ratio
[2]Level of Service
[3]LOS is F due to worst-case v/c greater than 1.0
"-" = Volume to capacity and delay is very high

Based on the above summary, the following 2013 observations and conclusions are made:

- US 550 intersections with Sprint Boulevard, NM 528, Jemez Dam, Sherriff's Posse Road, and NM 313 all operate at an LOS D or better and under capacity except at Jemez Dam.
- Paseo del Volcan was analyzed under both its current stop control and under signal control; due to the fact that a NMDOT Warrant Study has recently indicated that the intersection does warrant a signal. As indicated, the intersection demonstrates an LOS F under current stop control, but operates at LOS A or better under signal control.
- Left-turn movements from the minor street stop control intersections of Edmund Road and Kuaua Road both operate at an LOS F with the Homestead Lane-Edmund Road intersection operating over capacity.
- The northbound left-turn movement at the Camino Don Tomas intersection is operating at LOS F and over capacity and thereby causing the entire intersection to operate at LOS F and over capacity.
- It should be noted that the maximum through volumes observed on US 550 occurs westbound during the PM peak at just under 2,000 vehicles. This is just at the threshold for two-lane capacity with approximately half mile to mile signal spacing. Therefore, the need for three through-lanes on US 550 is a near term need rather than long term.
- Although Jemez Dam currently operates at an acceptable level of service overall, southbound demands are such that dual left-turn lanes will need to be maintained if development occurs to the south and the south leg becomes operational. Two thousand and thirteen demands were analyzed under both minor mitigation scenarios and under a six-lane section scenario. All signalized intersections are projected to operate at an acceptable level of service.
- As shown, Sherriff's Posse Road was analyzed as a signalized intersection under the six lane section geometry. A signal is anticipated to operate at a LOS A. Per the traffic operations report, the Sheriff's Posse Road intersection is warranted under current traffic demands provided the connection between NM 528 and Sheriff's Posse Road is maintained via Venada Plaza Drive.

Additionally, under no-build conditions, all study intersections will operate at a LOS F and over capacity under 2035 traffic demands.

3.6 Existing Crash Analysis

Crash data was collected from the NMDOT for the years 2009 through 2011, as 2011 crash data was the latest available from the NMDOT Crash Bureau. **Table 3.4** on the next page presents a summary of the crashes determined to have occurred within the study corridor. Additionally, crash diagrams for all study intersections were created and included in **Appendix A**. Review of the information suggests a few comments/conclusions:

- The most crashes occurred during the 2010 calendar year.
- Generally, half of the observed crashes for the whole corridor occurred at the Camino Don Tomas and Jemez Dam intersections. Another third of the observed crashes occur at NM 528, NM 313, and Sprint Boulevard.
- The most common crash type by far was rear-end crashes, which tends to indicate congested conditions combined with vehicles traveling too fast. Additionally, most of these crashes occurred at the Camino Don Tomas and Jemez Dam intersections. Camino Don Tomas currently does not have right-turn lanes in either east or west legs of the intersection, but a new right-turn lane is being added on the west leg and a right-turn lane is recommended for the east leg. With the addition of these lanes, the risk for rear-end crashes should be reduced.
- There were two observed fatal crashes within the study area with one occurring at Edmund Road and one at Sprint Boulevard. The fatal crash at Edmund Road was an

angle crash involving a motorcycle and was caused due to a driver failing to yield right-of-way. The crash report says that the vehicle was turning from Edmund Road, and turned in front of the on-coming motorcycle. The crash at Sprint Boulevard was a rear-end crash in which an eastbound vehicle traveling well over the speed limit crashed into the back of another eastbound vehicle, stopped at the red light. Excessive speed was cited as the cause of the crash.

- Night time crashes accounted for approximately 19% of all crashes. Even though this appears to be a minority of total crashes, it must be mentioned that the corridor is lit in advance of Camino Don Tomas to I-25 and at the intersections of Paseo del Volcan, NM 528, and Sprint Boulevard. There are street lights on the signal poles at Jemez Dam. Street lighting is generally absent between Jemez Dam and Camino Don Tomas. Full street lights throughout the corridor could significantly reduce (up to 20% for all types of crashes) night-time crashes with relatively low construction costs.

- As was the case at Camino Don Tomas, there was a large majority of rear-end crashes occurring at Jemez Dam. One potential cause for these crashes is due to the westbound add-through-right lane at the intersection and westbound acceleration lane downstream which drops to a forced right-turn lane at NM 528. Vehicles turning right from the north leg could easily mistake the upstream added through-right pocket as a right-turn lane only and therefore turn in front of westbound through movements, thinking they are turning right.

- The most common reason given for crashes was following too close at 41%. Again, this is consistent with the fact that the most common type of crash is rear-end collisions on a congested corridor. The second most common reason was failure to yield at 19%. Driver inattention was a close third at 16%.

- The statewide crash rate for 2011 is 167 per 100 million vehicle miles traveled (VMT). The calculated crash rate for the corridor is 83.30 per 100 M VMT in 2011 so it is less than the statewide average. It is stated in the 2011 Annual Report from the UNM Traffic Research Unit that the method of calculating VMT changed in 2011 so it cannot be compared to previous years.

Table 3.4 Detailed Crash History Summary 2009 to 2011

US 550 Intersection with:		Hwy 313	Camino Don Tomas	Sheriff's Posse	Edmund RD	Jemez Dam	NM 528	Sprint Blvd	Paseo Del Volcan	Total
Total Crashes		**21**	**37**	**1**	**9**	**41**	**22**	**16**	**3**	**150**
by Year	2009	20	16	1	2	10	7	9		**65**
	2010	1	12		6	22	13	4		**58**
	2011		9		1	9	2	3	3	**27**
by Crash Type	Rear-End	14	25	1	3	32	17	9	1	**102**
	Angle	3	7		3	6	2	5	1	**27**
	Sideswipe	3	4		2	3	2	2	1	**17**
	Fixed Object	1	1		1		1	2	0	**6**
	% Angle	14%	19%	0%	33%	15%	9%	31%	33%	18%
	% Rear-End	*67%*	*68%*	*100%*	*33%*	*78%*	*77%*	*56%*	*33%*	*68%*
by Severity	PDO	15	24		8	34	14	12	3	**110**
	Injury	6	13	1		7	8	3		**38**
	Fatality				1			1		**2**
	% Injury	*29%*	*35%*	*100%*	*0%*	*0%*	*36%*	*0%*	*0%*	*25%*
by Time of Day	Day	17	29	1	8	33	13	15	2	**118**
	Night	4	6		1	8	9	1		**29**
	Dawn/Dusk		1						1	**2**
	Raining		1							**1**
	AM / PM Peak Periods^	9	16	1	1	6	6	2	2	**43**
	% Night	*43%*	*16%*	*0%*	*11%*	*20%*	*41%*	*6%*	*0%*	*19%*
by Cause	Alcohol Involved	1	1			2	2	3		**9**
	Driver Inattention	1	5		1	8	4	6		**25**
	Failure to Yield	5	6		5	4	2	4	2	**28**
	Red Light-Running					3	2			**5**
	Following Too Close	12	18	1	1	21	8	2		**63**
	Improper Lane Change		4		1		2			**7**
	Skid-No Braking								1	**1**
	Left of Center					1	1			**2**
	Avoid Pedestrian				1					**1**
	Avoid Vehicle		1			1		1		**3**
	None	1	1			1	1			**4**
	Made Improper Turn	1	1							**2**
	% Following Too Close									*42%*
	% Failure to Yield									*19%*

Using the 2010 Highway Safety Manual (HSM), predicted yearly crash rates for each intersection and roadway sections were calculated based on existing conditions and traffic demands and then compared to historical crash rates as summarized in **Table 3.5.** As indicated, the intersections at

Sprint Boulevard, Jemez Dam and Camino Don Tomas are identified as locations with much higher than expected crash rates.

Table 3.5 Crash History Summary 2009 to 2011

US 550 Intersection with:	HSM Predicted Crash Rate	Observed Crash Rate
NM 313	6.1	7
Camino Don Tomas	7.1	12.33
Sherriff's Posse	2.1	0.3
Kuaua Road	1.6	0
Homestead Road	2.2	3
Jemez Dam	4.2	13.67
NM 528	6.9	7.33
Sprint Blvd	2.2	6
Paseo del Volcan	2.4	1

Based on the crash data and analysis, the following improvements could reduce crashes along the US 550 corridor:

- As mentioned, an eastbound right-turn lane will be added at Camino Don Tomas. HSM predicts that this will reduce rear-end crashes and overall crashes by 8%. However, there were many observed crashes westbound as well. Therefore, a westbound right-turn lane could mitigate some of these crashes, but is not recommended at this time due to low westbound right-turn demands.
- Per the 2010 HSM, removing skew from an intersection can reduce crash rates by as much as 23%. Although, removing a skew will mainly impact angle crashes rather than rear end crashes.
- Improvement of corridor progression with adjustments to signal timing and offsets can also reduce rear end crashes especially since the most common reason for crashes was “Following Too Close”. Proposed signal improvements are discussed in the previous section.
- There were a disproportionate amount of night-time crashes at NM 528. Currently the intersection is lit with street lights on the signal poles, and on three approaches (East, West, and South) so improved lighting is not likely to reduce the number of crashes.
- Replacement of all TWLTL sections with a raised median is predicted to reduce overall crashes on the corridor as a whole by 5% and up to 50% within the section of roadway in which TWLTL are being removed.
- The consolidation of ten driveways to two between Camino Don Tomas and NM 313 is predicted to result in an 8% reduction of overall crashes within that segment of roadway.
- Simply adding a right-turn only lane westbound at Jemez Dam could reduce overall crashes by 5% and rear-end crashes by 4%. This does not account for the additional benefit of removing a potentially confusing maneuver for southbound right-turn vehicles and therefore rear-end crashes reductions would be expected to be much greater by simply restriping and possibly signal modifications. However, LOS and capacity analysis indicates that three through-lanes are required at this approach during the PM peak. Therefore, the best recommendation to reduce crashes at this location would be to construct the third through lane from the corridor and add an exclusive right-turn lane at the west leg of Jemez Dam.

3.7 Corridor Geometry

3.7.1 NM550

The typical section of US550 between the Camino del Pueblo intersection (NM 313) and the Rio Grande crossing generally consists of two 12’ lanes in each direction, a 16’ continuous left-turn lane, no shoulders, curb & gutter and sidewalk left and right. Left and right-turn lanes are developed at intersections and major driveways. The posted speed is 40 mph. There is no access control in this section of US550. The functional classification is an urban primary arterial in this section. There is street lighting between the intersections of Camino de Don Tomas and NM 313.

US 550 east of NM 313 including the Camino del Pueblo intersection was recently constructed. The typical section is three lanes in each direction on the east side of the intersection. Eastbound there is a lane pickup from the northbound NM 313 right-turn bay. Westbound the third lane turns into a right-turn bay.

West of the Rio Grande crossing to the Jemez Dam Intersection with US 550 the typical section of US 550 generally consists of two 12’ lanes in each direction, a 16’ continuous left-turn lane and 10’ shoulders. Left and right-turn lanes are developed at intersections and major driveways. The posted

speed is 45 mph. There is no access control in this section of US 550. The functional classification is a rural primary arterial in this section. Street lighting is limited to select intersections.

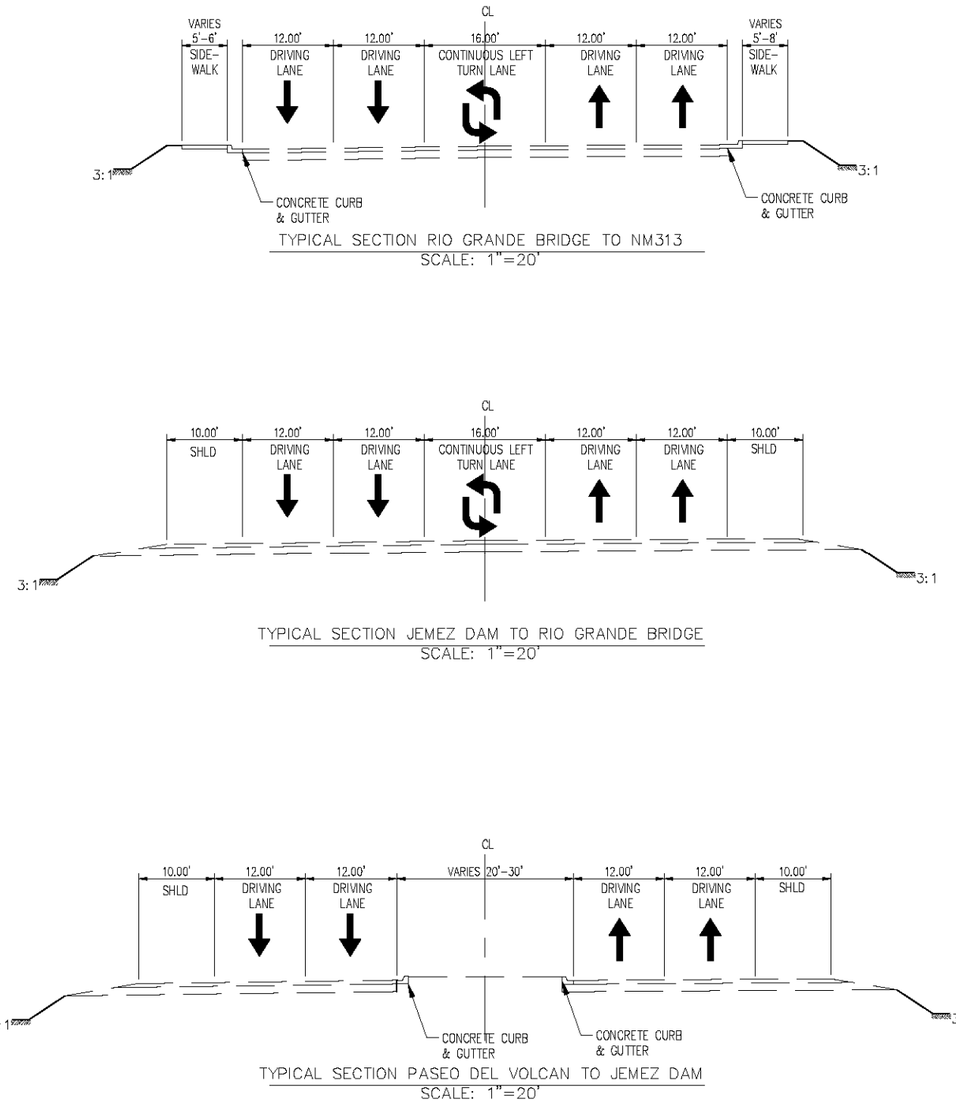
The typical section of US 550 between Jemez Dam and Paseo del Volcan generally consists of 12' two lanes in each direction, a raised median that varies in width and 10' shoulders. Left and right-turn lanes, acceleration and deceleration lanes are developed at intersections and major driveways. The posted speed is 45 mph until west of the NM 528 intersection with US 550 and is posted 50 mph for the remainder of the study area. Access is controlled in this section of US 550. The functional classification is a rural primary arterial in this section. Street lighting is limited to select intersections.

See **Figure 3.6** for a graphical depiction of the existing typical sections

The pavement section of US 550 is hot mix asphalt (HMA) pavement section which is generally in good condition. Between Paseo del Volcan and NM 528 the roadway is experiencing block cracking. The NM 528 intersection is beginning to rut. East of NM 528 there is patching and cracking. There is frequent minor longitudinal cracking and cracking at the pavement edge. The shoulders appear to have had pavement overlays and in some areas there are potholes and raveling.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

Figure 3.6 Existing US 550 Cross-Sections



3.7.2 Camino Del Pueblo (NM313)

Camino del Pueblo runs north-south and is the eastern boundary of the study area. The intersection with US 550 is signal controlled.

North of US 550, Camino del Pueblo consists of one 12' lane in each direction and one-foot paved shoulders. The area between the roadway prism and the right-of-way is level, graded with gravel and free of obstructions. The posted speed limit is 35 mph. The functional classification is a rural primary arterial. Camino del Pueblo (NM 313) continues north to Indian Service Road 84 and serves the communities of Los Llanito, Algodones and Santa Ana Pueblo.

South of US 550, Camino del Pueblo consists of two 12' lanes in each direction, an 8' continuous left-turn lane, 5' shoulders, outside curb & gutter and sidewalk left and right. The posted speed is 35 mph. South of Bernalillo at the intersection of Avenida Bernalillo, NM 313 transitions to one lane in each direction and continues south to Albuquerque. It serves the community of Sandia Pueblo and as an alternate north-south connection to Albuquerque. The functional classification is an urban primary arterial.

The Camino del Pueblo intersection currently has parallel right-turn bays in all four quadrants of the intersection. The intersection is skewed approximately 15 degrees in both the existing and proposed conditions.

Camino del Pueblo has a HMA pavement section and is in good condition.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.7.3 Camino Don Tomas

Camino Don Tomas is a local road and runs north-south within the study limits. The intersection with US 550 is signal controlled.

North of US 550, Camino Don Tomas Road is 22' in width with one lane in each direction. The HMA pavement ends at Ronald Drive. Camino Don Tomas continues for another 250' as a gravel road terminating at the drainage ditch. The speed limit is not posted.

South of US 550, Camino Don Tomas consists of one 12' lane in each direction, a 14' continuous left-turn lane, curb & gutter left and right, sidewalk left and a multi-use trail right. The posted speed limit is 35 mph. Left-turn lanes are developed at intersections. Camino Don Tomas transitions to a two lane section at Calle Barrio Nuevo and terminates at Calle Don Francisco and Rotary Parkway. There is street and sidewalk lighting.

Camino Don Tomas has a HMA pavement section and is in good condition.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.7.4 Santa Ana Road

Santa Ana Road is a local road that forms a "T" intersection with US 550. The intersection with US 550 is stop controlled. North of US 550, Santa Ana Road is 22' in width with one lane in each direction. Santa Ana Road provides access to local residents and Santa Ana Pueblo. At Old NM 44, Santa Ana Road is restricted to members of Santa Ana Pueblo. The speed limit is not posted.

Santa Ana Road has a HMA pavement section and is in good condition.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.7.5 Sheriff's Posse Road

Sheriff's Posse Road is a local road that forms a "T" intersection with US 550. The intersection with US 550 is stop controlled. South of US 550, Sheriff's Posse Road has a typical that consists of one 12' lane in each direction. The posted speed limit is 25 mph. Sheriff's Posse Road provides access to local business and residents. Sheriff's Posse Road dead ends at Venada Plaza Drive.

Sheriff's Posse Road has a HMA pavement section and is in good condition.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.7.6 Kuaua Road (Coronado State Monument)

Kuaua Road is a local road that forms a "T" intersection with US 550. The intersection with US 550 is stop controlled. North of US 550, Kuaua Road is 22' in width with one lane in each direction. The posted speed limit is 25 mph. Kuaua Road provides access to Coronado State Monument and campgrounds.

Kuaua Road has a HMA pavement section and is in good condition.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.7.7 Jemez Dam Road

Jemez Dam Road is a local road that forms an intersection with US 550. The south leg of the intersection forms a dead end at the right-of-way fence. North of US 550, Jemez Dam Road has a typical that consists one 13' lane in each direction. The posted speed limit is 15 mph Jemez Dam Road provides access to Santa Ana Star Casino and commercial development by Santa Ana Pueblo. The intersection with US 550 is signal controlled and has street lighting on all legs of the intersection.

Jemez Dam Road has a HMA pavement section and is in good condition.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.7.8 NM528 (Pat D 'Arco Highway)-Tamaya Boulevard

South of US 550, NM 528 is an urban primary arterial and has a typical section that consists of three lanes in each direction, 10' shoulders and an 18' raised median. The posted speed limit is 45 mph. NM 528 serves Rio Rancho, Corrales and NW Albuquerque.

North of NM 550 Tamaya Boulevard, is a local road with a typical that consists of two 12' lanes in each direction, 6' shoulders and a 22' raised median. Tamaya Boulevard transitions to one lane in each direction north of the access to the soccer fields. The posted speed limit is 40 mph. Tamaya Boulevard serves the Tamaya Resort, Bernalillo soccer fields and Santa Pueblo.

There is street lighting on all legs of the intersection and is signalized.

NM528 and Tamaya Boulevard have a HMA pavement section and is in good condition. The intersection has been resurfaced and the ADA ramps have been reconstructed recently.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.7.9 Innovation (Dimas Way)

Innovation Way is a local road that forms a right-in, right-out intersection with US 550. Innovation has typical section that consists of one 12' northbound lane and two 12' southbound lanes, curb & gutter and sidewalk left and right. The posted speed limit is 35 mph. Innovation way is 380' in length and connects to Jager Way which serves the commercial development "The Commerce Center at Enchanted Hills". There is street lighting at the intersection.

Innovation Way has a HMA pavement section and is in good condition.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.7.10 Sprint Boulevard

Sprint Boulevard is a local road that consists of two 12' lanes in each direction, a 20' raised median, curb & gutter and sidewalk left and multi-use path right. The intersection with US 550 is signal controlled and there is street lighting. The posted speed limit is 40 mph. Sprint Boulevard serves the community of Enchanted Hills.

Sprint Boulevard has a HMA pavement section and is in good condition.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.7.11 Paseo Del Volcan

Paseo del Volcan is classified as a principal arterial by the City of Rio Rancho. Paseo del Volcan has a typical section that consists of two 12' lanes and 6' shoulders. The posted speed limit is 55mph. The intersection is stop controlled and there is lighting on all legs of the intersection.

Paseo del Volcan has a HMA pavement section and is in good condition.

Existing geometric conditions were evaluated using orthophotography and field observations. The horizontal and vertical alignments are adequate for the posted speeds.

3.8 Existing Rio Grande Bridge

Information regarding the existing US-550 bridge structures located in Bernalillo (Westbound Structure at MP 1.53 to Eastbound Structure MP at 1.54), including location, year built, geometry, structure, sufficiency and deficiency, may be found in **Appendix D**. Complete DOT bridge inspection reports for all bridges are available in **Appendix D**. See **Figure 1.1** for bridge structure locations.

3.8.1 Rating

Bridges are required to be inspected regularly. With each inspection report, a series of ratings is provided based on the bridge conditions observed during the inspection. These ratings include an overall Sufficiency Rating, Condition Rating, and Appraisal Rating.

3.8.1.1 Sufficiency Rating

Each vehicular bridge is inspected, rated, and assigned a sufficiency rating. The Sufficiency rating is indicative of a bridge's sufficiency to remain in service. The sufficiency rating is also used to define the eligibility for federal funding available for a bridge; in general the lower the rating, the higher the

priority. A bridge typically must have a sufficiency rating of 80 or less to qualify for federal funds for rehabilitation and a rating of 50 or less for replacement funds.

Sufficiency ratings are determined using the sufficiency rating formula. This formula is defined in the U.S. Department of Transportation's report titled "Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges". The numeric value is a percentage in which 100 percent represents an entirely sufficient bridge and zero percent represents a totally insufficient bridge. The sufficiency rating formula utilizes the following four components to calculate the overall Sufficiency Rating for a bridge. The four components of the sufficiency rating listed in descending order of importance are:

- Structural Adequacy and Safety
- Serviceability and Functional Obsolescence
- Essentiality for Public Use
- Special Reductions

3.8.1.2 Condition Rating

Three items that characterize the overall existing physical condition of the bridge are the condition ratings of the superstructure, substructure and the deck. The condition rating is one of several values used to calculate the overall Sufficiency Rating. The condition rating is a numerical value ranging from zero to nine with a zero representing a failed condition and a nine representing an excellent condition. The rating is determined by the bridge inspector based on field observations during the inspection. The condition ratings of the superstructure and substructure have a much greater influence on the overall sufficiency rating than the condition rating of the deck.

3.8.1.3 Appraisal Rating

Appraisal ratings are used to evaluate the level of service a bridge provides in relation to the highway system of which it is a part. The structure is compared to a new one built to current standards for that particular type of road. Appraisal ratings are assigned (where applicable) for structural evaluation, deck geometry, waterway adequacy, approach alignment, under clearances, and scour. Appraisal rating values range from zero to nine. A rating of zero is used for bridges that are closed. A rating of two indicates that the bridge is far below the current standards and should have a high priority for replacement. A rating of nine indicates that the bridge is superior to present desirable criteria.

The Structural Evaluation Appraisal Rating is determined using the Condition Rating of the substructure and superstructure. Horizontal and vertical under clearances are evaluated for sufficiency for current traffic loads and rated accordingly. The Deck Geometry Rating is determined using the current ADT and/or the number of lanes on the roadway.

3.8.2 US 550 Bridge Ratings

The US-550 structure consists of two bridges, for Westbound and Eastbound traffic. The sufficiency ratings of both bridges are adequate and neither was rated "Structurally Deficient". The sufficiency rating of Westbound Bridge 8540 is 85, which indicates it has adequate deck geometry and vertical clearances and that it does not have any elements in poor condition.

The Eastbound Bridge 8537 has a lower sufficiency rating of 79 due to its deck geometry appraisal rating. The deck geometry rating is 5, which is considered to be tolerable. The curb-to-curb width of 29.2' is sufficient, but is narrow for two lanes of southbound highway traffic.

Deficiency Status

In addition to the Sufficiency Rating, the Federal Highway Administration (FHWA) classifies bridges as deficient or not deficient using a formula that considers both structural capacity and geometric configuration. Bridges classified as deficient may be structurally deficient or functionally obsolete. A bridge that is in poor condition due to deterioration or damage to the substructure, superstructure or deck is considered structurally deficient. The classification of functionally obsolete refers to a bridge with a configuration that is not adequate for the traffic it serves or a bridge with geometric characteristics such as clearances, widths and roadway alignment that no longer meet current geometric design standards. Thus a bridge that is classified as deficient may be in good condition and have adequate structural capacity if it is classified as functionally obsolete rather than structurally deficient. Fortunately, both Bridge 8540 and 8537 are rated as not deficient and are expected to be utilized in accommodating additional traffic lanes.

3.8.3 Inventory and Operating Rating

The inventory rating of a bridge reflects the safe load carrying capacity of the bridge for normal service conditions. The operating rating of a bridge is a measurement of the maximum permissible load of a bridge for occasional use. Both of the structures satisfy requirements and do not require load restriction posting. Both of the structures have an HS19.8 inventory load rating.

3.8.4 Traffic Safety Features

Both of the bridges on US 550 have adequate traffic safety features that meet current standards.

3.8.5 Structural Conditions

Both of the bridges have structural and maintenance issues which were noted in the inspection reports and should be addressed. For both bridges, it is recommended that the graffiti is painted over and the vegetation underneath is cleared. The Eastbound Bridge has rip-rap deficiencies which either needs to be replaced or repaired. The Westbound Bridge needs all missing tie rod and anchor bolt nuts and washers replaced and existing ones tightened. It is also recommended that the Westbound Bridge have joint repair and its deck and median be flushed and cleaned. Further details on these recommendations are provided in the inspection notes.

3.8.6 Joints

Bridge 8540 has several issues with the abutment joints that should be repaired. The east abutment joint has a 4' long tear near the south edge and a 3' long tear at the north edge. The West abutment joint is debonded along its entire length of 27'.

3.8.7 Cracking

The majority of the cracking in both bridges appears across the deck. None of the cracking on either bridge is severe enough to need repair but should be kept mindful in the future.

On bridge 8540, there are numerous full-depth transverse cracks throughout the deck at ¼" with moderate leaching on the underside. The back walls and breast walls of the abutment have some cracking with light leaching. The fascia walls show considerable honeycomb and some cracking. Similarly, on bridge 8537 many full-depth transverse cracks up to ¼" appear throughout the deck and are developing on the underside. Some cracking and light leaching are appearing on the abutment back walls and breast walls.

3.8.8 Bearings

Both bridges are missing some bolts and have rust with minor section loss. It has been recommended that they be replaced or cleaned.

3.8.9 Utilities

Both bridges have many existing utilities running alongside and across the underside which would be relocated in the event of widening the bridge.

3.9 Existing Right-of-Way and Ownership

The property line information shown on the **Figures 5.5 to 5.9** (ROW is from Sandoval County GIS data and available NMDOT right-of-way maps). Since no field work was performed, all information is approximate.

The approximate right-of-way width from Paseo del Volcan west of NM 528 is 260 feet. The approximate right-of-way from NM 528 to Jemez Dam Road is 235 feet. From Jemez Dam Road to the Rio Grande the right-of-way is approximately 200 feet. From the east side of the river to Camino Don Tomas the right-of-way varies from 132 to 96 feet. From Camino Don Tomas to NM 313 the right-of way varies from 120 to 115 feet.

3.10 Existing Drainage Conditions

3.10.1 Previous Drainage Studies

The area in the vicinity of the project has been the subject of numerous previous drainage studies. The following were reviewed in preparation of this report.

I-25/US 550 Interchange Reconstruction Final Drainage Report, Vector Engineering, LLC and North Sound Consulting, Inc., July 2012, Project Number A301220; CN A301220. This project ends at NM 313. New storm drain systems are proposed in US 550, east of NM 313. The storm drains outfall to retention ponds and collect all US 550 roadway drainage, east of NM 313. Construction of this project has begun and ponds and inlets from this project that were constructed before the site visit in August 2013 are included in the existing drainage structure inventory for this US 550 Corridor Study.

City of Rio Rancho, Final Drainage Report, Paseo del Volcan (Northern Section) Stage II – Iris Road to US 550, HDR, Feb. 20, 2009. This report includes hydrology for offsite basins southwest of this Corridor Study, end of project limits (Paseo del Volcan) and discusses existing drainage inlets at US 550 and Paseo del Volcan.

Flood Insurance Study. Sandoval County, New Mexico and Incorporated Areas, FEMA, Flood Insurance

Study Number 35043CV000A, revised March 18, 2008. The FEMA flood insurance study covering the project area was recently updated March 18, 2008, and shows Zone A areas along the project from west of NM 313 to the river. These are areas where flooding is likely, but where detailed analyses were not performed.

ESCAFCA Drainage Master Plan and Needs Assessment, Wilson and Company, June 2008. This study was prepared for ESCAFCA to determine storm flow rates and to identify likely areas of flooding and preliminary options for improvements. The study included discussion of existing Bernalillo drainage issues and facilities.

Grading and Drainage Plan for the Walgreens Store at the NE Corner of NM 313 and US 550, Tierra West, LLC, August 2003. This plan shows design information and construction drawings for

the existing drainage pond at the NE corner of NM 313 and US 550. Existing drop inlets in US 550 discharge to this pond.

NM 528 Corridor Study, Coors Blvd. to NM 44, Preliminary Drainage Report, BHI, October 9, 1998. This report discusses two crossing structures that relate to this project area, structures 26 and 27, located just south of US 550. The City of Rio Rancho has recently improved NM 528 in the vicinity of US 550 (2013), however a related drainage report for the improvements is unavailable.

Preliminary Drainage Report for Project Number: NH044(29), CN 3299. NM 44 – Bernalillo to San Ysidro, AVID Engineering, Inc., January 10, 1997. This report has 50-year and 100-year flows for basins crossed by NM 44 (now US 550), starting at NM 528 and ending at San Ysidro. These basins are west of our project area but this report can be used for hydrologic inputs for the area between NM 528 and Paseo del Volcan.

3.10.2 DESIGN CRITERIA

This project will be designed in accordance with the NMDOT Drainage Manual and the June 2007 Design Criteria. NM State Engineer standards prevail for any dams, but all retention facilities on this project will be "non-jurisdictional", based on their criteria. The project and offsite drainage basins lie within the Town of Bernalillo (TOB), The City of Rio Rancho, Santa Ana Indian Reservation, and Sandoval County, as well as within the limits of ESCAFCA.

NMDOT Drainage criteria are based on roadway classification, number of lanes, and Average Daily Traffic (ADT). The roadways included in the project are US 550 and potentially new backage roads. US 550 is being designed as a six-lane urban primary arterial roadway with ADT more than 400. Based on the roadway characteristics, the criteria for drainage structure design is defined by "Drainage Design Criteria for NMDOT Projects", June 2007, Table 2A.

The storm frequencies for interstates and primary arterials are the 50-year storm for the design flood and the 100-year storm for the check flood per NMDOT drainage design criteria. The storm frequencies for minor arterials, collectors and local roads are the 10-year storm for the design flood and the 50-year storm for the check flood. If proposed improvements will be designed for retention, a 24-hour storm duration will be assumed.

3.10.3 Hydrologic Inputs and Methodology

The 50-year, 24-hour storm precipitation depth is 2.4" and the 100- year, 24-hour depth is 2.66" (NOAA Atlas 14 Point Precipitation Frequency Estimate). The rainfall matches that used in the adjacent I-25/ US 550 Interchange Reconstruction Project, Vector Engineering, 2012.

As discussed with the NMDOT District 3 Drainage Engineer, previous drainage studies in the area will be reviewed and hydrologic inputs from those studies will be used in this project, as appropriate. This approach ensures that consistent assumptions and approaches for the area are used.

Offsite basins were not delineated in this study as the runoff within the project area is US 550 roadway runoff and small areas adjacent to the roadside ditches. A detailed drainage study may be prepared, if needed, for future phases of the project. General estimates of 100-year, 50-year and 10-year cfs/ac runoff have been compiled from previous drainage studies in the corridor area. These are summarized in **Table 3.6**.

3.10.4 Existing Drainage Structures

Figure 3.7 is a key map which shows the existing structures on a photo base drawing. Existing drainage structures identified include ponds, culverts, inlets, and ditches. **Figure 3.8** highlights the existing drainage structures for US 550 from NM 313 (beginning of project limits) to the Rio Grande. The structures in this reach are labeled DS 1-1 through DS 1-25. **Figure 3.9** depicts the existing drainage structures for US 550 from the Rio Grande to NM 528. The structures in this reach are labeled DS 2-1 through DS 2-32. **Figure 3.10** shows the existing drainage structures for US 550 from NM 528 to Paseo del Volcan (end of project limits). The structures in this reach are labeled DS 3-1 through DS 3-16. In addition, details related to existing drainage structures are included in **Appendix C** – Drainage Structure Inventory.

Table 3.6 General Runoff Rates per Acre for Corridor Area

	NM 313 (Beginning of Project) to the Rio Grande[1]	NM 313 (Beginning of Project) to the Rio Grande[2]	Rio Grande to NM 528[3]	NM 528 to Paseo del Volcan (End of Project)[4]
100-year (cfs/ac)	5.4 to 7 cfs/ac	1.6 to 4 cfs/ac	No Data Found	1.1 to 2.1 cfs/ac
50-year (cfs/ac)	4.2 to 6.3 cfs/ac	1.3 to 3.2 cfs/ac	No Data Found	0.75 to 1.6 cfs/ac
10-year (cfs/ac)	3.5 to 4.6 cfs/ac	1 to 2.6 cfs/ac	No Data Found	0.7 to 1.4 cfs/ac

[1]Roadway runoff values (NMDOT Rational Method)

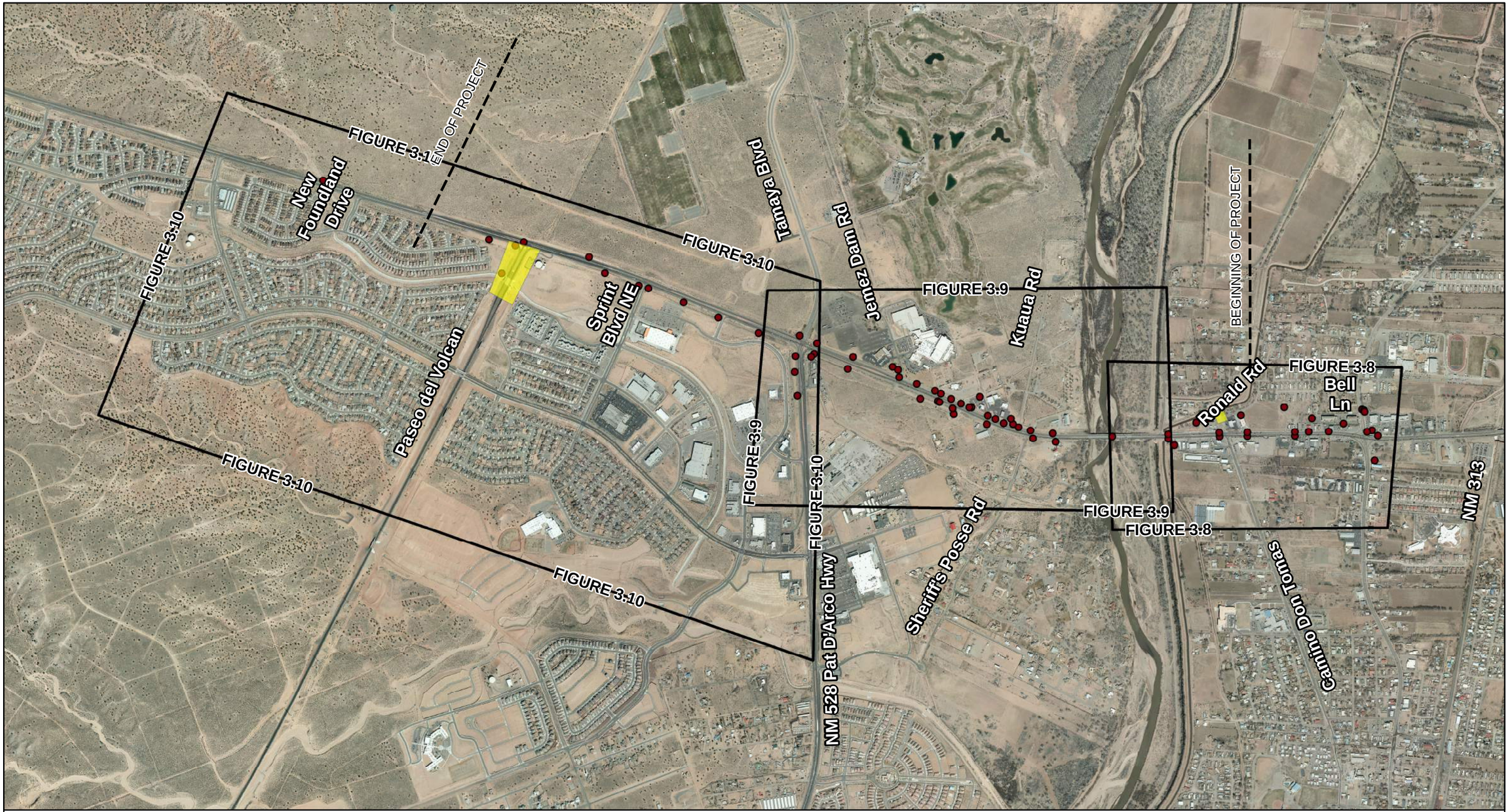
[2]Combination of roadway and offsite runoff values (AHYMO)

[3]No data was located from large scale drainage studies specific to this area

[4]Offsite-basin values

3.10.5 Existing Drainage Patterns

Figure 3.7 shows the existing drainage flow patterns for the corridor area. From the beginning of project at NM 313, the general flow pattern is to the west, toward the river, though the gradient in this area is very flat. Runoff from east of NM 313 does not enter this study area; it is controlled through a series of inlets and retention ponds before reaching NM 313. US 550 roadway drainage in the area from NM 313 to the river is captured by inlets and a gravity storm drain system that outfalls to a pump station just east of the river and south of US 550. The pump station discharges to the Rio Grande. Adjacent businesses to US 550 in this area convey their runoff away from the roadway into individual retention ponds.



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Legend

- Drainage Structures and Ponding Areas
- NMDOT Existing Areas of Concern
- Figure Boundary

CORRIDOR STUDY REPORT
US 550 FROM PASEO DEL VOLCAN TO NM 313

FIGURE 3.7
EXISTING DRAINGAGE STRUCTURES
KEY MAP

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Author: kbramlett

DS-3-16
10+00
15+00
20+00
25+00
30+00
35+00
DS-3-15
DS-3-14
40+00
45+00
50+00
DS-3-13
DS-3-12
DS-3-11
US Hwy 550
60+00
DS-3-10
65+00
DS-3-9
70+00
DS-3-7
DS-3-8
75+00
DS-3-6
DS-3-4
80+00
85+00
90+00
DS-3-5
DS-3-3
DS-3-2
DS-3-1
New Foundland Drive
Paseo del Volcan
Sprint Blvd NE
Tamaya Blvd
NM 528 Pat D'Arco Hwy

Drainage Structure-Location Related to US 550

Drainage Structure ID	Approx. Station	Side	Structure Type
3-01	91+50	South	RCP
3-02	90+50	South	Ditch
3-03	91+00 to 93+00	South	1-36" CMP
3-04	90+50 to 92+50	North	1-18" CMP
3-05	79+00 to 91+00	South	Ditch
3-06	78+00 to 79+00	South	1-30" CMP
3-07	65+50 to 78+00	South	Ditch
3-08	65+25	South	Concrete Rundown
3-09	64+00 to 65+50	South	1-24" CMP
3-10	47+00 to 64+00	South	Ditch
3-11	42+50 to 90+50	North	Ditch
3-12	43+00	South	Drop Inlets
3-13	43+50	South	Riprap Rundown
3-14	43+50	Roadway	Inlets
3-15	18+00 to 44+00	South	Ditch
3-16	11+50	Crossing	CBC

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EXISTING DITCHES

CORRIDOR STUDY REPORT
US 550 FROM PASEO DEL VOLCAN TO NM 313

FIGURE 3.8
EXISTING DRAINAGE STUCTURES
PASEO DEL VOLCAN to NM 528

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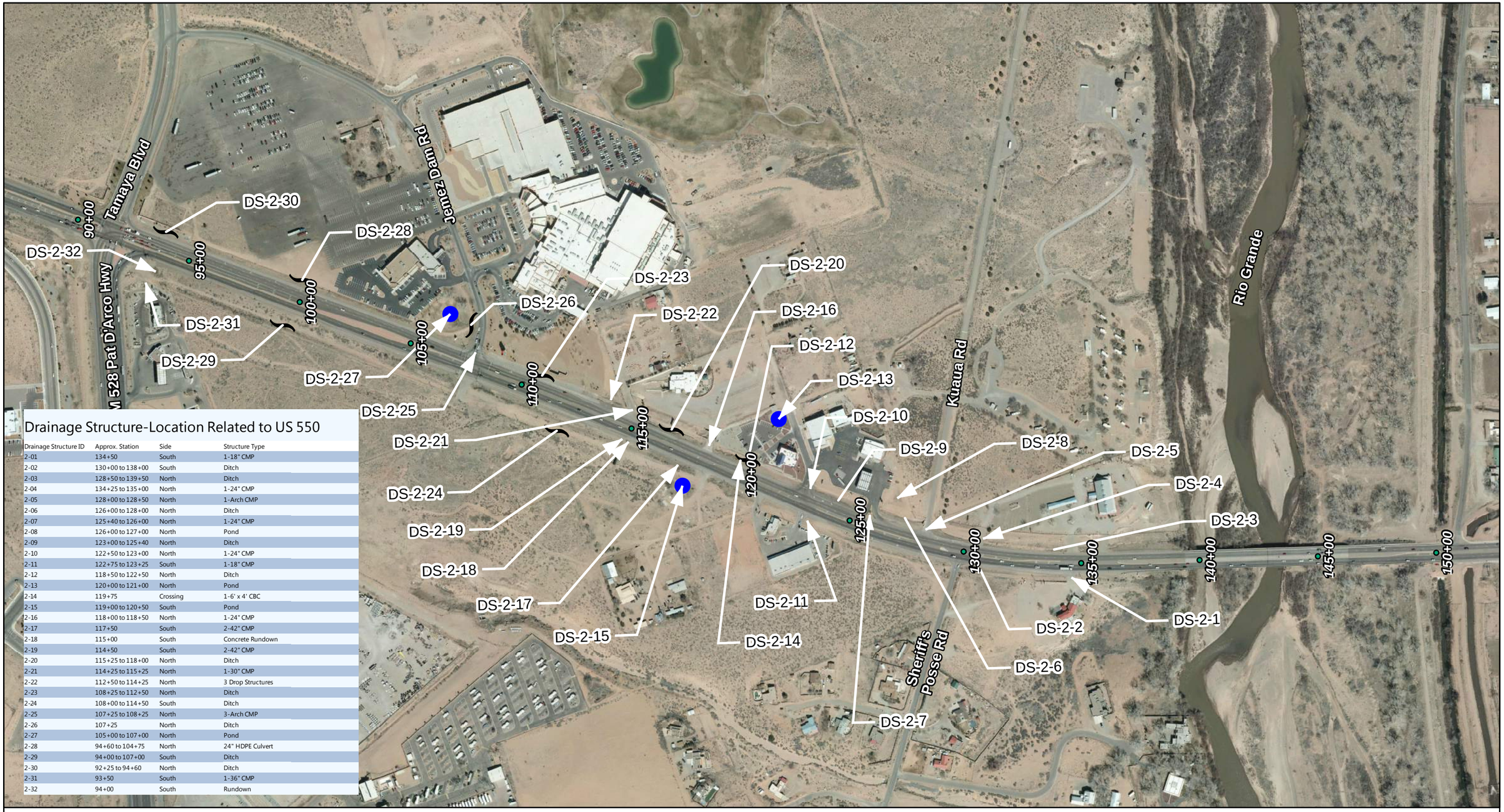
Author: kbramlett



Drainage Structure-Location Related to US 550

Drainage Structure ID	Approx. Station	Side	Structure Type
2-01	134+50	South	1-18" CMP
2-02	130+00 to 138+00	South	Ditch
2-03	128+50 to 139+50	North	Ditch
2-04	134+25 to 135+00	North	1-24" CMP
2-05	128+00 to 128+50	North	1-Arch CMP
2-06	126+00 to 128+00	North	Ditch
2-07	125+40 to 126+00	North	1-24" CMP
2-08	126+00 to 127+00	North	Pond
2-09	123+00 to 125+40	North	Ditch
2-10	122+50 to 123+00	North	1-24" CMP
2-11	122+75 to 123+25	South	1-18" CMP
2-12	118+50 to 122+50	North	Ditch
2-13	120+00 to 121+00	North	Pond
2-14	119+75	Crossing	1-6' x 4' CBC
2-15	119+00 to 120+50	South	Pond
2-16	118+00 to 118+50	North	1-24" CMP
2-17	117+50	South	2-42" CMP
2-18	115+00	South	Concrete Rundown
2-19	114+50	South	2-42" CMP
2-20	115+25 to 118+00	North	Ditch
2-21	114+25 to 115+25	North	1-30" CMP
2-22	112+50 to 114+25	North	3 Drop Structures
2-23	108+25 to 112+50	North	Ditch
2-24	108+00 to 114+50	South	Ditch
2-25	107+25 to 108+25	North	3-Arch CMP
2-26	107+25	North	Ditch
2-27	105+00 to 107+00	North	Pond
2-28	94+60 to 104+75	North	24" HDPE Culvert
2-29	94+00 to 107+00	South	Ditch
2-30	92+25 to 94+60	North	Ditch
2-31	93+50	South	1-36" CMP
2-32	94+00	South	Rundown

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- EXISTING POND
- EXISTING DITCHES

CORRIDOR STUDY REPORT
US 550 FROM PASEO DEL VOLCAN TO NM 313

FIGURE 3.9
EXISTING DRAINAGE STUCTURES
NM 528 to RIO GRANDE

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Author: kbramlett

Drainage Structure-Location Related to US 550

Drainage Structure ID	Approx. Station	Side	Structure Type
1-01	185+25 to 185+75	Both	3 CDI
1-02	185+00 to 183+00	North	Pond
1-03	184+00	North	DI
1-04	183+00	North	2 CDI
1-05	183+00	North	Pond
1-06	183+00	North	Sidewalk Culverts
1-07	184+00 to 186+00	South	Pond
1-08	179+00	North	Pond
1-09	175+50	North	Pond
1-10	177+40	North	CDI w/Slotted Drain
1-11	174+25	North	CDI w/Slotted Drain
1-12	172+00	North	CDI w/Slotted Drain
1-13	172+00	South	CDI w/Slotted Drain
1-14	167+00 to 170+00	North	Pond
1-15	164+50	North	CDI w/Two Slotted Drains
1-16	164+60	South	CDI w/Two Slotted Drains
1-17	164+00	North	Pond
1-18	160+10	North	CDI w/Slotted Drain
1-19	160+25	South	CDI w/Slotted Drain
1-20	158+50	North	Pond
1-21	156+50	North	Pond
1-22	153+00	South	Pond
1-23	152+00	North	CDI w/Slotted Drain
1-24	152+00	South	CDI w/Slotted Drain
1-25	139+00 to 150+00	Both	Bridge Drains

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- EXISTING POND

CORRIDOR STUDY REPORT
US 550 FROM PASEO DEL VOLCAN TO NM 313

FIGURE 3.10
EXISTING DRAINAGE STUCTURES
RIO GRANDE to NM 313

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Author: kbramlett

West of the Rio Grande, the general drainage pattern is east, toward the river. In general, ditches along both sides of US 550 convey the roadway runoff and some minor adjacent area offsite runoff toward the river, with culverts at each roadway turn out.

There is only one crossing structure under US 550 in the corridor area. The structure is 1-6-foot wide by 4-foot high concrete box culvert (CBC), located at approximately station 119+75. It takes ditch drainage from the south side of US 550 to the north and outfalls in a roadside ditch just upstream of the I-Hop Restaurant.

South of US 550, the roadside ditch from Paseo del Volcan to the crossing culvert under US 550 is a wide, well established, vegetated ditch. Development tends to be set back further from the roadway in this area, compared to areas further east in the corridor. Downstream of the crossing culvert under US 550, a smaller roadside ditch conveys US 550 runoff to the river. Drainage south of the roadway and ditch in this area is handled by the Enchanted Hills Channel and several storm drain systems that take the runoff south, away from US 550. The US 550/Paseo del Volcan interchange is a high T intersection and no runoff from west of Paseo del Volcan enters the corridor area on the south side of US 550.

North of US 550, roadway runoff is conveyed in a small ditch from west of Paseo del Volcan to NM 528/Tamaya Blvd. Downstream of NM 528, the flow is conveyed in a riprap lined ditch to an underground culvert pipe and into a detention pond located on the northwest corner of Jemez Dam Road and US 550. The pond discharges through a ported riser to the culvert entrance under Jemez Dam Road and runoff continues toward the river in a series of rip rap lined ditch, asphalt lined ditch with concrete drop structures, and unlined ditch section all with crossing culverts at each business and road turnoff. Several businesses in this section have retention ponds for their on-site runoff.

3.10.6 NMDOT Drainage & Maintenance Input

On Thursday, August 29, 2013, BHI met with Tim Trujillo, NMDOT District 3-Drainage Engineer, Tom Kratochvil, NMDOT District 3- Assistant District Engineer-Maintenance, and Johnny Perea, NMDOT District 3-Maintenance to discuss drainage and maintenance concerns for the project area.

Two areas of concern for NMDOT were discussed. The first is at the end of project limits at Paseo del Volcan (PDV). PDV and this intersection are newly constructed and recent rainfalls caused closure of PDV south of the US 500 intersection due to large amounts of sediment and silt in the roadway and clogging inlets. Rill erosion is also an issue on the PDV embankments just south of US 550. PDV is owned by NMDOT and maintained by the City of Rio Rancho.

The second area that has historically had complaints of flooding is located north of US 550 on Camino Don Tomas. The complaint has been that if the US 550 inlets are clogged, runoff can pond and flood this area.

The two areas of concern are indicated on the Existing Drainage Structure **Figure 3.7** for reference.

Maintenance wise, the drainage along US 550 is functional, has capacity and NMDOT would prefer not to alter it. The ditch along the south side of US 550 from Sprint Blvd. to the River (see **Figures 3.9 and 3.10**) has well established grade, vegetation, and mostly new access road culverts. For maintenance reasons, NMDOT would prefer that this not be disturbed.

3.11 Existing Utilities

Subsurface Utility Engineering Level A was conducted for the study area. Therefore utilities within the study area were identified by general location and owner with more precise location level conducted when this project moves onto Phase 1B. The approximate location of the utilities is shown in **Figures 3.11 to 3.15**. Known utility owners and facility types within the study area includes the following:

- Telecommunication - Century Link
- Water/Wastewater - City Of Rio Rancho
- Gas - New Mexico Gas
- Electric Power Distribution & Transmission - PNM
- Cable - Cable One
- Water/Wastewater - Town of Bernalillo

3.12 Land Use and Planned Development

There are no specific land use or master plans within the Project. **Figures 3.16, 3.17, and 3.18** indicates existing zoning or land use plans for the Town of Bernalillo, City of Rio Rancho, and the Santa Ana Pueblo, respectively.

MATCH LINE SEE PREVIOUS SHEET

41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00

Paseo del Volcan

Town of Bernalillo Water Tank

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00

Sprint Blvd NE

Home Depot

CATV CABLE TV
CABLE TV OH
W WATER LINE
ELECTRICAL
OHE ELECTRIC LINE OH
ELECTRIC LIGHTING
FO FIBER OPTIC
FIBER OPTIC OH
GAS GAS
SAS SANITARY SEWER
T TELEPHONE
TELEPHONE OH

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SCALE IN FEET

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Mon, 8-Sep-2014 - 12:10:pm, Plotted by: LAHINDE

8220 SAN PEDRO DRIVE NE
SUITE 150
ALBUQUERQUE, NM 87113
505/338-0988 FAX 505/338-0989

Bohannan Huston
www.bhinc.com 800.877.5332

US 550 CORRIDOR

Figure 3.11
Approximate Utility Locations

MATCH LINE SEE PREVIOUS SHEET

71+00 72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00 84+00 85+00

Home Depot

Dinosaur Way NE

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

86+00 87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00 100+00

Cemetery

Pan D'Arco Hwy NM-528

Wendy's
Rio Mart

MATCH LINE SEE NEXT SHEET

CATV CABLE TV
CATV CABLE TV OH
W WATER LINE
OHE ELECTRICAL
OHE ELECTRIC LINE OH
ELECTRIC LIGHTING
FIBER OPTIC
FIBER OPTIC OH
GAS GAS
SAS SANITARY SEWER
TELEPHONE
TELEPHONE OH

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US 550 CORRIDOR

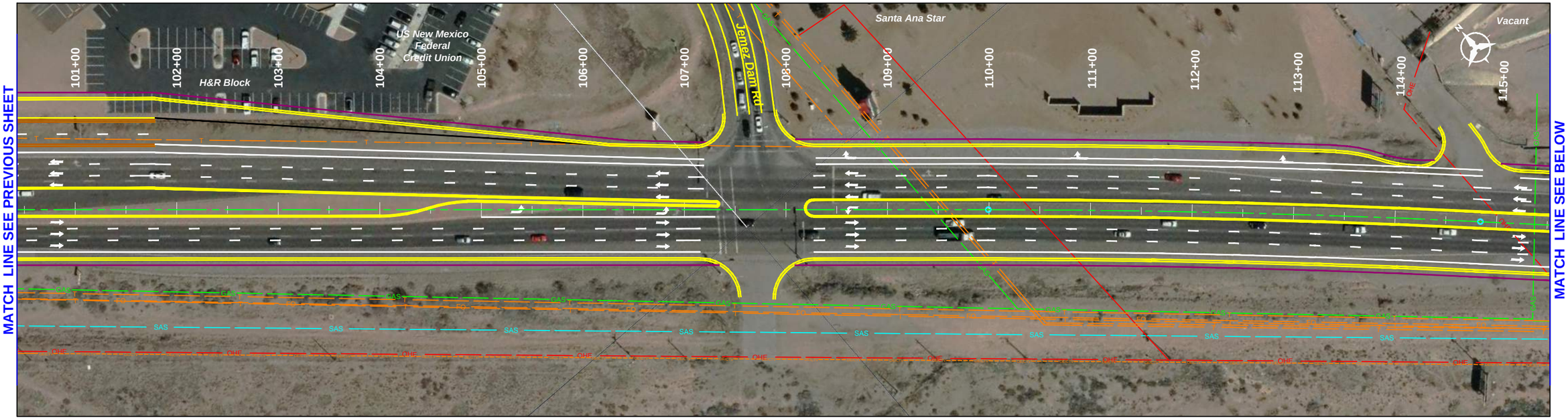
Figure 3.12
Approximate Utility Locations

MATCH LINE SEE PREVIOUS SHEET

MATCH LINE SEE ABOVE

MATCH LINE SEE BELOW

MATCH LINE SEE NEXT SHEET



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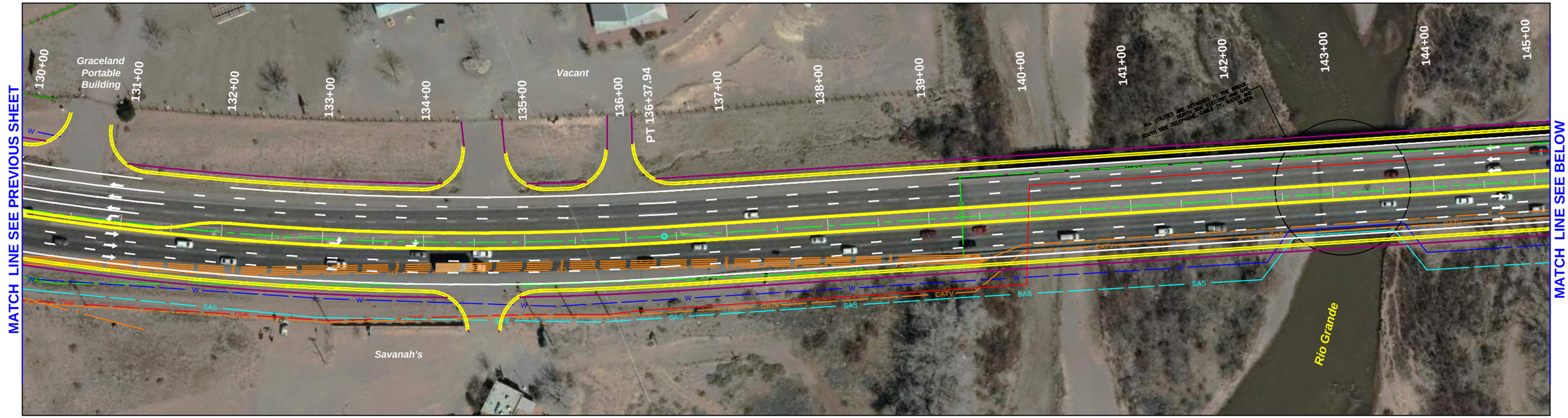
US 550 CORRIDOR

Figure 3.13
Approximate Utility Locations

NEW MEXICO PROJECT NO. A301230



8220 SAN PEDRO DRIVE NE
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ALBUQUERQUE, NM 87113
505/338-0988 FAX 505/338-0989

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US 550 CORRIDOR

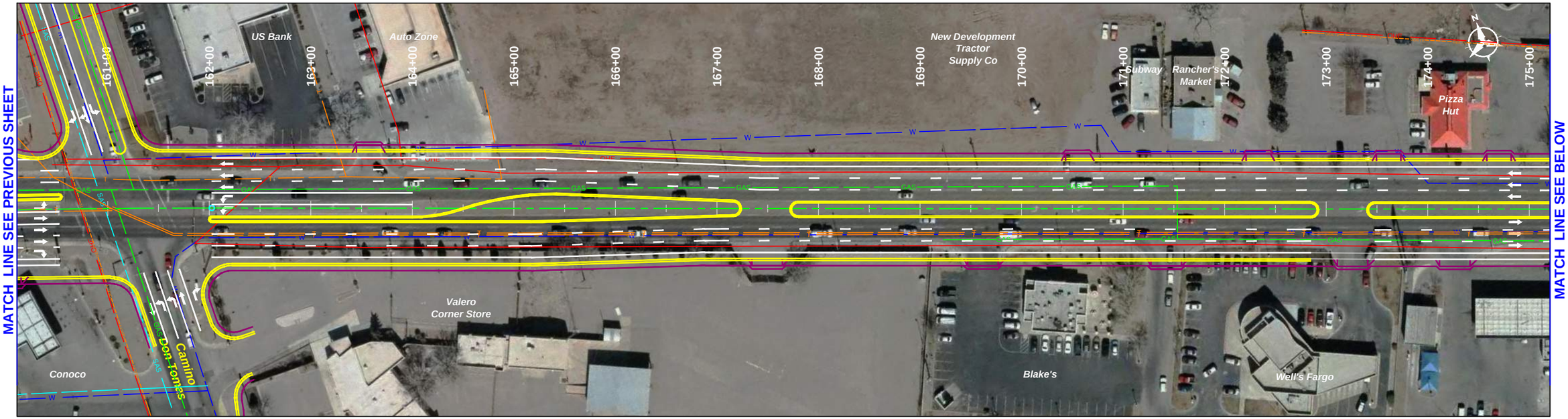
Figure 3.14
Approximate Utility Locations

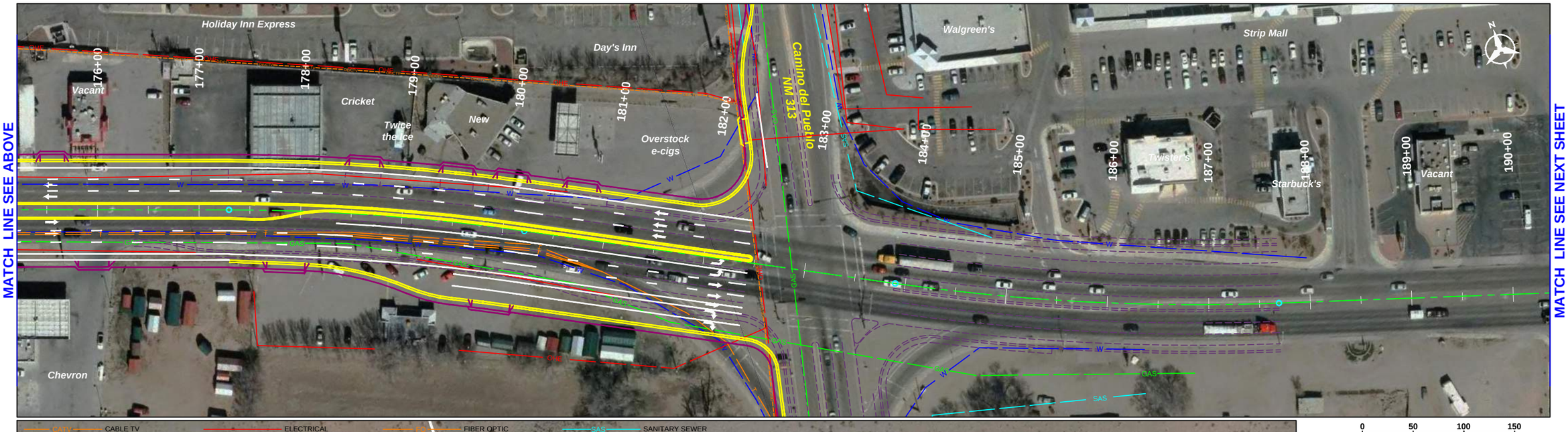
MATCH LINE SEE PREVIOUS SHEET

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

MATCH LINE SEE NEXT SHEET





CATV CABLE TV
CABLE TV OH
W WATER LINE
OHE ELECTRICAL
ELECTRIC LINE OH
ELECTRIC LIGHTING
FO FIBER QPTIC
FIBER OPTIC OH
GAS GAS
SAS SANITARY SEWER
T TELEPHONE
TELEPHONE OH

0 50 100 150
SCALE IN FEET

NMDOT

8220 SAN PEDRO DRIVE NE
SUITE 150
ALBUQUERQUE, NM 87113
505/338-0988 FAX 505/338-0989

Bohannan Huston
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US 550 CORRIDOR

Figure 3.15
Approximate Utility Locations

NEW MEXICO PROJECT NO. A301230

SHEET NO. 37

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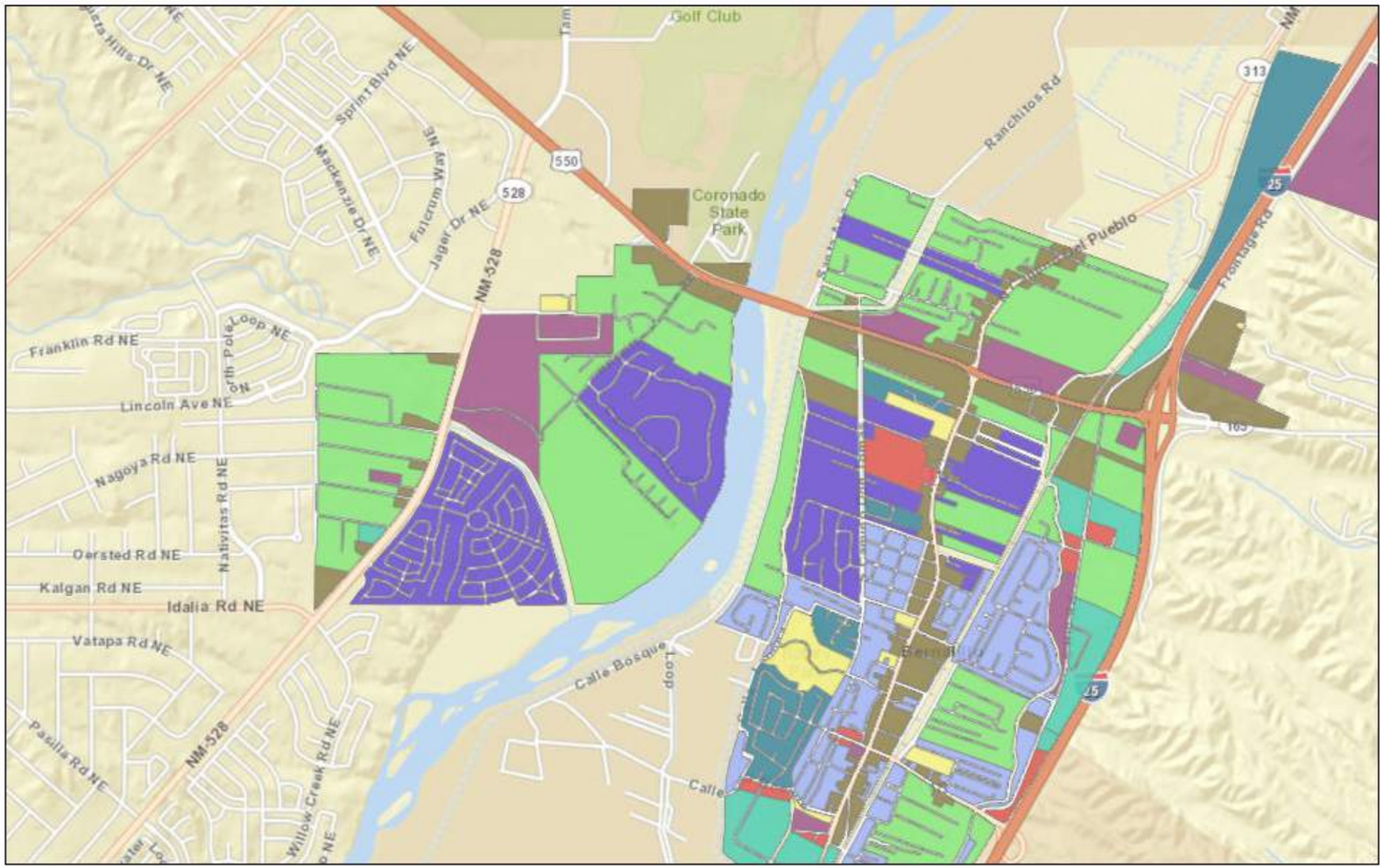
Mon, 8-Sep-2014 - 12:11:pm, Plotted by: LAHINDE

Figure 3.16 Land Use Plan for Town of Bernalillo



C-1 = Retail Commercial	M-1 = Light Industrial	R-2 = Multiple Family Residential
C-R = Commercial Residential	R-1 = Single Family Residential	R-R = Rural Residential
EXPT = Exempt	R-1A = Mixed Single Family Residential	S-U = Special Use

Figure 3.17 Land Use Plan for City of Rio Rancho

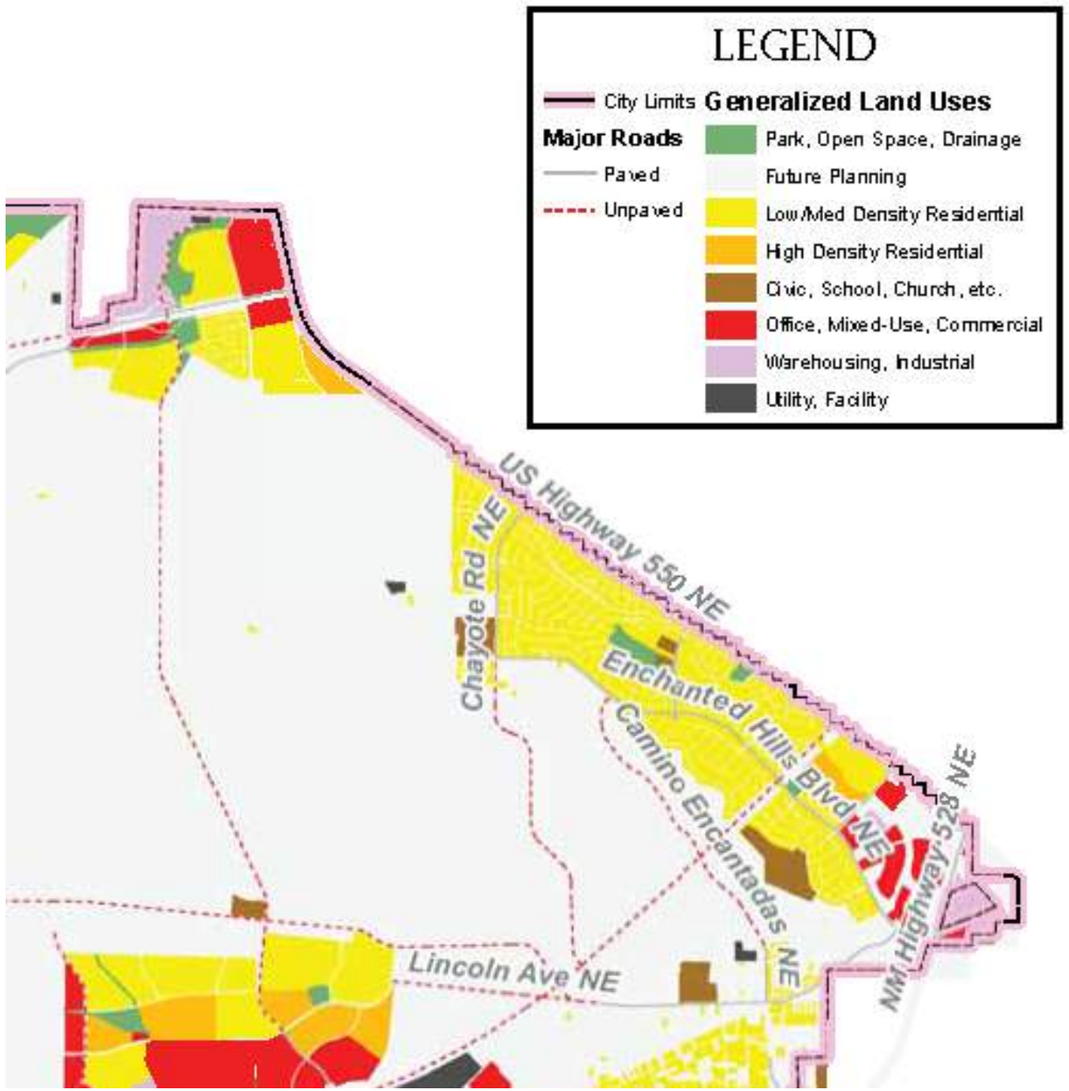
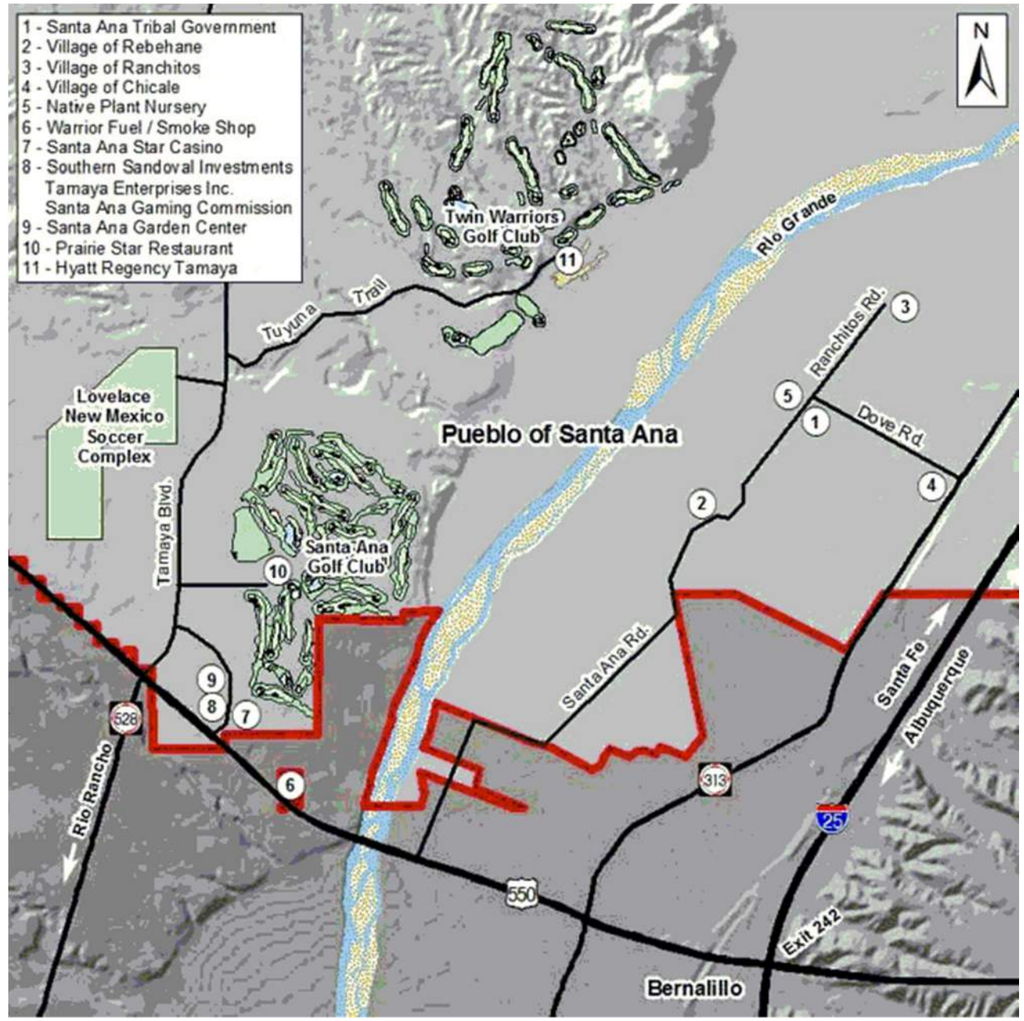


Figure 3.18 Land Use Plan for Santa Ana Pueblo



As indicated, the Town of Bernalillo has zoned several undeveloped areas for residential use south of US 550 and a small amount north of US 550. There are several large areas of undeveloped land zoned as special use, which means these locations could be a variety of land use types. These are

located off of NM 528, north of US 550, and the east side of I-25. In general commercial zoning occupies either side of US 550 and NM 313.

The City of Rio Rancho currently has low to medium density residential located on the south side of US 550 and on both sides of Paseo del Volcan. There is some existing and proposed office/commercial mixed zoning east of Sprint Boulevard and between US 550 and Enchanted Hills Boulevard.

Currently, the Santa Ana Pueblo is incorporating commercial land uses north of US 550 between NM 528 and Sheriff's Posse Road including the Santa Ana Star Casino, a plant nursery, Warrior Fuel and Smoke Shops.

3.11.1 Planned and Future Development

Impending projects and developments in the area include the following:

I-25/US 550 Interchange Project – This is an NMDOT project currently under construction and will provide an additional lane width on US 550 from the I-25 interchange to NM 313. Additionally, the I-25/US 550 interchange will be reconfigured as a single point urban interchange (SPUI). Access to Hill Road to and from US 550 will be limited to right-in/right-out. Back access roads north and south of US 550 will be constructed from the Rail Runner transit hub to Rail Runner Avenue on the south side and along the commercial sites on the north side between Rail Runner Avenue to NM 313. Raised medians with access control will be constructed on US 550 between the interchange and NM 313.

US 550/Camino Don Tomas Intersection Improvements – This is a Town of Bernalillo project which is still in the design process. This project is anticipated to add a right-turn lane on the west leg of this intersection, and the east leg left-turn lane will be lengthened. Pedestrian ramps will be upgraded to satisfy ADA requirements. Signal equipment upgrades will also be implemented as well. Construction is anticipated to begin mid-July in 2014.

Valero Truck Stop Development – A Valero truck stop has been constructed for the southeast corner of the US 550/Camino Don Tomas intersection.

Santa Ana Pueblo Development - There is a plan for additional commercial for the Pueblo owned parcel south of US 550 at Jemez Dam Road. No final land use plans have been made available.