

SUMMARY

Potential short term, near term, and long term projects to be investigated further in the Phase 1A study are summarized in Table 13.

Table 13. Summary of Potential Short Term, Near Term, and Long Term Mitigation

	Potential Projects for Phase 1A Study
Short Term	New signal construction at both the Paseo del Volcan and Sherriff's Posse/Kuaua intersections
	Retiming of signals in the corridor
	Upgrade of pedestrian signal equipment and pedestrian ramp improvements to bring corridor in compliance with PROWAG
Near Term	Additional CCTV cameras to be placed at Paseo del Volcan and the Rio Grande River Bridge
	Addition of a third through lane, bike lanes, and sidewalk from NM 528 to NM 313
	With the addition of a 3rd through lane on US 550, raised medians in conjunction with driveway consolidation should be undertaken between Camino don Tomas and NM 313
	Dual left-turn lanes added to the south leg of NM 313 and US 550
	Extension of the eastbound left and right-turn lanes at NM 313
	Dual left-turn lanes added to the south leg of Don Tomas. This will also require intersection geometry realignment
Long Term	An additional through right-turn lane at southbound Jemez Dam Road when and if development projects occur on the south side of the intersection.
	An additional DMS to be located eastbound in advance of NM 313.
	Freeway Section from NM 528 to NM 313 with potnetial interchange at NM 528
	Eight-lane arterial section
	Six-lane arterial section in combination with dynamic lanes, BRT, adaptive signal timing, and access management
	Back access roads from Jemez Dam Road to NM 313
Long Term	Bike/pedestrian bridge across Rio Grande River
	Continuous flow or free flow intersection at NM 528
	Park and ride facility on the west side of the Rio Grande River

Conclusions and recommendations of this traffic operations and safety report are as follows:

- Resulting daily traffic collected on May 8 and 9 was the following:
 - East of Sprint Boulevard 23,516 ADT
 - West of Jemez Dam 32,292 ADT
 - At Rio Grande Bridge 32,315 ADT
- Based on historical data, growth from 2007 to 2011 on US 550 ranged from -2.3% (Camino Don Tomas to NM 313) to 5.6% (Paseo del Volcan to NM 528).
- MRCOG data predicts an average yearly growth rate of approximately 3% and an ADT of over 80,000 ADT between Camino Don Tomas and NM 528.
- Based on capacity analysis under existing conditions, 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 of 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 of 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 a long term one.
 - Although Jemez Dam operates overall at an acceptable level of service today, 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. 2013 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 of A.
- Based on capacity analysis under a "No-Build" condition, the following 2035 observations and conclusions are made:
 - Under no-build conditions, all study intersections will operate at a LOS F and over capacity under 2035 traffic demands.
 - An eight lane section appears to accommodate 2035 projected demands between NM 313 and Paseo del Volcan. Triple left-turns and right-turns would be needed at westbound Paseo del Volcan and northbound nm 528 respectively.
 - Some sort of free flow movement would likely be required for westbound left-turn movements at NM 528.
- Required geometry for short term (2013) and long term (2035) demands are summarized in **Figures 6 and 7**.
- Per a recent NMDOT Warrant Analysis, Paseo del Volcan currently warrants signalized control.
- A warrant study was also conducted for Sheriff's Posse and analysis indicates that this intersection currently warrants a signal under a single minor lane approach and is borderline if a multi minor lane approach is assumed.
- A signal is recommended at Sheriff's posse under the conditions of the following:
 - The access from Venada Plaza Drive is permanent and remains in place.
 - Sherriff's Posse Road or Kuaua Road is aligned into one four-leg intersection.
- No other signals along the study corridor are recommended due to poor spacing, which tends to degrade coordination operations.
- For the counts collected, the following intersections that do not already have auxiliary lanes satisfy NMDOT criteria for deceleration lanes.
 - **Camino Don Tomas** – Although right-turn demands are very light, the through traffic demand exceeds the NMDOT access management threshold warranting a right-turn auxiliary lane. As will be discussed in the Crash Analysis section, Camino Don Tomas was observed to have the greatest crash occurrences and therefore a right-run lane should be added by any additional development projects to the north accessing this street.
 - **Santa Ana Road/Bosque Trail Entrance** – Although, turn movements were not collected at this location, the adjacent through traffic is far greater than the 450 vehicles per hour per lane needed to satisfy an eastbound and westbound right-turn lane with five or less right-turns in an hour. Therefore, a right-turn lane currently is warranted. Right-turn lanes should eventually be constructed. However, currently there is no observed crash history suggesting a problem at this intersection. Construction of right-turn lanes at this intersection could wait for further development north of the intersection along Santa Ana Road.
 - **Homestead Lane** – An eastbound right-turn lane currently satisfies the NMDOT auxiliary lane warrants. As development continues at this location, the need for a right-turn lane will only increase and should be required as part of any additional development project.
 - **Jemez Dam** – A westbound exclusive right-turn lane easily satisfies NMDOT auxiliary lane warrants with 152 vph in the PM peak. Currently there is an auxiliary lane pocket, but this also serves as an additional through lane and is needed to meet the peak hour demands. Therefore, a right-turn lane is recommended at the east leg of Jemez Dam, especially if US 550 becomes a six lane arterial. An eastbound right-turn lane should be added as a part of any development project that is proposed to the south of this intersection. A queue analysis was conducted for both 2013 and 2035 demands.
- 95th percentile queue demands exceed current storage lengths as proposed by the current I-25/US 550 interchange project at both the eastbound left and right-turn lanes at NM 528.
- The 95th percentile queue demands slightly exceed available storage at the southbound left-turn at Homestead Lane. This is due to the unusual road alignment along with the close proximity of the adjacent gas station driveway.
- Projected 95th percentile queues under 2035 traffic demands are for a "No-Build" Scenario and do not take into account expansion of left and right-turn lanes to duals and triples.
- A great many of existing storage length capacities will be exceeded under 2035 demands especially at the WB left and NB right-turn movements at Paseo del Volcan and NM 528. As discussed in the LOS and capacity analysis, these movements will require triple and sometimes free flow facilities.
- New signal timing plans have been investigated for the corridor including updated pedestrian crossing times and red-yellow clearance intervals. The analysis of the proposed timing plans indicate a potential reduction in delay on US 550 of 18% in the AM and 9% in the PM peak. Proposed timing plans are presented in the Signal Timing Improvements section of this report.

- Long term mitigation that need to be investigated further should include the following:
 - A four-lane freeway section including interchanges between NM 528 and NM 313.
 - An eight lane arterial section would be needed to accommodate 2035 demands between Paseo del Volcan and NM 313 and a six lane section.
 - It is anticipated that a six-lane arterial between Paseo del Volcan and NM 313 could accommodate projected traffic demands until 2023 to 2026 and then additional capacity will have needed to be provided. It is possible that the lifetime of the six-lane section could be increased by the following additional long term strategies:
 - Dynamic Lanes
 - Transit Improvements like BRT, Express Routes and Park and Rides
 - Adaptive Signal Timing
 - ITS improvements
 - Travel Demand Management like smart growth and staggered work days, flex time, and telecommuting.
 - Access Management
- A driveway survey was completed for the corridor and it was found that the corridor generally is compliant with NMDOT required driveway and intersection spacing. The one are that does not is from Don Tomas to NM 313 with a significant driveway density.
- Raised medians are recommended for those locations that currently incorporate two-way left-turn lane, especially when and if a six-lane section is constructed. Adjacent access could be further accommodated by providing left-in only median cuts at shared driveway locations. Minor street and driveway left-out movements are not recommended especially if US 550 is widened.
- The intersection of Kuaua Road and Sheriff's Posse should be aligned. Additionally opportunities to combine and align driveways between Don Tomas and NM 528 should be considered.
- It is recommended that the feasibility of back access roads for the north and south side of US 550 be further investigated.
- A crash analysis was conducted with the following results:
 - Generally, observed crashes occurred at both the Camino Don Tomas and Jemez Dam intersections at over half of the observed crashes for the whole corridor. Another third of the observed crashes appear to 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.
 - 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 rear-end crash in which an eastbound vehicle traveling well over the speed limit crashes 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 from Camino Don Tomas to I-25 and in advance of 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.
 - 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 troughs thinking they are turning right.
 - The most common reason given for crashes was following too close at 41%. AThe second most common reason was failure to yield at 19%. Driver inattention was a close third at 16%.
- 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 likely limited as there are very few westbound right-turn demands at Camino Don Tomas at this time.
- 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.
 - Fully lighting the remainder of the corridor could be a relatively low cost mitigation measure.
 - Replacement of all TWLTL sections with raised median is predicted to reduce overall crashes on the corridor by 5%.
- There are several locations along NM 505 which currently have either 4 or 5-foot sidewalks. As redevelopment or major corridor reconstruction occurs at these locations, the existing sidewalk should be widened to the preferred 6-foot width. Additionally, there were several locations identified with street lights placed in the sidewalk. When redevelopment and reconstruction occurs in these areas, these streetlights should be relocated to the back of sidewalk.
 - As redevelopment and reconstruction occurs along the study corridor, detectable surface pedestrian ramps should be constructed at all locations that currently do not incorporate this design. Also all pedestrian ramps, signal indications, and buttons, should be brought into compliance with PROWAG standards.
 - Currently pedestrians and bicycles cross the Rio Grande via US 550, but as the area continues to develop, and the need for a third through lane is required for vehicular capacity, the need for either providing a pedestrian pathway on the existing bridge or a separate bridge arises. From a pedestrian/bicycle perspective, a separate bridge would be the preferred facility. However, separate pedestrian bridges require significant funding and require analysis as to whether a separate structure has a better benefit cost. This analysis is discussed in more detail in the “Structures” section of the Phase 1A report.
 - As development and growth continues in the City of Rio Rancho and Santa Ana Pueblo the need for more north-south corridor routes will be needed. This would include potential routes on Paseo del Volcan, Willow Creek Road/Idalia Road, NM 528, and NM 313.
- Additionally, as traffic demands on US 550 continue grow, additional corridor routes along US 550 will be needed and encouraged in order to offer a modal alternative to personal vehicles to free up roadway capacity.
 - With a goal of alleviating projected river crossing traffic demands, all of these new routes would be providing connectivity to a Park and Ride Transit Hub would be recommended at a location on the west side of the river.
 - The implementation of Bus Rapid Transit is recommended to be further investigated for this corridor and should consider the following potential amenities.
 - Transit Signal Priority
 - Reversible Transit Lanes
 - Queue Jump Lanes
 - It is recommended that an additional DMS be placed eastbound on US 550 in advance of NM 313. This will give motorists an opportunity to use an alternate route, such as NM 313, to destinations north or south. There could also be value in placing a DMS on the south legs of Paseo del Volcan and NM 313 for motorist wanting to access I-25 from these corridors.
 - Currently the NMDOT has CCTV cameras at NM 528, NM 313 and I-25, which provides coverage of much of the US 550 corridor as well as NMDOT maintained NM 528, NM 313, and I-25. Recommended locations to expand the coverage would include at US 550, Camino Don Tomas, and Paseo del Volcan, and near the bend in the road at US 550 and the Rio Grande.