

# NAMBÉ PUEBLO <br> 2020 <br> Strategic Transportation 

Safety Plan

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# It is our vision to provide a network of multi-modal transportation that is safe for our community, sustainable for the future of our youth, and respectful of our people's culture and traditions. Nambé Pueblo is committed to partnering with stakeholders and agencies to achieve a safer tomorrow. 

## INTRODUCTION

Nambé Pueblo is a sovereign nation in north central New Mexico, 16 miles north of Santa Fe. The Pueblo is one mile south of New M exico Highway SR 503, three miles east of US Highway 84/285, and north of New M exico Highway SR 592. Nambé Pueblo occupies over 91,000 acres of land. There are another 20 acres of land in the Rancho Viejo area which is held in trust and 85 acres of land in the Tower area. The Pueblo has more recently acquired an additional nine parcels approximately 41.38 acres of land in fee simple title, those parcels include The Ultimate Warrior and Robinson properties, land along NM 503 and the Vineyard inclusive of the commercial options in the area of US Highway 84/258 entrusted to the NPDC.

Nambé Pueblo, or Nanbé Owingeh, is one of the six Tewa-speaking pueblos of the northern Rio Grande region, located at the base of the Sangre de Cristo Mountains. The name is a Spanish interpretation of the Tewa word "nanbe'", which roughly translates as "rounded earth", and "owingeh", which translates to "pueblo" or "village". Prior to the arrival of Spanish explorers in the early 1600's, Nanbé Owingeh served as a primary cultural and religious center for the northern New M exican pueblo communities, and has existed at its current site since the 14th century. The Pueblo consists of towering cottonwoods, juniper, scrub oak and an occasional outcropping of sandstone. The Rio Nambé, whose headwaters begin high in the mountains, 5 miles to the east of the reservation boundary, flows through the Pueblo and eventually feeds into the Rio Grande.

Today, Nanbé Owingeh is still known for its beautiful public ceremonies and traditions, strong agriculture, traditional textiles, and pottery production. Due to illegal acquisition of lands on behalf of the United States government in the 19th and 20th centuries, the Pueblo is almost completely surrounded by non-Indian towns, most of which are Hispanic. It is estimated that Nanbé Owingeh is home to approximately 977 members, most of which are nominally Catholic, but still hold on to and practice our traditional religion and customs.

Nambé Pueblo is a registered National Historic Landmark, and is a major tourist attraction. The Pueblo is home to Nambé Falls, one of the most spectacular natural waterfalls the Southwest. Its waters have been used ceremonially by the people of Nambé since time immemorial. In 1976, as part of the San Juan Chama project, a dam was built above the Nambé Falls to supply irrigation water to the Pojoaque Valley. Nambé Lake offers outstanding fishing opportunities and the Nambé Falls Recreation Area is a popular summertime location for camping, picnics, and organizational gatherings. Coupled with the beautiful waterfalls, the scenic rock formations that decorate the area are incredibly popular with tourists and movie makers alike. As such, the Pueblo of Nambé continues to invite film producers to consider filming movies on its lands.

This document represents the first Strategic Transportation Safety Plan (STSP) for Nambé Pueblo and will tell the story of the needs and strategies to support the health and well-being of their community. The Plan will also set the stage for future funding applications, safety initiatives, and safety campaigns. Implementation of the safety improvements identified in this Plan will work towards reducing the risk of death and serious injuries that may occur to transportation users within and near tribal lands. The Plan's development and future updates are the responsibility of Nambé Pueblo's Road and Transportation Department with input from the Tribe's Safety Partners.

One of the goals of Nambé Pueblo's STSP will be to raise awareness and provide a collision analysis supporting the prioritization of needed transportation safety improvements on the specific transportation network impacting safe ingress and egress to and from tribal facilities and the community. The STSP will be used as a tool to apply for and justify future Tribal Transportation Plan Safety Funding and other grant funding.

Reference:
http://nambepueblo.org/about-nambe-pueblo/
Nambé Pueblo Long Range Transportation Plan, 2020 Update

## PROCESS

## PlanDevelopment

Nambé Pueblo issued a Request for Proposal for a Strategic Transportation Safety Plan (STSP) in June 2020. Red Plains Professional was selected for the project, the contract was signed and executed. Collision data received from New Mexico Department of Transportation (NMDOT) was analyzed and mapped. The STSP study area includes TTP road inventory and other public roadways connecting Nambé Pueblo Tribal Lands, Tribal Enterprises, Tribal Administration and main community housing areas. M ain highway arterials include NM 503 M P 0-9, NM 592 M P 0-5, and interchanges with US 285/84.


Figure 1 - Study Area Location Map.
Community safety concerns were identified by Stakeholders meetings in June 2020, public input through Community Needs Assessment Survey, and recently completed transportation planning efforts. The Tribe completed the NP 101 Road Improvements Study NM 503 to Nambé Falls Reservoir - Nambé O-Ween-Gé in 2017, and the Nambé Pueblo Long Range Transportation Plan in 2020.

Final STSP completed and distributed in November 2020.
All project data is viewable with the following Web M apping Application: https://red-plains.xyz/NambePueblo.

## Safety Partners/ Champions

Safety Partners/Champions are agency departments and other entities that are directly involved in Nambé Pueblo transportation safety through collaborative planning, maintenance, emergency response and actively implementing safety strategies.

## Nambé Pueblo

- Tribal Administration/Operations
- Tribal Road and Transportation-Planning Department


## Pojoaque Pueblo

- Pojoaque Tribal Police


## Santa Fe County

- Santa Fe Public W orks Department
- Santa Fe Sheriff


## State of New Mexico

- New M exico Department of Transportation (NM DOT) - District 5
- New M exico State Police


## Northern Pueblo Regional Transportation Planning Organization (NPRTPO)

## Bureau of Indian Affairs (BIA)

- BIA Northern Pueblos Agency
- SW Regional Office Division of Transportation
- BIA Northern Pueblos Justice Services

Jemez Mountains Electric COOP - District 6

## EXISTING EFFORTS

## Nambé Pueblo

Nambé Pueblo completed the NP 101 Road Improvements Study NM 503 to Nambé Falls Reservoir - Nambé O-WeenGé (RIS) in 2017. The study Identified roadway, intersection and drainage conditions and deficiencies along the entire length of NP 101 (Poechunu Poe) from NM 503 to Nambé Falls Reservoir. The study included a geotechnical report and traffic study with mechanical traffic counts and manual intersection counts.

Community Needs Assessment Surveys were completed in 2018 and 2020 to capture public input on transportation planning priorities and community safety needs.

The Nambé Pueblo Long Range Transportation Plan (LRTP) was completed in 2020. The LRTP demonstrates the Tribe's transportation needs and develops strategies to meet those needs. These strategies address current and future land use, economic development, traffic demand, public safety, health, and social needs. The LRTP development process included inventory and analysis of infrastructure completed in collaboration with State, Cities, Counties, and other stakeholders to identify projects to improve multi-modal transportation options locally and regionally. The plan also included the development of a comprehensive Prioritized Project List (PPL) or Tribal Transportation Improvement Program (TTIP) as a planning tool to program and deliver identified project needs.

Nambé Pueblo has recently completed or is in-progress of several roadway improvement and safety projects:

- NP 117 Subdivision Project - The purpose of this project called for the reconstruction and improvement of BIA Route 117 Section 10. M ore specifically, the Pueblo looked to improve the overall condition of the existing 0.25 mile roadway by 1) refining the existing linear grade to enhance the roads drainage potential, 2) performing a full depth reclaim and re-mill the current asphalt to provide a fresh overlay, and 3) Updating or replacing the current curb and gutter, speed humps, sidewalks, and pavement markings (and install new additions when necessary). The intent was to extend the life of the almost 30 year old roadway far into the foreseeable future for Tribal Members who live in the Subdivision. Project was completed in M arch of 2019.
- NP 118 Subdivision Project - The purpose of this project called for the reconstruction and improvement of BIA Route 118 Sections 10, 20, and 30. M ore specifically, the Pueblo looked to improve the overall condition of the existing 0.55 mile roadway by 1) refining the existing linear grade to enhance the roads drainage potential, 2) performing a full depth reclaim and re-mill the current asphalt to provide a fresh overlay, and 3) Updating or replacing the current curb and gutter, speed humps, sidewalks, and pavement markings (and install new additions when necessary). The intent was to extend the life of the almost 30 year old roadway far into the foreseeable future for Tribal Members who live in the Subdivision. Project was completed in M arch of 2019.
- NP 102 West Low Water Crossing Project - The purpose of this project called for the construction of a reinforced concrete low water crossing, measuring approximately 150 feet long by 50 feet wide (about 0.17 acres), and asphalt concrete approaches at the intersection of County Road 84F and NP 102 West. In addition, the project included the installation of erosion blankets for erosion control along the east bank of the arroyo. These improvements were intended to provide drainage to the roadways and prevent the continuation of down cutting currently occurring at the intersection from storm water runoff. It will also make improvements to the wash, which also crosses at the intersection. This project was completed in M arch of 2020.
- NP 102 West Drainage Improvement Project - The purpose of this project called for the proposed construction of a new 200 foot reinforced drainage pipeline and drop inlets along the northwest side of the traditional ceremonial grounds along NP 102 West. Along with some minor linear grading, these actions were intended to provide drainage to the traditional ceremonial grounds and adjacent structures by collecting storm water and directing towards the existing arroyo on the northwest corner of the plaza. This project was completed in M arch of 2020.
- NP 111 Nambe Falls Road Drainage Improvement Project - The purpose of this project calls for the construction of a 70 foot by 24 foot concrete low water crossing along an arroyo on the NP 111 roadway. We also intend to construct cutoff walls on all four sides of the crossing to prevent the crossing from becoming buoyant during heavy runoff. Some minor grading to improve channelization is also planned upstream. This project is still in the preliminary engineering phase but construction is proposed to start before the end of the year.


## BIA Northern Pueblos Agency (NPA)

Maintenance of existing roadways is handled by BIA Northern Pueblos Agency (NPA). An Equipment Operator frequently comes out to Nambe to grade roads, clear overgrown vegetation from the Right of Way, etc.

## Santa Fe Public Works Department

M aintenance of existing county roadways is handled by Santa Fe Public Works Department, including grading, overlay and crack sealing, and clearing overgrown vegetation.

## State of New Mexico (ODOT)

The Statewide Transportation Improvement Program (STIP) is the New Mexico's four-year transportation preservation and capital improvement program which identifies multi-modal transportation projects that use Federal, State Bond, State priority, State Capital Outlay and local government transportation funds. It includes projects of regional significance (projects with high public interest or air quality impacts) and projects in the National Parks, National Forests and Indian Reservations. STIP determines which projects should be funded, when the work should be done, and what state or Federal funding sources or program(s) should be used to pay for them. NM DOT coordinates with Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) to establish agency procedures for identifying investment priorities; and seeks agreement from Federal and state government agencies, M POs, transportation interest groups, and other affected local jurisdictions about which projects have the highest priority in the upcoming four-year period. Projects are approved and scheduled according to their priority, available funding, and readiness to proceed. There are no current STIP projects within the Nambé Pueblo STSP study area. https://estip.dot.state.nm.us/

## MOTOR VEHICLE COLLISION DATA REVIEW AND ANALYSIS

The STSP study area includes roadways connecting Nambé Pueblo Tribal Lands, Tribal Enterprises, Tribal Administration and main community housing areas. M ain highway arterials include NM 503 M P 0-9, NM 592 M P 0-5, and interchanges with US 285/84.


Figure 2 - Study Area Location Map.
The data presented below is organized by the type of contributing factor. The data source for the following analysis was the NM DOT Collision Data for the time frame January 1, 2014 to December 31, 2018. All project data is viewable with the following Web M apping Application: https:// red-plains.xyz/ NambePueblo.

During the 5-year period from 2014 to 2018, within the study area, a total of 251 reported collisions resulting in 4 fatalities, 83 Injury, and 164 property damage only. The statistics below tell the story of collisions occurring within the Nambé Pueblo Transportation System.

## COLLISIONTYPE

- 2015 and 2018 reported the highest number of collisions with 53,2017 reported the lowest number with only 47.
- $42 \%$ of all collisions involved 1 Vehicle and $54 \%$ involved 2 Vehicles.
- $49 \%$ of all collisions involved Other Vehicle, 31 involved Fixed Object, and $2 \%$ involved Pedestrian.
- $35 \%$ of all collisions resulted in either Injuries or Fatalities, 4 Fatalities reported.
- $31 \%$ of all collisions were Fixed Object, $13 \%$ were Turning/Angle, $12 \%$ Rear End, $10 \%$ Sideswipe, and $7 \%$ were Overturn/Rollover.


Figure 3-Collisions by Year totals, all collisions.


Figure 5 - Motor Vehicle Involved With percentiles, all collisions.


Figure 4-Collision Mix percentiles, all collisions.


Figure 6 - Collision Severity percentiles, all collisions.

Collision Type 2014-2018


Figure 7 - Collision Type percentiles, all collisions.

## ENVIRONMENT FACTORS

- $30 \%$ of all collisions occurred at night or in low light conditions.
- $10 \%$ of all collisions occurred in Wet or Snow driving conditions.


Figure 8 - Light Condition percenitles, all collisions.


Figure 9 - Surface Condition percentiles, all collisions.

## DRIVER FACTORS

- $17 \%$ of all collisions identified Driver Inattention as the Highest Contributing Factor, followed by Speeding with 15\%, Alcohol or Drug Involvement and Following Too Closely with 11\%, and Failed to Yield Right of Way with $6 \%$.


Figure 10 - Highest Contributing Factor Preceding Collision percentiles, all collisions.

- $75 \%$ of all Fatality collisions involved Alcohol or Drug Impairment, $25 \%$ involved Speeding.
- $25 \%$ of all Injury collisions involved Speeding, $13 \%$ involved Alcohol or Drug Impairment, $12 \%$ involved Driver Inattention, 10\% involved Following Too Closely, 6\% involved Failed to Yield to Right of Way.


Figure 11 - Driver Impairment Type percentiles, all collisions.


Figure 10-Fatal - Highest Contributing Factor Preceding Collision percentiles, all collisions.


Figure 12 - Highest Contributing Factor Preceding Injury Collision percentiles, all collisions.

## ROADWAY DEPARTURE

The FHWA (Federal Highway Administration) defines Roadway Departure as a crash/collision which a vehicle crosses an edge line, center line or otherwise leaves the traveled way. For this study, Roadway Departure collisions include those identified by NM DOT as occurring off the roadway, as well as Collision Types involving lane departure: Overturn/Rollover, Head-On, Fixed Object, Sideswipe, or Vehicle on Other Road.

- $43 \%$ of all collisions involved Roadway Departure. The top three Highest Contributing Factors involving Roadway Departure were Speeding, Driver Inattention and Alcohol or Drug Involvement.


Figure 13-Collision Location percentiles, all collisions.


Figure 14 - Collision Location and Highest Contributing Factor totals, all collisions.

## ROADWAY FACTORS

- $41 \%$ of all collisions occurred On Grade (hillslope), Hillcrest or Dip.


Figure 15- Roadway Grade percentiles, all collisions.


Figure 16 - Roadway Grade and Geometry totals, all collisions.

## VULNERABLE ROAD USERS

Vulnerable Road Users include pedestrians, bicyclists, motorcyclists and older road users 65+. Vulnerable road users are more exposed than drivers operating vehicles, making them more susceptible to injury in the event of an incident. NM DOT collision data does not include age, Vulnerable Road Users for this study include pedestrians, bicyclists and motorcycle road users.

- 4\% of all reported collisions involved Pedestrian or M otorcycle road users.
- $100 \%$ of collisions involving a Vulnerable Road User resulted in Injury or Fatality. $17 \%$ of Motorcycle and $25 \%$ of Pedestrian involved collisions resulted in Fatality.
- 50\% of Motorcycle collisions Involved Highest Contributing Factor of Avoid No Contact-Vehicle, 17\% involved Speeding, Failed to Yield Right of Way and Alcohol or Drugs.
- 30\% of Vulnerable Road User collisions involved Roadway Departure, 1 fatal Motorcycle collision, 1 Injury Pedestrian, and 1 injury M otorcycle collision.


Figure 17 - Vulnerable Road User percentiles.


Figure 18 - Vulnerable Road User and Collision Severity totals.


Figure 20-Roadway Departure and Vulnerable Road User totals


Figure 19-Collision Severity Involving Vulnerable Road Uses, totals.

Figure 21 - Vulnerable Road User and Collision Severity totals.

## RISKY DRIVING BEHAVIORS

The top 5 Highest Contributing Factors of Driver Inattention, Speeding, Alcohol or Drug Impairment, Following Too Closely and Failed to Yield Right of Way were identified as Risky Driving Behaviors (RDB) due to the high occurrence of collision fatality or injury. Further analysis was completed on RDBs to further understand these collisions.

- $60 \%$ of all collisions reported involved RDB.
- $100 \%$ of all reported fatal collisions involved RDB's.
- $65 \%$ of RDB collisions resulted in Injury.
- 75\% of all Fatality collisions involved Alcohol or Drug Impairment, 25\% involved Speeding.
- $57 \%$ of all RDB collisions involving Speeding and 50\% involving Alcohol or Drug Involvement resulted in Fatality or Injury. Speeding and Alcohol or Drug Involvement represented the highest occurrences of Fatality or Injury for both all reported and RDB only collisions.
- $43 \%$ of all and $44 \%$ of RDB collisions involved Roadway Departure.


Figure 22 - Risky Driving Behavior Collisions percentiles, all collisons.

- RDB collisions involving Roadway Departure include Speeding, Failed to Yield Right of Way, Driver Inattention and Alcohol or Drug Involvement. Only the RDB of Following Too Closely did not involve Roadway Departure.
- $41 \%$ of RDB collisions involving Roadway Departure resulted in Injury. $36 \%$ of RDB collisions not involving Roadway Departure resulted in Fatality or Injury.


Figure 23 - Roadway Departure percentiles, all collisons.


Figure 24 - Roadway Departure percentiles, only RBD collisons.


Figure 25 - Collision Location and Risky Driving Behavior Collisions totals.


Figure 26 - Collision Severity and Risky Driving Behavior Roadway Departure totals.


Figure 27 - Collision Severity and Risky Driving Behavior Roadway Departure VS On Roadway Collision totals.

## COMMUNITY SAFETY CONCERNS

Community safety concerns were identified by Stakeholders meetings in June 2020, public input through Community Needs Assessment Survey, and recently completed transportation planning efforts. The Tribe completed the NP 101 Road Improvements Study NM 503 to Nambé Falls Reservoir - Nambé O-Ween-Gé (RIS) in 2017, and the Nambé Pueblo Long Range Transportation Plan (LRTP) in 2020. The following concerns are addressed in the Emphasis sections of this report.


Figure 28 - Community Safety Concerns Location Map.

| Community Safety Concerns Table |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Concern | TTP Route | Source | Strategy Champion |
| 01 | NP 101 Road: Roadway, speeding reduction, signage and lighting improvements needed. | Route 0101 Sections 010-070 | CNA, RIS, LRTP PPLHigh Priority | $\begin{aligned} & \text { Nambé Pueblo, } \\ & \text { Jemeze M ountains } \\ & \text { Power COOP, NPA, } \\ & \text { BIA, Law } \\ & \text { Enforcement } \end{aligned}$ |
| 02 | NP 101 Road: Between NP 117 and Crossing \#1. Roadway improvements needed. Vegetation blocking. Retroreflective delineator markings need to be installed. | Route 0101 Section 060 | RIS | Nambé Pueblo, NPA, BIA |
| 03 | NP 101 Road: Between NP 175 Just S of Crossing \#5. Roadway improvements needed. Arroyo needs to be extended. Retroreflective warning signage, delineator markings need to be installed. | Route 0101 Section 060 | RIS | Nambé Pueblo, NPA, BIA |
| 04 | NP 101 Road: Between Yates Rd and Crossing \#10. Narrow shoulder, high drop off height on east slope. Roadway improvements needed. Arroyo needs to be extended. Retroreflective warning signage, delineator markings need to be installed. | Route 0101 Section 050 | RIS | Nambé Pueblo, NPA, BIA |
| 05 | NP 101 Road: Middle section between cattle guard and unpaved segment. Roadway improvements needed. Severe roadway surface wear and weakening. Extensive patching at drainage crossings. | Route 0101 Section 050 | RIS | Nambé Pueblo, NPA, BIA |
| 06 | Intersection with NP 101 Road and NP 102/Bayay Poe/Tayeh Huu U: Obstructions and horizontal curvature issues that affect sight distance. Tribal Court sign blocking northbound. Warning signs, obstruction removal needed. | Route 0101 Section 060, Route 0102 Section 010 and 020 | RIS | Nambé Pueblo, NPA, BIA |
| 07 | Intersection with NP 101 Road and Pohuu U Poe: Obstructions and horizontal curvature issues that affect sight distance. Warning signs, obstruction removal needed. | Route 0101 Section 040 and unknown | RIS | Nambé Pueblo, NPA, BIA |
| 08 | Intersections with NP 101 Road and Widi Anya Ea E: Obstructions and horizontal curvature issues that affect sight distance in both directions. Warning signs, obstruction removal needed. Driveway consolidation needed. | Route 0101 Section 040 and unknown | RIS | Nambé Pueblo, NPA, BIA |
| 09 | Intersection of SR 503 and CR 113A: Limited sight distance approaching intersection County Road 113A due to vegetation blocking, embankment, grade, and sharp curve. No Lighting. Intersection and signage improvements needed. | Route 0503 Section 810, Route 0170 Section 010 | LRTP - Traffic Hazards and Safety Issues Location 1 | Nambé Pueblo, Santa Fe County, NM DOT, NPA, BIA |
| 10 | Intersection of CR 113A and CR 84F and 84G: Limited sight distance approaching CR 113A from both directions of CR 84 due to fences and vegetation blocking. Sharp curve and unseen drainage ditch on CR 84 F. Intersection and signage improvements needed. | Route 0170 Section 010 Route 0166 Sections 020-030 | LRTP - Traffic Hazards and Safety Issues Location 2 | Nambé Pueblo, Santa Fe County, NPA, BIA |
| 11 | Intersection of CR 11984 G and CR 119 N and CR 119 S : Multiple roads merging with arroyo, vegetation blocking visibility. Intersection and signage improvements needed. | Route 0166 Sections 010, 020,040 | LRTP - Traffic Hazards and Safety Issues | Nambé Pueblo, Santa Fe County, NPA, BIA |
| 12 | Intersection of CR 84F and CR 119 and Bayay Poe: Erosion/flooding/drainage improvements needed. | Route 0166 Sections 010-020, Route 0168 Section 020, Route 0102 Section 010 | CNA | Nambé Pueblo, Santa Fe County, NPA, BIA |
| 13 | NP 102 Rd West-Bayay Poe and East-Tayeh Huu U: Speeding. | Route 0102 Sections 010-020 | CNA | Law Enforcement |
| 14 | Upper Village: Sediment buildup on roadway. Erosion/Flooding/drainage improvements needed. Lighting needed. |  | CNA, RIS, LRTP PPLHigh Priority | Nambé Pueblo, NPA, BIA |
| 15 | Communitywide: Drainage improvements needed to prevent sediment buildup on roadways, with a focus on school bus routes | Route 0101 Sections 050-070, Route 0102 Sections 010-020, Route 0109 Section 010, Route 0118 Sections 010-030, Route 0148 Section 020, Route 0166 Sections, $010-040,040-060$, Route 0168 Sections 010-020, Route 0170 Section 010, Route 0171 Section 010, Route, , 172 Section 030, Route 0175 Section 010, Route 0503 Sections $810-820$ | LRTP PPLMedium Priority | Nambé Pueblo, Santa Fe County, NM DOT, NPA, BIA |
| 16 | Communitywide: Site distance obstruction improvements at intersections. |  | CNA, RIS, LRTP PPLHigh Priority | Nambé Pueblo, Santa Fe County, NM DOT, NPA, BIA |
| 17 | Communitywide: Speeding. Develop speed control Plan, M onitoring, Enforcement. |  | RIS, LRTP PPL- <br> Medium <br> Priority | Nambé Pueblo, Law Enforcement |
| 18 | Communitywide: Develop Master Sign, Wayfinding and Striping Plan |  | $\begin{gathered} \text { RIS, LRTP PPL- } \\ \text { Long Range } \\ \text { Priority } \end{gathered}$ | Nambé Pueblo |
| 19 | Communitywide: Develop Bike and Pedestrian M aster Plan. |  | CNA, LRTP PPL- Long Range Priority, RIS | Nambé Pueblo |

(LRTP PPL=Long Range Transportation Plan Prioritized Project CNA =Community Needs Assessment RIS =NP 101 Road Improvements Study)
Figure 29 - Community Safety Concerns Table.

## EMPHASIS AREAS

After reviewing the available data, 5 emphasis areas are selected for added attention in the transportation safety efforts of Nambé Pueblo. These emphasis areas represent the most significant opportunities to accomplish the Tribe's vision:

Emphasis Area 1-Roadway Safety Audit - School Bus Routes within Nambé Pueblo
Emphasis Area 2 - NP 101 Improvements
Emphasis Area 3 - Improving Pedestrian and Bicycle Facilities
Emphasis Area 4-Systemic Infrastructure Improvements
Emphasis Area 5 - Reducing Risky Driving Behaviors and Roadway Departures
Each emphasis area is described below and accompanied by a list of strategies that, if implemented, are expected to reduce the associated collisions and enhance safety. Each strategy is assigned to a department or task force that is responsible for implementation and evaluation.

## Emphasis Area 1 - Roadway Safety Audit - School Bus Routeswithin Nambe Pueblo

## DESCRIPTION

A Road Safety Audit (RSA) is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users.

Four school bus routes transport children to and from Nambé Pueblo and Pojoaque Valley Schools. The routes include SR 503 MP 1.8-3.6, NP 101 and community roads throughout the Pueblo. Bus drivers and community members have expressed these main safety concerns:

- Standing water, drainage issues and sediment building up on roadways and intersections limiting safe bus travel and the ability to turn around.
- Reduced or blocked visibility due to vegetation and other obstructions at intersections and along roadways.
- Lack of designated pedestrian and bicycle walkways.
- Narrow road shoulders and poor road surface conditions.
- Speeding is an issue on NP 102 Rd West-Bayay Poe and East-Tayeh Huu U.

During the 5 -year period from 2014 to 2018, within the RSA area, a total of 37 reported collisions resulted in 14 Injury collisions and 23 property damage only collisions. 2 collisions involved pedestrian. 26 collisions likely involved roadway departure.

A systemic, multidisciplinary RSA is needed on all bus route roads within Nambé Pueblo to determine costeffective improvements that could be done to improve bus and all transportation user travel, ingress and egress, safety, reduce both collision risk and the number of occurrences, addressing Safety Concerns 1-16. The RSA corridor will include approximately 11.5 miles of roadway including: Baseball Field Road, Bayay Poe, Buffalo Range Subdivision Road, County Roads 113A, 117N 119N, 119S, 84F, 84G, Ditch Rider Road, Don Bernardo Road, NP 101, SR 503, and Tayeh Huu U. The Tribe completed the NP 101 Road Improvements Study (RIS) in 2017 which Identified roadway, intersection and drainage conditions and deficiencies along the entire length of NP 101 (Poechunu Poe) from NM 503 to Nambé Falls Reservoir. The study was only on NP 101 roadway and intersections, see Emphasis Area 2 - NP 101 Improvements of this report for strategies identified in 2017 for this portion of the RSA corridor. It is recommended that NP 101 still be included in the current RSA to capture current conditions and systemic needs.


Figure 30 - Roadway Safety Audit-School Bus Routes within Nambé Pueblo Map.

The following locations have been identified as RSA priorities:
Intersection of SR 503 and CR 113A: (TTP Route 0503 Section 810, Route 0170 Section 010) Limited sight distance approaching intersection County Road 113A due to vegetation blocking, embankment, grade, and sharp curve. No Lighting. Intersection and signage improvements needed. 2 collisions reported- 1 injury collision, 1 roadway departure collision. (Safety Concern 9)


Approaching intersection of SR 503 and CR 113A, from CR 113A. (Source: Nambé Pueblo)


Looking eastbound on SR 503 from CR 113A. (Source: Nambé Pueblo)

Intersection of SR 503 and Jimmy Perez Road: (TTP Route 0503 Section 810, Route 0153 Section 810) 4 collisions reported- no injury crashes, 2 collisions reported made improper turn, 1 roadway departure collision.


Looking eastbound on SR 503 from Jimmy Perez Road.
(Source: Nambé Pueblo)


Looking westbound on SR 503 from Jimmy Perez Road.
(Source: Nambé Pueblo)

Intersection of SR 503 and Don Bernardo Road: (TTP Route 0503 Section 810, Route 0171 Section 010) 2 collisions reported- 2 injury, 1 involving motorcycle, 1 roadway departure collision.


Looking eastbound on SR 503 from Don Bernardo Road. (Source: Nambé Pueblo)


Looking westbound on SR 503 from Don Bernardo Road.
(Source: Nambé Pueblo)

Intersection of SR 503 and CR 119N: (TTP Route 0503 Section 810, Route 0168 Section 010) Intersection on major curve. 5 collisions reported- 2 injury collisions- 1 involved a pedestrian, 2 roadway departure collisions.


Approaching CR 119N from SR 503 eastbound. (Source: Nambé Pueblo)


Looking westbound on SR 503 from CR 119N.
(Source: Nambé Pueblo)

Intersection of SR 503 and NP 101: (TTP Route 0503 Section 820, Route 0101 Section 070) M ajor Intersection. 3 collisions reported- 1 Overturn/Rollover, 3 roadway departure collisions.


Looking westbound on SR 503 from NP 101. (Source: Nambé Pueblo)


Looking eastbound on SR 503 from NP 101. (Source: Nambé Pueblo)

Intersection of CR 113A and CR 84F and 84G: (TTP Route 0170 Section 010, Route 0166 Sections 020-030) Limited sight distance approaching CR 113A from both directions of CR 84 due to fences and vegetation blocking. Sharp curve and unseen drainage ditch on CR 84F. Intersection and signage improvements needed. No reported collisions, high collision risk location. (Safety Concern 10)


Approaching CR 113A on 84G southbound with upcoming sharp curve on CR 84F after the intersection. (Source: Nambé Pueblo)


Looking southbound on 84F from CR 113A.
(Source: Nambé Pueblo)


Looking northbound on 84G from CR 113A.
(Source: Nambé Pueblo)

Intersection of CR 84G and CR 119N and CR 119S: (TTP Route 0166 Sections 010, 020, 040) M ultiple roads merging with arroyo, vegetation blocking visibility. Intersection and signage improvements needed. 1 collision reported- non-injury, disregarded traffic signal, roadway departure. (Safety Concern 11)


Looking southbound on 84G from CR 119 N , ahead in upper right is intersection with CR 119 N. (Source: Nambé Pueblo)


Approaching CR 119 S (right, not visible due to vegetation) on 84G northbound. (Source: Nambé Pueblo)

Intersection with CR 117N and CR 119N: (TTP Route 0172 Section 030, Route 0168 Section 010) Sharp curve and grade turning left from CR 117N onto CR 119N. Paved and dirt surface types. 2 collisions reported- 2 roadway departure collisions.


On CR 119N approaching CR 117N westbound.
(Source: Nambé Pueblo)


On CR 119N approaching CR 117N eastbound.
(Source: Nambé Pueblo)

Intersection of CR 84F and CR 119S and Bayay Poe: (TTP Route 0166 Sections 010-020, Route 0168 Section 020, Route 0102 Section 010) Erosion/flooding/drainage improvements needed. No collisions reported, high collision risk location. (Safety Concern 12)


Approaching Bayay Poe on CR 84F westbound. (Source: Nambé Pueblo)


On CR 84F eastbound with CR 119 S to left. (Source: Nambé Pueblo)


On CR 84F westbound looking northwest towards CR 119 S. (Source: Nambé Pueblo)


On CR 84F eastbound with CR 84F to left and Bayay Poe to right.
(Source: Nambé Pueblo)

## GOALS

Complete RSA by 2022.

## STRATEGIES

- Conduct a systemic, multidisciplinary RSA on all bus route roads within Nambé Pueblo to determine costeffective improvements that could be done to improve bus and all transportation user travel, ingress and egress, safety, reduce crash risk and the number of vehicular collisions. The RSA will have a particular focus on pedestrian, bicycle safety, roadway drainage and vehicular roadway departure prevention improvements. The RSA should include a traffic analysis defining the roadway and intersection level of service during peak hours, traffic volumes, traffic speeds, and general modeled traffic patterns. The RSA will include a pedestrian count and audit. The RSA corridor will include approximately 11.5 miles of roadway including: Baseball Field Road, Bayay Poe, Buffalo Range Subdivision Road, County Roads 113A, 117N 119N,

119S, 84F, 84G, Ditch Rider Road, Don Bernardo Road, NP 101, SR 503, and Tayeh Huu U. (Strategy Champion: Nambé Pueblo, Santa Fe County, NM DOT, NPA, BIA)

- Apply for a Federal Highway Tribal Transportation Safety Grant to secure funding for RSA. (Strategy Champion: Nambé Pueblo)
- Implement recommendations of RSA in planning improvement and maintenance projects. (Strategy Champion: Nambé Pueblo, Santa Fe County, NM DOT, Jemez M ountains Power COOP, NPA, BIA)


## DESCRIPTION

NP 101 (Poechunu Poe) is an eight mile long, two lane collector road that provides access to NM 503 from the residential and tourist destinations within the Pueblo. The Tribe completed the NP 101 Road Improvements Study (RIS) in 2017, which identified roadway, intersection and drainage conditions and deficiencies along the entire length of NP 101 (Poechunu Poe) from NM 503 to Nambé Falls Reservoir, see Appendices A. Locations, conditions and recommendations from the RIS were collaborated with current conditions and all planning efforts to address safety concerns 1-8 concerning NP 101.


Figure 31 - Community Safety Concerns along NP 101 Location Map.

| Community Safety Concems Table - NP 101 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Concern | TTP Route | Source | Strategy Champion |
| 01 | NP 101 Road: Roadway, speeding reduction, signage and lighting improvements needed. | Route 0101 Sections 010-070 | CNA, RIS, <br> LRTP PPLHigh Priority | Nambé Pueblo, Jemez M ountains Power COOP, NPA, BIA, Law Enforcement |
| 02 | NP 101 Road: Between NP 117 and Crossing \#1. Roadway improvements needed. Vegetation blocking. Retroreflective delineator markings need to be installed. | Route 0101 Section 060 | RIS | Nambé Pueblo, NPA, BIA |
| 03 | NP 101 Road: Between NP 175 Just S of Crossing \#5. Roadway improvements needed. Arroyo needs to be extended. Retroreflective warning signage, delineator markings need to be installed. | Route 0101 Section 060 | RIS | Nambé Pueblo, NPA, BIA |
| 04 | NP 101 Road: Between Yates Rd and Crossing \#10. Narrow shoulder, high drop off height on east slope. Roadway improvements needed. Arroyo needs to be extended. Retroreflective warning signage, delineator markings need to be installed. | Route 0101 Section 050 | RIS | Nambé Pueblo, NPA, BIA |
| 05 | NP 101 Road: Middle section betw een cattle guard and unpaved segment. Roadway improvements needed. Severe roadway surface wear and weakening. Extensive patching at drainage crossings. | Route 0101 Section 050 | RIS | Nambé Pueblo, NPA, BIA |
| 06 | Intersection with NP 101 Road and NP 102/Bayay Poe/Tayeh Huu U: Obstructions and horizontal curvature issues that affect sight distance. Tribal Court sign blocking northbound. Warning signs, obstruction removal needed. | Route 0101 Section 060, <br> Route 0102 Section 010 and 020 | RIS | Nambé Pueblo, NPA, BIA |
| 07 | Intersection with NP 101 Road and Pohuu U Poe: Obstructions and horizontal curvature issues that affect sight distance. Warning signs, obstruction removal needed. | Route 0101 Section 040 and unknown | RIS | Nambé Pueblo, NPA, BIA |
| 08 | Intersections with NP 101 Road and Widi Anya Ea E: Obstructions and horizontal curvature issues that affect sight distance in both directions. Warning signs, obstruction removal needed. Driveway consolidation needed. | Route 0101 Section 040 and unknown | RIS | Nambé Pueblo, NPA, BIA |

Figure 32 - Community Safety Concerns along NP 101 Table.

## GOALS

Complete improvements to NP 101 by 2023.

## ROAD IMPROVEMENTS STUDY STRATEGIES

NP 101 Road: (TPP Route 0101 Sections 010-070) Roadway, speeding reduction, signage and lighting improvements needed. (Safety Concern 1)


NP 101 sign issues. (Source: RIS)

- Develop and enforce Speed Control Plan (Strategy Champion: Law Enforcement)
- Develop a Wayfinding Sign and Striping Plan (Strategy Champion: Nambé Pueblo)
- Replace all missing, damaged and non-conforming signs (Strategy Champion: Nambé Pueblo, NPA, BIA)
- Remove existing bike and pedestrian signs (Strategy Champion: Nambé Pueblo)
- Install retroreflective delineator markers along road shoulders and at culverts (Strategy Champion: Nambé Pueblo, NPA, BIA)
- Install lighting (Strategy Champion: Nambé Pueblo, Jemez M ountains Power COOP, NPA, BIA)

NP 101 Road between NP 117 and Crossing \#1: (TTP Route 0101 Section 060) Roadway improvements needed. Vegetation blocking. Retroreflective delineator markings need to be installed. (Safety Concern 2)

- Extend and flatten roadside/clearzone
- Clear trees from right of way
- Install retroreflective delineator markings
(Strategy Champion: Nambé Pueblo, NPA, BIA)


NP 101 Road between NP 175 Just S of Crossing \#5: (TTP Route 0101 Section 060) Roadway improvements needed. Arroyo needs to be extended. Retroreflective warning signage, delineator markings need to be installed. (Safety Concern 3)

- Extend and flatten roadside/clearzone
- Extend arroyo
- Clear trees from right of way
- Install retroreflective delineator markings and warning signs
(Strategy Champion: Nambé Pueblo, NPA, BIA)


NP 101 between NP 175 just south of Crossing \#5.
(Source: Nambé Pueblo)

NP 101 Road between Yates Rd and Crossing \#10: (TTP Route 0101 Section 050) Narrow shoulder, high drop off height on east slope. Roadway improvements needed. Arroyo needs to be extended. Retroreflective warning signage, delineator markings need to be installed. (Safety Concern \#4).

- Extend shoulder on east side
- Clear trees from right of way
- Install retroreflective delineator markings and warning signs for slope and driveway approaches
(Strategy Champion: Nambé Pueblo, NPA, BIA)


NP 101 between NP Yates Rd and Crossing \#10. (Source: Nambé Pueblo)

NP 101 Road middle section between cattle guard and unpaved segment: (TTP Route 0101 Section 050) Roadway improvements needed. Severe roadway surface wear and weakening. Extensive patching at drainage crossings. (Safety Concern \#5)

- Design and install drainage improvements at arroya crossings
- Repave entire middle section between cattle guard and unpaved section
- Install retroreflective delineator markings and warning signs
(Strategy Champion: Nambé Pueblo, NPA, BIA)


NP 101 middle section. (Source: RIS)

Intersection with NP 101 Road and NP 102/ Bayay Poe/Tayeh Huu U: (TTP Route 0101 Section 060, Route 0102 Section 010 and 020) Obstructions and horizontal curvature issues that affect sight distance. Tribal Court sign blocking northbound. Warning signs, obstruction removal needed. (Safety Concern 6)


On BIA 102/Tayeh Huu U at NP 101 northbound. (Source: Nambé Pueblo)


On BIA 102/Bayay Poe at NP 101 northbound. (Source: Nambé Pueblo)


On BIA 102/Tayeh Huu U at NP 101 southbound. (Source: Nambé Pueblo)


On BIA 102/ Bayay Poe at NP 101 southbound. (Source: Nambé Pueblo)

- Clear trees from right of way
- Relocate Tribal Court sign
- Install retroreflective warning signs
(Strategy Champion: Nambé Pueblo, NPA, BIA)

Intersections with NP 101 Road and Pohuu U Poe / Widi Anya Ea E: (TTP Route 0101 Section 040) Obstructions and horizontal curvature issues that affect sight distance in both directions. Warning signs, obstruction removal needed. Driveway consolidation needed. (Safety Concerns 7 and 8)


Pohuu U Poe at NP 101 northbound. (Source: Nambé Pueblo)


Widi Anya Ea E at NP 101 northbound.
(Source: Nambé Pueblo)


Pohuu U Poe at NP 101 southbound. (Source: Nambé Pueblo)


Widi Anya Ea E at NP 101 southbound.
(Source: Nambé Pueblo)


In this exhibit we illustrate some of the concepts discussed in Section 4 and refer enced elsewhere. Access management should be controlled when granting new access points. Above, (1) is an example of proper driveway placement. Both driveways on either side of the road are aligned and intersect NP 101 at a 90 -degree angle. This mitigates left turn conflicts and reduces the focus points a driver has to pay attention to. Other existing driveways are more difficult to relocate, but can be made safer by consolidating and realigning (2) where possible. These methods can be combined with traffic calming devices (3) placed upstream of areas with high driveway densities, or where speeding issues are of most concern. In the example above, a median can include pedestrian and bike crossing points, and interactive speed signs are very low cost and low maintenance options that can be implemented quickly.

Access control (driveway consolidation) and traffic calming design concept. Route south of Location 1 is Pohuu U Poe. Route at Location 2 is Widi Anya Ea E. (Source: RIS)

- Design and construct access management and speed management improvements.
- Clear trees from right of way
- Install retroreflective warning signs
(Strategy Champion: Nambé Pueblo, NPA, BIA)


## Emphasis Area 3 - Improving Pedestrianand Bicycle Facilities

## DESCRIPTION

Vulnerable Road Users for this study included pedestrians, bicyclists, and motorcyclists. Vulnerable road users are more exposed than drivers operating vehicles, making them more susceptible to injury in the event of an incident.

- $4 \%$ of all reported collisions involved Pedestrian or M otorcycle road users. Within the Pueblo, there were 3 vulnerable road user involved collisions, all occurring on SR 503, all injury collisions. One motorcycle involved collision at the intersection of Don Bernardo Road, and two pedestrian collisions between MP 2-2.5.
- $100 \%$ of collisions involving a Vulnerable Road User resulted in Injury or Fatality. 17\% of M otorcycle and 25\% of Pedestrian involved collisions resulted in Fatality. 30\% of Vulnerable Road User collisions involved Roadway Departure, 1 fatal M otorcycle collision, 1 Injury Pedestrian, and 1 injury M otorcycle collision.
- $50 \%$ of M otorcycle collisions Involved Highest Contributing Factor of Avoid No Contact-Vehicle, $17 \%$ involved Speeding, Failed to Yield Right of Way and Alcohol or Drugs.


Figure 33 - Vulnerable Road User percentiles.


Figure 35 - Collision Severity Involving VuInerable Road Uses, totals.


Figure 34 - Vulnerable Road User and Collision Severity totals.


Figure 36 - Roadway Departure and Vulnerable Road User totals.

Nambé Pueblo currently has no pedestrian or bicycle roadway transportation facilities. Pedestrian crossings are not marked. There is little lighting. Pedestrians and cyclists share the roadway with vehicles, traveling on the road shoulder or in the roadway on narrow sections where there is no shoulder. Especially vulnerable, are children walking along roadways to bus stops in the low light conditions of early morning. There are no documented collisions involving pedestrian or cyclist for this study, however, the risk is high for these types of collisions to occur due to the lack of designated facilities. Community members do not feel safe walking on the roadway with motor vehicles. The addition of multi-use trails would increase and encourage walking or cycling between housing and community places, increasing health and reducing the need for vehicular use. The addition of multi-use trail along NP 101 would benefit both community members and tourists, NP 101 is the designated route for public and recreational access to the Pueblo.

The Tribe's LRTP identified proposed recreational and multi-use trails that are needed throughout the Pueblo, as well as the need for development of a Bike and Pedestrian M aster Plan, addressing safety concern 19. The map below shows the preliminary, phased proposed trail systems. To improve roadway safety for pedestrian and cyclists, the following designated multi-use pathways with wayfinding signage need to be planned and constructed:

- Phase 1 - Plaza and Governor's Office to Wellness Center, Early Childhood and Senior Centers 1.7 miles
- Phase 2 - NP 118 Subdivision and NP 101 from SR 503 junction to Housing Entity 2 miles
- Phase 3 - NP 101 from Bayay Poe to Upper Village 2 miles
- Phase 4 - NP 101 from Upper Village to Ranger Station 1.6 miles


Figure 37 - Proposed Trails Location Map

## GOAL

Develop Pedestrian and Bicycle M aster Plan. Plan and construct Phase 1 and 2 of multi-use trails by 2025.

## STRATEGIES

- Develop Pedestrian and Bicycle Master Plan to connect tribal community members to local goods and services as supported by foot or bicycle travel. This plan requires collaborative planning, expansion, and coordination. The pedestrian and bicycle master plan must focus on the condition of the existing trails and pathways utilized by the tribal citizens (youth to elders) to access services by foot. Additional study and community involvement will be required to also, identify the desired connections that currently do not exist. In this plan, recreational trails should be considered not only for the health and benefit of the Tribal and nonTribal local communities but, also for potential enhancement of commercial developments for the visiting public. Walking and hiking trails provide a great opportunity for Tribal community enhancement by incorporating cultural education and preservation through interpretive signage, planned bench seating location with educational placards and interactive stations, the display of traditional tribal art, and environmental enhancement and education of plant and animal species. For increased safety and extended hours of use, path lighting will be considered. The plan should consider connectivity to other internal and external paths and trails. The Pedestrian and Bicycle M aster Plan should be developed simultaneously with the M aster Sign, Wayfinding and Striping Plan. (Strategy Champion: Nambé Pueblo)
- Select a collaborative planning team with community members and road ownership entities to discuss, design and create viable plans for bicycle and pedestrian trails and lighting identified by the Pedestrian and Bicycle Master Plan and LRTP. Develop a design and construction project that is broken out into phases. (Strategy Champion: Nambé Pueblo, Santa Fe County, NM DOT, NPA, BIA)
- Complete an NTTFI Inventory update to add proposed trails to TTP, with as needed proposed road justification reports. (Strategy Champtions: Nambé Pueblo)
- Apply for a Federal Highway Tribal Transportation Safety Grant in 2021 to secure funding for planning and construction of multi-use trails on qualifying TTP routes. (Strategy Champion: Nambé Pueblo)


## Emphasis Area 4 - Systemic Infrastructure Improvements

## DESCRIPTION

Improving communitywide transportation safety in the Nambé Pueblo study area requires both location specific and systemic approaches, which the Tribe is accomplishing with its existing, current, and future planning, maintenance and improvement efforts. Systemic safety infrastructure improvements have been identified with recommended future planning efforts to facilitate future projects.

Communitywide infrastructure safety improvement priorities identified by this plan will be the focus of systemic transportation planning, design improvement and construction efforts:

- Standing water, drainage issues and sediment building up on roadways and intersections limiting safe bus and vehicle travel and the ability to turn around.
- Reduced or blocked visibility due to vegetation and other obstructions at intersections and along roadways.
- Narrow road shoulders and poor road surface conditions.
- Lack of designated pedestrian and bicycle walkways.
- Need for proper warning and wayfinding signage.
- Speeding reduction.

In order to accomplish the Tribe's safety goals, the following plans and audits have been identified as necessary to implement safety improvement strategies identified in Emphasis Areas 1-3 of this plan as well as established existing planning efforts including the Tribe's existing LRTP, RIS and Community Needs Assessment Surveys:

- Roadway Safety Audit - School Bus Routes within Nambé Pueblo
- M aster Sign, Wayfinding and Striping Plan
- Bike and Pedestrian M aster Plan
- Road M aintenance Plan


## GOALS

Improve safety throughout the Nambé Pueblo by 2025 through systemic planning and physical roadway improvements.

## ROADWAY SAFETY AUDIT STRATEGIES

- Conduct a systemic, multidisciplinary RSA (See Emphasis Area 1, page 21) on all bus route roads within Nambé Pueblo to determine cost-effective improvements that could be done to improve bus and all transportation user travel, ingress and egress, safety, reduce crash risk and the number of vehicular collisions. The RSA will have a particular focus on pedestrian, bicycle safety, roadway drainage and vehicular roadway departure prevention improvements. The RSA should include a traffic analysis defining the roadway and intersection level of service during peak hours, traffic volumes, traffic speeds, and general modeled traffic patterns. The RSA will include a pedestrian count and audit. The RSA corridor will include approximately 11.5 miles of roadway including: Baseball Field Road, Bayay Poe, Buffalo Range Subdivision Road, County Roads 113A, 117N 119N, 119S, 84F, 84G, Ditch Rider Road, Don Bernardo Road, NP 101, SR 503, and Tayeh Huu U. (Strategy Champion: Nambé Pueblo, Santa Fe County, NM DOT, NPA, BIA)
- Apply for a Federal Highway Tribal Transportation Safety Grant to secure funding for RSA. (Strategy Champion: Nambé Pueblo)


## MASTER SIGN, WAYFINDING AND STRIPING PLAN STRATEGIES

- Develop Master Sign, Wayfinding and Striping plan. Signs and striping are essential transportation infrastructure. Installation and maintenance is as a low cost way to significantly improve and maintain transportaiton safety, providing guidance, wayfinding and warning to all roadway users. Conduct a systemic audit of the existing sign inventory within Pueblo roads and facilities for compliance, need, location, and retroreflectivity. Identify signs that need to be removed or added. Include areas of high risk: intersections, pedestrian crossing, drainage crossings, congested areas, narrow shoulder, horizontal and vertical curves. Consider developing plan in phases of current need and future needs for projected development, trails, etc. Develop with recommendations of the RSA, RIS and simultaneously with the Bike and Pedestrian M aster Plan. (Strategy Champion: Nambé Pueblo)


## BIKE AND PEDESTRIAN MASTER PLAN STRATEGIES

- Develop Pedestrian and Bicycle Master Plan (see Emphasis Area 3, page 38) to connect tribal community members to local goods and services as supported by foot or bicycle travel. This plan requires collaborative planning, expansion, and coordination. The pedestrian and bicycle master plan must focus on the condition of the existing trails and pathways utilized by the tribal citizens (youth to elders) to access services by foot. Additional study and community involvement will be required to also, identify the desired connections that currently do not exist. In this plan, recreational trails should be considered not only for the health and benefit of the Tribal and non-Tribal local communities but, also for potential enhancement of commercial developments for the visiting public. Walking and hiking trails provide a great opportunity for Tribal community enhancement by incorporating cultural education and preservation through interpretive signage, planned bench seating location with educational placards and interactive stations, the display of traditional tribal art, and environmental enhancement and education of plant and animal species. For increased safety and extended hours of use, path lighting will be considered. The plan should consider connectivity to other internal and external paths and trails. The Pedestrian and Bicycle Master Plan should be developed simultaneously with the M aster Sign, Wayfinding and Striping Plan. (Strategy Champion: Nambé Pueblo)


## ROAD MAINTENANCE PLAN STRATEGIES

- Develop a Road M aintenance Plan to comprehensively address and prioritize maintenance needs on Tribal and community roads. The Tribe currently does not have the capacity required to perform routine and heavy maintenance of their transportation network. M aintenance work is contracted out as the need for such work arises. Continued maintenance planning will be needed to ensure that a uniform, accurate, and systematic approach is implemented, resulting in the efficient use of limited maintenance funding. The Road

M aintenance Plan should be developed with recommendations of the RSA, RIS and M aster Sign, Wayfinding and Striping Plan. (Strategy Champion: Nambé Pueblo)

## ROAD INFRASTRUCTURE IMPROVEMENT STRATEGIES

- Join or form cooperative committees of all road maintenance servicers in the Pueblo Community. The committee would coordinate and plan maintenance and project work to combine resources and maximize efforts. (Strategy Champion: Nambé Pueblo, Santa Fe County, NM DOT, NPA, BIA)
- Complete improvement project design and construction based on the recommendations of The Road M aintenance Plan, and RSA identifying well supported, required traffic control revisions and infrastructure improvements. (Strategy Champion: Nambé Pueblo, Santa Fe County, NM DOT, NPA, BIA)
- Apply for a Federal Highway Tribal Transportation Safety Grant to secure funding for design and construction. (Strategy Champion: Nambé Pueblo)


## Emphasis Area 5 - Reducing Risky Driving Behaviorsand Roadway Departure

## DESCRIPTION

Unsafe behaviors - Risky Driving Behaviors are becoming an accepted part of the culture on many tribal roads and often cause serious injury or death. When analyzing the data, Nambé Pueblo is, unfortunately, no exception.

Reducing fatal and serious injuries crashes can be accomplished through identifying and deterring unsafe or risky behaviors made by drivers and other transportation users, and preventing roadway departure. The top 5 Highest Contributing Factors of Driver Inattention, Speeding, Alcohol or Drug Impairment, Following Too Closely and Failed to Yield Right of Way were identified as Risky Driving Behaviors (RDB) due to the high occurrence of collision fatality or injury.

- $60 \%$ of all collisions reported involved RDB.
- $100 \%$ of all reported fatal collisions involved RDB's.
- $65 \%$ of RDB collisions resulted in Injury.
- $75 \%$ of all Fatality collisions involved Alcohol or Drug Impairment, 25\% involved Speeding.
- $57 \%$ of all RDB collisions involving Speeding and $50 \%$ involving Alcohol or Drug Involvement resulted in Fatality or Injury. Speeding and Alcohol or Drug Involvement represented the highest occurrences of Fatality or Injury for both all reported and RDB only collisions.

The FHWA (Federal Highway Administration) defines Roadway Departure as a crash/collision which a vehicle crosses an edge line, center line or otherwise leaves the traveled way. For this study, Roadway Departure collisions include those identified by NM DOT as occurring off the roadway, as well as Collision Types involving lane departure: Overturn/Rollover, Head-On, Fixed Object, Sideswipe, or Vehicle on Other Road.

- $43 \%$ of all collisions involved Roadway Departure. The top three Highest Contributing Factors involving Roadway Departure were Speeding, Driver Inattention and Alcohol or Drug Involvement.


Figure 38-Risky Driving Behavior Collisions percentiles, all collisons.


Figure 39- Collision Location percentiles, all collisions.

- $43 \%$ of all and $44 \%$ of RDB collisions involved Roadway Departure.
- RDB collisions involving Roadway Departure include Speeding, Failed to Yield Right of Way, Driver Inattention and Alcohol or Drug Involvement. Only the RDB of Following Too Closely did not involve Roadway Departure.
- $41 \%$ of RDB collisions involving Roadway Departure resulted in Injury. $36 \%$ of RDB collisions not involving Roadway Departure resulted in Fatality or Injury.


Figure 40 - Collision Location and Risky Driving Behavior Collisions totals.


Figure 41 - Collision Severity and Risky Driving Behavior Roadway Departure totals.


Figure 42 - Collision Severity and Risky Driving Behavior Roadway Departure VS On Roadway Collision totals.

## GOALS

Reduce Fatalities and Serious Injuries Involving Roadway Departure and Risky Driving Behaviors by at least 25\% by 2025 .

## STRATEGIES

- Conduct a Systemic RSA that evaluates Roadway Departure risks including roadway condition, visibility, striping and signage in the community. The RSA should evaluate locations with reported crashes involving Roadway Departure including collision types: Overturn/Rollover, Head-On, Fixed Object, Sideswipe, or Vehicle on Other Road. (Strategy Champions: Nambé Pueblo, Santa Fe County, NM DOT)


## ENFORCEMENT AND POLICY STRATEGIES

- Enforce Laws related to Driver Inattention, Speeding, Alcohol or Drug Impairment, Following Too Closely and Failed to Yield Right of Way. Renewed police patrols and presence at community concern locations for driving enforcement. (Strategy Champion: Law Enforcement)
- Create a task force to evaluate, refine, and improve laws and policies for traffic enforcement in the community. The task force should specifically evaluate laws and policies concerning the following topics: Risky Driving Behaviors and Roadway Departure. (Strategy Champions: Nambé Pueblo, Santa Fe County, NM DOT)
- Intersection and Speed Management. Develop a policy for conducting studies that are used to monitor intersection driving behaviors and set speed limits. (Strategy Champions: Nambé Pueblo, Law Enforcement)


## EDUCATIONAND SAFETY CULTURE STRATEGIES

- Create a media campaign using billboards and displays to encourage drivers to adopt a culture of safe driving. (Strategy Champions: Nambé Pueblo, Public Relations)
- Implement an education program for the community that involves safety signage and a mock Crash similar to the "Every 15-M inutes" program. (Strategy Champions: Law Enforcement)


## IMPLEMENTATION AND EVALUATION

## Nambé Pueblo Transportation Safety Management Steering Committee

For this plan to be successful it must be implemented and monitored, revisions to this plan will be necessary as success will mandate change. The Safety Partners will be interviewed on a yearly basis to discuss the Safety Plan and get their concerns/input. The Safety Management Steering Committee will meet annually to evaluate progress toward each goal, discuss the progress of strategies that are being implemented, and consider any needed revisions/ updates to this plan.

## Strategy Implementation Champions

The strategies listed above designate a champion for each strategy and this champion has the lead on implementation of that particular strategy. Many of the strategies may require an implementation plan be created that is separate from this document. As needed, the strategy champions will build an action plan for their strategy that outlines the implementation steps, schedule, and needed resources. The strategy champions will report back to the Safety M anagement Steering Committee on their strategy when updates are available or as requested.

## APPENDICES

## ApPendix A - Plans (Digital)

## NP 101 ROAD IMPROVEMENTS STUDY - NM 503 TO NAMBÉ FALLS RESERVOIR



## NP 101 Road Improvements Study <br> NM 503 to Nambé Falls Reservoir • Nambé O-Ween-Gé

JANUARY 14, 2017

February 23, 2018

Mr. Marcus Lopez
Road and Transportation Manager
Nambé Pueblo

## Re: NP 101 Road Improvement Study

Dear Mr. Lopez:
KSA Engineers is pleased to submit this Improvement Study for NP 101. The Study includes the document and appendices contained herein. It is supplemented by the Topographic and Utility Survey files transmitted with the electronic file submittal.

As noted in the introductory sections, the Study will assist in the planning and design of future infrastructure and procedural improvements to enhance the safety and life of NP 101.

We appreciate the opportunity to provide our professional services on this project.
This Study was completed under my supervision, with assistance from third party consultants with references to professional certifications contained in the corresponding Appendix.

Respectfully submitted,


Abiel Carrillo, P.E., C.F.M.
Project Manager

## NP 101 ROAD IMPROVEMENT STUDY

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## List of Acronyms

| AASHTO | American Association of State Highway and Transportation Officials |
| :--- | :--- |
| ACS | (Census Bureau) American Community Survey |
| ADA | Americans with Disabilities Act |
| AWDT | Average Weekday Daily Traffic |
| BIA | Bureau of Indian Affairs |
| BOP | Beginning of Project (NM 503) |
| CAS | Culvert Assessment Form |
| CDP | Census Designated Place |
| EOP | End of Project (Security Fence along the West Frontage of the Reservoir) |
| ESALs | Equivalent Single Axle Loads |
| FEMA | Federal Emergency Management Agency |
| FHWA | Federal Highway Administration |
| FIRM | Flood Insurance Rate Map |
| HCM | Highway Capacity Manual |
| IHSDM | Interactive Highway Safety Design Model |
| JMEC | Jemez Mountains Electric Co-op |
| LOS | Level of Service |
| MUTCD | Manual on Uniform Traffic Control Devices |
| NMDOT | New Mexico Department of Transportation |
| NMPRC | New Mexico Public Regulation Commission |
| NMSA | New Mexico Statutes Annotated |
| NOAA | National Oceanic and Atmospheric Administration |
| NPRTPO | Northern Pueblos Regional Transportation Planning Organization |
| OM | Object Marker (from MUTCD) |
| PCI | Pavement Condition Index (USACE Method) |
| PVSD | Pjoaque Valley School District |
| RCOL | Rural Collector Highway |
| SAMM | State Access Management Manual |
| SLDC | Sustainable Land Development Code (Santa Fe County) |
| SN | (Pavement) Structural Number |
| STD DWG | Standard Drawing |
| TMC | Turning Movement Count |
| USACE | United States Army Corps of Engineers |
| USCS/USC | Unified Soil Classification System |
| USDOT | United States Department of Transportation |
| USGS | United States Geological Survey |
| VPD | Vehicles per day (traffic) |
|  |  |

## 1. EXECUTIVE SUMMARY

NP 101 (Poechunu Poe) is a two lane collector road that provides access to NM 503 from the residential and tourist destinations within the Pueblo. The limits of the Study are NM 503 and the Nambé Falls Reservoir.

The Pueblo wraps around the foothills of the Sangre de Cristo Mountains, and its arroyos travel down into the community and cross under NP 101 at multiple locations. In total, there are currently 80 irrigation and culvert crossing structures within the project study.

BIA maintains some records of construction for recent improvements, including a pavement overlay and reconstruction of several crossings.

Projects should be coordinated with the Southwest Regional Office of the BIA; that agency provides oversight of the roadway infrastructure.

This Study was initiated to aid the Pueblo in the strategic planning of improvements to preserve existing facilities, and to improve roadway and drainage/culvert deficiencies.

The methods utilized and suggested in the Study are intended to maintain compliance with federal Standards.

The existing roadside varies from flat to steep, in particular where the road spans across arroyo valleys and where it was constructed as a fill section along the foothills. The clear zone varies between 7 and 14. The shorter width applies to those segments with recoverable slopes. Regardless of the values presented, however, non-recoverable slopes and critical slopes should be maintained free of non-crashworthy obstructions. There are three locations that are identified with roadsides issues that should be resolved/studied further. They are identified in Section 4.a.ii.

A geotechnical report was prepared for the entire road. 16 exploratory bores were completed, and they revealed that generally, R-values are in desirable ranges, except at two locations (Bore \#8 and
\#14). Based on geotechnical data, there are two recommended flexible pavement sections to be used according to the R-Values encountered:

| Section ' A ' |  | -2" SP IV HMA Surface Course, PG 58-28 |
| :---: | :---: | :---: |
| Areas of |  | 2.5" SP III HMA Base PG 58-28 $\qquad$ 6" Aggregate Base Course, 96\% Compaction |
| R-Value > 46 |  |  |
|  |  | 12" Subgrade Preparation, 95\% Compaction |



The Study analyzed the taffic conditions, including 24 -hour vehicle counts, and intersection counts at three locations. A summary of the traffic findings is summarized below:


The analysis showed that there are no capacity issues, and the road and intersections operate with a Level of Service of A. Intersection delay is also low. The most congestion, as expected, is experienced at NM 503.

A sight distance evaluation was completed, and obstructions were identified at three intersections: Widi Anya Ea E, Pohuu U Poe and NP 102. The issues appear to be easily resolved by relocating signs and clearing vegetation. Furthermore, they do not appear to be factors in any recent crash history.

NP 101 is accessed directly with residential and institutional driveways. A driveway density map is contained in the Study. We identified four driveway sectors, and driveway densities between NP 175 and the Pokwin Thuu vicinity are high (17.5 and 28 respectively). We recommend developing a standard for driveway access permitting, and consolidating access clusters where feasible, when opportunities to do so arise (such as a part of a construction project).

The topographic survey includes subsurface utility locations (Level C/D), and approximate depths determined with non-exploratory methods. Generally, utilities run along parallel to the road, between edge of pavement and fence. Utility conflicts do not appear to be a major concern for most roadway reconstruction projects. At some culvert crossings, utility lines dip under the outlet and/or inlet structures. Care should be taken when planning to upsize or replace them; there might be relocations of utility lines to consider.

The condition of drainage structures was determined, at a planning level, for all crossings under NP 101. The culvert crossings within the recreational area were only assessed for capacity, since the road is not paved. The focus of this Section in the report is to identify potential impacts to the road as a result of drainage issues. It is not to be interpreted as a comprehensive drainage study.

Peak flows were estimated with either USGS Regression Equation tools, or with the NMDOT's Peak Flow method, with broad assumptions. Sizing of culverts requires further investigation. The results of this study aid the reader in determining where to focus additional investigations.

Capacity was not found to be an issue at most locations, except at Crossing \#5a; it is unclear, however, if the discrepancy is a nuisance, or a threat to the road. Visual evidence indicates that the estimated flow may be conservative at this time, however.

Each crossing's characteristics are summarized in Culvert Assessment Forms (CAS). Each includes recommendations scaled based on priority. Crossings of concern are listed under the specific recommendations of the Conclusions Section.

Other design elements are also considered, in Section 6. Bike and pedestrian facilities are feasible, and some design considerations are discussed. However, we recommend developing a framework of priorities with the community. Destinations, modes of alternative transportation, and other criteria should be narrowed prior to the consideration of specific improvements.

Lighting criteria are also discussed. Types and availability should be coordinated with the Jemez Mountains Electric Coop. Although lighting always improves safety, the lack of lighting was not found to be a contributing factor to major safety issues. Maintaining retroreflectivity levels of signing and striping is more important as an interim improvement for night time visibility and safety.

The Pojoaque School District operates a bus route that travels on NP 101. At some locations, the bus stops, and turns around. These areas are identified in Section 6 and should be taken into account in the design of road and intersection improvements. There may be opportunities to provide access points (bus stops) to improve the safety of the school route.

Mapped floodplains exist in the Pueblo, but they have not been studied in detail. "A" Zones wrap around several arroyos and straddle the banks of the Pojoaque River. They do impact three crossings. Any improvements to those crossings should consider the impacts to the floodplain.

Our recommendations, as mentioned above, are listed by level of priority. The specific improvements are shown below. Section 7 elaborates on the scope and assumptions for each project.

NP 101 PROPOSED IMPROVEMENT PLAN

| Project \# | Short Term Actions (0 to 1 year) | Conceptual Cost | P? |
| :---: | :---: | :---: | :---: |
| 1 | Fix Outlet and Stabilize Roadside Fill of Crossing \#4 | \$74,620 | N |
| 2 | Develop Speed Control Plan / Enforcement | \$0 to \$7,500 | Y |
| 3 | Remove all Bike and Pedestrian Signs | Force Account | N |
| 4 | Address Issues Ranked (1) in CAS, per Issue | \$1000 to \$20,000 | Y |
| 5 | Reconstruct Crossing \#40 | \$495,330 | N |
| 6 | Install Markers for the Three Critical/Non-Recoverable Roadsides Identified in Section 4.a.ii | \$5,000 | Y |
| 7 | Assess the Structural Integrity of Crossing \#23 | \$1,500 | N |
| 8 | Replace all Missing and Damaged Warning Signs | \$16,230 | N |
| 9 | Grade a Roadside Swale Between Crossing \#34 and \#35 | \$9,770 | N |
|  | Mid Term Improvements (1 year to 5 years) |  |  |
| 10 | Roadway Reconstruction of Middle Segment | \$4,808,700 | Y |
| 11 | Remove and Replace Crossing \#23 | \$107,900 | N |
| 12 | Crack Seal the Upper Segment | \$107,900 | Y |
| 13 | Install Culvert Roadside Markers within Unpaved Segment | \$11,100 | Y |
| 14 | Address Issues Ranked (2) in the CAS, per Issue | \$1000 to \$15,000 | Y |
| 15 | Remove and Replace all Non-Conforming and Damaged signs | \$41,890 | Y |
| 16 | Determine if Crossing \#5a Has Capacity Issues | \$3,000 | N |
| 17 | Clear Intersection Sight Distance Obstructions | Force Account | $Y$ |
|  | Long Term/Ongoing Improvements (3 years +) |  |  |
| 18 | Develop Bike and Pedestrian Masterplan/Framework | \$10,000 | Y |
| 19 | Add Roadway Shoulders/Improve Non-Recoverable roadsides in Upper \& Middle Segments | \$366,700 | Y |
| 20 | Study Crossings \#12, \#16/\#17 Further | \$4,000 | Y |
| 21 | Study and Improve the Design of Crossing \#38 | \$6,500 | $Y$ |
| 22 | Study the Need for a Culvert Crossing at \#48 | \$2,500 | N |
| 23 | Develop a Wayfinding Signing and Striping Plan | \$6,000 | N |
| 24 | Address Issues Ranked (3) in CAS, per Issue | \$0 to \$3,000 | Y |
| 25 | Consolidate Driveway Clusters | \$1,000 to \$6,700 | Y |
| 26 | Clear Obstructions from the Clear Zone | Force Account | Y |
| 27 | Develop Distress Monitoring Plan for the Road | \$1,300 | $Y$ |

$\mathrm{P}=$ Can the Project be Phased?

## 2. INTRODUCTION

## a. BACKGROUND

NP 101 (Poechunu Poe) is a two lane road that operates as a major collector from the Pueblo's main governmental offices and facilities, schools and residential neighborhoods to NM 503. It is also the route for tourism traffic to access the Nambé Falls Recreational area at the southern end of the site.

The Study was initiated by the Roads and Transportation Department to assist in the development of a phased improvement plan, and to prioritize funding according to the most urgent needs. This includes a preliminary assessment of the drainage structures along the route and a comprehensive topographic survey for future design.

As shown in Figure 2-1 below, the limits of the study are the NM 503 intersection (BOP) and the access point to the Nambe Reservoir Dam (EOP). The total length of the road is 8.0 miles, and the apparent width (fence to fence) of the ROW varies from 40 to 100 feet.

FIGURE 2-1 - NP 101 STUDY LIMITS


## b. SITE DESCRIPTION

Nambe' O-Ween-Gé is located along the foothills of the Sangre de Cristo Mountains in northern Santa Fe County. It is a federally recognized Indian Tribe, sovereign and selfgoverned. The main Village is accessed from NM 503. The project site, NP 101 (Poechunu Poe) connects the Nambe CDP, the Main Village area, residential subdivisions, government centers, service facilities and educational institutions, and the Nambe Fall recreational area. The Nambe CDP is the portion of the Pueblo occupied by non-Tribal members. Facilities in the CDP are maintained by Santa Fe County. See below a vicinity map (aerial photo view) of the site.

The site generally slopes from east to west, and many concentrated drainageways cross NP 101 before discharging into the Pojoaque River. The storm watershed for this portion of the site, and for the majority of NP 101, is the eastern face of the Sangre de Cristo Mountain range. Flows quickly concentrate into streams and form arroyos. The largest is formed in the Cañada Ancha, labeled in Figure 2-2 - Aerial Vicinity Map.

## c. PREVIOUS STUDIES \& RECORD DRAWINGS

This study contains references to the following previous studies, reports and design files. Information used in this Study from these sources is noted herein. Additional information can be obtained at the Southwest Region Bureau of Indian Affairs Office, c/o Supervisory Highway Engineer's Office.

- Nambé Indian Reservation Rights of Way Map, 1974, PN 157,153(I)2
- Project NP101(1) Culvert Replacement, Channel Alignment \& Pavement Replacement, Construction Drawings dated 6-16-1998
- Project NP101(2)2\&4 Nambe Falls Road Drainage Correction and Grade, Drain, Aggregate Base and Hot Asphaltic Concrete Pavement STA 0+00 to 4+50 Construction Drawings, dated 10-04-01
- "NP 101(3) Crack and Fog Seal" Case Files
- NP101(2)4 Nambe Falls Road Overlay, Contract No. CTM00170806
- "Preliminary Geotechnical Investigation, for the Pojoaque Basin Regional Water System Transmission Pipeline for Pojoaque, Nambe, and Tesuque Pueblos", by Tetra Tech, January, 2014, source: BOR/Nambe Pueblo files
- "Pueblo of Nambe Comprehensive Water and Wastewater Infrastructure StudyPojoaque Basin Regional Water Asset Inventory", by AMEC Foster Wheeler, Souder Miller and Associates, September, 2016, source: BOR/Nambe Pueblo Files


## d. STAKEHOLDERS AND ROLES

NP 101 is owned and maintained by the Nambe Pueblo Road and Transportation Department. Table 2-1 below is a comprehensive list of agency stakeholders for this facility. Only those contacted for information to aid in the development of this Study are shown with a current representative.

TABLE 2-1 - NP 101 STAKEHOLDERS

| Agency | Facility Oversight/Role | Representative |
| :---: | :---: | :---: |
| Nambe Pueblo - Road \& Transportation Dept. | Project Lead and Maintenance of NP 101 | Marcus Lopez Manager |
| Nambe Pueblo Utilities Dept. | Coordination of 2" to $6^{\prime \prime}$ PVC distribution lines and crossings within the ROW | Pueblo Utility Staff |
| BIA - Southwest Regional Office | Funding and resource utilization oversight | Shannon McKenna, P.E. <br> Supervisory Highway Engineer $505-563-3445$ <br> shannon.mckenna@bia.gov 1001 Indian School Rd, NW Albuquerque ,NM, 87104 |
| NMDOT - District 5 | NM 503 Intersection | Assistant District Engineer's Office |
| Pojoaque Valley School District | Bus Route/Stop planning | Robert Cantu <br> Transportation Manager |
| Santa Fe County | County Road Intersections | Santa Fe County Planning and Public Works Departments |
| NM Gas Co. | Gas Services and distribution line relocations | TBD |
| Century Link | Communication line relocations | TBD |
| Windstream | Communication line relocations | TBD |
| Northern Pueblos <br> Regional <br> Transportation <br> Planning Organization | Regional planning, masterplan compliance, federal funding applications | TBD |
| Jemez Mountains Electric COOP | Roadside underground electric power distribution lines | District 6 <br> Engineering Services $5053671131$ |

## 3. PURPOSE AND METHODS

## a. PURPOSE OF THIS STUDY

The purpose of this Study is to provide the Pueblo of Nambé with an assessment of the existing conditions and proposed improvements for the NP 101 roadway. The goal is to identify actions that Pueblo officials can take in the short, mid, and long term to improve the structural, transportation, traffic, and drainage conditions of the facility.

Some improvements will require further planning and possible design, as noted throughout the document.

This Study is intended to be useful in its current format, but is formatted to be grown to incorporate changes that result from modifications to the roadway's infrastructure. For example, we include an analysis of the capacity and physical condition of each culvert crossing. If new crossings are constructed in the future, we encourage the Pueblo to supplement this document with information on the new facility, to maximize this Study's usefulness.

## b. INTRODUCTION TO METHODOLOGIES

All data collection and analysis methods were completed in a manner that complies with federal standards. We understand that typical funding for infrastructure improvements for this road will require any design to comply as well.

Our recommendations and assessments are based on AASHTO, MUTCD, USGS, USACE, and other federal oversight agencies. Design of improvements need to be coordinated with the BIA, and should be coordinated with other potentially applicable stakeholders within the region, such as Santa Fe County and NMDOT District 5. USDOT/FHWA FP-14 Specifications shall govern the materials and methods for construction.

This Study does not include any design, and values presented should be re-assessed if new information is obtained as a part of a design effort in the future.

The Study generally has three parts: 1) Introductory sections, 2) existing condition sections, and 3) Conclusions and recommendations section.

As noted throughout the study, some assessments of existing conditions are based on field visits and visual inspection of the condition. Data collected with this Study can serve to further develop the recommendations in those cases.

The exhibits and conceptual layouts included as figures throughout the Study should not be used on their own for construction, except in those cases where the recommendation involves repairs, or actions that may not require a design.

## c. CULTURAL CONSIDERATIONS

The Pueblo of Nambé is not accessible to the general public without written permission. This includes reconnaissance, field visits, and construction activities. Access can be requested from the Pueblo with an Access Permit, available from the Governor's Office, or through the Project Manager.

Once access is permitted, all visitors must abide by the Code of Conduct, which can also be found on the Pueblo's website, www.nambepueblo.org:

- Call ahead to confirm event dates, as well as access to tribal lands. There are times when tribal leaders need to restrict access because of private ceremonies and other reasons.
- Although Nambé Pueblo is open to the public during daylight hours, the homes are private. Like any village, the Plaza is home to those who live there and should be respected as such.
- Nambé Pueblo requires a permit to photograph, sketch or paint on location. At certain times, photography is completely restricted. Please check with the Tribal Office for the permitting process. Once a permit is obtained, always ask for permission before taking a photograph of a tribal member. REMEMBER: cameras and film can be confiscated.
- The carrying or use of alcohol and drugs on Pueblos is strictly prohibited.
- Tribes value traditions, customs and religion. Tribal dances are religious ceremonies, not public performances. It is a privilege to witness a ceremony.
- Silence is mandatory during all dances and Pueblo ceremonies. This means no questions about the ceremonies or dances while they are underway; no interviews with the participants; no walking across the dance plaza; and, no applause during / after the dance or ceremony.
- Many areas within the Pueblo are sacred and restricted for use by Pueblo members only. These areas include, but are not limited to; Pueblo villages, including Kivas, ceremonial rooms, and cemeteries.
- Many of the structures are hundreds of years old. Do not scale walls or climb on top of buildings.
- Nature is sacred to Nambé Pueblo. Littering is strictly prohibited.
- On feast days and other public observances, enter a Pueblo home as you would any other - by invitation only. It is courteous to accept an invitation to eat, but not to linger at the table, as your host will want to serve numerous guests throughout the day. Thank your host, but a payment or tip is not appropriate.
- Please obey all traffic and speed limit signs. Children and pets play near the roads. Also be cautious of livestock on or near main roadways.
- Observe all signage indicating OFF LIMITS while visiting Nambé Pueblo.
- If organized tours are offered, please remember to stay with your tribal guide at all times.
- Do not remove artifacts, pottery shards or other tempting items.
- Tribal communities do not use the clock to determine when it is time to conduct activities. Acts of nature, as well as the sequence of events that must take place (some not for public viewing) usually determine start and finish times for ceremonies.

When planning construction activities, the access permit and the code of conduct should be included in the Project Manual/Contract for construction. In addition, the project schedule should take into account dates of celebrations and holidays, when access to NP 101 may be restricted. Some celebrations are conducted on the unpaved side roads, which will also impact a potential construction schedule.

## 4. ROADWAY AND TRAFFIC

## a. EXISTING CONDITIONS

NP 101 is an 8-mile two lane roadway that is used as a collector to NM 503 to the north, and terminates at the Nambé Falls Reservoir to the south. Right of way width varies from approximately 40 feet to 100 feet. We understand that the BIA fencing is set at the right of way line.

Roadsides are described further below, and Figure 4-1 shows typical sections approximately cut every 1-mile.

In this Section we summarize the existing structural and operational conditions of the road. A topographic design survey was completed with this Study and delivered to the Pueblo. The GPS Control Survey Report is included as Appendix F.

## i. EXISTING GEOMETRY

The cross section consists of two 11 and 12-foot driving lanes, 6-inch to 1-foot shoulders, and wider shoulders that vary from 3 to 5 feet across some of the culvert crossings. 1.59 miles of the total length is an unpaved gravel road at the southern end as the road wraps around the reservoir.

## ii. ROADSIDE CONDITIONS

This subsection provides a discussion and an initial assessment of the roadside conditions, based on guidance from the AASHTO Roadside Design Guide ("the Guide" in this subsection). As described in Chapter 3 of the Guide, it is not feasible to include every recommendation and every design value arbitrarily to any new construction. It is much less expected to apply every single treatment to NP 101, being an existing facility. Any of the following observations, should be weighed against the resources that the Pueblo has to improve the road, and the urgency of other priorities.

The clear zone is determined from the ADT (648 for the busiest segment of NP 101) and by the severity of the foreslopes and backslopes (varies). Figure 4-2, illustrates Table 3-1 from the Guide. In this study we focus on the foreslope issues. Most backslopes are created by cuts into sandy soil hills, which are generally forgiving in the event of a crash.


Figure 4-2 - NP 101 SUGGESTED CLEAR-ZONE DISTANCES (FEET)

| Design Speed (mph) | $\begin{gathered} \text { Design } \\ \text { ADT } \end{gathered}$ | Foreslopes |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | 1V: 6 H or flatter | $\begin{gathered} 1 V: 5 H \text { to } \\ 1 V: 4 H \end{gathered}$ | 1V:3H |
| $\leq 40$ | UNDER $750^{-}$ <br> 750-1500 <br> 1500-6000 <br> OVER 6000 | $7-10$ <br> $10-12$ <br> $12-14$ <br> $14-16$ | $7-10$ <br> $12-14$ <br> $14-16$ <br> $16-18$ | $\begin{aligned} & b \\ & b \end{aligned}$ |
| 45-50 | UNDER $750^{\circ}$ $\begin{aligned} & 750-1500 \\ & 1500-6000 \\ & \text { OVER } 6000 \end{aligned}$ | $10-12$ <br> $14-16$ <br> $16-18$ <br> $20-22$ | $\begin{aligned} & 12-14 \\ & \hline 16-20 \\ & 20-26 \\ & 24-28 \end{aligned}$ | $\begin{aligned} & b \\ & b \\ & b \end{aligned}$ |

b-fixed objects should not be near the toe of slope, since it is not expected that a vehicle will recover regardless of the slope length (paraphrased from Table 3-1).

Although the posted speed varies between 25 mph and 35 mph , the $85^{\text {th }}$ percentile speed is 49 mph . We therefore recommend considering design values for this existing condition, except where they are not feasible. When not practical, consider other alternatives before choosing the no-build option. For example, installing additional warning signs. Below, we offer a discussion regarding the three foreslope scenario clear zone values and their application to NP 101. The

Recoverable Slopes (1V:6H and flatter). Fixed, non-crashworthy objects should not be closer than 10 feet than the edge line of the road. The roadside for these areas is generally in good condition, we recommend that vegetation control is continued (mowing, clearing thicker trunk trees).

Non-Recoverable Slopes ( $1 \mathrm{~V}: 5 \mathrm{H}$ to $1 \mathrm{~V}: 4 \mathrm{H}$ ). Non recoverable slopes are those that a vehicles leaving the road is not expected to recover from and will travel all the way down to the toe of the slope. If the clear zone ends but the slope continues, a clear runout area is desired, as illustrated in Figure 4-3 below (Figure 3-2 in the Guide).

FIGURE 4-3 - CLEAR ZONE FOR NON-RECOVERABLE FORESLOPES

portion of the cloar-zone datance that is located on the non-rocovsrabla slope.

The clear runout area may be easier to accomplish in the northern segments of the road, but become increasingly difficult and impractical as the right of way narrows. However, the rural character of most property adjacent to the road is fairly clear. If traversable right of way continues to be in place, the clear runout area can continue into open fields. Thicker tree trunks should be cleared from all non-recoverable slopes. Although this is not ideal, it can represent a compromise that makes a run-off-the-road crashes survivable. The ideal solution, whenever feasible, is to flatten the roadside slopes so that the entire clear zone is recoverable. Guardrail/barrier installations should be a secondary option to flattening slopes. Properly designed guardrail is crashworthy, but can cause more damage to a vehicle than driving off the road into a vegetated field. Its use should be reserved for critical slopes and to protect from more severe fixed objects such as bridge piers.

Critical slopes (1V:3H). Errant vehicles have a higher probability of overturning on these slopes. Similar to the suggestion above, the ideal solution is to flatten the slope or create a separation from the breakpoint equal to the clear zone. However, guardrail may be more appropriate where flattening is not a feasible solution.

Along NP 101, we have identified three priority roadside lengths that warrant treatment to prevent/improve the outcome of the type of collision that results from a vehicle that runs off the road.

- STA 12+00 to 17+50 (Between NP 117 and Crossing \#1)


The roadway appears to have been built on fill to cross the irrigation valley (crossing \#1a). The slopes appear to be non-recoverable (and possibly critical). However, except at the irrigation crossing itself, there is runout length across the fence. The roadside should be extended and flattened. However, as an interim improvement, trees should be cleared from the right of way and delineator markings should be installed, (retroreflective white edge markers, NMDOT STD DWG 703-01-1/3).


- STA 82+00 to 86+50 (Between NP 175 and Just S of Crossing \#5)

Similar to the previous area, the road is on a fill section across the arroyo. The arroyo should be extended and its roadside conditions improved. We recommend installing delineators and warning signs as an interim condition.


- STA 137+25 to STA 141+00 (Between Yates Rd and Crossing \#10)

The fill slope on the East roadside slopes down towards the River valley. The road edge is very close to the road and the drop off height is high. As the driver travels southbound, the drop off appears very quickly since there is dense vegetation and a driveway just before the critical slope. The same recommendations as the previous two locations apply.


Curb and gutter can provide some benefits to improve the roadside. However, they are not considered for this site given the rural character of the road. Per the Guide (Section 3.4.1), it is also not a suitable treatment to address a lack of proper clear zone width.

Any design project for any segment of NP 101 should further evaluate the full suite of suggestions from the Guide.

## iii. EXISTING SOIL CONDITIONS

Sixteen (16) exploratory borings were drilled along the roadway alignment to depths of about 5 feet below existing grade. The borings were located at approximate $1 / 2$ mile intervals. Some borings were drilled on the pavement (typically on the shoulder or near edge of pavement), and others were drilled along the roadside area. The locations of the borings are shown on the attached Boring Location Map, Figure 4-4. It has also been provided to the Pueblo along with the electronic version of this document (KMZ file is accurate to approximately 15 ft . from actual drill site).

During the test drilling, the soils encountered in the borings were continuously examined, visually classified, and logged. A summary of the pavement and basecourse thicknesses, and a general description of the underlying base is provided in Table 4-1 below. Drilling was accomplished using a truck mounted drill rig equipped with 5.5 -inch diameter continuous flight hollow stem auger. Subsurface materials were sampled at depths of 2 feet and 4 feet, utilizing an open tube split barrel sampler driven by a standard penetration test hammer. Samples of the auger cuttings were also obtained at some of the boring locations. The complete Logs of Test Borings can be found in "Appendix B - Geotechnical Engineering Report, Geotest November 2017".

Selected soil samples were then laboratory tested to determine typical engineering properties of the soils. Moisture contents were also determined to evaluate the various soil deposits with depth.

As described in other Sections of this Study, NP 101 is constructed with a flexible pavement section from NM 503 to Road 1 of the Nambe Falls Recreational Site. NP 101 transitions to a basecourse surface road beyond Road 1 and continues through the EOP.

FIGURE 4-5 - UPPER SEGMENT PHOTO


For this discussion, it is helpful to divide the roadway into three segments as conceptually shown in Figure 4-6. As noted in Section 4.c.v., this categorization corresponds generally with recommended phasing of potential improvements.

According to BIA records, (see Section 2.c) an asphalt overlay project and a crack and fog seal project were completed in the upper section, which we found has extended the life of the pavement section in that vicinity. The condition of the road is markedly defined by the "segments" shown in the figure.

FIGURE 4-6 - "UPPER", "MIDDLE" AND "UNPAVED" CONDITION SEGMENTS



## TABLE 4-1 - EXPLORATORY BORE HOLE SUMMARY

| Bore Hole \# | Roadside (RS),On Road (R), Gravel (G) | Asphalt Thickness, inches | Basecourse Thickness, inches | Underlying Soil/Other Remarks S=Sand, SS=Silty Sand |
| :---: | :---: | :---: | :---: | :---: |
| 1 | R | 6 | 6 | SS, gravel was found at 5 feet |
| 2 | RS | - | - | SS, bored between gas and cable |
| 3 | R | 3 | 4 | Well graded S with silt, silty clay underlayer |
| 4 | RS | - | - | SS, near school road intersection |
| 5 | R | 6 | 8 | SS, SS with gravel underlayer |
| 6 | R | 3 | 5 | SS, SS with gravel underlayer |
| 7 | RS | - | - | SS |
| 8 | R | 3 | 6 | Sandy silty clay with a SS underlayer |
| 9 | RS | - | - | SS |
| 10 | R | 2 | 4 | SS |
| 11 | R | 2 | 4 | SS, Poorly Graded S with silt underlayer |
| 12 | R | 2 | 4 | SS, Poorly Graded S with silt underlayer |
| 13 | R | 2 | 0 | Well Graded S with silt |
| 14 | R | 2 | 3 | Clayey S with gravel |
| 15 | G | 0 | 2 | Hard Sandstone |
| 16 | G | 0 | 4 | Hard Sandstone |

The types of observed surface and pavement distresses appear to correlate with each of the three segments:

Northern Segment. The upper segment shows signs of low and medium severity block cracking. The pattern is fairly consistent, except for a few outlying sections where the distress severity is less developed or low. These areas correlate with the thickest pavement sections, such as near Bore Hole \#5. Given the age of the original road and the most recent improvements, aging of the binder might be the cause of the distress. Over time, aging binder loses its ability to expand and contract during temperature swings and cracking begins to develop. Some longitudinal and transverse cracking are likely precursors to block cracking in some areas. Many transverse cracks in this area can also be attributed to reflection from the pre-2009 surface layer that was paved over. Generally speaking, the distresses indicate that the structure of the pavement section is in acceptable condition. This is supported by the R-Values of about 46 and better that were encountered in this segment. If left untreated, however, moisture can find its way into the basecourse layer and weaken the section. Inaction will eventually lead to patches of alligator cracking and eventual potholing.

Middle Segment. The middle segment was found to have R-Values of 20 and above and a shallower structural pavement section. The roadway has been patched substantially over the last few years as a way to address what we understand was severe alligator cracking distresses.

FIGURE 4-7 - PATCHING EXAMPLE ALONG MIDDLE SEGMENT


As can be appreciated in the photo above, block cracks and alligator cracking are susceptible to receiving consistent moisture, evidenced by the presence of vegetation in the southernmost areas of this segment. These areas are expected to continue to deteriorate into fatigue failures and develop alligator cracks. Vegetation itself can also rot and leave voids behind that weaken the crack line further, which allows raveling and rutting. Some areas are also polished, which diminishes the friction of the surface.

The age of the road is a significant factor in considering the cause of the distresses. The road was originally built in the 1970's. It is likely that the pavement section has simply aged beyond its useful life, and surface issues are not caused by base layer deficiencies, but rather an outdated design. This is supported by the consistency in underlayer soil types across the Upper and Middle Segments, except south of Bore Hole \#10 where poorly graded sand underlayers exist. Another factor that is explored further in this Study is the impact of stormwater flows at some uncontrolled or undersized arroyo crossings which may be oversaturating the roadway structure. Some clayey pockets at Bore Hole \#14 may be exacerbating the already severe failure at that location.

Also of concern, is that it appears that almost all culvert crossings have had to receive patch treatments to address weakened surface conditions.

Unpaved Segment. We understand that this segment was recently re-bladed and maintained with assistance from the BIA. The surface shows no concerning signs of distress. The basecourse thickness varies between 2 and 4 inches and as shown in our recommendations further in the Study we propose to maintain a prepared surface at a consistent 4 inch thickness. Continuous maintenance, however, will substantially delay the need to thicken the 2 inch segments. Hard, non-plastic sandstone was also present directly beneath the surface around the reservoir, which is a great base for any road.

As expected, no free groundwater was encountered in the borings for any of the segments and soil moisture contents were relatively low.

As indicated across the boring logs, the soils underlying the site consist primarily of non-plastic silty and well graded sand with varying amounts of gravel. A smaller amount of low plasticity sandy, silty clay and medium plasticity clayey sand were also encountered. As indicated by the standard penetration tests, these soils generally ranged from very loose to medium dense at the boring locations.

## iv. EXISTING ROADWAY SECTIONS

The roadsides vary from flat to very steep. In some areas, as the road gets closer to the foothills heading south, the cut/fill construction of the road placed it on a "shelf" with steep uplands of cut hills to the east and steep fill slopes to the west to catch grade with the Pojoaque River valley.

Figure 4-1 shows typical sections for the road, approximately every mile.

## v. TRAFFIC OVERVIEW

Data was collected on Tuesday, October $17^{\text {th }}, 2017$, and a field review by Lee Engineering was conducted on Wednesday, October $18^{\text {th }}$, 2017. Data collection included 24-hour directional counts, vehicle classification, and speeds at two locations on NP101; one location between NM503 and NP175 (access to Buffalo Range Subdivision and future Head Start site) and another between NP102 (Government access road) and the termini of NP101 at the Nambe Lake Dam. Additionally, turning movement demands were collected at the intersections of NP101 and NM503, NP101 and NP175, and NP101 and NP102. The field visit consisted of documenting traffic safety issues throughout the corridor including sight distance/visibility issues, signing and striping deficiencies, access management through the corridor, and intersection operation needs.

The following subsections summarize the full report available in the Appendix authored by Lee Engineering.

Figure 4-8 shows the 24-hour directional counts and speed data for both locations along NP101. Volumes were higher near NM503 (Data Location \#1) than the Ranger/Pay Station (Data Location \#2), however, both counts show relatively low vehicles per day (VPD). The speed data shows that at both locations the mean speed is above the posted 35 mph speed limit and the $85^{\text {th }}$ percentile speed is in excess of 10 mph over the posted speed limit. The standard deviations of 6.7 mph and 8.6 mph indicate there is a moderate differential in vehicular speeds. The max speed of 75 mph at the west location was recorded at 8:20 am, and the max speed of 72 mph at the east location was recorded at 1:00 pm. The west location saw two vehicles traveling over 70 mph , and nine vehicles traveling between 60 mph and 70 mph . The east location had one vehicle traveling over 70 mph , and two vehicles traveling 60 mph . The pace, defined as the 10 mph range that experienced the greatest number of observations, was 35-45 mph at both locations.

FIGURE 4-8 - NP 101 TURNING MOVEMENT AND VOLUME SUMMARY


## vi. VOLUME \& VEHICLE CLASS CHARACTERISTICS

24-hour directional counts were conducted with pneumatic tubes at two locations along NP101. Figure 4-9 below shows the resulting volumes for both the west and the east location. At location 1, the eastbound volume was 359 vehicles and the westbound volume was 289 vehicles for a total bi-directional volume of 648 vehicles. The eastbound peak hour is at 7:00 am and the westbound peak hour is at 3:00 pm. The overall peak bi-directional peak hour was at 5:00 pm. At location 2, the eastbound volume was 119 vehicles and the westbound volume was 99 vehicles for a total bi-directional volume of 218 vehicles. The peak hours at location 2 were the same as for location 1 . Overall, the volume of vehicles traveling on the western portion of NP101 is 70\% larger than the volume of vehicles traveling on the eastern portion of NP101.

FIGURE 4-9 - 24-HR DIRECTIONAL VOLUMES FOR LOCATIONS \#1 AND \#2


Generalized daily service volumes are provided by the Highway Capacity Manual (HCM) for use in planning and preliminary design. Figure 4-10 shows Exhibit 15-46 from the HCM for two-lane highways with the inputs from this road applied in red. For a peak hour volume of 79 vehicles and total daily volume of 648 vehicles, the Kfactor is 0.12 additionally, the D-factor is 0.55 for 359 vehicles in one direction of
the total 648 vehicles. Therefore, a daily volume of 3,100 or fewer will achieve a LOS $B$ or better. At the west data counter location the daily volume is 648 vehicles which shows the LOS is at least a B. Guidance from the HCM suggests that LOS A can almost always only be achieved for lower than 50 vehicles/hr.

FIGURE 4-10 - GENERALIZED DAILY SERVICE VOLUMES FOR TWO LANE HIGHWAYS

| $\begin{gathered} \mathrm{K}^{\prime} \\ \text { Factor } \end{gathered}$ | $\begin{array}{c\|} \hline D \\ \text { Factor } \\ \hline \end{array}$ | Class I-Level |  |  |  | Class I-Rolling |  |  |  | Class 11-Rolling |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOS B | LOS C | LOS D | LOS E | LOS B | LOS C | LOS D | LOS E | LOS B | LOS C | LOS D | LOSE |
| 0.09 | 50\% | 5.5 | 9.3 | 16.5 | 31.2 | 4.2 | 8.4 | 15.7 | 30.3 | 5.0 | 9.8 | 18.2 | 31.2 |
|  | 55\% | 4.9 | 8.7 | 14.9 | 30.2 | 3.7 | 7.9 | 14.0 | 29.2 | 4.1 | 8.7 | 16.0 | 30.2 |
|  | 60\% | 4.4 | 8.1 | 13.9 | 27.6 | 3.7 | 6.2 | 12.8 | 26.8 | 3.7 | 7.9 | 14.6 | 27.6 |
|  | 65\% | 4.1 | 7.9 | 12.9 | 25.5 | 3.4 | 5.9 | 11.4 | 24.7 | 3.3 | 5.9 | 13.2 | 25.5 |
| 0.10 | 50\% | 5.0 | 8.4 | 14.8 | 28.0 | 3.8 | 7.6 | 14.2 | 27.2 | 4.4 | 8.8 | 16.3 | 28.0 |
|  | 55\% | 4.4 | 7.9 | 13.4 | 27.1 | 3.3 | 7.1 | 12.6 | 26.3 | 3.7 | 7.9 | 14.4 | 27.1 |
|  | 60\% | 4.0 | 7.3 | 12.5 | 24.9 | 3.3 | 5.6 | 11.5 | 24.1 | 3.3 | 7.1 | 13.1 | 24.9 |
|  | 65\% | 3.7 | 7.1 | 11.6 | 23.0 | 3.0 | 5.3 | 10.3 | 22.3 | 3.0 | 5.3 | 11.9 | 23.0 |
| 0.12 | 50\% | 4.1 | 7.0 | 12.4 | 23.4 | 3.1 | 6.3 | 11.8 | 22.7 | 3.7 | 7.4 | 13.6 | 23.4 |
|  | 55\% | 3.7 | 6.5 | 11.2 | 22.6 | 2.8 | 5.9 | 10.5 | 21.9 | 3.1 | 6.5 | 12.0 | 22.6 |
|  | 60\% | 3.3 | 6.1 | 10.4 | 20.7 | 2.7 | 4.7 | 9.6 | 20.1 | 2.7 | 5.9 | 10.9 | 20.7 |
|  | 65\% | 3.1 | 5.9 | 9.6 | 19.1 | 2.5 | 4.4 | 8.5 | 18.5 | 2.4 | 4.4 | 9.9 | 19.1 |
| 0.14 | 50\% | 3.5 | 6.0 | 10.6 | 20.0 | 2.7 | 5.4 | 10.1 | 19.4 | 3.2 | 6.3 | 11.7 | 20.0 |
|  | 55\% | 3.1 | 5.6 | 9.6 | 19.4 | 2.4 | 5.1 | 9.0 | 18.8 | 2.6 | 5.6 | 10.3 | 19.4 |
|  | 60\% | 2.8 | 5.2 | 8.9 | 17.7 | 2.3 | 4.0 | 8.2 | 17.2 | 2.3 | 5.1 | 9.4 | 17.7 |
|  | 65\% | 2.6 | 5.1 | 8.2 | 16.4 | 2.1 | 3.8 | 7.3 | 15.9 | 2.1 | 3.8 | 8.5 | 16.4 |

## vii. VEHICLE CHARACTERISTICS

In addition to volume data, the pneumatic tubes were capable of determining the classification of each vehicle. Figure 4-11 shows the vehicle classification data for both locations. As shown, passenger vehicles compose 95\% of all vehicles traveling along NP101. In total, there was one truck and four buses at the west location, and no trucks and 3 buses at the east location. See also Section 6 for a summary of school bus routes, which appear to be captured in the graph below.

FIGURE 4-11 - VEHICLE CLASSIFICATION DISTRIBUTION


## viii. SPEED CHARACTERISTICS

This corridor has a posted speed limit of 35 mph except for a small portion from just north of Pohuu U Poe to just south of Widi Anya Ea E which is reduced to 25 mph .

Speeding is a major concern on this corridor. Figure 4-12 shows speed data for both locations, which have posted speed limits of 35 mph . The mean speed for Location 1 was 43 mph and for Location 2 was 38 mph . The $85^{\text {th }}$ percentile speed for Location 1 was 49 mph and for Location 2 was 46 mph which are 14 mph and 11 mph over the posted speed limit, respectively. Standard deviations of 6.7 mph and 8.6 mph indicate a moderate differential among speeds on the corridor. These excessive speed statistics and variety in vehicular speeds should be considered in improvement planning as they present potential safety issues along the corridor.

FIGURE 4-12 - SPEED RANGE DISTRIBUTION

ix. INTERSECTION OPERATIONS

Our team selected the three major intersections to analyze:

- NP 101 @ NM 503
- NP 101 @ NP 175
- NP 101 @ NP 102 (Bayay Poe)

Turning Movement Counts (TMCs) were collected using Miovision count stations. This traffic counting system utilizes video technology to digitally track vehicles through an intersection and create turning movement counts. Counts were collected on Tuesday, October $17^{\text {th }}, 2017$. Figure 4-13 shows TMCs for AM and PM peak periods for each intersection. As can be appreciated, the turning movement counts gradually decrease the further south and away from NM503 along the corridor. Overall, the turning movement counts show that volumes are very low and capacity is not an issue for turning movements. Raw turning movement counts can be found in Appendix C as a part of the full traffic analysis report.

FIGURE 4-13 - NP 101 TURNING MOVEMENT COUNTS

1 NP $101 \&$ NM 503

2 NP 101 \& NP 175


## x. INTERSECTION SIGHT DISTANCE

According to AASHTO's A Policy on Geometric Design of Highways and Streets (Geometric Design Guide), "a clear sight triangle provides sight distance sufficient for a stopped driver on a minor-road approach to depart from the intersection and enter or cross the major road". The Geometric Design Guide specifies two cases which are applicable to NP101: Case B1 Left Turn from Stop and Case B2 Right Turn from Stop. Table 4-2 shows the design intersection sight distance for Case B1 and Case B2 for the 25 mph and 35 mph conditions as specified in the Geometric Design Guide.

TABLE 4-2 - AASHTO INTERSECTION SIGHT DISTANCE

| Speed <br> (mph) | Stopping <br> Sight <br> Distance (ft) | Intersection Sight <br> Distance for <br> Passenger Cars |  |
| :---: | :---: | :---: | :---: |
|  | Calculated <br> (ft) | Design <br> (ft) |  |
| Case B1, Left Turn from Stop |  |  |  |
| 25 | 155 | 275.6 | 280 |
| 35 | 250 | 385.9 | 390 |
| Case B2, Right Turn from Stop |  |  |  |
| 25 | 155 | 238.9 | 240 |
| 35 | 250 | 334.4 | 335 |

The existing site distance was determined by using a cone, camera, and measuring wheel at intersections which showed potential sight distance issues. The decision point of the departure vehicle on the minor road should be 14.5 feet from the edge of major road (NP101) travel way. Table 4-3 shows the available (measured) sight distance and the required sight distance as outlined in the Geometric Design Manual. Of the twelve locations with potential sight distance issues, four were identified as having inadequate sight distance.

TABLE 4-3 - SIGHT DISTANCE EVALUATION

| Study Intersection with NP101 | Direction of Concern (From Driver Perspective) | Case | Posted Speed | Available Sight Distance | Required Sight Distance | Adequate Sight Distance? |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NM503 | South | B1 | 25* | 320 | 280 | Yes |
| Widi Anya Ea E | Southeast | B1 | 25 | 240 | 280 | No |
|  | Northwest | B1 | 25 | 213 | 280 | No |
| Pohuu U Poe | West | B1 | 25 | 225 | 280 | No |
| Yates Rd | Southeast | B1 | 35 | 480 | 390 | Yes |
| NP102 | South | B1 | 35 | 354 | 390 | No |
|  | North | B1 | 35 | 525 | 390 | Yes |
| NP175 | North | B1 | 35 | 435 | 390 | Yes |
| Clementes Rd | South | B1 | 35 | 450 | 390 | Yes |
| Johnson Lane | South | B1 | 35 | 405 | 390 | Yes |
| LA Dodgers (Driveway) | Southeast | B1 | 35 | 645 | 390 | Yes |
|  | Northwest | B1 | 35 | 465 | 390 | Yes |

*Posted speed limit increases to 45 mph downstream of intersection

The intersections of NP101 with Widi Anya Ea E, Pohuu U Poe, and NP 102 have obstructions and horizontal curvature issues that affect the available sight distance. These four intersections and their sight distance issues are documented in Figure 4-14. Widi Anya Ea $E$ has inadequate sight in both directions. Shown in the top left picture of Figure 4-14, vehicles leaving Widi Anya Ea E cannot see oncoming northwest bound vehicles due to poorly placed signs, fences, and vegetation including trees. Vehicles also cannot see oncoming southwest bound vehicles (top right picture in) due to the horizontal curvature in the roadway and fences.

Although this portion of NP101 has a posted speed limit of 25 mph , sight distance issues may lead to safety concerns. Shown in the bottom left of Figure 4-14, drivers looking west from Pohuu U Poe are challenged because of the vertical and horizontal curvature of the oncoming vehicles approaching from the east (represented by the orange cone in picture). NP102 looking south is shown in the bottom right of the figure. Vehicles leaving NP102 cannot adequately see oncoming southbound vehicles due to the combination of the Tribal Courts sign blocking the view and the horizontal curvature of the roadway. None of the identified locations have supplement warning signs in advance on NP101 to call attention to unexpected conditions of vehicles pulling out within the sight distance threshold. According to the Manual Uniform Traffic Control Devices (MUTCD), warning signs alert road users to conditions that might call for a reduction of speed or an action in the interest of safety and efficient traffic operations." Widi Anya Ea E to the southeast may be able to achieve adequate sight distance with the removal of obstructions.
Additionally, NP102 would benefit if the Tribal Courts sign was moved further from the traveled way.

Sight distance restrictions at the approaches of Widi Anya Ea E Northwest and Pohuu U Poe West are controlled by horizontal curvature along NPO 101. Therefore it is recommended that the feasibility of flattening those approach curves be reviewed.

FIGURE 4-14 - SIGHT DISTANCE/VISIBILITY ISSUES


## xi. SIGNING AND STRIPING

The striping appeared to be fading along some portions of NP101 and some of the signing was not up to MUTCD standards. Figure 4-15 shows several signing and striping issues along the NP101 corridor. Shown in the top left, the white edge line is faded and/or overgrown by vegetation which could lead to difficult navigation especially during night conditions. Also shown in the top right image is a nonMUTCD "REDUCED SPEED" sign intended to indicate a speed change zone, but the conditions do not appear to change. It is doubtful that it is complied with. This is one example of several other noncompliant signs along NP101. Shown in the top right of Figure 4-15 is one of several "BIKE AND PEDESTRIAN" regulatory style signs that are confusing and non-MUTCD compliant. These signs may specify crossing locations for cyclists and pedestrians, however, there are no sidewalks or trails at these locations. Another "BIKE AND PEDESTRIAN" sign can be seen in the bottom left picture background In Figure 4-15. Also seen in the bottom left picture is a "YIELD" regulatory sign with a supplementary "SLOW CHILDREN AT PLAY" warning sign. In addition to this sign configuration being non-MUTCD compliant, it is also covered by vegetation making it very difficult to see. The picture in the bottom right
shows a knocked down "SCHOOL BUS STOP AHEAD" warning sign. Visual observation of the base of this sign indicates it was not struck by a vehicle.

FIGURE 4-15 - SIGNING AND STRIPING ISSUES ON NP 101


Other signing issues along the corridor include outdated street name signs, noncompliant regulatory signs, and signs placed in the driver's sight triangle. NP101 has several cross streets and driveways which could benefit from a proper inventory and application of warning signs to increase safety along the corridor. This is especially applicable for the portion of NP101 which has a reduced speed limit of 25 mph.

## xii. ACCESS MANAGEMENT

The NMDOT State Access Management Manual (SAMM) can serve as guidance for good access management practice for NP101. The SAMM was developed by the New Mexico Highway and Transportation Department (NMSHTD) to facilitate the management of access to and from roadways owned by the state. This manual regulates the location, design, and operation of public and private access streets and driveways along the roadway system, and is based on federal guidelines and guidance from FHWA. According to the SAMM Chapter 4 Section J, for a Rural Collector Highway (RCOL):

Spacing of Unsignalized Accesses - Full Access: The minimum spacing of full access unsignalized intersections on RCOL highways varies by posted speed and is 330 feet at 30 mph or less, is 660 feet for 35 to 40 mph , and is 1,320 feet on RCOL highways with posted speeds equal to or greater than 45 mph . On highways with non-
traversable medians, this represents the allowable spacing between median openings. See Sub-Section 18.C, Table 18.C-1, and Sub Section 18.D.

Spacing of Unsignalized Access - Partial Access: The minimum spacing of unsignalized access points and driveways where some turn movements may be restricted, depending on the type of median control, varies by posted speed limit as follows (see Sub-Section 18.C, Table 18.C-1):

- $\leq 30 \mathrm{mph}: 200$ feet
- 35 to 40 mph: 300 feet
- 45 to $50 \mathrm{mph}: 425$ feet
- $\geq 55$ mph: 550 feet

Based on the SAMM, unsignalized full access intersections should be 660 feet for the 35 mph portions of NP101, and 330 feet for the 25 mph portions of NP101. Also, the driveway openings should be 200 feet for the 25 mph portion of NP101 and 300 feet for the 35 mph portion of NP101. This does not necessarily mean that the Pueblo needs to reconstruct each driveway in the near term, but rather we recommend adopting these guidelines for the construction and planning of new driveways, and to improve the accesses that are impacted by construction of roadway construction activity.

Figure 4-16 shows four distinct driveway density segments that were identified. The table within the Figure shows the start, end, length, number of driveways, and driveway density per mile for each color coded section. For a roadway with a post speed limit of 35 mph , the SAMM specification is 17.6 driveways per mile. Areas of concern along NP 101 include the blue and green segments. Additionally, the eastern terminus of the green segment is the portion of NP 101 which is signed as 25 mph due to horizontal curvature issues. This portion has a high driveway density making it vulnerable to safety issues. What also needs to be considered is that the $85^{\text {th }}$ percentil speed of 49 mph is significantly higher than the posted speed.

FIGURE 4-16 - NP 101 DRIVEWAY DENSITY MAP


Figure 4-17 illustrates some of the strategies that can improve driveway conditions using the vicinity of Pokwin Thuu as an example; this segment combines issues of horizontal curves, dense driveways, low posted speed, and the assumption that it experiences speeding problems.











## xiii. TRAFFIC OPERATION ANALYSIS

According to the Highway Capacity Manual, unsignalized intersection Level of Service (LOS) is divided into two intersection types: all-way stop-controlled and twoway stop-controlled. All-way stop-controlled intersection LOS is expressed in terms of average vehicle delay of all the movements. Two-way stop-controlled intersection LOS is defined in terms of average vehicle delay of an individual movement. Table 44 shows the LOS criteria for unsignalized intersections.

TABLE 4-4 - INTERSECTION LOS DEFINITIONS

| Level of Service | Average Control <br> Delay (sec/veh) |
| :---: | :---: |
| A | $\leq 10$ |
| B | $>10-15$ |
| C | $>15-25$ |
| D | $>25-35$ |
| E | $>35-50$ |
| F | $>50$ |

Intersection capacity and Level of Service (LOS) analysis were performed using procedures and methods outlined in the Highway Capacity Manual $6^{\text {th }}$ Edition. PTV Vistro 5 software was used to conduct the analysis. Consideration was given to future growth along the corridor from both census data and development data. According to The University of New Mexico Bureau of Business \& Economic Research the Nambe Pueblo and Off-Reservation Trust Land has dropped from 3,613 to 3,156 between April 2010 and April 2000. This $8.7 \%$ decline in population indicates future traffic conditions will not be negatively affected and therefore no future conditions analysis is presented. Note that we did conservatively assume a $2 \%$ growth rate for the pavement design. The capacity and LOS are summarized for the existing conditions below in Table 4-5. Detailed capacity outputs and values with worst case movements can be found in the full report included in the Appendix. Peak hour factors obtained from traffic counts were used in the existing conditions analysis.

TABLE 4-5 - NP 101 INTERSECTION LEVEL OF SERVICE AND DELAY

| NP 101 Study Intersection | Scenario | Worst Case Movement LOS and Delay |  |  |  | Intersection LOS <br> AM |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Worst Case Movement | Delay ${ }^{1}$ | V/C | LOS |  |  |
|  |  |  |  |  |  | Delay ${ }^{1}$ | LOS $^{2}$ |
| @ NM503 | AM Peak | NWB Left | 9.6 | 0.042 | A | 1.75 | A |
|  | PM Peak | NWB Left | 9.8 | 0.025 | A | 0.77 | A |
| @ NP175 | AM Peak | WB Left | 8.7 | 0.002 | A | 1.49 | A |
|  | PM Peak | WB Left | 8.9 | 0.001 | A | 1.71 | A |
| @ NP102 | AM Peak | WB Thru | 9.3 | 0.006 | A | 3.80 | A |
|  | PM Peak | EB Thru | 9.4 | 0.004 | A | 3.75 | A |
| ${ }^{1}$ Average delay in seconds per vehicle. |  |  |  |  |  |  |  |

Based on the summary presented in Table 4-5, the following observations are made:

- All three intersections operate at a LOS A, all day.
- All three intersections have very little peak delay.
- All three intersections have volume to capacity (V/C) ratios well within acceptable levels.

Negligible volume growth is expected in the future, and point source developments discussed in the Study should not add volumes that would push the LOS outside of A or B levels.

## xiv. CRASH DATA AND SAFETY ASSESMENT

Lee Engineering reached out to the Nambe Pueblo, Bureau of Indian Affairs (BIA), New Mexico Department of Transportation (NMDOT), and the Pojoaque Pueblo Chief of Police. To date, only the records from the NMDOT have been received. Shown in Figure 4-18, there were two crashes along NP101. The first crash occurred at NP101 and NM503. This accident occurred at 9:30 am (Daylight) in 2015 and involved a single vehicle passing the stop sign and running into the fence on the opposite side of the intersection. The second crash occurred approximately 3 miles southeast of NM503 along NP101 in 2014. This accident happened at 7:00 pm (Dark-Not Lighted) and
involved a single driver running into a guard rail due to driver inattention. The limited amount crash records for this corridor do not indicate any major safety concern. Site visits revealed other minor property damage incidents involving traffic signs and guardrail end cushions, which were probably not reported. Some of them are noted in the CAS records in Section 5 as an observation made with the culvert crossing assessments.

FIGURE 4-18 - RECORDED CRASH MAP


The Interactive Highway Safety Design Model (IHSDM) is a software analysis tool that incorporates 2010 Highway Safety Manual methodology to evaluate the safety and operational effects of geometric design decisions on roadways and intersections. IHSDM provides estimates of a roadway design's expected safety and operational performance and checks existing or proposed highway designs against relevant design policy values. The IHSDM was used for the analysis of the entire NP101 corridor as well as each intersection in the traffic operation analysis.

Table 4-6 shows the expected crash rates and frequencies for the study intersections along NP101. As shown, the expected number of crashes is highest at NP101 and NM503. This can be attributed to this intersection having the highest AADT for both major and minor approaches. The other two intersections have expected crashes below 1.0 within the evaluation period of 2014-2016. The expected crashes at these intersections are relatively low for the existing conditions.

## TABLE 4-6 - EXPECTED INTERSECTION CRASHES ON NP 101

| Intersection | Expected No <br> Crashes for <br> Evaluation <br> Period | Expected No <br> Crashes/Year <br> (crashes/million <br> veh) | Expected <br> Crash Rate <br> (crashes/yr) |
| :--- | :---: | :---: | :---: |
| NP101 and NM503 | 2.35 | 0.74 | 0.5866 |
| NP101 and NP175 | 0.41 | 0.41 | 0.1033 |
| NP101 and NP102 | 0.68 | 1.18 | 0.1697 |

Table 4-7 below shows the expected crash rates and frequencies for the NP101 corridor. The total expected crashes is 2.5 with 0.81 being fatal and injury crashes and 1.71 being property damage only crashes. This equates to an expected crash rate of 0.1302 crashes $/ \mathrm{mi} / \mathrm{yr}$.

TABLE 4-7 - NP 101 EXPECTED CRASH RATES AND FREQUENCIES

| Crash Data Inputs |  |
| :---: | :---: |
| First Year of Analysis | 2014 |
| Last Year of Analysis | 2016 |
| Evaluated Length (mi) | 6.4394 |
| Average Future Road AADT (vpd) | 352 |
| Expected Crashes |  |
| Total Crashes | 2.52 |
| Fatal and Injury Crashes | 0.81 |
| Property-Damage-Only Crashes | 1.71 |
| Percent of Total Expected Crashes |  |
| Percent Fatal and Injury Crashes (\%) | 32 |
| Percent Property-Damage-Only Crashes (\%) | 68 |
| Expected Crash Rate |  |
| Crash Rate (crashes/mi/yr) | 0.1302 |
| Fatal and Injury Crash Rate (crashes/mi/yr) | 0.0418 |
| Property-Damage-Only Crash Rate (crashes/mi/yr) | 0.0884 |
| Expected Travel Crash Rate |  |
| Total Travel (million veh-mi) | 2.48 |
| Travel Crash Rate (crashes/million veh-mi) | 1.01 |
| Travel Fatal and Injury Crash Rate (crashes/million veh-mi) | 0.33 |
| Travel Property-Damage-Only Crash Rate (crashes/million veh-mi) | 0.69 |

The conclusion to be drawn from the analysis, is that crash rates are very low for the site. Although the intersection of NM 503 will likely experience the highest crash rate, it is still a relatively low incidence overall.

Speed is a major factor that affects the severity of most crashes, and Lee Engineering's report found in the Appendix includes a discussion about traffic calming measures that could be further explored. The reader should be aware that the report includes some options, such as speed bumps, that although effective, may not be favored by BIA or fit the context of the Pueblo.

## b. EXISTING UTILITIES

Included with this Study, is a topographic survey that was completed of the site, from fence to fence from BOP to EOP. The survey includes utility information from a Subsurface Utility Exploration effort completed by Cobb Fendley \& Associates.

Additional information regarding the methods for data collection can be found in Appendix F.

A full set of existing condition drawings was made available to the Pueblo, and is included with the digital files as an attachment to this document.

In general, utilities are placed along the roadsides, so they do not appear to impact roadway reconstruction projects. Care will be needed, however, because utilities appear to dip under the outlet areas of many culvert crossings.

Figure 4-19 below shows an example of the typical interaction between the larger culvert ends and underground utility lines.


In the figure above, the waterline (w(d)) and a fiber optic line (ugfo) would likely be very close to or within the trench prism of the culvert. As further discussed in Section 5 , it is a fortunate finding that culvert capacity is not a general issue, which mitigates the need to encroach further into utility alignment areas with larger culverts and end sections.

There is a waterline that is a 6-inch line from NM 503 to Bayay Poe. 6-inch lines split off into NP 102 E and W, and 4-inch line continues South to serve the rest of the developed portion of NP 101.

There are no sewer lines along NP 101.

Overhead power lines are also mapped and included in the survey.

## c. PROPOSED CONDITIONS

## i. DESIGN CRITERIA

The design criteria used in the development of recommendations for NP 101 is based on maintaining compliance with federal specifications and standards. USDOT, FHWA and NMDOT Standards and methods are used for design criteria, and FP-14 specification compliance should be planned for design purposes.

A design life of 20 years is standard for the receipt of State and Federal Grants. An acceptable alternative is a 10 year design with maintenance provisions to extend its life to 20 year at the end of the cycle (typically with a hot mix overlay, mill and overlay, or other life-extending project).

The flexible pavement design was completed in compliance with the NMDOT Design Manual, Chapter 620.

## ii. ANTICIPATED GROWTH

There are several factors that influence the number of vehicles using the facility in the future. We have determined that a conservative rate of $2 \%$, based on the criteria discussed below. In summary, the annual growth of the population is about $1 \%$, but $2 \%$ will account for the minor changes in traffic due to future development and potential increases in tourism.

## - Population of Nambé Pueblo and the Nambé CDP

According to 2000 Census Data, the Total Population of Nambe Pueblo, excluding the Nambe CDP, was 558 (Source: U.S. Census Bureau, Census 2000 American Indian and Alaska Native Summary File). Data for the 2010 Census appears to either not yet be available, or it is merged with the Nambe CDP.

The Population of the Nambe CDP in 2010 was 1,818; the projection for 2015 (ACS 5-Year Projection) was 1,905, an increase of 4.7\%. This growth translates to an approximate annual growth of 0.94\%.

- Trips to the Nambe Falls (Study EOP)

The ADT counts captured weekday trips to and from the Nambé Falls. Since the site is a recreational outdoor destination, the highest concentration of trip ends would occur on Saturdays and Sundays during the warmer months of the year and during the beginning of the season. The Falls site is normally closed to the public during the colder months of the year.

Weekend trips were not counted for this Study, but the assumption was made that the AWDT should be used for design, since we would not expect the weekend trips to be more significant than the weekday volumes and peaks.

Traffic patterns to the Falls, however, should be considered during design of improvements that directly impact the experience of visitors. For example, we recommend to re-evaluate the wayfinding signs for improved legibility for new visitors (See SECTION 7).

The Pueblo is currently considering projects to increase tourism, though it is not anticipated that it would impact the design AWDT.

- Planned Development

Subdivisions within the Pueblo are developments that directly respond to the housing needs of the community. As such, their impact is assumed to be captured by the annual growth. In other words, new subdivisions do not attract new residents, they simply accommodate the growth of the existing population.

However, it is important to note the anticipated areas where the peak will change. Although the pavement section of NP 101 is designed as a response to the annual growth, the planning of intersection improvements in the future will rely on factors such as the peak turning movements, which are affected by the introduction of a new development.

Some of the developments that we are aware of, in the planning, design or construction stages, include:

- Buffalo Subdivision (infill of vacant lots)
- New Health Center
- Head Start Building
- Infill of vacant lots in the Nambe CDP
- Additional tourist attraction features at the Falls

As noted in the Traffic Analysis sections above, however, we do not anticipate that these will have a significant impact on intersection or roadway level of service in the future.

## iii. PAVEMENT DESIGN

Traffic data collected along the road (See TRAFFIC DEMAND above) was used to determine the pavement design factors below:

TABLE 4-8 - PAVEMENT DESIGN FACTORS

| Design Factor | Value |
| :--- | :--- |
| Average Weekday Daily Traffic | 1,000 veh/lane |
| PC/SUT/STT/MTT/BUS | $95 / 3 / 1 / 1 / 0$ |
| Design Life | 20 years |
| Assumed Annual Growth Rate | $2 \%$ |
| ESAL | 473,064 |
| Design ESAL | 500,000 |

As mentioned in previous Sections of the Study, initially, we expected to arrive at a different pavement design for the upper and middle segments. However, our findings regarding the likely causes of the more advanced deterioration of the middle section is not due to a deficient $R$-Value.

Section A in Figure 4-20 below applies to the majority of the roadway, EXCEPT in the vicinity of Boring \# 8 and Boring \# 14. For these two sections where R-Values are lower, Section B will be needed. Alternatively, the R-Value of at least 2' of the roadbed can be replaced, or the section could incorporate soil reinforcement products, such as geogrid layers or soil stabilization solutions, such as lithification or lime treatment. We recommend consideration of these methods to value engineer the proposed pavement sections.

FIGURE 4-20 - RECOMMENDED PAVEMENT SECTIONS


|  | Section 'B' | -3" SP IV HMA Surface Course, PG 58-28 |
| :---: | :---: | :---: |
| Areas of R-Value < 46 |  | 3" SP III HMA Base PG 58-28 $\qquad$ 8" Aggregate Base Course, 96\% Compaction |
| (Bore \#8 and \#14) |  | - 12" Subgrade Preparation, 95\% Compaction |

The full Geotechnical Engineering report prepared by Geotest, Inc, is available as APPENDIX B. It includes specifications and guidance for the Contractor that should be included in the Project Manual for any pavement reconstruction project.

## 5. DRAINAGE

## a. INTRODUCTION AND APPROACH

In line with the goals and purposes of the Study (Section 3), the objective of this Section is to provide the Pueblo a planning level assessment of the drainage conditions of NP 101, specifically focused on the 80 pipe crossings that exist across the road. Our approach is to provide the Pueblo with a) actions that can be taken immediately to improve the functioning of drainage crossings, b) a list of crossings/conditions that should be studied further, and c) a prioritized list of project scopes that should be planned for.

The reader should keep the following in mind when utilizing the information in this Section:

- A finding of an issue does not always imply that a culvert needs to be upsized, there may be opportunities to improve the inlet configuration, entrance velocity, and other variables to improve the performance of the culvert. Examples include paving the bottom of a corrugated metal pipe to reduce roughness coefficient, or install beveled entrances at the inlet to improve inlet control conditions. Detailed evaluation of such alternatives are not a part of this report. However, observations from field visits will be noted for each crossing.
- This initial assessment does not seek to identify the solution for any culvert that may be severely undersized for the current conditions, only to identify it as a potential source of negative impact to the roadway. These situations will fall under category "b)" above.

Peak flows were approximated by using methodology from the NMDOT Drainage Manual. Following Figure 3-1 of the manual, we utilized one of two methods for each crossing generally with the following criteria:

- USGS Regression Equations for drainage areas greater than 5 square miles
- $\quad$ Simplified Peak Flow Method for drainage basins less than 5 square miles

The StreamStats tool, made available by USGS was used for all basins with agency-identified streams. This tool generates and computes planning-level basin delineations based on USGS LIDAR. Caveats and modifications to the inputs are noted in the Culvert Assessments included in the Appendix. We also performed check analyses with other methods to calibrate a handful of the data.

The Simplified Peak Flow Method was also used where StreamStats mapping did not recognize a watershed. The analysis followed the NMDOT's procedure, which is based on USGS Technical Release-55 (TR-55). The following generalized criteria was used:

- Time of Concentration was calculated with the Kirpich Formula, in accordance with Table 3-6 of the NMODT Drainage Manual, for Gullied Watersheds. Gullied flow is apparent from aerial photography.
- The average basin slope was approximated from a combination of USGS Topographic data, and survey point elevation data from our site survey.
- The SCS Curve Number, (CN) is approximated for the entire site to a value of 65 . Soil information for representative soil types identified through the USGS Web Soil Survey, and the sandy and sand-silt surfaces found in the PBRWS indicate a predominance of Hydrologic Soil Group A conditions with some areas of " $B$ " conditions. Typical soil types such as Chupe River Wash and Encantado Sandy Loam found for the upper reaches are classified as " $A$ ".
- Ground Cover ranges from $10 \%$ to $30 \%$, with some very limited areas of dense vegetation (when compared to the entirety of most basins).
- The PBRWS references loose conditions for the surface material (except for the Tesuque formations), so a Hydrologic Condition of "good/fair" was assumed.
- Based on Table 3-1, and considering the factors above, it was determined that the range of curve numbers for this site is between 55 and 75 . We tested Arroyo Crossing \#Ob with the City of Albuquerque's Initial Abstraction/Uniform Infiltration simplified procedure and the Rational Method and found that a CN of 64 was a reasonable simplified assumption to generalize the offsite basins of the northern half of the site. Starting from the Crossing \#18 watershed and continuing south, the CN was adjusted down after running a comparison test with both methods. We also adjusted the precipitation for the $100-\mathrm{yr}$, 24 hour event to 3.0 , since the next available Atlas 14 station to the east of the site is higher than the station at NM 503. The watersheds in this portion of the site extend deeper into the mountains, with slightly denser vegetation and start to get closer to the increased precipitation zone. Although some watersheds for the northern portion of the site also reach high into the mountains, those crossings were analyzed with StreamStats, where we made the assumption that the adjustments are built into the equations for those locations. In other words, we did not have to compute any of those long reaches with the simplified peak method.
- See also Appendix A for further reference on the selection of these criteria.
- The results from this Study should be used to evaluate relative conditions. They are not detailed enough to properly size new facilities, in particular, for the largest watersheds, where the error introduced with broad assumptions can be magnified in the calculations.

Given the conditions in the field (list out things like downstream seems to have more capacity than upstream) the tailwater is not expected to typically be above the critical depth of flow in the pipe. The exception is where there are mapped floodplains, unfortunately they are A Zones which are not studied in enough detail to have a flood depth available for the 100-year design storm. HY-8 was used with an approximate geometry of the downstream arroyo to account for the possible impact of tailwater. It is assumed for the purpose of this study that the only variable that influences tailwater depths is the channel geometry (vs a downstream obstruction or dam).

## b. EXISTING CONDITIONS

The alignment of NP 101 generally runs perpendicular to dozens of concentrated flow paths that can be traced to the foothills of the Sangre de Cristo Mountain Range. As such, there are many culvert crossings that were constructed at various times to address major and minor arroyos. There are also several crossings that appear to be constructed to pass streams and ponding areas that have developed since the original construction of the road. Although there are concentrations of development and subdivisions, the vast majority of the drainage basins can be classified as rural. Surfaces are typically coarse grained terrace deposits, silty and sandy loose material alluvial deposits, and lithofacies of the Tesuque rock formations (from PBRWS Geotechnical Investigation). Vegetation is sparse and mostly concentrated along and arroyos and streams.

Irrigation channels thread though the site, and there are several piped crossings under the road. Although some are identified on tables and exhibits, their condition and capacity are excluded from this Study.

The terrain concentrates flows early and in a very pronounced manner along almost every watershed. We have found that there are several crossings that appear to be a response to relatively new formations of canyons that break away from larger watersheds. This could present an opportunity to consolidate crossings with varying levels of grading. For example, at Crossing \#26, a new arroyo formed and a new crossing was developed (\#26a). These flows could be redirected to the larger watercourse to reduce maintenance efforts and potential long term costs.

Future drainage report authors should take care in delineating basins, aerial photography and field reconnaissance should be used to be careful to note streams that are not shown on USGS mapping that appear to intercept flows and/or run very close to other arroyos but them splitting off from main lines.
i. HYDROLOGY

As mentioned above, one of the two methods we used, StreamStats, draws inputs from USGS and computes inputs based on the location of the site. It also draws and extrapolates precipitation data from the NOAA Atlas 2 database.

There are two NOAA Precipitation Gauges near the site, with frequency estimates for the 100-year, 24-hr event highlighted in Table 5-1 below.

TABLE 5-1 - PRECIPITATION GAUGE STATIONS

| STATION ID | NAME | LOCATION | 100-yr, 24-hr Precip. |
| :--- | :--- | :--- | :---: |
| $29-6028$ | NAMBE-1 | NM 503 @ NP 101 | 2.88 inches |
| $29-2139$ | COWLES | $\sim 13$ mi. E of Reservoir | 3.87 inches |

Although NAMBE-1 is the closest station to the study area, the larger watersheds become closer to the COWLES Station as one gets closer to the EOP. Adjustments, as noted in the CAS and in Figure 5-1 were made to the Peak Flow Method relative to changes in precipitation depths used in StreamStats.

## ii. EXISTING STRUCTURES

There are 80 structures of varying sizes that cross NP 101. This study excludes the parallel driveway culverts that do not cross under the road.

Included in the Appendix, is a digital geotag (. $\mathrm{kmz} / . \mathrm{kml}$ file) listing of all crossings that were included in this Study. Their station is also noted in Figure 5-X and can be located on the atlas survey that is included with the Study.

All culverts are corrugated metal pipes. The larger crossings are assumed to be built with the original roadway. Others appear to be constructed in response to migration of arroyo paths: as noted in Section 4.a.iii, the predominant soil surface types around the arroyos are sandy mixtures which erode over time and form new thalwegs.

## iii. PEAK FLOWS VS EXISTING CAPACITY

Figure 5-1 is a comprehensive summary of the findings of the drainage assessment. It also includes remarks regarding field conditions of note, and/or adjustments and planning notes associated with the crossing.

Several crossings appear to have drainage basins that require additional survey and/or field visits to properly delineate. For these cases, we have included general recommendations and observations that will aid in the further study of these basins:

- Figure 5-2 - Crossing \#12
- Figure 5-3 - Crossing \#16 and \#17

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## c. PROPOSED CONDITIONS

## i. GENERAL RECOMMENDATIONS

Although not mentioned in each CAS, we have the following recommendations to incorporate into any new crossing, and when feasible to retrofit onto all culvert crossings over 24 " (and where the drop off is inside the clear zone):

- Move the inlet and outlets out of the clear zone and improve the foreslopes to 4:1 or better. Guardrail can be used as an alternative when conditions are constrained. However, it is always best to consider guardrail as a secondary option. It is important to keep in mind that its overuse ultimately results in additional obstructions in the roadside.
- Install markers as a temporary solution to guardrails. Adopt a consistent and appropriately selected sign for this purpose. Many of the existing signs are typically used on highways as indicators of where the culvert is, rather than explicitly warning drivers of a hazard. Many existing markers may be reflective at night, but blend into the background during the day. The MUTCD's OM type markers should be considered.
- Put together maintenance plan and allocate funding to systematically address issues in an organized fashion. This applies to the way the recommendations contained in the CAS should be addressed. It is not feasible to immediately address all issues. Also, some issues may have alternative ways of being ameliorated. A plan will help tribal officials prioritize funding, and defend the decision to address complaints in a certain order.
- Vehicular traffic increases the closer an issue is to NM 503. When considering two or more areas to improve, and they have the same level of severity or concern, opt for the northernmost location. ADT is a factor in the likelihood of a collision, so the benefit is maximized by choosing the most trafficked issue.
- Miter culvert pipes on non-recoverable slopes as a temporary solution to improving the roadside, and install FHWA Standard traversable style end sections at locations where it is known that they are needed. For example, where there is evidence of drivers departing the road, or where pipe has been crushed by vehicles. The Roadside Design guide allows for the construction of inexpensive alternatives when volumes are low. This condition applies to the entire length of NP 101. Figure 5-4 is an example from the Guide of a reinforced steel grate mesh that can be used as an option.

FIGURE 5-4 - EXAMPLE OF TRAVERSABLE END SECTION


Included as Appendix A, is a set of Culvert Assessment Forms (CAS) for every pipe crossing in the Study limits. Each CAS is followed by a worksheet for the estimation of peak flow and a snapshot of the methodology for estimating capacity. It also contains data associated with the crossing. Exceptions include areas that were outside of the Study limits, or crossings where the basin cannot be delineated with the information available at this time. In almost all cases, however, the crossings that are not fully assessed are relatively small and/or drain roadside basins.

The CAS includes a brief description of recommendations to improve the outlet, inlet, or other feature about the crossing. They are ranked from 1 to 3.1 represents the highest priority, and 3 represents issues that can be monitored or of a low priority. Recommendations without a ranking are the lowest priority and are mainly just general criteria to note for the future.

Specific drainage improvement recommendations are summarized in Section 7. Note that some, but not all of them will overlap with the suggestions from the CAS. The larger projects from the "CAS Issues" are extracted as standalone projects included in the recommended project listing.

## 6. OTHER DESIGN ELEMENTS

## a. BIKE AND PEDESTRIAN CONSIDERATIONS

The Pueblo does not currently have a bicycle/pedestrian masterplan. We understand, however, that there is some interest in developing connections to and from points of interest within the community. As a main route, this section provides a discussion about the existing and possible conditions of NP 101 to improve alternative modes of transportation. A discussion about school bus routes and transit are discussed in other parts of Section 6.

It is important to note that although many options are discussed, a bike and pedestrian masterplan, or at least a framework of priorities and goals should be identified before moving forward with any improvements. With that said, we define below the planning elements that should be considered when planning bike/ped solutions:

- (1) They should connect at least two destinations. A pedestrian trail will not be used otherwise, except when purposefully designing an exercise route.
- (2) They should be designed according to the type of user it will serve. After determining which points of interest are to be connected, the facility's target user needs to be defined. The answer to this question determines the type of improvement to pursue. Types of users include:
- Experienced Bicyclists
- Inexperienced Bicyclists
- Families walking together
- School aged children
- Seniors
- Recreational users (runners, walkers)
- Equestrian riders
- (3) They should be context sensitive. The FHWA defines the Context Sensitive Solutions procedure as a holistic approach to the physical design of a transportation project. It is accomplished by involving the community and all stakeholders in the decision making process. Successful CSS procedures weave the historic and cultural elements of a site with the project's physical, economic, and social setting. It helps to get endorsement from the community for the project, increasing its acceptance and use.
- (4) They should be maintainable and scalable. If a constructed project that cannot be properly maintained or sustained will see a reduction in its useful life. Scalability refers to evaluating the ability to continue to design and build future phases to the same standard.
- (5) They shall comply and should exceed minimum ADA, AASHTO, MUTCD and other applicable Standards. Doing so throughout the entirety of the project maximizes the safety and comfort of all users. It is also a requirement for federally-backed sources of funding. The design needs to be coordinated with BIA Southwest Region as well.

As an example, we can examine the Pueblo's interest in increasing tourism to the Falls. We understand that there are bicyclists that arrive through NM 503 to visit the falls, and the
intent is to increase that type of traffic. In this case our destinations (1)), or termini, are the NM 503 intersection, and the Nambe Falls entrance. The target user (2) will most often be an experienced long range rider. This means that a sidewalk, unpaved trails, and multiuse trails as possible solutions. Multiuse trails are most appropriate for families and less novice riders; long range bicyclists prefer the uninterrupted flow of bike lanes on the road, or shared use roads. Shared use roads can be marked with "sharrows" as shown in Figure 6-1 below.

FIGURE 6-1. SHARED USE ROAD EXAMPLE


There are several contexts to consider (3). Some physical contexts, such as the rural setting and reality of speeding issues eliminate the shared road concept as a viable solution.

FIGURE 6-2. BUFFERED BIKE LANE EXAMPLE


Elements of the pueblo's rich culture can be shared with the users. As an example, let's consider cultural markers with historical information. The selection of what cultural elements to be shared through the project would be filtered through the tribal leadership and cultural officers. The manner in which they are displayed can be coordinated with the Community through public meetings and Community Needs Assessment forms. The information to the public should have sufficient detail to extract useful guidance from the community. A CS Solution could then be a bicycle rest area with a display about the Pueblo's history and a distance marker in "X.X miles" to the falls, with accessibility features such as
accessible water fountains and benches (5). Lastly (4)), the maintenance and budgeting Staff, and BIA would be engaged to evaluate if it is realistic to maintain the new bike lane and rest area; "can we empty out the trash bins on a regular basis?", "Can we sweep the additional width of road effectively?", "will we be able to re-stripe when needed?", are questions that should be asked. If the project is phased, funding sources for future phases should be identified to address scalability.

FIGURE 6-3. EXAMPLE OF A BIKE REST AREA WITH DISPLAY


We recommend this process be followed for any option that is considered, even if the project scope is small.

## Challenges and Opportunities

The existing conditions pose several challenges, but have several advantages for the development of bike and pedestrian facilities.

The width of the apparent roadway right of way is very wide ( 80 to 100 feet) in the Upper Segment. The width narrows in some areas through pinch points, such as near the Pokwin Thuu intersection. However, we understand that many of the parcels that frontage the roadway are controlled by the Pueblo, and easements can be processed to accommodate expansions. Right of way studies were not a part of this study, but should be evaluated as a part of specific improvements.

Most roadside segments are fairly flat in the northern half of the site, and generally become steeper, south of Crossing \#14 (South of the Cattle Guard) where the road alignment becomes pinched between the Pojoaque river valley and the foothills of the mountain. The cut and fill slopes of the original construction become more pronounced, and the usable roadside area is reduced. Shoulder width is minimal in many southern crossings. This translates into substantial fill sections and/or consideration of detached pedestrian bridges.

Figure 6-4 provides a sample conceptual plan view of a multiuse trail and a bike lane across a drainage structure. Figure 6-4a shows a profile view of what those improvement could look like. Figure 6-5 is a conceptual treatment option for tying new bike lanes to the existing shoulders of NP 175.


As detailed in Section 5, there are 80 arroyo and irrigation crossings from BOP to EOP. Figures 6-6 through 6-8 describe three conditions, poor, medium and good, that will impact the cost of extending bike and pedestrian facilities across the wide range of structure geometries.

Typical costs per mile for a bike lane and a multiuse trail are shown below:

Bike Lane - \$800,000
Assumptions: 5-foot on both sides, 1.5 -foot buffer, assuming minimal amenities and building recoverable slopes along entire length.

Multiuse Trail - \$1.2 Million - \$2 Million
Assumptions: 10-foot asphalt trail, center lane striping, pedestrian specific lighting and paved rest areas with benches and trash receptacles every $1 / 4$ mile, depending on density of amenities.

Estimates are based on similar projects completed within the last 10 years in Central NM.

## Sidewalks on NP 101

There is little discussion in this Study about sidewalks. The distance between most destinations is too great to effectively implement them as an alternate mode of transportation. There is also little continuity into most of the side roads, except for some routes such as NP 117, the north shoulder of NM 503, and the bike lane/shoulder on NP 175. It should be noted, that the latter lacks a complete connection to the Buffalo Range Subdivision.

Implementation of transit services would prompt the consideration of sidewalks, at least to connect to other facilities such as a multiuse trail or along the frontage of future buildings.

## b. LIGHTING

There are two approaches that can be taken to address lighting needs. As touched on in the previous Section, coordination with Standards from Santa Fe County is recommended since NP 101 transitions from Nambe CDP to Nambe Pueblo, and several intersections transition traffic into County neighborhoods. The Pueblo can benefit from the extensive work that was done to develop the Sustainable Land Development Code, which re-visited many of their standards, including lighting. The Code enforces the Night Sky Protection Act (NMSA 1978, § 74-121 et seq.), helps prevent nuisance glare and spillover, and provides specification of lighting installations for a variety of uses (i.e. pedestrian trails, bus stops, exterior non-road lighting, etc) that may be designed in the future along NP 101. Another approach, is to develop unique standards to characterize the roadway through the use of decorative lighting, themed fixtures, special spacing, etc.

Compliance with the Code ensures compliance with NMDOT Standard Specifications (latest edition at the time of design). With that said, there are some criteria that the Pueblo should consider flexibility on to fit with the Pueblo's maintenance capability and power supply. The design should also comply with FP-14. Custom standards should at least comply with NMDOT Standards and FP-14

Figure 6-5. Sample Bike Lane Treatments at NP 175


This exhibit illustrates the option of using "jug handle" bike turns for the option of adding bike lanes to NP 101. The long commute to most destinations can also be mitigated with this feature to provide turnarounds
options.









 exists. Detached trails and culvert extensions are also possible, but the higher cost of extending concrete box culverts might be a pedestrian improvements. Specifically, a bike lane is very feasible across this facility since the shoulder with some usable width already


factors would prompt the consideration of guardrail and other design elements. crossing structure. A bike lane would only require some fill construction and the extension of paving. Addressing speed calming and other existing clear zones for a detached trail to interact with the existing culvert structure without needing substantial improvements to the
 pue sads
 (


As described in the Traffic Analysis, there is not a crash rate based justification to install lighting. In other words, there does not appear to be a high number of crashes that would have been prevented or mitigated with additional lighting along the entire length of NP 101.

Should lighting be determined as a need in the future, we recommend a level of illumination that matches the Agricultural/Rural requirements from Table 7-4 of the Code, shown below as Table 6-1, and installing street lighting at all side road intersections.

TABLE 6-1 - TABLE 7-4 OF THE SANTA FE COUNTY SLDCT

| Zoning District | Maximum Allowable <br> Total Lumen Output | Maximum Allowable Unshielded Lumens |
| :--- | :--- | :--- |$|$| Agricultural/ <br> Rura// Rural <br> Fringe | 50,000 lumens/acre or 5,500 <br> lumens/residential unit | 4,000 lumens/acre of surface to be lit |
| :--- | :--- | :--- |
| Residential <br> Zoning Districts | 50,000 lumens/acre or 5,500 <br> lumens/residential unit | 10,000 lumens/acre of surface to be lit |
| Mixed-use <br> Residential <br> Zoning Districts | 100,000 lumens/acre or 5,500 <br> lumens/residential unit | 10,000 lumens/acre of surface to be lit |
| Industrial Zoning <br> Districts | 200,000 lumens/acre or 5,500 <br> lumens/residential unit | 10,000 lumens/acre of surface to be lit |

The roadway's clear zone was determined to be 10-14 dependent on exact segment, see per Figure 4-2. Fixtures should be placed at least 10 feet from the edge stripe or edge of pavement in the absence of edge line markings.

Street lighting can be planned to be hardwired to a power source or operate with solar power. Some design elements to be considered are listed below:

- Traditional Power is more reliable than solar power (provided by Jemez Mountains Electric Coop)
- Although there is currently a service rate structure for street lighting, this service arrangement may be significantly diminished or eliminated for new installations in the future.
- The system must be metered. This can be accomplished by metering a group of lights, or by connecting new lights to an existing meter, such as a governmental building, where feasible.
- JMEC provides an assistance of $\$ 472$ per pole installation, costs beyond that amount would be paid by the Pueblo.
- Standard lighting includes 250 watt "cobra" style lighting with LED lamps
- Standard height of poles is 30 to 35 foot, (30-foot minimum).
- Multiple lights can be installed ("clovers") on a single pole. The number of lights depends on the manufacturer's recommendations for a particular style.
- The monthly rate for service is set (in the current "Seventh Revised Rate No. 6" filed with NMPRC) at a flat rate of $\$ 20$ per month.
- Construction drawings that include traditional power lighting improvements should be coordinated with JMEC Engineering Staff.
- Appendix e includes the complete effective Service Rate No. 6, which contains additional specifications to note during design.
- Solar powered lighting would be installed at the Pueblo's expense.
- Solar powered lights that can generate excess power can be designed to sell back the excess power to JMEC. This is often more difficult to cost-effectively accomplish for long, linear project sites such as NP 101, since the voltage drop across the system becomes larger as a function of meter distance.

The notes above were compiled from a meeting our team had with the engineering design representative from the COOP.

Several other surrounding entities have installed decorative lighting that provide good examples for the basis of design. Figure 6-9 below shows a variety of decorative street lighting that is supported by the JMEC.

FIGURE 6-9 - EXAMPLE OF REGIONAL LIGHTING FIXTURES


In the figure above, the left photo is a dark skies compliant solar lamp used on NP 175. The middle photos are shoebox style fixtures used in the Pojoaque Commercial Center. The photo on the right is an antique style lamp post; these style tend to be the least compliant designs for dark skies adherence.

## c. SCHOOL ROUTE AND BUS STOPS

Nambé Pueblo is located within the Pojoaque Valley School District. Bus routes and information can be found at http://pvs.k12.nm.us/parents/security-transportation. The District services the Pueblo through NP 101 as shown in Figure 6-10 below. Routes run from 6:50 am to 7:30 am to the School and at varying times starting from 2:55 pm for the return trips. They vary according to grade.

FIGURE 6-10 - PVSD \#10 BUS ROUTE


There currently are not any formal bus stops along NP 101; we understand that pickups occur off of the roadside. Some design elements to consider when designing roadway improvements include the following:

- NP 123 is currently unpaved. If the intersection is ever improved, the manner in which the buses turn around to head north on NP 101 need to be considered. For example, a roundabout or a bus stop that is also a turn-around bay could reduce the possibility of bus-car conflicts.
- The route has several right turns from side streets onto NP 101. A bus requires an appropriate turning radii that is more generous than for passenger vehicles. AASHTO defines two types of buses, S-Bus 36 and 40. These need to be considered when improving those intersections.
- Although the impacts of bus traffic have been incorporated into the proposed pavement sections (See Section 4), changes in routing or fleet should be evaluated.
- PVSD utilizes a contractor who operates and maintains the buses and helps develop the routes. The agency should also be engaged during the planning stages that affects the criteria above.

The Pueblo operates a Head Start facility, which is currently located on NP 102 just East of NP 101. It does not have a fleet that travels on NP 101.

## d. FLOODPLAIN CONSIDERATIONS

The Pueblo's residential and commercial/governmental districts are not generally affected by mapped flood zones. Appendix D includes excerpts from the applicable FIRM for the site. It appears that the vicinity of the Study contains three zones, defined by FEMA as follows:

- Zone X, Unshaded - Areas outside of the $0.2 \%$ annual chance floodplain
- Zone A - Areas of Special Flood Hazard, which have not yet been studied to determine base flood elevations (BFE).
- Zone D - Areas that have not been studied by FEMA, floodplains may or may not exist.

Most of the community is mapped as Zone X, and the three larger arroyos North of NP 102 are surrounded by Zone A, which is associated with the potential for the arroyos to overtop its banks. Detailed mapping ends just west of Road 1, and the vicinity of the Reservoir is designated as Zone D. See Figure 6-11 for an overview of flood zones for the site.

Care should be taken in the planning of improvements at arroyo crossings \#0b, \#1, \#3, \#5, and the outlet area of \#8. The design of projects within A Zones should not have an adverse impact to the floodplain, as a minimum. In other words, it should be prevented from spreading outside its existing limits.

Our recommendation is to further study the Zone A's in conjunction with a reconstruction project of any of the three affected arroyo crossings. Furthermore, results of any future analysis should be coordinated with FEMA to prompt a LOMC to improve the FIRM with more detailed information.

It is also recommended, although outside of the limits of this Study, to engage with FEMA as they continue to develop improved relationships with Tribal agencies. They are currently working on updates to the Tribal Consultation Policy. More information can be found here: https://www.fema.gov/tribal-consultation


Figure 6-11. Floodzone Impact to NP 101 and surrounding area.

## 7. CONCLUSIONS AND RECOMMENDATIONS

## a. RECOMMENDED IMPROVEMENTS

Based on the data, discussion, and visual field conditions presented in Sections 2 through 6, we have developed a listing of recommended improvements. They are summarized in Figure 7-1. They are divided into short-term, mid-term, and long-term proposals. The short-term recommendations are actions that should be taken to address an issue that is likely to get worse, that is a potential source of an incident, or that is an interim solution to a problem that needs further planning or funding. The mid-term recommendations are projects that require a funding source, some design, and/or planning. They are also proposals that can extend the life of an existing condition that has not yet deteriorated beyond repair. They also include planning efforts to better understand a condition that may or may not have potential issues. Lastly, the long-term recommendations are proposals to monitor facilities that are beginning to deteriorate, and planning efforts that substantially change the roadway. They also include recommendations for ongoing efforts, or design elements actions to take when opportunities arise. The estimates shown are conceptual, and breakdowns and assumptions are elaborated upon in Figure 7-1 below, considering the notes below:

- Most breakdowns are assumed to be designed and constructed using a typical procurement process where a design is scoped, bid, and managed with the assistance of third parties.
- Issues noted in the CAS's, will vary as suggested by the range provided. Some items may be able to be completed with Pueblo forces or do not require a specific field action (e.g. monitoring conditions). The most substantial CAS Issues are extracted.
- The Project \# is used to correlate the breakdowns shown, they do not necessarily reflect a direct order in which improvements should be completed.
- Project \#2 (Speed Control), includes planning efforts to mitigate speeding issues. Enforcement is estimated at $\$ 0$ (in planning and construction costs). A plan would be expected to include traffic calming infrastructure concepts and coordinating with residents. That plan should elaborate on potential construction costs.
- "Study" projects typically includes planning efforts but exclude construction costs, since it is not clear what the hard infrastructure improvements would results from the study, or the no-build alternative is an option.
- Distress Monitoring Plan would not include estimates of USACE PCI Ratings, it involves developing a simple plan to record new distresses and assess deterioration.
- Consolidation of driveways are estimated as standalone projects using a Contractor.

FIGURE 7-1 - RECOMMENDED IMPROVEMENTS AND OPINIONS OF COST

| Project <br> \# | Short Term Actions (0 to 1 year) | Conceptual Cost | P? |
| :---: | :---: | :---: | :---: |
| 1 | Fix Outlet and Stabilize Roadside Fill of Crossing \#4 | \$74,620 | N |
| 2 | Develop Speed Control Plan / Enforcement | \$0 to \$7,500 | Y |
| 3 | Remove all Bike and Pedestrian Signs | Force Account | N |
| 4 | Address Issues Ranked (1) in CAS, per Issue | \$1000 to \$20,000 | Y |
| 5 | Reconstruct Crossing \#40 | \$495,330 | N |
| 6 | Install Markers for the Three Critical/Non-Recoverable Roadsides Identified in Section 4.a.ii | \$5,000 | Y |
| 7 | Assess the Structural Integrity of Crossing \#23 | \$1,500 | N |
| 8 | Replace all Missing and Damaged Warning Signs | \$16,230 | N |
| 9 | Grade a Roadside Swale Between Crossing \#34 and \#35 | \$9,770 | N |
|  | Mid Term Improvements (1 year to 5 years) |  |  |
| 10 | Roadway Reconstruction of Middle Segment | \$4,808,700 | Y |
| 11 | Remove and Replace Crossing \#23 | \$107,900 | N |
| 12 | Crack Seal the Upper Segment | \$107,900 | Y |
| 13 | Install Culvert Roadside Markers within Unpaved Segment | \$11,100 | $Y$ |
| 14 | Address Issues Ranked (2) in the CAS, per Issue | \$1000 to \$15,000 | Y |
| 15 | Remove and Replace all Non-Conforming and Damaged signs | \$41,890 | Y |
| 16 | Determine if Crossing \#5a Has Capacity Issues | \$3,000 | N |
| 17 | Clear Intersection Sight Distance Obstructions | Force Account | Y |
|  | Long Term/Ongoing Improvements (3 years +) |  |  |
| 18 | Develop Bike and Pedestrian Masterplan/Framework | \$10,000 | Y |
| 19 | Add Roadway Shoulders/Improve Non-Recoverable roadsides in Upper \& Middle Segments | \$366,700 | Y |
| 20 | Study Crossings \#12, \#16/\#17 Further | \$4,000 | $Y$ |
| 21 | Study and Improve the Design of Crossing \#38 | \$6,500 | Y |
| 22 | Study the Need for a Culvert Crossing at \#48 | \$2,500 | N |
| 23 | Develop a Wayfinding Signing and Striping Plan | \$6,000 | N |
| 24 | Address Issues Ranked (3) in CAS, per Issue | \$0 to \$3,000 | $Y$ |
| 25 | Consolidate Driveway Clusters | \$1,000 to \$6,700 | $Y$ |
| 26 | Clear Obstructions from the Clear Zone | Force Account | $Y$ |
| 27 | Develop Distress Monitoring Plan for the Road | \$1,300 | Y |

$\mathrm{P}=$ Can the effort be phased?

Project: CROSSING \#4 OUTLET IMPROVEMENTS
Number:
1
Scope: STABILIZE ROADSIDE AND UPGRADE OUTLET CONDITIONS

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 201 | CLEARING AND GRUBBING | ACRE | 0.05 | \$ 2,500.00 | \$ | 125.00 |
| 202.07 | REMOVAL OF INDIVIDUAL TREES | EA | 3 | \$ 400.00 | \$ | 1,200.00 |
| 203 | REMOVAL OF EXISTING PIPE END | LS | 1 | \$ 150.00 | \$ | 150.00 |
| 204 | EXCAVATION OF EXISTING FILL | CY | 445 |  | \$ | - |
| 204 | BORROW/FILL CONSTRUCTION | CY | 579 |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
| 707 | 60" CMP EXTENSION | LF | 24 | \$ 150.00 | \$ | 3,600.00 |
| 707 | 60" METAL END SECTION | EA | 2 | \$ 2,063.00 | \$ | 4,126.00 |
| 251/261 | EROSION CTRL(WIRE ENCL 12" THICK RIP RAP) | CY | 60 | \$ 214.00 | \$ | 12,840.00 |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
| 617 | W-BEAM GUARDRAIL INCL POSTS | LF | 125 | \$ 30.00 | \$ | 3,750.00 |
| 617 | METAL BARRIER END TREATMENT | EA | 2 | \$ 2,500.00 | \$ | 5,000.00 |
| 617 | METAL BARRIER END ANCHOR | EA | 2 | \$ 1,100.00 | \$ | 2,200.00 |
|  |  |  |  |  | \$ | - |
| 400 | ROADWAY SECTION REPLACEMENTS | SY | 25 | \$ 50.00 | \$ | 1,250.00 |
| 619 | REMOVE AND RESET BARBED WIRE FENCE | LF | 20 | \$ 5.00 | \$ | 100.00 |
| 718 | RETROREFLECTIVE SIGNING INCL POSTS | EA | 6 | \$ 120.00 | \$ | 720.00 |
|  |  |  |  |  | \$ | - |
|  | UTILITY RELOCATION ALLOWANCE | ALLOW | 0 |  | \$ | - |
|  |  |  |  |  | \$ | - |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 1.25 |  | \$ | 438.26 |
| 635 | TEMPORARY TRAFFIC CONTROL | \% | 2.15 |  | \$ | 753.81 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 2.8 |  | \$ | 981.71 |
| 151 | MOBILIZATION | \% | 5 |  | \$ | 1,753.05 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 1.5 |  | \$ | 525.92 |
|  | CONTINGENCY @15\% | \% | 15 |  | \$ | 5,927.06 |
|  | SUBTOTAL CONSTRUCTION |  |  |  | \$ | 45,440.81 |
|  | CONSTRUCTION ADMINISTRATION | Time | 1 Month |  | \$ | 5,600.00 |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  | \$ | 3,572.86 |
|  | TOTAL CONSTRUCTION |  |  |  | \$ | 54,613.67 |


| ENGINEERING SUPPORT AND DESIGN | $\%$ | 25 |  | $\$$ | $13,653.42$ |
| :--- | :---: | :---: | ---: | ---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  | $\$, 000.00$ |  |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | $18,653.42$ |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\mathbf{\$}$ | $1,352.37$ |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  | $\mathbf{2 0 , 0 0 5 . 7 9}$ |  |  |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | $\$ 74,619.45$ |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR $=1$ ( FOR <1 YEARS) |  |  |  | NA |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{\$ 7 4 , 6 2 0}$ |

[^0]Project: CROSSING \#40 RECONSTRUCTION
Number:
5
Scope: RECONSTRUCT FAILED CROSSING STRUCTURE AND ROADWAY

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE | AMOUNT |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | REMOVE EXISTING GUARDRAIL | LF | 840 | \$ 5.00 | \$ 4,200.00 |
| 211 | OBLITERATE/REMOVE EXISTING ROAD | SY | 1060 | \$ 6.00 | \$ 6,360.00 |
| 202.07 | REMOVAL OF INDIVIDUAL TREES | EA | 6 | \$ 200.00 | \$ 1,200.00 |
| 204 | UNCLASSIFIED/UNSUITABLE EXCAVATION | CY | 1627 | \$ 18.00 | \$ 29,280.00 |
|  | TEMP CULVERT CROSSING (USE EXISTING CMP) | LS | 1 | \$ 20,000.00 | \$ 20,000.00 |
| 203 | REMOVAL OF EXISTING 120" PIPE | LF | 100 | \$ 15.00 | \$ 1,500.00 |
| 707 | 120" CMP | LF | 120 | \$ 400.00 | \$ 48,000.00 |
| 707 | 120" METAL END SECTION/MITERED END | EA | 2 | \$ 4,000.00 | \$ 8,000.00 |
| 204 | BORROW/FILL CONSTRUCTION | CY | 2115 | \$ 11.00 | \$ 23,261.33 |
| 251/261 | EROSION CTRL(WIRE ENCL 12" THICK RIP RAP) | CY | 173 | \$ 210.00 | \$ 36,400.00 |
| 253 | GABION GRADE CONTROL STRUCTURE | CY | 45 | \$ 519.00 | \$ 23,355.00 |
| 200/213 | 12" SUBGRADE PREPARATION | SY | 1060 | \$ 2.50 | \$ 2,650.00 |
| 301/302 | 8" BASE COURSE | SY | 1060 | \$ 10.00 | \$ 10,600.00 |
| 400 | 3" SP III HOT MIX ASPHALT | SY | 1060 | \$ 24.00 | \$ 25,440.00 |
| 400 | 3" SP IV HOT MIX ASPHALT | SY | 1060 | \$ 24.00 | \$ 25,440.00 |
| 617 | W-BEAM GUARDRAIL INCL POSTS | LF | 840 | \$ 30.00 | \$ 25,200.00 |
| 617 | METAL BARRIER END TREATMENT | EA | 3 | \$ 2,419.00 | \$ 7,257.00 |
| 617 | TRANSITION NEW GUARDRAIL TO EXISTING | EA | 1 | \$ 1,000.00 | \$ 1,000.00 |
| 634 | 4" STRIPING | LF | 1680 | \$ 0.50 | \$ 840.00 |
| 718 | RETROREFLECTIVE SIGNING INCL POSTS | EA | 4 | \$ 120.00 | \$ 480.00 |
|  | UTILITY RELOCATION ALLOWANCE | ALLOW | 0 |  | \$ |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 1.25 |  | \$ 3,703.29 |
| 635 | TEMPORARY TRAFFIC CONTROL (Bypass) | \% | 1.25 |  | \$ 3,703.29 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 2.8 |  | \$ 8,295.37 |
| 151 | MOBILIZATION | \% | 5 |  | \$ 15,023.17 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 1.5 |  | \$ 4,506.95 |
|  | CONTINGENCY @15\% | \% | 15 |  | \$ 50,354.31 |
|  | SUBTOTAL CONSTRUCTION |  |  |  | \$ 386,049.72 |
|  | CONSTRUCTION ADMINISTRATION | Time | 1.5 Month |  | \$ 8,400.00 |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  | \$ 27,611.48 |
|  | TOTAL CONSTRUCTION |  |  |  | \$ 422,061.20 |


| ENGINEERING SUPPORT AND DESIGN | \% | 15 | \$ | 63,309.18 |
| :---: | :---: | :---: | :---: | :---: |
| UNDEFINED DESIGN ELEMENTS |  |  | \$ | 5,000.00 |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  | \$ | 68,309.18 |
| ESTIMATED NMGRT (location-dependent) | \% | 7.25 | \$ | 4,952.42 |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  | \$ | 73,261.60 |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | \$ 495,322.79 |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR $=1$ (FOR <1 YEARS) |  |  |  | NA |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{\$ 4 9 5 , 3 3 0}$ |

[^1] Unit Prices, with adjustments for small and large quantities.

Project: INSTALL ROADSIDE MARKERS (Section 4.a.ii)
Number:
Scope: INTSALL OM TYPE MARKERS

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE |  | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 718 | ROAD DELINEATOR INCL POSTS | EA | 30 | \$ | 95.00 | \$ | 2,850.00 |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
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|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  | UTILITY RELOCATION ALLOWANCE | ALLOW | 0 |  |  | \$ | - |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 0 |  |  | \$ | - |
| 635 | TEMPORARY TRAFFIC CONTROL | LS | 1 |  |  | \$ | 750.00 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 0 |  |  | \$ | - |
| 151 | MOBILIZATION | \% | 8 |  |  | \$ | 228.00 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 1.5 |  |  | \$ | - |
|  | CONTINGENCY @5\% | \% | 5 |  |  | \$ | 191.40 |
|  | SUBTOTAL CONSTRUCTION |  |  |  |  | \$ | 4,019.40 |
|  | CONSTRUCTION ADMINISTRATION |  | NA |  |  | \$ | - |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  |  | \$ | 281.36 |
|  | TOTAL CONSTRUCTION |  |  |  |  |  | 4,300.76 |


| ENGINEERING SUPPORT AND DESIGN | $\%$ | 15 |  | $\$$ | 645.11 |
| :--- | :---: | :---: | :---: | ---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  |  |  |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | 645.11 |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$$ | 46.77 |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  |  | $\mathbf{\$}$ | $\mathbf{6 9 1 . 8 8}$ |
| TOTAL UNADJUSTED PLANNING BUDGET    $\mathbf{\$}$ <br> INFLATIONARY FACTOR =1 (FOR <1 YEARS)    NA <br> TOTAL PLANNING BUDGET    $\mathbf{\$}$ |  |  |  |  |  |

Project: REPLACE MISSING AND DAMAGED W-SERIES SIGNS
Number:
8
Scope: REMOVE AND REPLACE OR INSTALL NEW SIGNS/POSTS

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE |  | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | REMOVE AND SLAVAGE EX SIGN | EA | 40 | \$ | 45.00 | \$ | 1,800.00 |
| 718 | NEW W-SERIES SIGNING INCL POST* | EA | 72 | \$ | 120.00 | \$ | 8,640.00 |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  | talled per mile ( 5 signs re |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  | expected to include the replacement of signs. |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  | UTILITY RELOCATION ALLOWANCE | ALLOW | 0 |  |  | \$ | - |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 0 |  |  | \$ | - |
| 635 | TEMPORARY TRAFFIC CONTROL | LS | 1 |  |  | \$ | 750.00 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 0 |  |  | \$ | - |
| 151 | MOBILIZATION | \% | 8 |  |  | \$ | 835.20 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 0 |  |  | \$ | - |
|  | CONTINGENCY @5\% | \% | 5 |  |  | \$ | 601.26 |
|  | SUBTOTAL CONSTRUCTION |  |  |  |  | \$ | 12,626.46 |
|  | CONSTRUCTION ADMINISTRATION |  | 1 WEEKS |  |  | \$ | 3,600.00 |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  |  | \$ | 1,135.85 |
|  | TOTAL CONSTRUCTION |  |  |  |  | \$ | 17,362.31 |


| ENGINEERING SUPPORT NAD LAYOUT DESIGN | $\%$ | 15 |  | $\$$ | $2,604.35$ |
| :--- | :---: | :---: | :---: | ---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  | $\$$ | 500.00 |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | $3,104.35$ |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$$ | 225.07 |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  |  | $\mathbf{\$ 3 , 3 2 9 . 4 1}$ |  |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | $\$ 20,691.72$ |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR $=1$ (FOR <1 YEARS) |  |  |  | NA |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{\$}$ |

Project: GRADE SWALE BETWEEN X-ING \#33a AND \#34
Number:
9
Scope: REGRADE ROADSIDE BETWEEN STA 255+50 AND STA 259+75

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | \$ | - |
| 400 | ASPHALT SHOULDER REPLACEMENT | SY | 122 | \$ 25.00 | \$ | 3,055.56 |
| 212 | 2' SWALE GRADING | SY | 917 | \$ 3.50 | \$ | 3,208.33 |
| 251 | RIP RAP CHECK DAMS | CY | 5 | \$ 90.00 | \$ | 420.00 |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  | UTILITY RELOCATION ALLOWANCE | ALLOW | 1 | \$ 500.00 | \$ | 500.00 |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 0 |  | \$ | - |
| 635 | TEMPORARY TRAFFIC CONTROL | LS | 1 |  | \$ | 500.00 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 0 |  | \$ | - |
| 151 | MOBILIZATION | \% | 8 |  | \$ | 574.71 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 0 |  | \$ | - |
|  | CONTINGENCY @5\% | \% | 2 |  | \$ | 165.17 |
|  | SUBTOTAL CONSTRUCTION |  |  |  | \$ | 8,423.77 |
|  | CONSTRUCTION ADMINISTRATION |  | NA |  | \$ | - |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  | \$ | 589.66 |
|  | TOTAL CONSTRUCTION |  |  |  | \$ | 9,013.44 |


| ENGINEERING SUPPORT (GRADING EXHIBIT) | $\%$ | 5 |  | $\$$ | 450.67 |
| :--- | :---: | :---: | :---: | :---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  | $\$$ | 250.00 |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | 700.67 |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$$ | 50.80 |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  | $\mathbf{7 5 1 . 4 7}$ |  |  |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | \$,764.91 |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR $=1$ (FOR <1 YEARS) |  |  |  | NA |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{\$ 1}$ |

Project: ROADWAY RECONSTRUCTION OF MIDDLE SEGMENT*
Number:
10
Scope: RECONSTRUCT PAVEMENT SECTION AND RELATED IMPROVEMENTS


| ENGINEERING SUPPORT AND DESIGN | $\%$ | 4.4 |  | $\$$ | $195,934.75$ |
| :--- | :---: | :---: | :--- | ---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  | $\$$ | $5,000.00$ |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | $200,934.75$ |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$$ | $14,567.77$ |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  |  | $\mathbf{2 l}$ | $\mathbf{2 1 5 , 5 0 2 . 5 2}$ |
| TOTAL UNADJUSTED PLANNING BUDGET    <br> INFLATIONARY FACTOR = 1.03 (FOR 1-2 YEARS)    <br> TOTAL PLANNING BUDGET    |  |  |  |  |  |

*ASSUMES THAT CROSSING \#40 IS REPLACED AS SHORT TERM ACTION
** MINOR IMPROVEMENT OF ROADSIDE, NOT SUBSTANTIAL FILL OF ROADSIDES

Inflation assumed @ $3 \%$ per year, specific materials and detailed sub-specs and item nos. would be developed with a design, based on NMDOT 2017 Unit Prices, with adjustments for small and large quantities.

Project: REMOVE AND REPLACE CROSSING \#23
Number:
11
Scope: REMOVE AND EXTEND CMP, REBUILD ROADWAY STA 220+00

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 201 | CLEARING AND GRUBBING INCL TREE REMOVAL | ACRE | 0.05 | \$ 6,000.00 | \$ | 300.00 |
| 211 | OBLITERATE/REMOVE EXISTING ROAD | SY | 92 | \$ 10.00 | \$ | 920.00 |
| 204 | UNCLASSIFIED EXCAVATION | CY | 400 | \$ 18.00 | \$ | 7,200.00 |
| 204 | BORROW/FILL CONSTRUCTION | CY | 540 | \$ 11.00 | \$ | 5,940.00 |
|  |  |  |  |  | \$ | - |
| 203 | SALVAGE EXISTING 54" CMP | LF | 67 | 15.00 | \$ | 1,005.00 |
| 204 | TRENCH \& BACKFILL FOR 54" CULVERT | LF | 84 | 50.00 | \$ | 4,200.00 |
| 707 | 54" CMP | LF | 84 | \$ 180.00 | \$ | 15,120.00 |
| 707 | 54" CMP END SECTION | EA | 2 | \$ 1,600.00 | \$ | 3,200.00 |
| 200/213 | 12" SUBGRADE PREPARATION | SY | 92 | \$ 5.00 | \$ | 460.00 |
| 301/302 | 6" BASE COURSE (SECTION"A") | SY | 92 | 8.00 | \$ | 736.00 |
| 400 | 2.5" SP III HOT MIX ASPHALT (SECTION "A") | SY | 92 | 25.00 | \$ | 2,300.00 |
| 400 | 2" SP IV HOT MIX ASPHALT (SECTION "A") | SY | 92 | 22.00 | \$ | 2,024.00 |
| 617 | W-BEAM GUARDRAIL REPLACEMENTS INCL TRANS. | LF | 75 | 62.00 | \$ | 4,650.00 |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
| 634 | 4" STRIPING | LF | 360 | \$ 1.00 | \$ | 360.00 |
| 718 | RETROREFLECTIVE SIGNING INCL POSTS | EA | 4 | \$ 140.00 | \$ | 560.00 |
|  |  |  |  |  | \$ | - |
|  | UTILITY/CULV RELOCATION ALLOWANCE | ALLOW | 1 | \$ - | \$ | - |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 2.5 |  | \$ | 1,224.38 |
| 635 | TEMPORARY TRAFFIC CONTROL | \% | 3 |  | \$ | 1,469.25 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 2.25 |  | \$ | 1,101.94 |
| 151 | MOBILIZATION | \% | 6 |  | \$ | 2,938.50 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 1.5 |  | \$ | 734.63 |
|  | CONTINGENCY @15\% | \% | 15 |  | \$ | 8,466.55 |
|  | SUBTOTAL CONSTRUCTION |  |  |  | \$ | 64,910.24 |
|  | CONSTRUCTION ADMINISTRATION | MONTH | 1 |  | \$ | 13,600.00 |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  | \$ | 5,495.72 |
|  | TOTAL CONSTRUCTION |  |  |  | \$ | 84,005.96 |


| ENGINEERING SUPPORT AND DESIGN | $\%$ | 20 |  | $\$$ | $16,801.19$ |
| :--- | :---: | :---: | :---: | ---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  | $\$$ | $2,500.00$ |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | $19,301.19$ |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$$ | $1,399.34$ |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  |  | $\mathbf{\$ 2 0 , 7 0 0 . 5 3}$ |  |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | 104,706.49 |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR = 1.03 (FOR 1-2 YEARS) |  |  |  | 1.03 |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{\$}$ |

*ASSUMES THAT CMP IS DAMAGED AND CANNOT BE REUSED

Project: CRACK SEAL UPPER SEGMENT
Number:
12
Scope: CRACK SEALING STA 00 TO STA 149+75

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | \$ | - |
| 414 | AVERAGE COST CRACK SEALING | LANE MILE | 5.094 | \$ 2,000.00 | \$ | 10,188.00 |
|  |  |  |  |  | \$ | - |
|  | Based on the assumption that $75 \%$ of the crack |  |  |  | \$ | - |
|  | sealed cracking completed in 2014 reaches its |  |  |  | \$ | - |
|  | useful life by 2020 and needs ot be re-filled, plus |  |  |  | \$ | - |
|  | new cracking that has developed that can be |  |  |  | \$ | - |
|  | addressed with this project. Assume 90\% of cracks |  |  |  | \$ | - |
|  | need to be sealed and re-sealed with low and |  |  |  | \$ | - |
|  | medium severity depths. |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  | FAILED SECTION REPLACEMENTS (PATCHING) | SY | 200 | \$ 30.00 | \$ | 6,000.00 |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  | UTILITY/CULV RELOCATION ALLOWANCE | ALLOW | 1 | \$ | \$ | - |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 0 |  | \$ | - |
| 635 | TEMPORARY TRAFFIC CONTROL | \% | 7 |  | \$ | 1,133.16 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 2.25 |  | \$ | 364.23 |
| 151 | MOBILIZATION | \% | 10 |  | \$ | 1,618.80 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 1.5 |  | \$ | 242.82 |
|  | CONTINGENCY @15\% | \% | 15 |  | \$ | 2,932.05 |
|  | SUBTOTAL CONSTRUCTION |  |  |  | \$ | 22,479.06 |
|  | CONSTRUCTION ADMINISTRATION | MONTH | 1 |  | \$ | 13,600.00 |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  | \$ | 2,525.53 |
|  | TOTAL CONSTRUCTION |  |  |  | \$ | 38,604.60 |


| BIDDING AND SPECIFICATION SUPPORT | $\%$ | 20 |  | $\$$ | $7,720.92$ |
| :--- | :---: | :---: | :---: | ---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  | $\$$ | $2,500.00$ |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\mathbf{1 0 , 2 2 0 . 9 2}$ |  |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$$ | 741.02 |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  | $\mathbf{1 0 , 9 6 1 . 9 4}$ |  |  |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | $\$ 49,566.53$ |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR = 1.06 (FOR 2 YEARS) |  |  |  | 1.06 |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{\$ 3 2 , 6 0 0}$ |

*ASSUMES THAT CMP IS DAMAGED AND CANNOT BE REUSED

Project: INSTALL CULVERT ROADSIDE MARKERS WITHIN UNPAVED SEGMENT_Number:
Scope: DELINEATORS AT CROSSINGS W/STEEP SLOPES

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE |  | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | \$ | - |
|  | REMOVE AND SLAVAGE EX SIGN | EA | 15 | \$ | 45.00 | \$ | 675.00 |
| 718 | DELINEATOR SIGN INCL POST | EA | 72 | \$ | 100.00 | \$ | 7,200.00 |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  | UTILITY/CULV RELOCATION ALLOWANCE | ALLOW | 1 | \$ | - | \$ | - |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 0 |  |  | \$ | - |
| 635 | TEMPORARY TRAFFIC CONTROL | \% | 5 |  |  | \$ | 393.75 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 2.25 |  |  | \$ | 177.19 |
| 151 | MOBILIZATION | \% | 5 |  |  | \$ | 393.75 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 0 |  |  | \$ | - |
|  | CONTINGENCY @15\% | \% | 5 |  |  | \$ | 441.98 |
|  | SUBTOTAL CONSTRUCTION |  |  |  |  | \$ | 9,281.67 |
|  | CONSTRUCTION ADMINISTRATION |  |  |  |  | \$ | - |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  |  | \$ | 649.72 |
|  | TOTAL CONSTRUCTION |  |  |  |  | \$ | 9,931.39 |


| BIDDING AND SPECIFICATION SUPPORT | $\%$ | 5 |  | $\$$ | 496.57 |
| :--- | :---: | :---: | :---: | :---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  |  |  |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | 496.57 |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$$ | 36.00 |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  |  | $\mathbf{\$}$ | $\mathbf{5 3 2 . 5 7}$ |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | \$ |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR $=1.06$ (FOR 2 YEARS) |  |  |  | 1.063 .96 |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{\$ 1 1 0 0}$ |

Project: REPLACE DAMAGED AND NON-COFORMING SIGNS
Number:
Scope: REMOVE AND UPGRADE NON-W-SERIES SIGNS

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE |  | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | REMOVE AND SLAVAGE EX SIGN | EA | 40 | \$ | 45.00 | \$ | 1,800.00 |
| 718 | NEW SMALL PANEL SIGNING INCL POSTS | EA | 72 | \$ | 120.00 | \$ | 8,640.00 |
| 718 | LARGE PANEL SIGNING (GUIDE SIGNS, ETC) | SF | 144 | \$ | 27.00 | \$ | 3,888.00 |
| 718 | LARGE SIGN POSTS | LF | 1200 | \$ | 8.00 | \$ | 9,600.00 |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  | $\overline{\text { Fall }}$ |  |  |  |  | \$ | - |
|  | istoric District Mreric Distrit |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  | $t$ Falls |  |  |  |  | \$ | - |
|  | istoric District |  |  |  |  | \$ | - |
|  | EXIT 57 |  |  |  |  | \$ | - |
|  | SUPPLEMENTAL GUIDE SIGN |  |  |  |  | \$ | - |
|  |  |  |  |  |  | \$ | - |
|  | UTILITY RELOCATION ALLOWANCE | ALLOW | 0 |  |  | \$ | - |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 0 |  |  | \$ | - |
| 635 | TEMPORARY TRAFFIC CONTROL | LS | 1 |  |  | \$ | 750.00 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 0 |  |  | \$ | - |
| 151 | MOBILIZATION | \% | 8 |  |  | \$ | 1,914.24 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 0 |  |  | \$ | - |
|  | CONTINGENCY @5\% | \% | 5 |  |  | \$ | 1,329.61 |
|  | SUBTOTAL CONSTRUCTION |  |  |  |  | \$ | 27,921.85 |
|  | CONSTRUCTION ADMINISTRATION |  |  |  |  |  |  |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  |  | \$ | 1,954.53 |
|  | TOTAL CONSTRUCTION |  |  |  |  |  | 29,876.38 |


| ENGINEERING SUPPORT/BIDDING | $\%$ | 25 |  | $\$$ | $7,469.10$ |
| :--- | :---: | :---: | :---: | ---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  | $\$$ | 500.00 |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | $7,969.10$ |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$$ | 577.76 |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  |  | $\mathbf{8}$ | $\mathbf{8 , 5 4 6 . 8 5}$ |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | $\$ 38,423.24$ |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR $=1.09$ (FOR 2-3 YEARS) |  |  |  | 1.09 |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{\$ 4 1 , 8 9 0}$ |

Project: CONSTRUCT 5' SHOULDERS \& IMPROVE NON-RECOVERABLE SLOPES Number:
Scope: ADD SHOULDERS AND FILL TO THE THREE NON-RECOV SLOPE LENGTHS*

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 201 | CLEARING AND GRUBBING | ACRE | 0.1 | \$ 2,500.00 | \$ | 250.00 |
| 202.07 | TREE REMOVAL | EA | 9 | \$ 250.00 | \$ | 2,250.00 |
|  |  |  |  |  | \$ | - |
| 204 | BORROW/FILL CONSTRUCTION | CY | 7300 | \$ 11.00 | \$ | 80,300.00 |
| 208 | SAWCUT ASPHALT 3"-4" | LF | 2700 | \$ 3.00 | \$ | 8,100.00 |
|  |  |  |  |  | \$ | - |
| 617 | W-BEAM GUARDRAIL** | LF | 400 | \$ 32.00 | \$ | 12,800.00 |
| 617 | GUARDRAIL END TREATMENTS | EA | 4 | \$ 1,200.00 | \$ | 4,800.00 |
|  |  |  |  |  | \$ | - |
| 200/213 | 12" SUBGRADE PREPARATION | SY | 1800 | \$ 2.50 | \$ | 4,500.00 |
| 301/302 | 6" BASE COURSE (SECTION"A") | SY | 1800 | \$ 8.00 | \$ | 14,400.00 |
| 400 | 2.5" SP III HOT MIX ASPHALT (SECTION "A") | SY | 1500 | \$ 25.00 | \$ | 37,500.00 |
| 400 | 2" SP IV HOT MIX ASPHALT (SECTION "A") | SY | 1500 | \$ 22.00 | \$ | 33,000.00 |
|  |  |  |  |  | \$ | - |
| 634 | 4" EDGE STRIPING | LF | 1350 | \$ 1.00 | \$ | 1,350.00 |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  | UTILITY/CULV RELOCATION ALLOWANCE | ALLOW | 1 | \$ 1,500.00 | \$ | 1,500.00 |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 2.5 |  | \$ | 4,981.25 |
| 635 | TEMPORARY TRAFFIC CONTROL | \% | 3 |  | \$ | 6,022.50 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 2.25 |  | \$ | 4,483.13 |
| 151 | MOBILIZATION | \% | 5 |  | \$ | 10,037.50 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 1.5 |  | \$ | 3,011.25 |
|  | CONTINGENCY @15\% | \% | 10 |  | \$ | 22,928.56 |
|  | SUBTOTAL CONSTRUCTION |  |  |  | \$ | 252,214.19 |
|  | CONSTRUCTION ADMINISTRATION | MONTH | 2 |  | \$ | 27,200.00 |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  | \$ | 19,558.99 |
|  | TOTAL CONSTRUCTION |  |  |  | \$ | 298,973.18 |


| ENGINEERING SUPPORT AND DESIGN | $\%$ | 10 |  | $\$$ | $29,897.32$ |
| :--- | :---: | :---: | :---: | :---: | ---: |
| UNDEFINED DESIGN ELEMENTS |  |  |  | $\$$ | $5,000.00$ |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | $34,897.32$ |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$$ | $2,530.06$ |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  | $\mathbf{3 7 , 4 2 7 . 3 7}$ |  |  |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | 336,400.55 |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR = 1.09 (FOR 3 YEARS) |  |  |  | 1.09 |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{3 6 6 , 7 0 0}$ |

*IDEALLY, THIS PROJECT IS COMBINED WITH PROJECT NO. 10 AND/OR NO. 12 IF BUDGET IS AVAILABLE SOONER, BUT CAN BE ACCOMPLISHED AS A LONG TERM IMPROVEMENT IF INTERIM ACTION IS TAKEN ON PROJECT NO. 6. IT IS MORE COST EFFECTIVE AND EASIER TO CONSTRUCT AS A PART OF THE ROADWAY RECONSTRUCTION; HOWEVER IT IS POSSIBLE TO PHASE. **GUARDRAIL IS ASSUMED TO BE AN ALTERNATIVE TO EXTENDING THE LARGE DIA. PIPES.

[^2]Project: $\quad$ STUDY AND PROPOSE IMPROVEMENTS TO X-ING \#38
Number:
Scope: ADD SHOULDERS AND FILL TO THE THREE NON-RECOV SLOPE LENGTHS*

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  | IF CAPACITY IS NOT AN ISSUE THE POTENTIAL NO- |  |  |  | \$ | - |
|  | BUILD OPTION MAY BE APPROPRIATE. CAPACITY |  |  |  | \$ | - |
|  | ISSUES MAY BE RESOLVED WITH INLET |  |  |  | \$ | - |
|  | IMPROVEMENTS, OR CROSSING |  |  |  | \$ | - |
|  | UPSIZING/IMPROVEMENTS. THE CONSTRUCTION |  |  |  | \$ | - |
|  | COST WILL DEPEND ON THE FINDINGS OF THIS |  |  |  | \$ | - |
|  | PROJECT. |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  | UTILITY/CULV RELOCATION ALLOWANCE | ALLOW | 1 |  | \$ | - |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 2.5 |  | \$ | - |
| 635 | TEMPORARY TRAFFIC CONTROL | \% | 3 |  | \$ | - |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% | 2.25 |  | \$ | - |
| 151 | MOBILIZATION | \% | 5 |  | \$ | - |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% | 1.5 |  | \$ | - |
|  | CONTINGENCY @15\% | \% | 10 |  | \$ | - |
|  | SUBTOTAL CONSTRUCTION |  |  |  | \$ | - |
|  | CONSTRUCTION ADMINISTRATION |  |  |  | \$ | - |
|  | NMGRT (NAMBE @7.0\%) | \% | 7 |  | \$ | - |
|  | TOTAL CONSTRUCTION |  |  |  | \$ | - |


| ENGINEERING SUPPORT |  |  |  | $\$$ | $5,500.00$ |
| :--- | :---: | :---: | :---: | :---: | ---: |
|  |  |  |  |  |  |
| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  |  | $\$$ | $5,500.00$ |
| ESTIMATED NMGRT (location-dependent) | $\%$ | 7.25 |  | $\$ \mathbf{3 9 8 . 7 5}$ |  |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  | $\mathbf{5 , 8 9 8 . 7 5}$ |  |  |


| TOTAL UNADJUSTED PLANNING BUDGET |  |  |  | \$,898.75 |
| :--- | :--- | :--- | :--- | ---: |
| INFLATIONARY FACTOR = 1.09 (FOR 3 YEARS) |  |  |  | 1.09 |
| TOTAL PLANNING BUDGET |  |  |  | $\mathbf{\$}$ |

EXCLUDES BIDDING, SINCE IT IS NOT CLEAR HOW THE IMPROVEMENTS (IF ANY) CAN BE ACCOMPLISHED.

Project: CONSOLIDATE RESIDENTIAL DRIVEWAYS
Number:
25
Scope: BASIS FOR RANGE OF TYPICAL CONSOLIDATION (CLOSE ONE DRIVEWAY AND REROUTE ANOTHER)

| FP-14 Spec | DESCRIPTION | UNIT | QTY | UNIT PRICE | AMOUNT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | \$ | - |
| 211 | OBLIREATE DRIVEWAY CONNECTION | SY | 100 | \$ 5.00 | \$ | 500.00 |
| 713.04 | RE-SEEDING/MULCH | SY | 100 | \$ 2.00 | \$ | 200.00 |
| 212 | GRADING/BLADING NEW DRIVEWAY CONNECTION | SY | 100 | \$ 5.00 | \$ | 500.00 |
| 301/302 | 3" BASE COURSE | SY | 100 | \$ 8.00 | \$ | 800.00 |
|  | REMOVE/RELOCATE GATE AND FENCE ELEMENTS | LS | 1 | \$ 2,500.00 | \$ | 2,500.00 |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  |  |  |  |  | \$ | - |
|  | UTILITY/CULV RELOCATION ALLOWANCE | ALLOW | 1 |  | \$ | - |
| 157 | SOIL EROSION AND SEDIMENT CONTROL | \% | 2.5 |  | \$ | 112.50 |
| 635 | TEMPORARY TRAFFIC CONTROL | \% | 4 |  | \$ | 180.00 |
| 152 | CONSTRUCTION SURVEY AND STAKING | \% |  |  | \$ | - |
| 151 | MOBILIZATION | \% | 5 |  | \$ | 225.00 |
| 153/154 | MATERIAL TESTING/QUALITY CONTROL | \% |  |  | \$ | - |
|  | CONTINGENCY @15\% | \% | 5 |  | \$ | 250.88 |
|  | SUBTOTAL CONSTRUCTION |  |  |  | \$ | 5,268.38 |
|  | CONSTRUCTION ADMINISTRATION |  |  |  | \$ | - |
|  | NMGRT (NAMBE @ $7.0 \%$ ) | \% | 7 |  | \$ | 368.79 |
|  | TOTAL CONSTRUCTION |  |  |  | \$ | 5,637.16 |


| ENGINEERING SUPPORT |  |  |  | $\$ 400.00$ |
| :--- | :--- | :--- | :--- | :--- |


| SUBTOTAL DESIGN AND PROFESSIONAL SVCS |  |  | \$ | 400.00 |
| :---: | :---: | :---: | :---: | :---: |
| ESTIMATED NMGRT (location-dependent) | \% | 7.25 | \$ | 29.00 |
| TOTAL DESIGN AND PROFESISONAL SVCS |  |  | \$ | 429.00 |
| TOTAL DESIGN AND PROFSSISONAL SVCS 429.00 |  |  |  |  |
| TOTAL UNADJUSTED PLANNING BUDGET |  |  | \$ | 6,066.16 |
| INFLATIONARY FACTOR = 1.09 (FOR 3 YEARS) |  |  |  | 1.09 |
| TOTAL PLANNING BUDGET |  |  | \$ | 6,700 |

IT IS ASSUMED THAT FOR SINGLE CONSOLIDATIONS, A FORMAL ENGINEERING PLAN IS NOT NECESSARY.
CONSOLIDATING MULTIPLE LOCATIONS WILL DRIVE DOWN COST IF A CONTRACTOR

## AppendixA - Plans (Digital)

Marcus Lopez
Nambé Pueblo Roads and Transportation Department
15A Bayay Poe
Nambé Pueblo, NM, 87506
Re: 2020 Long Range Transportation Plan Update.

Hello Mr. Lopez:
ICA, LTD is herewith pleased to submit the Long Range Transportation Plan update for the Pueblo of Nambe. The Plan document and appendices contained herein is reflective of a collaborative contribution of several agencies within the regional area.

The Plan structure will assist in the continued planning, design and implementation of future transportation improvements further increasing the quality of life for tourists, area citizens and pueblo members.

Along with our gratitude for the opportunity to provide professional services on this project, we acknowledge special consideration to the Nambé Pueblo Roads and Transportation Department and Governor's Office for their assistance in the development of the Pueblo LRTP update.


Internationa!
Consuhting \& Aswaciates, LTD.


01 June 2020
NAMBÉ PUEBLO
LONG RANGE TRANSPORTATION PLAN UPDATE
Summary of the Plan Development Planning Process
Prepared by:
Raymond M. López
ICA, LTD. Principal

October 2019 ICA answered the request to assist the Nambé Pueblo with the update development of the Pueblo Long Range Transportation Plan (LRTP) and thus the planning process began. A planning group was development as part of the planning process. The task of the planning group was to assist in the development of transportation goals and objectives within the Pueblo proper by providing and sharing historical data review discussion of existing conditions and projected changes that will be utilized in developing the long range transportation plan update. The following is a summary of those events.

On 12 November 2019 an initial planning meeting (Charrette) was conducted by ICA on behalf of and in conjunction with department members of Nambé Pueblo. ICA along with the Nambé Pueblo Roads and Transportation Manager took the opportunity to explain the purpose and importance of a LRTP. The purpose of transportation planning is to address current and future transportation, land use, economic development, traffic demand, public safety, health, and social needs.

A substantial amount of time was spent discussing conveyance, crime reduction and areas that may be open, illegal dumping along with access control, economic, housing, recreational/interpretative development and enforcement of tribal laws. Multi-use trails seem to be the common thread of discussion, with the Pueblo of Cochiti Multi-use Trail System used as a frame of reference.

Additional thought was also given to economic development with an emphasis on NP101, Nambé Falls and NM Highway 503 including agriculture, turning fallow fields into production. A concern was expressed with respect to non-tribal lands within the pueblo and how access could be a problem.

Recreation was also a topic of discussion with an emphasis on sustainable programs, introduction of new sport activities similar to kayaking, use of arroyos for ATV's, pedestrian walkways with bridge crossings, improving the Old Wagon Trail (Old Santa Fe Trail), river walk and a lake boat ramp.

Interconnectivity was discussed; the effects on existing facilities with regard to access and expanded use. Some of those facilities of concern included the services provided by the senior center, inclusive of providing transportation to the elderly with respect to socializing through assistance of special and daily activity, the RTD, an area school late and commodities shuttles, increased ability to connect present and future population clusters such as subdivision 117 and 118.

With these planning thoughts in hand, subsequent planning sessions were conducted with members of Santa Fe County Planning and Zoning Department, New Mexico Department of Transportation (NMDOT), ICA and Nambé Pueblo Roads and Transportation Department Manager. These planning sessions addressed transportation goals, present and proposed transportation projects with consideration of other pueblo communities in the area and how they may affect or impact those of Nambé Pueblo.

Additional input provided by the Pueblo Governor's Office was essential in providing insight into economic development opportunities present and past inclusive of ancillary facilities as they relate to transportation issues with respect to sustainability and quality of life of the Pueblo.

In parallel to the planning sessions, considerable time was contributed to the development of a Community Needs Assessment, review and dissemination of historical data, relevant road development and inventory reports, updated regulations, numerous site observations in review of traffic patterns and flows resulting in the formulation of High Range, Medium Range and Future Range Goals and Priorities. The following is a listing of those goals and priorities;

## HIGH PRIORITY:

Road Maintenance;
Remove and Replace all Non-Conforming and Damaged Signs.
Replace all Missing and Damaged Warning Signs.
Install Markers for the Three Critical/Non-Recoverable Roadsides.
Drainage Crossing Maintenance
Clear Obstructions from the Clear Zone

Road Improvements;
Assess the Structural Integrity of Drainage Crossings
Fix Outlet and Stabilize Roadside Fill of Crossings
Grading of Roadside Swales between Crossings
Roadway Rehabilitation to NP 101 from the cattle guard to the lake
Additional Drainage Improvements, Upper Village
Clear Intersection Sight Distance Obstructions
Roadway Right of Way Issues;
Maintenance and Responsibility
Right of way Agreement

Itternationnt
Consuting \& Asweciates, 1 IDD


## MEDIUM PRIORITY:

Address Speed Limit Issues (Speeding);
Develop Speed Control Plan, Monitoring, Enforcement
Develop a Regional Transportation District Plan (RTD);
Pueblo Operated on Demand
Fixed and Variable Scheduled RTD route service

Drainage Issues;
NP 101 drainage Improvements, Add Roadway Shoulders/Improve Non-Recoverable roadsides in Upper \& Middle Segments.
Plaza Drainage Improvements

## LONG RANGE PRIORITY:

Multi-Use Trail System;
Development of a Multi-use Trail Mater Plan
Improvements To Existing Trails
Land Use Plan Update;
Agricultural Development and Re-development Residential Development and Re-development Commercial Development

Develop a Wayfinding Signing and Striping Plan

## FUTURE PRIORITY:

Lake Facility Improvements
Develop a Recreation Master Plan
Improvements to the Fish Hatchery
Develop Road Distress Monitoring Plan

## Nambé Pueblo <br> "Moving Nambé Forward"



# Long Range Transportation Plan 

Nambé Pueblo Roads and
Transportation Department
15A Bay Poe
Nambé Pueblo, NM 87506
2020 Update

Prepared By:


International
Consulting \& Associates, LTD.


Long Range Transportation Plan
For The
Pueblo of Nambé

Phillip A. Perez, Pueblo Governor

June 2020

Further information may be obtained by contacting:

Pueblo of Nambé
Roads and Transportation Department
Nambé Pueblo, NM 87506
505.455.4424


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900 Pinetree Rd. SE \#44185
Rio Rancho, NM 87174
505.994.2236

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Pueblo of Nambé

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## ACKNOWLEDGEMENTS:

Federal Regulation Code 25 CFR 170.411
NMDOT 40 Year LRTP
Eight Northern Pueblo 20 LRTP
Navajo Nation 20 LRTP
New Mexico's Rich Cultural Heritage,
Listed State and National Register Properties by Number, September 2012
SW Regional TTP
Pueblo of Nambé Road Settlement Agreement
25 CFR 170 Final Rule (published on November 7, 2016)
Amendment to 25 CFR 170 Final Rule (Delay of Compliance Date) (published on February 28, 2018)
Tiller's Guide to Indian Country - Economic Profiles of American Indian Reservations, 2005
UNM Bureau of Business \& Economic Research
2017 Tribal Transportation Report
Roads \& Bridges.com
FHWA, Highway Functional Classification 2013
NMDOT, New Mexico Rail Runner Express (NMRX)
North Central Regional Transit District
New Mexico Traffic Crash Annual Report 2018
Highway Capacity Manual, Sixth Edition.
IIR, Indian Reservation Roads Program, Bridge Inspection Report, June 2019

## A. INTRODUCTION

## Overview

Transportation infrastructure is arguably the most critical segment of pueblo infrastructure. Whether it is being used to access employment, homes, commerce, medical services, recreation, or industry, the transportation system serves as the links that bind our modern society together. Transportation investments produce significant impacts on community and economic development patterns, public safety and security and the availability of travel choices offered to the pueblo. Overall transportation needs can be complex and ever changing so the planning process needs to rely on accurate and current data-driven methods. This approach allows for correctly identifying problems and targeting sustainable and cost effective solutions to those problems. This plan shall serve as a framework for guiding a transportation planning process that yields positive community results when formulating and assessing transportation options and making the best possible choices.


The Nambé Pueblo Transportation Plan (LRTP) is a twenty-year comprehensive plan developed and updated at least every five years in accordance with Federal regulations or more frequently if determined necessary to respond to changing circumstances that may affect the transportation system planning and decision-making process. The study area includes the boundary limits of the Nambé Pueblo.

The 2020 LRTP identifies the Pueblo's multi-modal transportation needs over the next 20 years and develops an implementation plan for improvements. The plan provides long range planning policies and implementation guidelines for Tribal Transportation (TTP) formally known as the Indian Reservation Roads, IRR Program improvements. It is based on a comprehensive analysis review of all pertinent factors and issues affecting the Nambé Pueblo's existing and future transportation needs.

The LRTP is an important component in obtaining Federal funding for roadway improvements through the TTP Program. The Nambé TTP Program is administered jointly by the Bureau of Indian Affairs Division of Transportation and the Federal Lands Highways Program (FLHP) of the Federal Highway Administration. The BIA Southwest Regional Office, Division of Transportation (BIA-NMDOT) administers Southwest Region of the TTP Program construction and maintenance. To qualify for the funding, each Pueblo must establish an approved long range transportation plan and Tribal Transportation Improvement Program (TTIP) which is a road and bridge construction priority schedule.

Nambé Pueblo will use this 2020 LRTP to satisfy the long range transportation plan requirements and will utilize the findings and recommendations of the LRTP to define a short term road and bridge construction priority schedule of the Nambé Pueblo Transportation Improvement Program (TIP).

The Federal Highway Administration, (FHWA) describes the purpose of transportation planning as "to identify broad goals to meet transportation needs." Federal law and regulations require the development of Long Range Transportation Plans as part of statewide and metropolitan planning programs that documents transportation investment needs and outlines a strategy regarding how best to address the needs. The plan serves as the official plan for a metropolitan area and federal funding for certain types of transportation capital project improvements (i.e., highways, bridges and public transit) cannot be approved unless these projects are identified in the Long Range Transportation Plan adopted by a Metropolitan Planning Organization. This plan will fulfill the federal requirement for the development of a Long Range Transportation Plan for the Pueblo of Nambé, Roads and Transportation Department.

Federal regulations require that Long Range Transportation Plans:

- Consider all transportation modes
- Cover at least a 20 year time period
- Consider eight key planning factors
- Be fiscally constrained
- Provide for public participation
- Be updated at least every five years

Therefore, it is the intent that the Nambé Pueblo Long Range Transportation Plan consider the above characteristics to foster efficient mobility and access for people and goods throughout the pueblo, county, promote regional intermodal connectivity, ensure efficient system performance and adequate preservation, promote economic development and public safety as well as maintain the Pueblo's outstanding quality of life.

This Long Range Plan is critical toward achieving Nambé Pueblo's comprehensive plan vision during a 20 year planning horizon by realizing managed and well planned growth and development through the adoption of sound public policies that target strategic infrastructure investments consistent with tribal, federal, state and local planning factors. Given scarce transportation funding resources at all governmental levels, the plan will enable transportation decision-makers to prioritize competing needs and make the best use of available funding to address the most important transportation needs.

The Nambé Pueblo LRTP is the vision of future transportation development to fulfill and meet the Pueblo's long term transportation needs. The planning process and methodology used in this plan update includes examination of tribal and TTP program goals and objectives, highway design criteria, pedestrian/multi-use and other transportation issues to identify future needs.

## Transportation Goals:

Provide a comprehensive transportation system that encompasses all modes of transportation, including rail, bus, and air.

Provide a safe and efficient transportation network to and within the Nambé Pueblo.
Improve overall road and bridge conditions to achieve a reduction in the number and severity of traffic accidents and enhance multi-use pedestrian access.

Develop the necessary multimodal transportation system to foster and support economic development, increase employment and recreational opportunities.

Provide a high level of connectivity between growth and interpretive centers.
Establish and manage a fair and impartial setting for effective regional decision-making in the planning area.

Identify and evaluate alternative transportation improvement options: Use data and planning methods to generate and evaluate alternatives. Planning studies and evaluations are included in the Tribal Transportation Plan Program, (TTP).

Continued development of the Tribal Transportation Improvement Program (TTP): Develop a short-range four year program of transportation improvements based on the long range transportation plan. The TTP should be designated to achieve the area's goals, using spending, regulating, operating, management and financial tools.

Involve the public: Continually involve the tribal members and other affected constituencies in the essential functions listed above.

## Purpose and Scope

The purpose and scope of the transportation plan, as required by federal agency regulations, is to identifying transportation needs and a performance based development path forward that will enable Pueblo leaders to take advantage of desirable development opportunities, protect pueblo resources, traditions and enhance the use of tribal land.

Develop a prioritized listing of recommended road improvement/construction projects for use by the pueblo and BIA in implementing a construction program to meet current and projected 20 year transportation needs.

This transportation plan is intended to be fiscally and developmentally sound to address the funding issues and eligibility restrictions associated with Highway Trust Fund (HTF).

Each Pueblo is politically and geographically diverse and each has its own goals and objectives for a transportation system. However, because the Tribal Transportation Program system is composed of public roads, many of which fall under BIA, State, County and Local responsibility. Several transportation issues common to the Pueblo can be identified;

Provide safe and convenient public access within their boundaries.
Provide access to new and old development.
Complement surrounding public transportation facilities as part of the area-wide public transportation system.

Assist in the economic development of the Pueblo.
Produce a plan for providing transportation facilities.
Provide a plan to increased access and development of recreational facilities.
Resolution of Roadway Right of Way issues related to maintenance responsibility issues.
Address roadway pedestrian and vehicular safety issues.
Develop a regional transportation district plan.
Update the Land Use Plan.

## Method of Study

This plan has been intentionally structured in such a way to facilitate a data-driven, problem-solution approach to planning. The general structure of the plan will mirror that of a Tribal Long Range Transportation Plan. The method of this study consists of three parts. Part One, provides for the initial planning charrette with pueblo department managers, discussion of existing conditions, collection of data used in the analysis and development of the long range transportation plan.

Part Two includes the major analytical work tasks of the study including both the generation of future traffic figures based upon projected land development and the development of transportation system alternatives. Dialogue and coordination with Pueblo, BIA, State, County and Local officials is required to obtain a projected land use outlook needed to complete the second and third parts of the plan.

Part Three, includes the preparation of the final transportation plan based on the review of the alternatives by Pueblo leaders, County, Local and BIA officials. This final phase also evaluates the social and economic factors associated with the priority list of road construction projects. The results of all parts are presented herein.

Through its planning effort International Consulting and Associates, Ltd (ICA, LTD) with pueblo department managers, other native, local, county, and state agencies worked to obtain the most current information on socioeconomic conditions, pueblo development needs and trends along with the most current transportation data. Starting with the information collected and through this process ICA prepared a draft Transportation Plan update. This draft plan is transmitted to the Pueblo and BIA for review and comment. After comments have been addressed a Final Long Range Transportation Plan update is submitted to the Pueblo of Nambé, Pueblo Council for approval.

## Regional Area

The Pueblo of Nambé is located in northern New Mexico, 16 miles north of Santa Fe, NM. The Pueblo of Nambé has been home to the tribe since circa 1300. Its residents were declared citizens of Mexico when Mexico won its independence from Spain. Although the tribe had no documentary evidence of its land grant from the Spanish government, after testimony from tribal elders, the U.S. Surveyor General confirmed the grant in 1858. The grant was then patented in 1864.

Nambé Pueblo can be found in north central New Mexico, on Nambé Pueblo Road NP101, one mile south of New Mexico Highway 503, three miles east of US Highway $84 / 285$ and nine miles southwest of the unincorporated village of Chimayo, NM. Road access to
 the pueblo is provided by State Highway 503 via U.S. Highway 84/285.

## Transportation Plan Summary

The transportation plan update presented herein should be considered a flexible plan adaptable to the changing needs and conditions within the community. The should be used as the basis for programming and budgeting future roadway improvement funds while recognizing that such priorities and improvement needs will change over time. Thus, the priority list must be reviewed and modified as needed on an annual basis. The overall plan must also be updated every five to seven years or when major change in land use has developed.

The 2020 Transportation Plan update recognizes the realistic need to provide better mobility in areas, as well as promoting increased opportunities for alternative modes of transportation. In order to develop the Roadway Plan by 2040, there are a large number of improvement projects that need to be implemented over the next 20 years. Based on forecast, improvement projects are grouped into three time periods: short range ( 0 to 5 years), mid-range ( 6 to 10 years), and long range ( 11 to 20 years), based on their relative urgency for completion.

In 2020, a physical inventory of Pueblo roads was re-affirmed by ICA. The inventory update found the National Tribal Transportation Facility Inventory (NTTFI) IRR road system mileage as identified in March, 2020. Specific information on recommended BIA road system revisions is contained herein.

The road system mileage for the Pueblo of Nambé, as of March, 2020 consists of; County Roads 6.5 Miles, State Roads 79.0 Miles; BIA Roads 80.2 Miles and Other Federal Roads 6.7 Miles.

## FUNDING

Section 202(a)(9) of title 23, United States Code encourages cooperation between States and Tribes by allowing any funds received from a state, county, or local government to be credited to appropriations available for the Tribal Transportation Program (TTP). These transfers, provided for under MAP21, give the OTT authority to receive funds from States or local governments, add them to the FHWA accounting system and then transfer those funds to Tribes as TTP funds. The statute says that the funds will be "credited to appropriations made available for the TTP". Congress authorized these transfers to facilitate cooperation between States or local governments and Tribes for the purpose of advancing infrastructure projects. The stewardship and oversight authority over these funds lies with the OTT Team or the BIA.

One potential source of such funding is funds apportioned or allocated to a State under title 23. Section 104(f)(3) allows the Secretary of Transportation to at the request of a State, transfer among States, or to the Department's Federal Highway Administration (FHWA) funds that have been so apportioned or allocated. This provision, used in conjunction with the authority under 23 U.S.C. 209(a)(9), allows State funds to be transferred to FHWA, which in turn would provide the funds to the specified tribe.

## Tribal Transportation Program

The Tribal Transportation Program (TTP) is the largest program in the Office of Federal Lands Highway. Established in 23 U.S.C. 202(c)(6)(C) to address the transportation needs of tribal governments throughout the United States. The program was authorized to receiving $\$ 475$ million in FY 2017. Under the Fixing America's Surface Transportation Act (the FAST Act) the purpose of the TTP is to provide safe and adequate transportation and public road access to and within Indian reservations, Indian lands, and Alaska Native Village communities. A prime objective of the TTP is to contribute to the economic development, self-determination, and employment of Indians and Native Americans.

The Tribal Transportation Program is funded by contract authority from the Highway Trust Fund and is subject to the overall Federal-aid obligation limitation. Funds are allocated among Tribes using a statutory formula based on tribal population, road mileage and average tribal shares of the former Tribal Transportation Allocation Methodology (TTAM) formula.

The Tribal Transportation Program (TTP), formally known as the Indian Reservation Roads (IRR), established in 2012 under the Moving Ahead for Programs in the 21st Century Act (MAP-21) provides funding for addressing the transportation needs for federally recognized Indian Tribes. The Tribes may use these funds for eligible transportation activities such as planning, design, construction and road and bridge maintenance. The program is jointly administered by the Federal Highway Administration's Office of Federal Lands Highway (FHWA) and the Bureau of Indian Affairs (BIA) in accordance with a memorandum of understanding. Prior to MAP-21 the TTP was known as the Indian Reservation Roads (IRR) Program, which was established by the Surface Transportation Act of 1982.

Under the FAST Act, 5\% of the available TTP funds are set aside for the BIA and FHWA to carry out stewardship and oversight of the program, all other TTP funding is provided to Tribes either as Tribal shares or as special set-aside funding to address transportation planning, as well as safety and bridge project and activities. The Tribal shares are determined via a statutory funding formula that can be found at Title 23 United States Code (U.S.C.), section 202(b). The TTP is an important resource of a Tribe's overall infrastructure investment strategy. The regulations for carrying out the TTP can be found at 25 Code of Federal Regulations (CFR) Part 170.

Any facility that provides access to or is located within Tribal lands is eligible to be included in the National Tribal Transportation Facility Inventory (NTTFI). Those roads, trails, bridges and other facilities provide safe and adequate transportation for public access to, within and through Native American Reservations and native communities for Native Americans, visitors, recreational users, resource users and others while contributing to the health and safety and economic development of Native American communities. There are more than 164,000 miles of roads on the NTTFI. Approximately 31,400 miles are identified as BIA routes and another 28,000 miles as Tribal routes. The remaining mileage is owned by others including states, counties, townships, boroughs or other federal agencies.

TTP funds may only be expended for projects and activities that are identified on an FHWA approved Transportation Improvement Program per U.S.C. 202(b)(4)(B). Should the funds be expended on a facility that facility must be included in the NTTFI. Eligible TTP activities may be found at CFR 170.111.

Awarded annually, projects are chosen whose outcomes will address the prevention and reduction of death or serious injuries in transportation related incidents, such as motor vehicle crashes. Transportation fatalities and injuries severely impact the quality of life in Indian country. Statistics are consistently higher than the rest of the nation as a whole. FHWA advocates the development of strategic Transportation Safety Plans as a means for tribes to determine how transportation safety needs will be addressed in and around tribal communities.

## Contracting Mechanism

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEALU) Public Law 109-59 (2005) for the first time allowed eligible Tribes the option of working directly with the FHWA in the administration of the of IRR program. This option has continued through subsequent FHWA Authorizations. In Fiscal Year 2017, Tribes have operated their TTP through Program Agreements directly with the FHWA. Under these FHWA Program Agreements, Tribes receive funding in advance directly from the FHWA and are responsible for the management of their respective TTP. FHWA is responsible for the stewardship and oversight of all funds provided and ensures that the program is administered in accordance with statutory and regulatory requirements.

Four additional options are available for Tribes opting to work directly with the BIA; in which the TTP funds are initially transferred from the FHWA to the BIA for further distribution to the Tribes, including Direct Services Agreements, Self-Determination, Self-Governance Compacts and BIA Government to Government Agreements.

## B. EXISTING CONDITION

## Socio-Economic Trends

## Culture and History

Nambé Pueblo is one of the Tewa pueblos of the northern Rio Grande region. The name is a Spanish interpretation of the Tewa word 'nanbe", which roughly translates as "earth roundness." Prior to the arrival of Spanish explorers, Nambé Pueblo served as the primary cultural and religious center for the northern New Mexican pueblo communities. As such, it was of particular interest to the Spanish in their efforts to destroy the indigenous cultures of New Mexico.

In 1620, the King of Spain ordered the New Mexico pueblos to choose civil officials by popular vote to govern each pueblo. The tribes adopted the new form of government and integrated it into the traditional systems. The right of each pueblo to self-govern was subsequently recognized by the crown, and later, by Mexico and the United States. The state of New Mexico and the federal government have repeatedly recognized the status of the pueblos as sovereign nations.

As with most of the other northern pueblo tribes, land and water rights have figured as the most critical issues facing the Pueblo of Nambé. The Pueblo petitioned the Indian Claims Commission for the return of 45,000 acres bordering the Santa Fe Ski Basin they claim were illegally taken from them by Santa Fe County in 1905 and declared part of the National Forest. After painstaking legal work the tribal council won a favorable ruling from the commission, which then began proceedings to determine the fair-market value of the land at the time of its confiscation. The Pueblo, however, rejected the government's offer of a cash payment in 1976, holding out for the land instead. This hope has yet to be realized.

The tribe was the first pueblo to accept HUD assistance for the construction of residential buildings, doing so initially in 1967. In 2004, the tribe received funding from HUD to be used for housing construction and management. Tribal housing continues to be comprised of traditional homes, some several hundred year's old, as well as contemporary structures.

## Demographics

## Population

The United States Census Bureau estimates that the population of New Mexico was 2,095,428 on July 1, 2018, a $1.8 \%$ increase since the 2010 census. The 2000 census recorded the population of New Mexico to be $1,819,017$; ten years later it was $2,059,428$ an $1.8 \%$ increase. Santa Fe County had a population of 150,056 in the same year. Santa Fe County is a county within the state of New Mexico. As of the 2010 census, the population was $144,227,2018$ Est. 150,056 increase $4.0 \%$ making it New Mexico's third-most populous county, after Bernalillo County and Doña Ana County. It is the county seat is Santa Fe and the state capital. Santa Fe County includes the Santa Fe, NM Metropolitan Statistical Area, which is also included in the Albuquerque-Santa Fe-Las Vegas, NM Combined Statistical Area.

2010 Census-designated places within the county found that 1,818 people lived in the Census Designated Place (CDP), while 568 people in the United States reported being exclusively Nambé and 723 people reported being Nambé exclusively or in combination with another group.
New Mexico Population:

| Population <br> Year | Rural | Urban | Total |
| :--- | :---: | :---: | :---: |
| 2000 |  |  |  |
| 2010 | 671,622 | $1,147,424$ | $1,819,046$ |
| 2018 (Latest Estimate) | 673,937 | $1,254,447$ | $1,928,384$ |
|  | 518,913 | $1,540,266$ | $2,059,159$ |

Santa Fe County:
2010 Total Population Uban Population Rural Population Percent Rural 144,170

107,896
36,274
25.2

Profile of General Demographic Characteristies:

| County | Population | Population | Population | Change |
| :--- | :---: | :---: | :---: | :---: |
|  | 2000 | 2010 | 2018 | $2000-2018$ |
| Santa Fe | 129,292 | 144,170 | 150,056 | $11.82 \%$ |
| Source: UNM Bureau of Business $\&$ Economic Research |  |  |  |  |

According to the U.S. Census Bureau, Nambé Pueblo and off-reservation trust land had a population of 1,764 in 2010. The following table illustrates the specific age population distribution.

Population Age Distributions
Nambé Pueblo and Off-Reservation Trust Land, NM 2010

| Age | Number |
| :--- | :---: |
| Male | 895 |
| Female | 869 |
| Under 5 years | 128 |
| 5 to 9 years | 129 |
| 10 to 14 years | 139 |
| 15 to 19 years | 123 |
| 20 to 24 years | 93 |
| 24 to 34 years | 179 |
| 35 to 44 years | 288 |
| 45 to 54 years | 250 |
| 55 to 59 years | 103 |
| 60 to 64 years | 103 |
| 65 to 74 years | 120 |
| 75 to 84 years | 95 |
| 85 years and over | 14 |

According to the 2020 Pueblo census and Nambé personnel there are approximately 977 enrolled tribal members. Native American Assistance self Determination Act (NAHASDA) and tribal membership information was used to generate the following population table for the Pueblo of Nambé.

Pueblo of Nambé Population Comparison Table

|  | Provider Population |
| :--- | :---: |
| NAHASDA | 568 |
| Tribal Enrollment | 977 |

Source: Nambe Pueblo 2020 and NAHASDA Census 2010 Data

## Labor Force and Employment

Spanish settlers, who first arrived in the region that is now New Mexico in the 1600s, set up a selfsufficient farming and ranching economy. Because of the dry climate, most settlements were along the rivers. No major economic change occurred until after the completion, in 1879, of the region's first railroad. In the next few decades cattle ranching grew on a large scale. The mining of gold, silver, and other minerals became important, and agriculture spread to newly irrigated land as more settlers moved to the region. A new aspect was added to the economy when the Los Alamos National Laboratory, established in 1943, developed the world's first atomic bomb. This, along with other military and United States Department of Energy establishments, stimulated the growth of associated private industry.

## Income

The current per capita income for New Mexico is $\$ 25,311$. Real per capita income peaked in 2008 at $\$ 26,362$ and is now $\$ 1,051$ ( $3.99 \%$ ) lower. From a post peak low of $\$ 24,467$ in 2012, real per capita income for New Mexico has now grown by $\$ 844$ (3.45\%). New Mexico has the fifth lowest per capita income in the United States of America.

The poverty rate in New Mexico in 2018 was 19.5 percent, compared to 11.8 percent for the U.S. (Census Bureau estimates). The poverty rate in New Mexico counties ranges from 6.4 percent in Los Alamos County to 37.6 percent in McKinley County.

The following figure illustrates Santa Fe County as 10.0 to 14.9 percent of the population in poverty status.


Poverty Rate Map

- Poverty Rate By County in New Mexico

Compare county Poverty Rates across 33 counties.

| Rank | County | Poverty Rate |
| :--- | :--- | :---: |
| 22nd | De Baca County | $22.7 \%$ |
| 32nd | Luna County | $31.8 \%$ |
| 11th | Mora County | $20.3 \%$ |
| 12 th | San Juan County | $20.8 \%$ |
| 28th | Roosevell County | $27.5 \%$ |
| 14 th | Sierra County | $21.2 \%$ |
| 10 th | Harding County | $19.8 \%$ |

2018 New Mexico per capita income ranged from $\$ 13,710$ in Guadalupe County to $\$ 49,474$ in Los Alamos County. Ten counties in New Mexico, all non-metro, had per capita income less than $\$ 20.00$ in 2018. The current per capita income for Santa Fe is $\$ 35,719$. Real per capita income peaked in 2005 at $\$ 38,404$ and is now $\$ 2,685(6.99 \%)$ lower. From a post peak low of $\$ 32,590$ in 2013, real per capita income for Santa Fe has now grown by $\$ 3,129$ ( $9.60 \%$ ).

## Employment Travel

Tribal economy is supported from the tribe's agricultural enterprises. However, the pueblo's primary source of income today is wage work. Many tribal members find employment working in the surrounding areas of Espanola, Santa Fe , and Albuquerque, including at one the regions largest employer, the Los Alamos National Laboratory. A few also find employments working the the Bureau of Indian Affiars Southwest Regional Office and Northern Pueblos Agency, located in Albuquerque and Ohkay Owingeh respectively.

Government as employer - funds derived from federal grants and contracts are used to administer the tribal government and other specific programs. These comprise a major source of tribal income and a significant source of tribal employment.

Nambé Pueblo Profile of Selected Economic Characteristics

|  | Number | Percent |
| :--- | :--- | :---: |
| Population 16 years and over | 1,336 | 100 |
| In labor force | 670 | 50.1 |
| Civilian Labor force | 670 | 50.1 |
| Employed | 639 | 47.8 |
| Unemployed | 31 | 2.3 |
| Percent of civilian labor force | 4.6 | $(\mathrm{X})$ |
| Armed Forces | - | - |
| Not in Labor Force | 666 | 49.9 |

Source: US Census Bureau, 2010 - Profile of General Demographic Characteristics

Employed Civilian Population 16 Years and Over

|  | Number | Percent |
| :--- | :--- | :---: |
| Management, professional, <br> and related occupations | 195 | 30.5 |
| Service occupations | 80 | 12.5 |
| Sales and office occupations | 214 | 33.5 |
| Farming, fishing, and forestry <br> occupations | - | - |
| Construction, extraction, and <br> maintenance occupations | 73 | 11.4 |
| Production, transportation, and <br> material moving occupations | 77 | 12.1 |
| Total Employed | 639 |  |

Source: U.S. Census Bureau, Census 2010, Profile of Selected Economic Characteristics

## Economic and Commercial Plans

## Physical Characteristics

The Española basin is part of the Rio Grande rift, which is a general north-south alignment of large geologic basins extending from southern Colorado to Mexico. For the past 25 million years, the basins developed as the geologic landscape subsided irregularly in response to plate tectonic stresses pulling the continent apart. As the basins formed, they filled with large volumes of sediment washed in from the sides and eventually carried in by an ancient Rio Grande drainage system as well. Occasional volcanic eruptions within the rift extruded lava and ash on top of the sediments as deposition continued, such as the eruptions associated with volcanic rocks presently exposed in the Jemez Mountains in the Española basin.

The sediments that fill the Española basin comprise an aquifer system that currently contains the primary source of
 water for most residents of the basin. These resources are limited and under stress due to continuing urban development and drought conditions. Managing the resources wisely involves a better understanding of regional ground-water flow, water quality, and water storage, which are fundamentally controlled by the geologic and hydro-geologic framework of the basin. Thus, improving the understanding of the basin framework through geologic, geophysical, and hydrologic studies is a critical step in developing wise and fair water management principles.

The geologic framework includes parameters such as basin depth; sediment type and thickness; vertical and lateral extent of igneous and related rocks; location, geometry, and physical characteristics of faults and fractures; dips and folds of layers; and rock chemistry. The hydro-geologic framework includes parameters such as aquifer properties and groundwater/surface water and rock/water interactions.

## Plant Life

Within the borders of New Mexico all the major biomes of the world can be found except for the tropical rain forest. Seven major life zones are present in the state. They range from Lower Sonoran to Alpine. From alpine tundra at the top of Wheeler Peak to sparse yuccas of White Sands, present-day climates support a variety of forest, woodland, grassland, and desert scrub communities. Elevation, topography, slope orientations, and New Mexico's location in the pathway of both tropical Pacific and polar continental air masses create a mosaic of vegetation giving the state unmatched scenic beauty.

The Alpine zone ranges in elevations between 3,500 and 4,000 m ( 11,500 and $13,000 \mathrm{ft}$ ). This is above the timberline and supports grasses and shrubs. The Hudsonian and Canadian zones range in elevation from 2,600 to $3,700 \mathrm{~m}(8,500$ to $12,000 \mathrm{Ft})$ and are forested with mainly Englemann Spruce, Alpine Fir and Cork Bark Fir at the higher end and Douglas fir, White Fir and limber pine at the lower end. Intermingled within these zones are large expanses of Aspen that turn brilliant yellow in September. The Transition zone contains the ponderosa pine forest from elevations ranging from 1,700 to $2,600 \mathrm{~m}(5,500$ to $8,500 \mathrm{ft})$.

The next zone is the Upper Sonoran, which contains piñon pine and juniper woodlands, at elevations between 1,400 and $2,300 \mathrm{~m}(4,500$ to $7,500 \mathrm{Ft}$ ). This is the most extensive of all zones boasting about 7.8 million hectares ( 19 million acres) within the state. The major tree species found here is Piñon Pine, Utah Juniper, Alligator Juniper, One-seed Juniper and Rocky Mountain Juniper. It also contains a mixture of large to medium size oaks which are found in the foothills in the southern quarter of the state.

The Lower Sonoran zone occurs at elevations of about 900 to $1,600 \mathrm{~m}(2,900$ to $5,000 \mathrm{Ft})$. This zone contains many grasses interspersed with shrubs such as creosote bush, mesquite, four-winged saltbush and a variety of cacti. The plants in many of these zones can be found in other areas because of unique climatic conditions within a particular area. Although the elements of New Mexico's plant life have their origins many millions of years ago, today's patterns and composition are the result of glacial climates that ended only 10,000 to 12,000 years ago, or reflect changes brought on by gradual drying and warming as the alpine glaciers receded. The perception of New Mexico as a desert, therefore, is largely incorrect. There are many pockets of plant life that retain vestiges of their former climates. Human impacts on these historical "gardens" as well as on some of the younger cactus gardens, is a serious threat to New Mexico's environment. Perhaps the most serious threat to riparian vegetation along New Mexico's water courses is the invasion of Salt Cedar, or Tamarisk. This plant native to the Middle East was introduced into Texas in the late 1800s and has since spread along all of the major waterways and tributaries of the Río Grande and Pecos River. Its rapid growth and reproduction, combined with its ability to replace native vegetation and tap precious underground water, has classified it as a noxious weed.

On average there are 283 sunny days per year. Santa Fe County's $7,000 \mathrm{ft}$. altitude keeps Temperatures moderate with a high averaging 91 in July to lows near 19 in January. There are four distinct seasons with frequent, dramatic summer thunderstorms, and occasional snowstorms in winter. The temperate climate boasts bright blue skies and sunshine throughout the year with mild winters and low annual rainfall. The low humidity and skies free from smoke make the climate one of the most healthful in the United States.

Climatological Information for Santa Fe County

| Average In Inches |  |  |  | Annual Temperature, ${ }^{\circ} \mathrm{F}$ |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| County | Rainfall | Snowfall | High | Low | Mean | Prevailing <br> Winds | Growing <br> Season |
| Santa Fe | 14 | 32 | 82 | 19 | 70 | 7 MPH SW | 150 Days |

## Land Ownership

Nambé Pueblo occupies over 91,000 acres of land. There are another 20 acres of land in the Rancho Viejo area which is held in trust and 85 acres of land in the Tower area. The Pueblo has more recently acquired an additional nine parcels approximately 41.38 acres of land in fee simple title, those parcels include The Ultimate Warrior and Robinson properties, land along NM 503 and the Vineyard inclusive of the commercial options in the area of US Highway 84/258 entrusted to the NPDC.

## Government

The tribal government is fairly traditional in structure. The tribal council, the governing body, comprises past governors, along with two at large elected members. Council officials are elected to two-year terms include a governor, a lieutenant governor, and a secretary treasurer, associated officers. The Tribal Council only meets once a month. Elected tribal officials include Governor, Lt. Governor, Secretary, Fiscal, and Tribal Sheriff. The Governor and Lt. Governor have authority over administration matters.

The pueblo is also member of the All Indian Pueblo Council. The council is comprised of all 19 New Mexico pueblos and has been a recognized consortium since 1958. It serves as a unifying political and economic entity for the pueblos. The council's enterprise includes the Santa Fe Indian School, the Indian Pueblos Federal Development Corporation (IPFDC) and the Indian Pueblo Cultural Center in Albuquerque, New Mexico.

The center is co-owned by all 19 New Mexico pueblos. The Indian Pueblo Cultural Center offers demonstrations, workshops, functions and a café that reflect all 19 pueblos with thousands of people visit the center each year. IPFDC oversees major commercial developments on behalf of the member tribes. Projects have included the construction of various federally funded infrastructure improvements, structure, drainage and drainage structure roadway improvements.

## Existing Land Use

Existing Conditions illustrate a generalization of building locations such as school and churches, major water features and road surface types on Nambé Pueblo. Specific land uses are described below:

Agriculture and Livestock: There are close to 200 acres of agricultural lands under cultivation on the reservation, served by almost 17 miles of irrigation ditch. An additional 435 acres are available for further agricultural development. Crops grown include alfalfa, other hay crops, irrigated pasture, and vegetables. All are grown for personal or tribal consumption. The reservation also contains over 18,000 acres of rangeland, of which about half are grazing woodland.

Forestry: Though the pueblo sits on the edge of a national forest, the forest does not at present support any commercial timbering activities by the tribe.

Fisheries: Nambe Falls Dam and Reservoir is on the Rio Nambe 25 miles north of Santa Fe, NM. Recreation at Nambe Falls is managed by the Nambe Pueblo under agreement with the Bureau of Reclamation. Usually closed mid-October to mid-March roads are good to fair in the recreation area.

Some Goods and Services are offered at the ranger station, no lodging is available. The 56-acres Nambé Lake is used extensively for recreational and sport fishing, which generates a modest amount of tribal revenue each season. Fishermen will find a variety of fish including brook trout, northern pike, cutthroat trout, perch, rainbow trout and smallmouth bass here.

Construction: A number of tribal members find employment through the region's busy construction industry. Some members are highly skilled and others work as unskilled laborers.

Tourism and Recreation: The pueblo is a registered National Historic Landmark and is a major tourist attraction. At present Nambé Pueblo does not offer any tours and expects to expand the spectrum of recreational activities by offering tours, hiking, bicycling and kayaking.

The Nambé Pueblo anticipates expanding recreation opportunities to tourists. Nambé Falls Recreation Area is a poplar summertime location for camping, picnics and organizational gatherings. The scenic Nambé rock formations are popular with tourists and as a movie site. The tribe continues to invite film producers to consider filming movies on its lands. The tribe hosts a number of ceremonial dances that are open to the public. The most popular are Easter Sunday, St. Francis of Assisi Feast Day, and Christmas Eve.

Electricity: The Jemez Mountain Electric Cooperative provides electricity
 throughout the reservation.

Water Supply: The tribe maintains its own water and sewer systems, though some areas of the pueblo still rely on septic tanks.


Wellness Community Center: The Nambe Pueblo Health, Wellness, and Education Program goal is to develop and implement community programs that will assist the community/tribal members of Nambe Pueblo to live a safer and healthier life through personal enrichment, utilizing various interpretive activities, community involvement, including access to strength improvement equipment and hosting of community events.

There are five departments that make up the Health, Wellness, and Education Program; the Community Health Representative's (CHR), Diabetes Prevention (SDPI), Wellness Center, Education, and Tewa Language.

The Community Health Representative (CHR); consist of five objectives.

Objective I: Provide each household in Nambe Pueblo and enrolled members not residing on the pueblo with current health information. Objective II: Provide home visits to tribal members and their spouses to help ensure their health needs are met. Objective III: Provide transportation services for tribal members and their spouses to be able to access their health care needs. Objective IV: Host and/or collaborate with other health organizations/agencies to provide health related services to promote a healthier and safe community. Objective V: Ensure education and training for our Community Health Representative so they can provide up to date health services to our tribal members and spouses.

Education: Pueblo youth attend Head Start and Day Care services provided at the pueblo. Pueblo students attend elementary and secondary school in Pojoaque. The Santa Fe Indian School is a former BIA facility, ownership of the school was granted to the 19 pueblos during the Clinton administration. The tribes comanage the school which is located on over 100 acres of trust lands in Santa Fe.

Postsecondary educational opportunities are available at Northern New Mexico Community College in Espanola and the University of New Mexico Los Alamos Branch campus.

The pueblo is also a member of the National Congress of American Indians (NCAI). Founded in 1944, the goal of NCAI is to increase the knowledge of both the public and the federal government on issues of treaty rights, federal policy as it pertains to tribes, and tribal sovereignty. NCAI is the largest and oldest tribal government organization in the nation.

The state capitol of Santa Fe is approximately 16 miles south of the pueblo and offers a number of postsecondary education programs through Santa Fe Community College and the Indigenous Language Institute.

The Indigenous Language Institute, a nonprofit organization located on the grounds of the Santa Fe Indian School, whose mission is to help indigenous communities restore their native languages. Classes in both the indigenous language and traditional crafts are available.

Health Care: Health care is available through Indian Health Service, Santa Clara Clinic, Santa Fe Indian Hospital, and St. Vincent Hospital in Santa Fe. A community health representative provides assistance to tribal members in attaining health services. Nonemergency medical transportation is provided to tribal members through the CHR program

Institutional Facilities: Institutional facilities include the Governor's office and Tribal Administration Building as well as the Nambé Housing Entity.


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## Transportation System

To understand how the transportation system functions on the Pueblo of Nambé an inventory of those elements comprising the existing system was conducted. Conducting this inventory was an integral step of the planning process in order to identify areas in need of improvement over the 20 -year planning period. This inventory was based on available data compiled by the BIA, Tribe, State, County, data available through Geographic Information System (GIS) database, and additional information compiled through supplemental field data collection efforts. This data included traffic counts, accident history, bicycle and transit routes, and classification.

This section describes the transportation system, as it presently exists. While the emphasis will be on the road system, related systems such as school buses, public transit and postal routes will be addressed.

## Existing Roadway System

Public roads within the pueblo were constructed and are maintained by the New Mexico Department of Transportation Department (NMDOT), Santa Fe County and the Bureau of Indian Affairs. The Pueblo Roads and Transportation Department Summary Report, 2020, recorded 80.2 miles of roads on the Indian Reservation Road system for the Nambé Pueblo. Table below summarizes the surface types, ownership, and lengths (in miles) of all public roads on the Pueblo. The BIA inventory figures presented in the table are based on the BIA-DOT Summary Report. Recommended revisions to the Summary Report are subject to the approval of the Pueblo of Nambé and the BIA.

BIA route mileage figures are based on the BIA and Pueblo Roads \& Transportation's Summary Report, 2020.
Selected Characteristics of Public Roads within Nambe Pueblo

| Jurisdiction | Road Mileage by Surface Type |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Paved | Base Course | Concrete | Earth | Primaitve Trail | Proposal | Total Miles |
| BIA Roads* | 7.3 | 0.9 | 0 | 28.6 | 0 | 9 | 36.8 |
| State Highways | 2.5 | 0 | 0 | 0 | 0 | 0 | 2.5 |
| County Roads | 2.3 | 0 | 0 | 0 | 0 | 0 | 2.3 |
| Urban Roads | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 10 | 0.9 | 0 | 28.6 | 0 | 9 | 39.5 |
| BIA Roads as \%of Total | $76 \%$ | $100 \%$ | $0 \%$ | $100 \%$ | $0 \%$ | $100 \%$ | $100 \%$ |

* BIA Route Millage Figures are based on the BIA Department of Transportation's Summary Report 2018


## Roadway Inventory

It is the desire of the Tribe and Bureau of Indian Affairs, Southwest Regional Office to perform a complete inventory of BIA Roads, under its jurisdiction, and to perform a complete inventory on all other Indian Reservation Roads, i.e. State, County, Tribal, BLM. The primary objective of this inventory is to obtain current, accurate, uniform and verifiable data on all IRR Roads for the purpose of updating the Southwest Regional Office road inventory database, which provides valuable information for many roadway planning and management activities. The updated inventory will also be used to update the Nationwide IRR inventory database utilized by the BIA-Division of Transportation (BIADOT) to compute Regional Office and Tribal allocations of IRR program funds (Highway Trust Funds) using the Relative Need Formula.

The BIA Road Inventory for Nambe Pueblo conducted in 2007, inventories all roads listed in the Summary Report as being on the BIA's IRR Nambé road system, as well as roads proposed by the Pueblo for addition to the IRR system. The inventory provides information regarding the physical characteristics and condition of each road. To expedite the fieldwork, a field inventory form was used. The data on these forms was then transferred to the BIA 5704 forms. The completed 5704 inventory forms have been submitted under a separate deliverable by others. The inventory included the following major categories:

Identification of Termini including length, classification and location
Traffic, existing and future
Roadway sections include grades, curves and sight distances
Alignment condition
Roadway conditions surface, drainage, and railroad crossings
Inventory status update
The minimum criterion used, for inventory purposes, to classify a road as an "improved road" was that it be a graded road with drainage improvements, i.e., side ditches and drainage crossings. Proposed revisions to the BIA's Nambé road system is based on the Inventory Update.

## Roadway Classifications

Roads are classified as to the functions they perform with regard to the movement of traffic and access to property. Within the IRR system there are two types of road classifications: State Highway Classifications and BIA/Tribal Road Classifications. Both the state and the Tribal/BIA systems utilize functional classification as the basis for classifying their roads.

## Generalized Functional Classification Definitions

Functional Classification is the grouping of roads, streets and highways into integrated systems, each ranked by its relative importance and the function it is intended to serve, relative to mobility and land access. It also identifies the role each street or highway should play in channeling the flow of traffic through a rural and/or urban environment in a logical and efficient manner. The three general functional classification categories are Arterial, Collector and Local Roads. At one extreme, the Arterial's function is to move through-traffic at high speed over long distances with limited land access to adjacent property;
cross-traffic is discouraged. Definitions of these general functional classifications, along with desirable characteristics, are given below. Freeways and Expressways primarily serve long distance travel between major communities. Freeways provide the greatest mobility with strictly controlled access allowed only at interchanges. No direct property access is allowed. Expressways also serve regional traffic, and access is allowed primarily at major intersections, although interchanges can be built for particularly high volume intersections. Occasionally direct property access is allowed when there is no other way to provide access.

Arterials carry relatively large volumes of traffic through the state and to major trip destinations such as employment or commercial centers. Arterials fall into two categories; principal and minor. Principal (Major) Arterials include United States and Interstate highways, and state highways that serve all urban areas with a population greater than 50,000 . Minor Arterials are routes that provide interstate and intercounty service to cities and towns with populations of less than 25,000 and other traffic generators capable of attracting travel over long distances. Principal arterials usually have 4 traffic lanes ( 2 lanes in each direction), provide storage for left turns at most intersections, and are separated by a median or continuous left turn lane. Minor arterials may only have two traffic lanes and should include a storage lane for left turns at major intersections. A minimum right-of-way width of 60 to 100 feet is needed for roads with more than 4 lanes. However, right-of-way should be based on preferable dimensions of each roadway element.

Collectors generally serve travel of primarily intra-county and regional importance rather than statewide importance and have shorter travel distances than arterial. They also provide a balance between mobility and land access by customarily permitting access to all abutting properties. Like Arterials, there are two categories of collectors; major and minor. Major Collectors provide service to any county seat or community not served by an arterial road, and serves other traffic generators of intra-county importance such as: regional parks, consolidated schools, agricultural areas, shipping points, etc. Minor Collectors are spaced at intervals consistent with population density, collect traffic from local roads, and provide access to all developed areas within a reasonable distance of a major collector or higher classified road. A minimum right-of-way width of 80 to 100 feet is desirable for a collector.

Local Roads comprise the balance of the road network and carry low volume, low-speed traffic. The primary function of a local road is to provide access to individual parcels of property. Local roads usually serve residential areas and may also serve scattered business and industry sites that generate modest traffic. A minimum right-of-way of 60 to 80 feet is desirable for a local road.

## State Highway Classification

The functional classification of roads is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. Basic to this process is the recognition that individual roads and streets do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads. It becomes necessary then to determine how this travel can be channelized within the network in a logical and efficient manner. Functional classification defines the nature of this channelization process by defining the part that any particular road or street should play in serving the flow of trips through a highway network.

The nation's roadway system is a vast network that connects places and people within and across national borders. Planners and engineers have developed elements of this network with particular travel objectives in mind. These objectives range from serving long-distance passenger and freight needs to serving neighborhood travel from residential developments to nearby shopping centers. The functional classification of roadways defines the role each element of the roadway network plays in serving these travel needs.

Over the years, functional classification has come to assume additional significance beyond its purpose as a framework for identifying the particular role of a roadway in moving vehicles through a network of highways. Functional classification carries with it expectations about roadway design, including its speed, capacity and relationship to existing and future land use development. Federal legislation continues to use functional classification in determining eligibility for funding under the Federal-aid program. Transportation agencies describe roadway system performance, benchmarks and targets by functional classification. As agencies continue to move towards a more performance-based management approach, functional classification will be an increasingly important consideration in setting expectations and measuring outcomes for preservation, mobility and safety.

The following state roads provide access to the Pueblo of Nambé:

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US Route 84 (Class 1)
State Route 285 - Frontage Road (Class 4)
State Route 503 (Class 2)
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## BIA Road Classifications

The BIA road system has several classes of routes. Functional classification means an analysis of a specific transportation facility taking into account current and future traffic generators, and their relationship to connecting or adjacent BIA, state, county, Federal and/or local roads and other intermodal facilities. Functional Classification is used to delineate the difference between the various road and or intermodal transportation facility standards eligible of funding under the IRR program. As part of the IRR system management, all transportation facilities included on or added to the IRR inventory must be classified according to the following functional classification system:

Class 1. Major arterial roads providing an integrated network with characteristics for serving traffic between large population centers generally without stub connections and having average daily traffic volumes of 10,000 vehicles per day, or more with more than two lanes of traffic.

Class 2. Rural minor arterial roads providing an integrated network having the characteristics for serving traffic between large population centers, generally without stub connections. May also be linked smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movements. Generally provide for at least intercounty or inter-state service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day.

Class 3. Streets located within communities serving residential areas.
Class 4. Rural major collector road is collector to rural local roads.
Class 5. Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.

Class 6. Minor city arterial streets located within communities and serve as access to major arterials.
Class 7. City collector streets located within communities and serve as collectors to the city local streets.
Class 8. This class encompasses all non-road projects such as paths, trails, walkways, or other designated types of routes for public use by foot traffic, bicycles, trail bikes, snow mobiles, all-terrain vehicles, or other uses to provide for the general access of non-vehicular traffic.

Class 9. This classification encompasses other transportation facilities such as public parking facilities adjacent to IRR routes and scenic byways, rest areas, and other scenic pullouts, ferry boat terminals, and transit terminals.

Class 10. This classification encompasses airstrips that are within the boundaries of the IRR system grid and are open to the public. These airstrips are included for inventory and maintenance purposes only.

Class 11. This classification indicates an overlapping or previously inventoried section or sections of a route and is used to indicate that it is not to be used for accumulating needs data. This class is used for reporting and identification purposes only. In accordance with Federal Register/Vol. 69, No. 137/Monday, July 19, 2004/Rules and Regulations, (codified at 25 Code of Federal Regulations (CFR) Part 170), the transportation plan must identify the classification for each road on the IRR.

## Right-of-Way Status

The definition of a BIA System Road states that it is a road "for which the BIA has, or plans to obtain legal right-of-way." The roadway right-of-way on the Pueblo of Nambé is currently owned by the BIA, State, County and the Tribe.

## Traffic Control

Traffic control devices are all signs, signals, markings, and devices placed on or adjacent to a street or highway by a public body having authority to regulate, warn, or guide traffic. The Manual on Uniform Traffic Control Devices is the publication that sets forth the basic principles which govern the design and usage of traffic control devices. The Manual was prepared by a National Committee which included state, county and municipal representation. Traffic control on the pueblo is provided by advanced warning and stop signs.

## Drainage

Even though their primary function is for the movement of traffic, roads and streets need to be designed with drainage in mind. The drainage facilities associated with a designed street network offers one of the most economical and expedient means of conveying storm water through a developed area. Continuing improvement to the Pueblo's street and road system will continue to provide great benefits to the Tribe's drainage problems. It will be important for the two systems, drainage and road improvements to evolve concurrently.

Drainage of water from pavements has been an important consideration in road construction for more than two millennia. However, modern processing, handling, and placement of materials frequently result in base courses that do not transmit water or drain; combined with increased traffic volumes and loads, this often leads to pavement distress caused by moisture in the structures.

Many premature pavement failures (occurring at less than 50 percent of expected life) have been traced to inadequate subsurface drainage. Although most agencies recognize that water in pavement is not desirable, different philosophies exist on how to reduce the effects of this problem. Attempts range from completely sealing the pavement including incorporating low permeable base with no drainage to incorporating a fully drainable pavement section with permeable base and edge drains. Numerous approaches fall somewhere in between (e.g., using edge drains with dense-graded bases).

To understand and analyze the conditions under which the pavement must function, the designer needs information on highway geometrics, surface drainage, non-pavement subsurface drainage, climate, and soil properties. The data enables the designer to predict the amount of free water that will enter the pavement structure, to predict the free water surface and to establish the design subgrade moisture content. Two general types of subsurface drainage criteria are used: (a) a time for a certain percentage of drainage or (b) an inflow-outflow criterion.

Due to the diversity in topography on the Pueblo careful attention must be made in the design of roadways. Inadequate roads and bridges will hamper economic development, hinder tourism and increase he propensity of safety threats.

## Bridges

According to the U.S. Department of Transportation Federal Highway Administration Indian Reservation Roads Program - Transportation Planning Procedures and Guidelines:

IRR Bridge Inventory: This activity involves the gathering, maintaining, and distribution of all information as required for the national bridge inventory database. This includes information such as route number, bridge location and type, length, width, surface type, bridge sufficiency ratings, bridge number and other pertinent information. This database is an important tool in identifying those existing bridges that have the highest need for repair and/or replacement. FHWA in consultation with the States, has assigned a sufficiency rating (SR) to each bridge (greater than 20 ft .) inventoried. Formula (SR) rating factors are as outlined in the current "recording and Coding Guide for Structures Inventory and Appraisal
(SI\&A) of the Reservation's Bridges.": "A Structurally Deficient (SD) bridge is one that has been restricted to light vehicles only, is closed and requires immediate rehabilitation to remain open. A Functionally Obsolete (FO) bridge is one in which the deck geometry, load carrying capacity, i.e., comparison of the original design load to the State legal load, clearance, or approach roadway alignment no longer meets the usual criteria for the system of which it is an integral part."

The number of deficient bridges in New Mexico is growing. According to the latest FHWA data, New Mexico's overall bridge conditions are fairly positive. $6 \%$ of state bridges are considered to be in poor condition against $38 \%$ considered to be in good shape, ranking the state as 32 nd in the nation according to the American Road Transportation Builders Association's deficiency ranking. The biggest problem with the bridges has to do with storm water runoff treatments to perform in order to slow deterioration rates and in the long term develop a comprehensive plan for bridge maintenance and repairs.

A recent bridge inspection conducted June 2019 by BIA Midwest Regional Office representatives further points out the need for improvements and continued maintenance. The bridge approaches for the most part are comprised of earth and fractured face base coarse treatment, with the main bridge structure composed of Arched Corrugated Metal Pipe (CMP Arch), wood and steal members with concrete abutments. At present the bridge structures are in somewhat of a deleterious state. Most of the deterioration encountered may be attributed to age of the bridge structure and infrequent maintenance. In addition, the vehicular capacity of the structures inspected is limited in most cases to one lane traffic flow.

## School Bus and Mail Routes

Children attend school in Pojoaque and Santa Fe, therefore all the roads act as school bus routes. The closest US post office is located in Tesuque, New Mexico, approximately ten miles southwest of Nambé Pueblo. Other premium parcel post services are available in the area, Federal Express, DHL and UPS.

## Public Transportation

One of the primary objectives of the New Mexico Department of Transportation's (NMDOT) Transit and Rail Division is the establishment and maintenance of public and private non-profit transit systems. The Transit and Rail Division provides this assistance through a partnership with New Mexico's transit providers and the Federal Transit Administration (FTA), as well as cooperation with Regional Transportation Planning Organizations (RTPOs), Metropolitan Planning Organizations (MPOs), and local and tribal governments.

NMDOT is authorized under New Mexico's Public Mass Transportation Act Sections 67-3-67 to 67-3-70 NMSA 1978 (as amended by Sections 37, 37-8, and 39, Chapter 268, Laws of 1987) and has the primary authority and responsibility for administering the FTA's rural and small urban formula and discretionary grant programs.
There are four types of transportation programs: fixed route for the general public; demand response for the general public; specialized transportation for the elderly and handicapped and transportation for people moving from welfare to work.

Public transit is important to the economic vitality of individual communities and to the state as a whole. Many people are transit-dependent they cannot operate a private vehicle because of their age, physical or mental ability or financial status. They depend on public transit to access jobs, businesses, shopping, recreation, childcare and medical and educational facilities.

In New Mexico, the development of the North Central Regional Transit District (NCRTD) also known as the Regional Transit District (RTD) provides an example of a strong partnership between tribes and local governments to improve regional planning and coordination on transit services within a diverse area of cities, rural areas, and tribal lands. The RTD is a regional transit planning organization that was planned and structured with involvement of representatives of all five of the Indian pueblos in the region and includes representatives from each on the Board of Directors.

Statewide efforts in New Mexico to include tribes in transportation planning have resulted in improved consultation in recent years. There are 23 federally recognized tribes in New Mexico, representing almost 20 percent of the land base within the State, and over 10 percent of the total population. The North Central region of New Mexico is one of the most diverse in the State, characterized by stark economic and demographic contrasts.

The North Central Regional Transit District began service in 2007. It provides free and premium farebased bus transit connecting communities and pueblos throughout the counties of north central New Mexico including Los Alamos, Rio Arriba, Santa Fe and Taos. Further expanding its reach, the signature RTD Blue Buses provide riders with connections to New Mexico Rail Runner, Santa Fe Trails, NMDOT Park and Ride, Los Alamos Atomic City Transit, Po' Pay Messenger Service and Red River Miner's Transit. All of its buses are ADA accessible and equipped with bicycle racks. The RTD provides service on 25 Fixed and Flex routes, two Demand Response routes and one Dial-a-Ride service.

- The North Central Regional Transit District (NCRTD) was twice honored by the New Mexico Department of Transportation (NMDOT) in 2012 and 2009 with the award for the Job Access and Reverse Commute (JARC) Transportation System of the Year.
- The North Central Regional Transit District reported a record 289,441 trips in Fiscal Year 2018, 1.8 percent more than the previous year. The district provides 25 fare-free and two premium fare-based bus transit routes connecting communities and pueblos to an area that encompasses more than 10,079 square miles of north central New Mexico.
- In October 2018, the NCRTD received the Federal Transit Administration (FTA) Administrator's Award for Outstanding Public Service in Rural Public Transportation.
- In 2003, the Regional Transit District Act, NMSA 1978, Chapter 73, Article 25, was enacted to allow the formation of the Regional Transit Districts to provide, among other things, regional networks of safe and efficient public transit systems.
- The first meeting of the Organizing Committee (then called the Working Group) was on November 5, 2003. That meeting established the major guiding principles of the NCRTD.
- The successful creation of New Mexico's first regional transit district was celebrated on November 12, 2004, with a train ride on the Santa Fe Southern Railway line between Santa Fe and Lamy.

Public transportation services on the Pueblos and Tribal Lands are funded from multiple sources including local and federal Native American programs, the State Agency on Aging and the Public Transportation Program Bureau through FTA Sections 3037, 5310, and 5311. Currently, there is no public transportation system within the Pueblo. However they do operate a bus system through the Nambé Pueblo Senior Citizens Center. One recommendation of this study would be for representatives from Nambé Pueblo to get involved with the regional transit district and lobby for transit services to and within the pueblo.


## Tribal Transit Planning

A tribal transit program is the planning, administration, acquisition, and operation and maintenance of a system associated with the public movement of people served within a community or network of communities on or near Native American reservations, lands, villages, communities, and pueblos. Tribes identify transit needs during the tribal transportation planning projects. Transit projects using IRR Program funds must be included in the FHWA-approved IRRTIP as well as included in the applicable Tribal Transportation Improvement Program (TTIP). However to be in a TTIP the project must first be identified in the tribal adopted Long Range Transportation Plan (LRTP).

Public transit serves several different functions. It gives mobility to persons without access to an automobile and to those who do not drive. It provides important links between rural communities and metropolitan areas. In urban and rural areas it is important in reducing traffic congestion and pollution by providing an alternative to the single occupant vehicle. It also supports New Mexico's tourism industry by enabling visitors to access congested areas.

The demand for transit services in areas that include rural sections is considered in two components: "program" and "non-program." Program transit trips are those associated with a specific social service program such as a community or senior center and are a function of the number of persons using the program. Non-program transit trips consist of all others including general public trips for all purposes, i.e., work, school, shopping, recreational, occasional heritage, tourism and educational excursions, etcetera. Non-program transit trips may also include trips made for societal, heritage and entourage purposes.

## Community Assessment Questionnaire

There have been many discussions regarding the need for a public transportation system on the Pueblo lands. A substantial amount of time was spent discussing conveyance, crime reduction and areas that may be open, illegal dumping along with access control, economic, housing, recreational/interpretative development and enforcement of tribal laws. Multi-use trails seem to be the common thread of discussion. A key step in developing and evaluating transit plans is careful analysis of the mobility needs of various segments of the population and the potential ridership of transit services. A good starting point for this analysis is to estimate the demand for transit and compare that with current services, thereby determining the total un-met transit needs.

## Transit Services

Perhaps the newest and most common form of regional transit in the United States is rural transit. Rural areas are difficult to serve efficiently using conventional public transportation. But in recent years, it has been realized in many areas that not everybody can drive. And that alternative transportation must be available. Accurate estimates of demand are critical for planning, designing, and operating public transit systems. Previous research has demonstrated that the expected demand in rural areas is a function of both demographic and transit system variables.

Type of services which might be considered for expansion is the dial-a-ride system which is a ride reserved by telephone, typically a day in advance. Some dial-a-ride systems are available to the general public other systems are restricted to senior citizens or to people with disabilities. Other rural transit systems used are scheduled fixed routes generally operating only a few times a day or sometimes only a few times a week. Some such fixed routes actually offer "route deviation" service, where by advance reservation, a bus may briefly deviate off the regular route to serve a specifically requested location.

## Transit - Phases of Work

In order to implement a transit system many things will need to occur - policy-making and execution, planning and financing. The project may be broken down into three phases.

- The first phase of the project could be to develop an inventory of the existing conditions. This will include the community characteristics and existing transportation providers. Although there is no public transit service on the Pueblo, there are agencies which provide transportation services. This phase should include continued community/transit needs assessment.
- The second phase will be to develop service options. The first step in this phase will be to develop a strategic transit plan. The community will be asked to continue providing comments on this strategic plan which will then be used to develop specific transit service options. Questions to be addressed include the areas to be served, the type of service, hours, and days of operation. Various alternative transit scenarios may be developed and evaluated in terms of the goals established for the community.
- The final phase will be to select a preferred transportation plan and develop an implementation plan. The draft plan will be presented to the community for comment and input before the final plan is prepared
- The basic framework of a scope of work for a transit study should include• A scheduling analysis among both public and private existing fixed route bus transportation providers to identify scheduling coordination opportunities;
- A route and bus stop analysis among both public and private fixed route bus transportation providers which identify opportunities to better coordinate service; and
- Exploring multi-modal linkage opportunities to park and ride lots, pedestrian, hiking and bicycling trails and travel centers


## Transit Funding Options

Title 23 of the United States Code, the organized compendium of public laws passed by Congress authorizes the use of IRR Program funds for transit facilities. Additionally, there are many sources of Federal funds that may help support tribal transit programs. These include the Federal program listed below:

- U.S. Department of Agriculture (USDA)
- U.S. Department of Housing and Urban Development (HUD)
- U.S. Department of Labor: Native American Employment and Training
- DOT: Welfare-to-Work, Indian Reservation Roads Program
- HHS: programs for Native American elders.

Further information regarding this program can be obtained from FTA Regional Transit Assistance Program (RTAP) National Transit Resource Center. Section 170.112 of title 25 in the Code of Federal Regulations; "What activities are not eligible for TTP funding?"

Section 5310 Program
Section 5310, the Elderly and Persons with Disabilities Program of Title 49, Unites States Code offers financial assistance to enhance the transportation services specifically for the elderly and/or the disabled. The Section 5310 Program is administered in New Mexico by the Department of Human Services.

The sponsoring agency is responsible for the remaining 20 percent of the equipment expenses, plus 100 percent of the operating costs. Vehicles purchased with funds from this grant are used primarily for transportation for the elderly but they can also be used for other assistance programs such as "meals on wheels" or for transportation of the general public as long as the needs of the elderly and persons with disabilities are first being met. Any city, regardless of its size, can be the site for a Section 5310 program, and any private nonprofit organization can be the sponsoring agency.

Section 5311 Program
Transportation for Rural and Small Urban Areas: Section 5311 Program, provides operating assistance for local governments and native tribes to provide transit for the general public. Capital assistance may also be provided under this program.

## Rail System

Railroads continued and expanded what the Camino Real, the Santa Fe Trail and other great transportation systems did in what is now called New Mexico, fifth largest state in the country. Rather than "opening up" the territory, as historians like to say, the railroads essentially did what they are still doing today. They hauled natural resources, people and products to areas of the country that required them. In doing so, they changed the area forever.

The New Mexico Rail Runner Express (NMRX) is a commuter rail system serving the metropolitan areas of Albuquerque and Santa Fe, New Mexico. It is administered by the New Mexico Department of Transportation (NMDOT) and the Rio Metro Regional Transit District (Rio Metro), a regional transportation agency, while Herzog Transit Services currently holds the contract for the operation and maintenance of the line \& equipment.


Phase I, of the system operating on an existing right of way from Belen to Bernalillo that NMDOT purchased from BNSF Railway, opened in July 2006. Phase II, the extension of the line to Santa Fe,
 opened in December 2008. Peak ridership took place in 2010, and has since declined each year. Daily ridership, as of February 2019 was 2,200 trips per day.

There are also a number of smaller shuttle services serving the Rail Runner: to Socorro and through Belen serving the Belen station, Los Lunas Public Transportation serves the Los Lunas station, Sandoval Easy Express serves two stations in Bernalillo, a shuttle to Taos serves the Santa Fe Depot and South Capitol stations, Santa Ana Pueblo, Isleta Pueblo and Pojoaque Pueblo each operate shuttles connecting their casinos to the nearest Rail Runner station

The map to the left illustrates New Mexico's Railroad system. At present there are no existing rail lines leading to the Pueblo of Nambé.

Nambé Pueblo, NM

## Scenic Byways

Originally created by congress through the funding and authorization bill ISTEA (1991), the National Scenic Byways program was intended to foster economic development through furnishing the upfront capital costs associated with developing transportation related tourist amenities throughout the United States. Subsequent funding allocations were made through SAFETEALU (2005).

MAP-21 (2012) effectively ended the program, and the current funding and authorization bill, the FAST Act (2015), did not reinstate it. Over the life of the Scenic Byways program, numerous scenic drives throughout the Land of Enchantment have been embellished. These byways showcase the intrinsic scenic, historical and cultural qualities of our state while adding to its economic well-being.

Nambé Pueblo has one designated scenic byway "The High Road to Taos" which goes through the pueblo. The High Road to Taos Scenic Byway takes the traveler through an authentic remnant of Old Spain, still evident in the religion, architecture, topography, history and people along the route. To begin take U.S.285/84 north from Santa Fe and turn east on N.M. 503 to the Pueblo of Nambe. The byway turns north on N.M. 520, traveling through Chimayo.

New Mexico Scenic Byways


## Motor Vehicle Accident Data

In 2018, New Mexico's fatality rate was 1.43 per 100 million VMT, compared to a national rate of 1.08 . The Division of Government Research (DGR) at the University of New Mexico maintains a comprehensive traffic crash (traffic accident) database for the State of New Mexico. In initiating the Comprehensive Transportation Safety Plan planning process, data is provided by the DGR to define the overall magnitude of New Mexico's traffic safety problems. DGR produces a series of in-depth Community Reports for most municipalities, towns, counties and other administrative units in New Mexico. The New Mexico Department of Transportation, Traffic Safety Bureau (TSB) is encouraging local communities to use these Community Reports to aid in problem identification and policy decision making. The TSB feels that the most effective local solutions are based on good local information, such as that provided by these reports.

Records of traffic accidents on the reservation are difficult to obtain, however the State of New Mexico has produced a Traffic Crash Information Report which assembled traffic related collision information. The statistics reflect those crashes that occurred on public roadways and resulted in death, personal injury or $\$ 500$ or more in property damage according to the investigating officer's judgment. No account is kept of unreported crashes or crashes that occurred on private property.

New Mexico Traffic Crash Annual Report 2018

| Year | Alcohol-involved Crashes |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Rural Interstate Crashes |  | Rural Non-Interstate Crashes |  | Urban Crashes |  | Total Alcoholinvolved Crashes |  |
|  | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| 2014 | 58 | 2.8\% | 436 | 21.4\% | 1,547 | 75.8\% | 2,041 | 100\% |
| 2015 | 74 | 3.5\% | 393 | 18.4\% | 1,667 | 78.1\% | 2,134 | 100\% |
| 2016 | 68 | 3.3\% | 412 | 19.9\% | 1,593 | 76.8\% | 2,073 | 100\% |
| 2017 | 75 | 3.7\% | 392 | 19.1\% | 1,583 | 77.2\% | 2,050 | 100\% |
| 2018 | 73 | 3.5\% | 499 | 23.9\% | 1,518 | $72.6 \%$ | 2,090 | 100\% |


| Year | Fatalities in Alcohol-involved Crashes |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Rural Interstate <br> Fatalities | Rural <br> Non-Interstate <br> Fatalities | Urban Fatalities |  | Total Fatalities |  |  |  |
|  | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| 2014 | 14 | $8.2 \%$ | 77 | $45.3 \%$ | 79 | $46.5 \%$ | 170 | $100 \%$ |
| 2015 | 6 | $5.0 \%$ | 45 | $37.5 \%$ | 69 | $57.5 \%$ | 120 | $100 \%$ |
| 2016 | 8 | $4.7 \%$ | 69 | $40.4 \%$ | 94 | $55.0 \%$ | 171 | $100 \%$ |
| 2017 | 9 | $6.1 \%$ | 64 | $43.5 \%$ | 74 | $50.3 \%$ | 147 | $100 \%$ |
| 2018 | 6 | $3.9 \%$ | 86 | $56.6 \%$ | 60 | $39.5 \%$ | 152 | $100 \%$ |

The existing crash and DWI data does not include ethnicity. Based on Fatality Analysis Reporting System (FARS) statistics, we know that Native Americans are over represented in traffic fatalities, especially those involving alcohol. They also are overrepresented in pedestrian crashes and alcohol-involved pedestrian crashes.

As Shown the expected number of crashes is highest at NP101 and NM503. This may be attributed to having the highest AADT for both major and minor approaches. The other intersections have expected crashes below 1.0 within the evaluation period 2014-2016. The expected crashes at these locations are relatively to low for existing conditions.

Expected Crashes, Pueblo of Nambé

| Intersection | Expected No <br> Crashes for <br> Evaluation <br> Period | Expected No <br> Crashes/Year <br> (crashes/million <br> veh) | Expected <br> Crash Rate <br> (crashes/yr) |
| :---: | :---: | :---: | :---: |
| NP101 and NM503 | 2.35 | 0.74 | 0.5866 |
| NP101 and NP175 | 0.41 | 0.41 | 0.1033 |
| NP101 and NP102 | 0.68 | 1.18 | 0.1697 |

Expected Crashes Rates and Frequencies, Pueblo of Nambé

| First Year of Analysis |  |
| :--- | :---: |
| Last Year of Analysis |  |
| Evaluated Length (mi) |  |
| Percent of Total Expected Crashes |  |
| Average Future Road AADT (vpd) | 6.4394 |
| Expected Crash Rate |  |
| Total Crashes | 352 |
| Fatal and Injury Crashes | 2.52 |
| Property-Damage-Only Crashes | 0.81 |
| 1.71 |  |
| Percent Fatal and Injury Crashes (\%) |  |
| Percent Property-Damage-Only Crashes (\%) | 32 |
| Crash Rate (crashes/mi/yr) |  |
| Fatal and Injury Crash Rate (crashes/mi/yr) Travel Crash Rate |  |
| Property-Damage-Only Crash Rate (crashes/mi/yr) |  |
| Total Travel (million veh-mi) 0.1302 <br> Travel Crash Rate (crashes/million veh-mi) 0.0418 <br> Travel Fatal and Injury Crash Rate (crashes/million veh-mi) 0.0884 <br> Travel Property-Damage-Only Crash Rate (crashes/million veh-mi) 0.69 |  |

Traffic Accident Location Map, Pueblo of Nambé.
N
Crashes in Santa Fe County, New Mexico, 2018
Map created by the Traffic Research Unit, Geospatial \& Population Studies at UNM


Forest \& Wildlife Areas


Crashes 2018

- 1-10 Crashes
- 10-15 Crashes
- 16-35 Crashes

Data Source. NMDOT Crash Fle 2018 hitp/itru,unm.edu COW5801 truenunm edu

Nambé Pueblo, NM
Pueblo of Nambé
Long Range Transportation Plan

Severity of Injuries Rural and Urban in Santa Fe County, 2018

| Urban and Rural Locations by Alcohol-involvement | People in Crashes by Severity of Injuries |  |  |  |  | Total <br> People |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Fatallies (Class K) | Suspected <br> Serious <br> Injuries <br> (Class A) | Suspected Minor Injuries (Class B) | Possible Injuries (Class C) | No Apparent Injuries (Class 0) |  |
| People in Alcohol-involved Crashes | 7 | 9 | 41 | 59 | 205 | 321 |
| Urban | 5 | 8 | 34 | 52 | 179 | 278 |
| Rural Non-Interstate | 2 | 1 | 5 | 6 | 24 | 38 |
| Rural Interstate | 0 | 0 | 2 | 1 | 2 | 5 |
| People in Crashes | 18 | 38 | 314 | 1,100 | 6,575 | 8,045 |
| Urban | 10 | 23 | 231 | 931 | 5,436 | 6,631 |
| Rural Non-Interstate | 6 | 12 | 69 | 135 | 819 | 1,041 |
| Rural Interstate | 2 | 3 | 14 | 34 | 320 | 373 |
| Percent in Alcohol-involved Crashes | 39\% | 24\% | 13\% | 5\% | 3\% | 4\% |

Total Crash by Roadway System and Crash Severity in Santa Fe County, 2018

| Crash Severity by System | Crashes by Year |  |  |  |  | 5-Year Average |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2014 | 2015 | 2016 | 2017 | 2018 |  |
| Total Rural Interstate | 106 | 169 | 150 | 178 | 176 | 156 |
| Fatal Crash | 2 | 2 | 4 | 0 | 2 | 2 |
| Injury Crash | 27 | 49 | 46 | 56 | 41 | 44 |
| Property Damage Only Crash | 77 | 118 | 100 | 122 | 133 | 110 |
| Total Rural Non-Interstate | 451 | 434 | 460 | 482 | 494 | 464 |
| Fatal Crash | 5 | 3 | 6 | 6 | 6 | 5 |
| Injury Crash | 149 | 154 | 173 | 153 | 152 | 156 |
| Property Damage Only Crash | 297 | 277 | 281 | 323 | 336 | 303 |
| Total Urban | 2,268 | 2,596 | 2,562 | 2,842 | 2,590 | 2,572 |
| Fatal Crash | 10 | 8 | 10 | 10 | 10 | 10 |
| Injury Crash | 699 | 865 | 859 | 891 | 821 | 827 |
| Property Damage Only Crash | 1,559 | 1,723 | 1,693 | 1,941 | 1,759 | 1,735 |

Although there is not specific crash data for Nambé it is very likely these crashes and fatalities identified above involved tribal members. According to Nambe Pueblo, Bureau of Indian Affairs (BIA), New Mexico Department of Transportation (NMDOT) and the Pojoaque Pueblo Chief of Police to date, records from the NMDOT and the NP101 Study there were two crashes along NP101. The first crash occurred at NP101 and NM503.

This accident occurred at 9:30 am (Daylight) in 2015 and involved a single vehicle passing the stop sign and running into the fence on the opposite side of the intersection. The second crash occurred approximately 3 miles southeast of NM503 along NP101 in 2014. This accident happened at 7:00 pm (Dark-Not Lighted) and involved a single driver running into a guard rail due to driver inattention. The limited amount crash records for this corridor do not indicate any major safety concern. Site visits revealed other minor property damage incidents involving traffic signs and guardrail end cushions, which were probably not reported.

## Traffic Hazards and Safety Issues

## Location 1

Site 1: Intersection of NM State Highway 503 and Santa Fe County Road 113A.
This location is a standard ' T ' intersection of NM 503 and CR 113A where NM 503 is running East to West and CR 113A intersects NM503 at approximately 45 degrees running North. Sacred Heart Church is located on the Southeast corner, a cemetery on the Southwest corner and a residence on the north side of NM 503.

Site 2: Intersection of NM State Highway 503 and Santa Fe County Road 113A.
CR 113A intersects NM 530 on top of a hill with an approximate rise of 35-40 feet in elevation. A stop sign is located on CR 113A facing northbound traffic. No street lights are visible. No other signage is present for the northbound lane. From the northbound lane of 113A at the intersection, sight distance is approximately $1 / 4$ mile looking to the East, downhill. A clear view of oncoming traffic is present. Sight distance to the west is approximately 400 feet downhill to where NM503 curves out of view behind residences, and a church. A clear view of on-coming traffic is present.

Site 3: CR113A from NM 503 Westbound, sight distance is limited from bottom of hill.
NM503 westbound climbs the hill and has limited sight distance from the top of the hill to the bottom of the hill. There are two driveways on the North side of NM503 just below the hill that are visible in the photo. Posted speed for Westbound traffic is 35 mph . A CR sign is visible with 113 A and an arrow pointing south. This sign is just below the top of the hill. No other advisory, cautionary or warning signs are present.

Site 4: CR113A from NM 503 Westbound, from near the top of the hill.
Upon ascending the hill and approach to the intersection, drivers headed Westbound cannot see any oncoming traffic until they reach near top of the hill. The angle of view on ascension is over $30 \%$ to the right, with walls blocking any sight distance until one reaches the top of the hill. The embankment on the south side of the approach can hide a vehicle from westbound traffic until such traffic is near the top.

Site 5: NM 503, Embankment blocking view of Westbound traffic.
Eastbound traffic on NM 503 has an approach where the sight distance may be partially blocked by deciduous trees that during summer will block any vehicles at the intersection of 113A and NM 503.

Site 6: CR113A from NM 503 Eastbound from the curve in the road looking uphill.
There is an approach curve sign and a County Route sign prior to the intersection but no signage indicating an intersection or sharp curve. Not until vehicles are near the top is sight distance for 113A clear enough to see vehicles in the intersection.

Site 7: CR113A from NM 503 Eastbound from near the top of the hill
Once Eastbound traffic has ascended to the top of the hill to the actual intersection, does that traffic have the ability to see Westbound traffic ascending the hill. Not until traffic passes the church does sight distance equal that of Picture \#2.

## Location 2

Site 2: Intersection of CR 113A and CR 84F and 84G, Looking south.
Upon approach of the intersection, there is limited sight distance to either side, because of a fence on the left and trees on the right side. Posted speed down CR 113A is 20 mph .

## Site 3: CR 113A looking down CR 84F Southwest.

Looking down CR 84F sight distance is approx 50 feet, and then the road turns sharply at 90 degrees to the Southeast. Vehicles can be seen approaching the corner through the fence and trees during winter. During summer, this area has a large number of trees that will prevent seeing any vehicles turning the corner. Except for the stop sign in CR 113A facing traffic on the intersection, no other warning signs are located. No street lights are present. Posted speed limit is 20 mph in this section.

Site 4: Intersection of CR 113A and CR 84F/G. Looking Northwest.
Looking back up CR 113A, once on CR 113A low sight distance, approximately $1 / 8$ mile.

## Site 5: CR 84G from intersection, looking Northeast.

When on 84 G looking Northeast, there is approximately 300 feet of sight distance. Posted speed is 20 mph . There are three houses from the intersection to the point the road turns to the East. All have fences and tall trees. A stone and wood fence follows most of this section to the where the road turns.

Site 6: CR 84G looking Southwest where CR 84G intersects 113A and turns into 84F.
Sight distance is approximately 400 feet, but any view of CR 113A is blocked by the wall on the right. Posted speed is 20 mph .

## Site 7: Intersection of CR 113A and CR 84F/G. Looking Southwest.

There are two directional arrow signs located at the turn of CR 84F as it heads Southwest, then Southeast. Note that in the background there is a arroyo, and unseen is a small drainage ditch just behind the sign.

Site 8: CR 84F heading Southeast. Sight distance looking Southeast is approximately 200-250 feet.
Site 9: Intersection of CR $84 \mathrm{~F} / \mathrm{G}$ and CR 113A from the turn of 84F.
Sight distance to CR 113A is approx 50 feet. Note trees on left. There is some visual blockage at this point, but traffic can be readily seen on CR 113A making any turns. Except for the arrow signs, and speed limit signs, no other signage is located on either stretch of CR 84F/G.

Site 10: Intersection of CR 84G, Cr 119S and 119N.
Site 11: Intersection of CR 84G and CR119S.
This intersection is a combination of dirt, and concrete. Sight distance is approximately 400 feet from where 84 G first turns to align with the intersection. There are stop signs on all 4 points of the intersection. The concrete terminates approximately 20-30 feet from the intersection of CR 119S.

## Site 12: CR 119S from 84G. Looking Southeast.

Sight distance uphill CR 119S from CR 84G is approximately 100 feet. Approach of vehicles in this section is clear and relatively unobstructed.

## Site 13: CR 119S looking at CR 84G and CR 119N. Looking Northeast.

From the turn lane of CR 119 S to CR 84G, sight distance is approximately 100-150 feet. No visual obstructions exist.

Site 14: CR 84G looking from CR 119S.
Sight distance is approximately 250 feet. Little visual obstructions exist. Posted speed limit is 20 mph .
Site 15: Approach to the intersection of CR 119 S and Cr 84 G .
Approach to the intersection from CR 119 S to 84 G is visually narrowed by trees and embankments on both sides until reached to the intersection. Posted speed limit is 15 mph on this section. A directional arrow sign exists to show a bi-directional intersection.

Site 16: Looking up CR 119N from intersection of 84G. Looking Northwest.
Sight distance uphill on CR 119 N from CR 84 G is approx 40 feet. Visual obstructions are on both sides of the road.

Site 17: Approach on CR 119N to intersection of 84G. Looking Southeast.
Sight distance is approximately 60 feet from the top of the hill of CR 119 N. Visual obstructions exist on both sides of the road that is enhanced during the summer with trees in full leaf.

Site 18: Cr 84G and CR 119S from CR 119N, looking Southwest.
No visual obstruction exists between CR 119N and 119S. Sight distance is narrowed to 100 feet on 84G because of the angle of approach from 119N.

Site 19: Cr 84G from CR 119N, looking East.
At the intersection of CR 119 N and Cr 84G, a condition exists of two roads, and an arroyo merging into the intersection. From CR 119 N looking East onto 84G, sight distance is short to approximately 30 feet.

The merging of two roads and arroyo that feed into the intersection. Looking Northeast, at the far East end of the intersection, two roads and an arroyo merge onto the intersection. Posted speed is 20 mph . The embankments have been reinforced with rip-rap and wire mesh down the entire stretch of the concrete area of the intersection. No street lights are present.

## Law Enforcement and Fire Protection Services:

The Pueblo does not employ any law enforcement officers per se. At present, the Pueblo is in resident of a full time Park Ranger, all other law enforcement services are provided to the Pueblo by the BIA, Santa Fe County Sheriff's Department and the New Mexico State Police. Additional police services are provided to the pueblo through the Pueblo of Pojoaque. Fire protection to Nambé Pueblo is provided by the Santa Fe County Fire Department, Pojoaque District with the fire station located at US 84/285 Frontage Road. There is a second station located on Highway 503 at mile marker 3 in Nambe.

## Existing Traffic Volume

The measurement of traffic volumes is one of the most basic functions of roadway planning and management. Traffic volume counts are the most common measure of roadway use, and they are needed as input to most traffic engineering analysis. The objectives of a traffic volume study are to estimate the Annual Average Daily Traffic volumes (AADT) and peak hour traffic on any routes affecting traffic within the reservation and other public roads within the IRR system. This data is used to update the road inventory files, determine capacity deficiencies, and identify potential roadway improvement projects.

## Short Duration Counts

The short count program is designed to provide roadway segment-specific traffic count information on a cyclical basis. Average daily traffic (ADT) is defined as the sum of all traffic, in terms of vehicles per day (vpd), passing a specific point during a given time period in whole days, greater than 1 day and less than 1 year, divided by the number of days in that time period. Except for permanent count stations maintained by various highway agencies, the ADT for most locations is estimated based on counts taken over a relatively short period of time.

## Vehicle Classification Counts

The objective of the short duration classification count program is to ensure that the agencies have valid truck volume information for roads. The classification counts use the standard FHWA 13 vehicle categories.

## Methodology

The goal is to conduct a traffic safety and operation analysis. The task required to achieve these goals include data collection, site visits, traffic operation analysis from demand and methodology of the Highway Capacity Manual, Sixth Edition and safety analysis from crash data methodology of the 2010 Highway Safety Manual (HSM).

## Result of Traffic Study

The results of the mechanical twenty-four hour traffic counts, including vehicle classification percentages and counts obtained from other sources are summarized in the "NP 101 Road Improvements Study, Pueblo of Nambé Traffic Counts". Individual route maps were developed illustrating the location of each traffic count. 24-hour directional counts were conducted with pneumatic tubes at two locations along NP101.

Nambé Pueblo, NM

At location 1, the eastbound volume was 359 vehicles and the westbound volume was 289 vehicles for a total bi-directional volume of 648 vehicles. The eastbound peak hour is at 7:00 am and the westbound peak hour is at $3: 00 \mathrm{pm}$. The overall peak bi-directional peak hour was at 5:00 pm . At location 2, the eastbound volume was 119 vehicles and the westbound volume was 99 vehicles for a total bi-directional volume of 218 vehicles. The peak hours at location 2 were the same as for location 1. Overall, the volume of vehicles traveling on the western portion of NP101 is 70\% larger than the volume of vehicles traveling on the eastern portion of NP101.

24-Hr Directional Volumes for Locations \#1 And \#2


## Trail and Path System

There are other factors that affect the transportation system when roadway paths are incorporated into an area. These factors need to be taken into consideration when road construction projects are proposed. One of the most important is the right-of-way. When a path is proposed within the right-of-way of an IRR route, coordination and application must occur to ensure all design and safety standards are being met. Some of the standards include bicycle lanes, multi-use trail routes and crossings. If a shoulder is identified as a bike route or path although not signed as a bike lane, obstructions shall not be allowed to encroach into the shoulder. Street resurfacing which have on-street bike facilities should be given additional weight for resurfacing when resurfacing priorities are set.

One of the most frequent complaints of path users is maintenance of accumulated debris. Streets which function as paths or have bike lanes require to be swept more frequently. Public safety is a comprehensive public information campaign to alert car drivers to the rights of others on the roadways, i.e., cyclists, trail users and pedestrian needs. The campaign should also inform pedestrians and cyclists as to their rights and responsibilities on roadways.

Design Standards on every street and highway on which bicycles are permitted to operate should be considered a 'bicycle street' and should be designed and maintained to accommodate shared use by bicycles and motor vehicles."

## Trails and Paths

Off-street facilities better known as shared-use paths or trails should serve areas that are not adjacent to streets and highways. The most favorable locations for these facilities are often found along parkways, streams and in park and recreation areas. An off-street path will be preferred if it provides better connections, a picturesque efficient transportation route other than an on-street facility and doesn't pose a hazard at intersections. These paths should be at least ten feet wide with adjacent soft shoulders suitable for joggers, horses and other appropriate conveyances.

## Community Wellness and Recreation

This effort should provide Nambé Pueblo members and residents with safe, diverse, well-marked and attractive options for traveling between and among community destinations and for enjoying outdoor interpretive, fitness and recreation stations. The Trails Map (Appendix E) delineates locations that may be utilized for respective outdoor activities present and proposed areas.

## Transportation System Expansion, Enhancement and Diversification

This effort would continue to complement the existing network of roads and bridges with safe, accessible, intermodal options for movement within and across Pueblo lands.

## Tourism Focused Economic Development

Increase revenues and employment opportunities by expanding the number and diversity of recreational and interpretive opportunities inclusive of guided and unguided tours for visitors to Nambé Pueblo.

## Preservation Focused Trail Identification, Documentation and Protection

To enhance service as well as preserve aesthetics to the most useful portions of the vast trails network centered on Nambé Pueblo.

## Pedestrian/Bicycle Facilities

Bicyclists and pedestrians can be grouped into these groups and the appropriate facilities should be provided for each.

## Group A: Skilled Cyclists

Skilled cyclists are experienced riders who usually prefer riding on roads which for them often feel safer and more efficient than off-street paths. They are interested in using off street paths only if the paths allow for separation between bicyclists and pedestrians designed to allow for higher speeds and offer a more direct route than the nearest alterative on-street route.

According to New Mexico State Law, a bicycle is a vehicle and cyclists are entitled to share the roadway with other vehicles except where expressly prohibited. Roadway improvements should be able to accommodate bicyclists whenever it is economically feasible and wherever cycling is permitted.


Group B: Less Skilled
Youthful or Family Cyclists These cyclists are uncomfortable in traffic. They may be cycling either for recreation or transportation, traveling at slower speeds, taking shorter trips and not able to handle steeper grades. They may also require frequent rest stops. Most parents discourage younger less experienced cyclists from cycling on roads. When properly designed, bike paths can provide more appropriate routes for this group. Paths that are designed to bypass highways and busy streets, provide direct connections between parks, open space, schools, recreation and interpretive centers, shopping, and other youth-oriented destinations would be especially useful.

Family cyclists often have young children in tow, i.e., in bike seats or following on small bikes. Residential streets, bike lanes, or sidewalks often provide linkages to off-street bike paths. When these linkages are not feasible these cyclists often drive to a trail head parking to access a path.

## Group C: Pedestrians

Walkers, joggers, skateboarders, in-line skaters and roller skaters are the slower speed users of sidewalks and paths. They generally can and often do change their speed and direction suddenly leaving bicyclists
insufficient time to react and avoid collisions. The following figure illustrates the location of trail facilities within the vicinity of the Nambé Pueblo. At this time the tribe does not have any specific or designated trails.

## Airports

Commercial air service is available at the nearby Santa Fe and Espanola airports. The Santa Fe Regional Airport is located 10 miles southwest of the City's Central Business District. The airport is classified by the Federal Aviation Administration (FAA) as a non-hub, Part 139, class 3 Airport. This classification means that the airport cannot
 handle commercial airline aircraft with more than 30 passenger seats. The airport is served by three active runways. The primary Runway $2 / 20$ is 8,366 feet long and 150 feet wide. Runway $15 / 33$ is 6,316 feet long and 100 feet wide; and Runway $10 / 28$ is 6,301 feet long and 75 feet wide. All runways are of asphalt construction. The airport is capable of aircraft operations 24 hours a day, 365 days a year. The airport is equipped with an airfield lighting system that can be activated by radio from an aircraft.

The Ohkay Owingeh Airport (IATA: ESO[2], FAA LID: E14, formerly Q14) is a public use airport located in Rio Arriba County, New Mexico. The airport is owned by the Ohkay Owingeh Tribal Council. It is three nautical miles ( 6 km ) northeast of the central business district of the city of Española. The airport covers an area of 236 acres ( 96 ha ) at an elevation of 5,790 feet ( $1,765 \mathrm{~m}$ ) above mean sea level. It has two runways: $16 / 34$ is 5,007 by 75
 feet ( $1,526 \mathrm{x} 23 \mathrm{~m}$ ) with an asphalt pavement; $6 / 24$ is 3,100 by 35 feet ( $945 \times 11 \mathrm{~m}$ ) with a dirt surface. Runway $6 / 24$ is permanently closed and a fence has been built across it. For the 12-month period ending April 8, 2009, the airport had 1,000 general aviation aircraft operations, an average of 83 per month. The Albuquerque International Airport also serves the Nambé Pueblo and is located approximately 85 miles south.

## Land Use Component

Through the use of Tribal goals and objectives, the intent of the land use component is for the Tribe to establish policies applicable to the community concerning natural resource protection, environmental constraints, recreation, open space and the land requirements derived from the population, housing, economic development and transportation objectives. Some basic principles govern the development of the land-use plan:

- Existing uses: One of the main reasons that people engage in planning for a community is to protect what they value about it. It is the presumption that future use of land already in active use will be the same as the present use.
- Use compatibility: Land use planning evolved simultaneously with its implementation tool, zoning, which is based on the principle of separating land uses into compatible districts. Today, the most basic principles of compatibility separate industrial uses from residential ones for the protection of each of those categories identified and generally also separate residential uses from intense commercial uses.
- Land demand: A starting point in land-use planning is often land-demand projection, typically focusing on developed land needs. This document projects future population and then determines how much land will be necessary to house that population. Governmental, industrial and commercial needs are based on the Tribes goals and objectives and economic development opportunities.
- Environmental opportunities and constraints: is based on environmental analysis. This analysis helps to determine which areas are most appropriate for future development and which areas should be protected, along with future roadway improvements.
- Transportation influences: Transportation decisions significantly affect land use patterns and resulting economic, social and environmental impacts. These include direct impacts on land used for transportation facilities and indirect impacts caused by changes to land use development patterns. In particular, certain transportation planning decisions tend to increase sprawl while others support smart growth. Land use patterns can have diverse economic, social and environmental impacts. Some require less impervious surface per capita and thus preserve more open space, some are more accessible and reduce transportation costs to businesses and consumers. Transportation planning decisions influence land use directly by affecting the amount of land used for transport facilities and indirectly, by affecting the location and design of development. An example of this is the compatibility of particular land uses with types of roads.
- Agricultural preservation: If protecting agricultural land is a priority then agricultural land becomes a major principle of land-use planning.


## Land Use Designations

Residential Designation: This designation identifies area primarily made up of and planned for housing units. This designation encompasses the majority of single-family housing units currently located on the Reservation. While the basic character is single-family dwellings, a mixture of duplex and apartment complexes may also occur within this designation.

Many communities today plan for housing to help to ensure that there will be housing opportunities for all people. Housing must represent some component of a land-use plan. Those living in housing will depend on a transportation system to provide access to work, shopping and services.

Mixed Use Designation: The specific purposes of a mixed-use designation is, to encourage residential uses in conjunction with commercial activities and to create more flexibility.

Cemetery Designation: This designation is for areas set apart for containing graves a burial ground or graveyard.

Conservation/Open Space Designation: This designation identifies an area that is not developed and is expected to remain in a natural state. This designation is for the protection of natural resources as well as preservation of wildlife habitat native customs.

Public and Governmental Designation: The specific purposes of the public and governmental land use is to provide an area for schools, cultural facilities, public safety facilities, government offices, public buildings in parks, recreation areas, ,medical offices, and other public uses which are beneficial to the community.
Commercial Designation: The commercial designation will provide appropriately located areas consistent with the economic development plans of the Tribe. This area will provide opportunities to strengthen the Tribe's economic base and provide employment opportunities close to home for residents. The proposed facilities by the Tribe would be included in the commercial designation:

Park and Recreation Designation: This designation provides for the orderly and attractive grouping of recreational oriented service establishment. This designation also includes public buildings in parks and recreation areas.

Agricultural Designation: Land allocated to farming and non-farming uses; routine and on-going agricultural activities.

Pueblo of Nambé

## C. THE TRANSPORTATION PLAN UPDATE

## Future Development

## Tribal Goals and Objectives

To address the Pueblo's long range transportation needs and issues, the long range planning and implementation of the Nambé-BIA road improvements must address and include the long range goals and objectives as follows:

Upgrade roads to meet design standards and management system requirements to correct deficiencies as well as to improve overall network connectivity, travel mobility and accessibility.

Improve travel safety and reduce accidents on the Nambé-BIA roads.
Meet existing and future transportation needs in order to promote expand usable land for economic development, commercial, industrial and agricultural according to land resources potential.

Create and improve the area within the proximately of Nambe Falls by expanding existing recreational infrastructure facilities.

## Development Plans

Specific strategies outlined by the Pueblo and related studies include:

## Community:

Development of existing real estate amenities to be utilized for varied large and small scale functions or gatherings. At present the Pueblo owns several properties that have professional name recognition lending themselves to hosting, lodging and other activities including vineyards that may contribute to wine production and tasting opportunities.

Additional thought has also been given to economic development with an emphasis on NP101, Nambe Falls and NM Highway 503 including agriculture,
 turning fallow fields into production. A concern was expressed with respect to non-tribal lands within the pueblo and how access could be a problem.

## Residential:

The tribe has developed a housing subdivision located in the vicinity of the new multipurpose building. The plans called for $1 / 3$ acre sites with the potential for 43 homes which were constructed under the HUD 184 Program. Potential homeowners completing classes to correct any deficiencies in their current credit status which could hamper their ability to qualify for a mortgage loan under the 184 Program.

Institutional:
Future consideration may present itself of a grant to construct a nursing home within the vicinity of the existing senior center may still exist. The anticipated size of a new facility would be approximately 10,000 square feet.

Recreational/Tourism:
The Nambé Department of Park and Recreation has proposed to develop the Nambe Falls Recreation Area by increasing the functionality of the site with improved access to the area and recreational facilities.

Additional planning consideration is being given to further expanding recreational facilities inclusive of horseback riding, hiking, fishing, kayaking and bicycling, archery, sport shooting and improvements to the existing ranger station. Additional improvements would address safety, sanitary needs along with aesthetic interpretation.

## Projected Travel Demand

In its most basic form travel demand is a degree of the number of people or their vehicles that travel to and from all the various possible locations within and outside of a given area. That travel must take place on a transportation system or network in most cases a road network. Projection of travel demand has three components; trip generation, trip distribution, and trip assignment.

The type and degree of development projected for the year 2040 on the Pueblo or in its vicinity is based on information provided by tribal members, staff and other officials or agencies. The factors used in the generation of trips were determined from a review of the Annual Average Daily Traffic (AADT), NP101 Road Improvement Study in addition to utilizing interpolated traffic counts from vehicular permits sold by the Pueblo for recreation activities. Said data reveals a projected increase of approximately $1.2 \%$ annual increase in vehicular traffic within the limits of this study.

In developing a Long Range Transportation Plan for the community assumptions have been made based upon the awareness of the existing conditions and of the plans to meet current and future needs. Using these assumptions one may project the degree of development that is probable by the year 2040, given the population to be served and the economic resources available for implementing development plans. The road network must accommodate existing as well as projected traffic volumes that can be determined through present and projected growth patterns.

## Trip Generation

The most reliable way to estimate the traffic generated by a proposed development is to use the trip generation rates observed at an existing development of similar land use and building type. For this purpose the accepted source document of trip generation rates was used.

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The following table illustrates Typical Intersection Capacity and Level of Service.

Trip Generation Rates
Typical Existing Levels of Service

| Study Intersection | Scenario | Worst Case Movement LOS and Delay |  |  |  | Intersection LOS |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Worst Case Movement | Delay ${ }^{\text {² }}$ | v/C | $\operatorname{LeS}^{2}$ | AM |  |
|  |  |  |  |  |  | Delay ${ }^{\text {2 }}$ | $105^{2}$ |
| NP101 and NM503 | AM Peak | NWB Left | 9.6 | 0.042 | A | 1.75 | A |
|  | PM Peak | NWB Left | 9.8 | 0.025 | A | 0.77 | A |
| NP101 and NP175 | AM Peak | WB Left | 8.7 | 0.002 | A | 1.49 | A |
|  | PM Peak | WB Left | 8.9 | 0.001 | A | 1.71 | A |
| NP101 and NP102 | AM Peak | WB Thru | 9.3 | 0.006 | A | 3.80 | A |
|  | PM Peak | EB Thru | 9.4 | 0.004 | A | 3.75 | A |

Trip generation calculations were performed for average weekday trips and weekday AM and PM peakhour trips for the year 2027. This information is used to develop recommendations for road improvement programs. Future volumes, including programmed improvements, are analyzed against the capacities of existing roadways to develop road improvement projects.

## Transportation Plan Recommendations

The recommended 20-year transportation plan for the Pueblo of Nambé consists of an integrated set of roadway improvement/construction projects needed to meet current and projected housing and economic development goals within the Nambé Pueblo and identifies the governmental agency responsibilities for carrying out the plan.

## Evaluation Criteria

The following criteria were used in evaluating the various roadway alternatives reviewed and developed during the course of this study. The criteria are divided into four sections: Traffic Operations, Community Impacts, Economic Impacts, and Construction.

## Traffic Operations

Traffic Operations: This is a function of traffic operational characteristics. Objective measures include capacity, level of service, delay, and progression efficiency.

Network Completion: This function assesses whether or not the project closes gaps in the transportation network

Traffic Safety: Traffic safety is a measure of expected conflict points and improvement of existing problems.

## Community Impacts

Displacement: This is a degree of the magnitude of displacement that would be necessary to construct the project.

Aesthetics: This measure assesses whether the project is visually pleasing.
Environmental Impact: This is a portion of each project's impact on the environment including wetlands, storm-water runoff and noise and air quality.

Community Support: This is a degree of how much opposition or support there may be for the project.
Economic Impacts
Local Access: This criterion measures the level of directness, convenience and availability of access to existing and future development. Emergency access is included in this measure.

Economic Development Opportunities: This criterion assesses the impact of the project on future development opportunities, i.e., does the project change or encourage the potential of access for future development?

## Construction

Ability to Phase: This measure assesses whether or not the project lends itself to being constructed in phases or if it would have to be constructed as one project.

Constructability: This is a measure of how difficult it would be to construct the projects, looking at the need to relocate utilities, change drainage facilities or alter a railroad crossing.
Relative Cost: This is a comparison of costs to obtain any necessary right-of-way and additional soft costs to construct improvement for the project.

Right-of-Way: This measure assesses the availability of right-of-way for the project and the potential costs associated with right-of-way acquisition, associated with permanent and temporary construction access.

## Transportation Improvement Program (TIP)

A tribal TIP is a multi-year, financially constrained, list of proposed transportation projects to be implemented within or providing access to Pueblo country during the next 3 or more years. It is developed from the tribal priority list. The tribal TIP is consistent with the tribal Long-Range Transportation Plan and must contain all Tribal Transportation Improvements Projects (TTIP) funded projects. It may also contain information regarding other Federal, State, county, municipal, and tribal transportation projects initiated by or developed in cooperation with the Indian Tribal Government. Only those projects approved for funding by the sponsoring governmental entity may be included in the tribal TIP. It is reviewed and updated as necessary. The only entity that can change the tribal TIP is the Pueblo Tribal Government.

Examples of transportation projects include, but are not limited to: New road construction, road reconstruction/resurfacing, road sealing, bridge construction, transit facilities, bike/pedestrian enhancements, highway safety, etc. The tribal TIP identifies the implementation year of each project. The development of the tribal TIP establishes tribal priorities for TTIP and other transportation projects. It is the prerogative of the Pueblo Tribal Government in selecting the year in which projects are programmed. It is also a useful tool for keeping track of transportation projects programmed by other government agencies i.e., Federal Transit Administration (FTA), Federal Highway Administration, Federal Aviation Administration, etc. and coordinating them with IRR transportation projects. By developing a tribal TIP the Pueblo Tribal Government is taking a pro-active role in the transportation planning process and exercising its sovereignty in controlling the programming of transportation projects on tribal land.

The TTIP is a prioritized list (by year) of TTP funded projects, selected by the Pueblo Tribal Government through tribal TTPs or other tribal actions that are programmed for construction in the next 3-5 years. The IRR projects identified on the tribal TTIP must be included in the TIP without further action subject to air quality conformity determination.

The Bureau of Indian Affairs (BIA) Regional Office places the TTIP information from tribal TTPs into the Regional TIP unchanged. The Regional TTIP is included in the Statewide Transportation Improvement Program (STIP) developed by each State Transportation Agency without further action. If a TIP project lies within a metropolitan area it must be included in the metropolitan area TIP without further action.

The BIA Regional Office updates the TIP annually for each State in its service area. The process begins by providing the projected TTP Program funding amount to each Tribe. The BIA region/agency office receives a tribal TIP or tribal priority list from each Tribal Government.

A BIA analysis of the tribal priority list results in anticipated project costs and proposed scheduling of construction activity based on the tribe's percent share of the region's TTP budget. The BIA reviews the programming of proposed projects with the Tribal Government and agreed upon adjustments are made.

The BIA Regional Office then updates the region wide control schedule for its service area to include TTP projects from tribal TIPs and the selected projects from the tribal priority list. The BIA Regional Office then produces a TIP for each state in its service area from the area wide control schedule for signature by the Secretaries of Interior and Transportation or their designees. The revised area wide control schedule is provided to the BIA, Division of Transportation (BIADOT) for review and comment.

The timeframe for the annual update of the TIPs for each State in a BIA Regional Office's service area should be coordinated with the State Transportation Agencies within its service area. This will ensure that approved TIP updates are included with the STIPs when they are printed and distributed.

## Proposed Projects

The recommended 20-year transportation plan for the Pueblo of Nambé consists of planning, design, roadway improvements construction and maintenance projects needed to meet current and projected goals.

## HIGH PRIORITY:

Road Maintenance;
Remove and Replace all Non-Conforming and Damaged Signs
Replace all Missing and Damaged Warning Signs
Install Markers for the Three Critical/Non-Recoverable Roadsides.
Drainage Crossing Structure Maintenance
Clear Obstructions from the Clear Zone

Road Improvements;
Assess the Structural Integrity of Drainage Crossings.
Fix Outlet and Stabilize Roadside Fill of Crossings.
Grading of Roadside Swales between Crossings
Roadway Rehabilitation to NP 101 from the cattle guard to the lake
Additional Drainage Improvements, Upper Village
Clear Intersection Sight Distance Obstructions
Roadway Right of Way Issues;
Maintenance and Responsibility
Right of way Agreement

## MEDIUM PRIORITY:

Address Speed Limit Issues (Speeding);
Develop Speed Control Plan, Monitoring, Enforcement.
Develop a Regional Transportation District Plan (RTD);
Pueblo Operated on Demand.
Fixed and Variable Scheduled RTD route service.

## Drainage Issues;

NP 101 drainage Improvements, Add Roadway Shoulders/Improve Non-Recoverable roadsides in Upper \& Middle Segments.
Plaza Drainage Improvements.
LONG RANGE PRIORITY:
Multi-Use Trail System;
Development of a Multi-use Trail Mater Plan Improvements To Existing Trails.

Land Use Plan Update
Agricultural Development and Re-development
Residential Development and Re-development
Commercial Development
Develop a Wayfinding Signing and Striping Plan.

## FUTURE PRIORITY:

Lake Facility Improvements
Develop a Recreation Master Plan.
Improvements to the Fish Hatchery
Develop Road Distress Monitoring Plan

## New Mexico Transportation Programs Division Projects

The Transportation Programs Division, STIP Development Unit is charged with developing a six-year statewide transportation improvement through the innovative use of Federal and State resources. The state's six-year transportation preservation and capital improvement program identifies multi-modal transportation projects that use federal, state, state capital outlay funds and local government transportation funds. It includes projects of regional significance, projects with high public interest or air quality impacts and projects in the National Parks, National Forests, and Native American Reservations.

The Statewide Transportation Improvement Program (STIP) is the state's multi-modal transportation preservation and capital improvement program, listing projects for the three year period from FY2017 to FY2019. New Mexico's STIP is updated every two-years in accordance with federal requirements that each state must produce a STIP at least every two years.

The Transportation Programs Element for FY2017 to FY2019 is for planning and programming purposes. This program, in its final form, will meet the requirements of MAP-21, FAST Act.

The STIP is a product of the transportation programs planning process. The final product becomes a project scheduling and funding document. The projects were identified through various transportation management systems and planning processes involving local and regional governments, Metropolitan Planning Organizations (MPO), Regional Planning Organizations (RPO), other state and transportation agencies, and the public. Through the STIP the New Mexico Department of Transportation (NMDOT) allocates resources to those projects assigned the highest priority through these planning and programming processes.

## NMDOT Projects

The New Mexico Department of Transportation Statewide Transportation Improvement Program FY 2017 thru FY2019 and Transportation Elements Working Document FY 2017 thru FY 2019 contain improvement projects within Santa Fe County and do not imply any impact on the Nambé Pueblo. Other improvement projects for consideration by Santa Fe County include City of Santa Fe Traffic Calming Study and standards, Various Road Safety Audits, 2015 County Sustainability Plan a partnership for mitigation of wildlife crossing NM Highway 503 as well as a Pedestrian Trail, a proposed Transit Stop/ transfer location to accommodate the lower community center and governor's office along with seasonal excursions to the Nambé Falls, Vision Zero - Design Concepts.

## BIA Construction Funding

This final rule updates the Tribal Transportation Program regulations (formerly the Indian Reservation Roads Program) to comply with statutory updates. The Tribal Transportation Program is a program to address the surface transportation needs of Tribes. This rule reflects statutory changes in the delivery options for the program, clarifies the requirements for proposed roads and access roads to be added to, or remain in, the inventory, revises certain sections that were provided for informational purposes, and makes technical corrections.

In accordance with the Final Rule (25 CFR Part 170) the Tribal Transportation Allocation Methodology (TTAM) that BIA uses to allocate TTP program funds, after appropriate statutory and regulatory setasides, as well as other takedowns, is as follows:
(a) A statutorily determined percentage to a tribal transportation planning program (under 23 U.S.C. 204 (j)); and (b) The remainder to a pool of funds designated as "Remaining funding available for distribution." This "Remaining funding available for distribution" pool is further allocated as follows:
(1) 5 percent to a discretionary pool for TTP High Priority Projects; and
(2) 95 percent to pool for distribution by the following Relative Need Distribution Factor (RNDF) as defined in 25 CFR §170.223: ( 50 percent Cost to Construct + 30 percent Vehicle Miles Traveled +20 percent Population)
(3) If the annual authorization is greater than $\$ 275$ million, then the amount above \$275 million, after appropriate statutory and regulatory set-asides, as well as other takedowns are applied, will be allocated as follows: (i) 12.5 percent to the TTP (§170.205); (ii) 12.5 percent to the Population Adjustment Factor (PAF) (§170.220); and (iii) 75 percent to the RNDF (§170.223).

## Tribal Transportation Improvement Program (TTP)

The Tribal Transportation Program (TTP) was known as the Indian Reservation Roads (IRR) Program until Congress changed the name to the Tribal Transportation Program (TTP). The TTP is authorized as part of the Federal Lands Highway Program under Chapter 2 of Title 23, to address the surface transportation needs of Tribes. The TTIP is a special funding pool that can be used by a tribe whose annual allocation is insufficient to complete its highest priority project; by a government subdivision of a tribe that is authorized to administer the tribe's IRR Program funding and whose annual allocation is insufficient to complete its highest priority project; or by any tribe for an emergency/disaster on any IRR transportation facility. Eligible applicants may have only one TTP application pending at any time. This includes emergency/disaster applications. TTP funds cannot be used for transportation planning, research, or routine maintenance activities.

MAP-21's new, statutory funding formula for the TTP that replaced the funding formula developed thrugh negotiated rulemaking (and included in 25 CFR Part 170, dated July 19, 2004). MAP-21 established a four-year transition into the statutory formula beginning with Fiscal Year 2013 through Fiscal Year 2016. The FAST Act did not change the funding formula established by MAP-21, so the formula used to allocate TTP funds for Fiscal Year 2016 will be applied in future years, as well.

Additionally, the final rule reflects the FAST Act's new Tribal reporting requirements involving TTP obligations and expenditures, descriptions and status information of projects and activities that are being undertaken, and number of jobs created or retained by those projects and activities.

BIA will accept TTIP applications until December 31 each year for projects during the following year. BIA processes TTIP applications as shown in the following table:

| Submittal | BIA Application Process |
| :--- | :--- |
| (1) January 31 | Notify all applicants and Regions in writing of acceptance of applications. |
| (2) March 31 | Coordinate with FLH to rank all accepted applications in accordance with TTP <br> guidelines, develop the FPL and return unaccepted applications to the applicant with an <br> explanation of the deficiencies. |
| (3) April 15 | Notify all accepted applicants of the projects included on the FPL. |
| (4) May 15 | Distribute funds to BIA Regions or in accordance with procedures of the Office of Self- <br> Governance for selected TTP. |

(a) BIADOT and the Federal Lands Highway (FLH) Program office will determine eligibility and fund IRRHPP applications subject to availability of funds and the following criteria:
(1) Existence of safety hazards with documented fatality and injury accidents;
(2) Number of years since the tribe's last TTP Program construction project completed;
(3) Number of years that a proposed project has been in the TTP applicant pool;
(4) Percentage of project cost matched by other non-TTP program funds projects with a greater percentage of other matched funds rank ahead of lesser matches;

## BIA Maintenance Funding

The BIA is obligated by CFR 25, Part 170, to maintain the BIA Road System to a safe and satisfactory standard based on the availability of funds and the road's as-built condition. Road maintenance funds are appropriated by Congress and allocated to the BIA separately from the Federal Highway Trust Funds (HTF) used for initial construction. Road maintenance funds are used to provide an optimal level of road maintenance based on the road condition and the availability of funds. Road Maintenance activities include: the preservation and repair of the road surface, blading roadway shoulders and ditches, clear drainage structures, snow removal and the installation/replacement of traffic control, directional and street signs.

Typically the Agency Road Engineers/Managers work with the tribes in establishing a road maintenance program to determine the type and level of maintenance to be performed on BIA roads within each reservation based on Agency's road maintenance budget. Maintenance priorities are frequently determined by weather and/or road conditions which inhibit access to and from communities to employment centers, community services and health facilities. Emergency road conditions have highest priority. Other priorities are determined based on surface type and use. If roadways funded and constructed with HTF are not properly maintained, then future HTF road construction funds can be withheld. This situation might occur if maintenance funding is limited such that adequate repairs and upkeep of the roadway are not possible.

## Revisions to BIA Road System

One of the objectives of this transportation study was to identify reservation roads that should be added to or deleted from the TTP system, or renumbered to more logically reflect their relationships with intersecting roads. The following sections identify the recommended changes to the TTP Nambé Pueblo road system. Listed below are recommended Road System Guidelines, intended to assist Tribes, Regional directors, and engineers in deciding which roads should be on the BIA Road System. These are not rules, as special circumstances may apply but deviations from the guidelines should be accompanied by an explanation of the special circumstances.

1. A road which is only for service to a single residence or land use is a private driveway, not a public road, and should not be on the BIA Road System. A road serving only three or less closely grouped residences or land uses should be considered a common private driveway.
2. Roads primarily used for a single purpose should not be on the BIA Road System such as:
a. Logging roads for timber sale, administrative, or fire access only and which are not open to the public or used for such purposes as recreation, wood cutting, gathering, fishing, or hunting.
b. Agricultural roads to fields, pump houses, head gate, dams, along canals and which are not open for other purposes such as fishing, boating, hunting.
c. Administrative roads to power plants, sewage treatment plants, water towers which are not open to the public for other uses.
d. Tribal roads to a single purpose tribal enterprise such as a fish hatchery, manufacturing plant, cemetery, or other single use which are not open to the public.
3. The proportion of state and county road miles to BIA Road System road miles within a reservation should be at least equal to the proportion of fee land to trust land within that particular reservation. BIA should not participate in state or county road construction projects on a reservation unless the local governments meet their own road construction responsibilities.
4. Where state/county road systems are substantially involved efforts to correct the imbalance and or secure state, county funding for BIA road construction projects should be documented with copies to the Regional Office and Central Office Division of Transportation. This also applies to cases where the state, county established a road system but fails to meet construction needs on that system.
5. Use Class 11 trails to separate pedestrian (especially school) traffic, and bicycle traffic from vehicular traffic.
6. The following are to be considered when evaluating what is "vital to the economic development" of the Pueblo.
a. Connects active center of population;
b. Promotes development of natural resources;
c. Contributes to industrial activity;
d. Contributes to economic development;
e. Provides jobs for the community;
f. Contributes to law and order;
g. Removes isolation;
h. Provides access to education;
i. Provides access to hospital facilities;
j. Contribute to accident prevention;
k. Provides access for emergency services.

## Revisions to BIA Road Inventory

The "Inventory Comparison Listing Table" compares the road mileage listed in the BIADOT's Summary Report and the mileage recorded during the 2006/2007 Inventory Update performed by others.

The significant changes are as follows:

Revised Summary of Proposed Road Mileage Revisions

|  | Miles |
| :--- | :---: |
| 2007 BIA DOT Summary Inventory | 25.2 |
| Roads Added to BIA System | 61.5 |
| Roads deleted from BIA System or Millage Corrections | -4.7 |
| Other Route Mileage Corrections Net Deletion | -4.4 |
| Proposed BIA Road System | 77.6 |

Revised Summary of Proposed Road Mileage

|  | Miles |
| :--- | :---: |
| 2018 TTP DOT Summary Inventory | 2.3 |
| Roads added to TTP system | 93.3 |
| Roads deleted from TTP system or mileage corrections | 0.0 |
| Other route mileage corrections net deletion | 0.0 |
| Proposed TTP Road System | 95.6 |

Revised Characteristics of Public Roads on Nambé Pueblo, March 2020

| Jurisdiction | Road Mileage by Surface Type |  |  |  |  |  |  |  |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Paved | Gavel | Concrete | Earth | Multi-use Trail | Proposed | Total Miles |  |
| BIA Roads | 11.2 | 8.6 | 0.1 | 29.9 | 30.4 | 0.0 | 80.2 |  |
| State Highway | 79.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.0 |  |
| County Roads | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 |  |
| Other Roads | 6.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 |  |
| Urban Roads | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  |
| Total | 102.5 | 8.6 | 0.1 | 29.9 | 30.4 | 0.0 | 171.5 |  |
| BIA Roads <br> $\%$ of Total | $10 \%$ | $100 \%$ | $100 \%$ | $100 \%$ | $100 \%$ | $0 \%$ | $100 \%$ |  |

## Revisions to the Functional Classification of BIA Roads

Based on current use and the definitions of the BIA's functional classifications the following table illustrates which roads have changed functional classification.

Revised Functional Classifications of Roads

| Route | Section | County | Proposed 2007 <br> DOT <br> Functional <br> Classification | Existing 2018 <br> DOT <br> Functional <br> Classification |
| :--- | :--- | :--- | :---: | :---: |
| 0100 | $010-020$ | Santa Fe | 5 | 5 |
| 0102 | 010 | Santa Fe | 5 | 5 |
| 0103 | $010-020$ | Santa Fe | 5 | 5 |
| 0104 | 010 | Santa Fe | 5 | 5 |
| 0105 | 010 | Santa Fe | 5 | 5 |
| 0106 | 010 | Santa Fe | 4 | 5 |
| 0107 | 010 | Santa Fe | 4 | 5 |
| 0108 | 010 | Santa Fe | 4 | 5 |
| 0109 | 010 | Santa Fe | 4 | 5 |
| 0110 | 010 | Santa Fe | 4 | 5 |
| 0111 | 010 | Santa Fe | 4 | 5 |
| 0112 | 010 | Santa Fe | 3 | 5 |

## Roads removed from the BIA System

The "Inventory Comparison Listing" indicates approximately 4.7 miles of roadway deleted from the BIA system. These are sections of roads that either do not exist or have been combined with another section of roadway.

## Roads added to the BIA System

The 2007 "Inventory Comparison Listing" illustrates 77.5 miles of roadway added to the BIA System in addition to 95.6 miles of Non-BIA Roads. The table contains specific information on each section to be added. The justification for adding these roads is the following:

These roads are important to the overall public transportation need of the reservation as recommended by the Tribal Governing Body. These are public roads for which the BIA has primary responsibility for maintenance and improvement. These are roads that are owned by an Indian tribal government or are community streets or bridges within the exterior boundary of the reservation. They are primary access routes proposed by the tribal government, including roads between villages, roads to landfills, roads to drinking water sources, roads to natural resources identified for economic development, and roads that provide access to intermodal termini, such as airports and metropolitan population clusters.

## Plan Implementation and Updating

This transportation plan presents the results of a study completed in 2006 and updated in 2020. It reflects the current requirements for transportation facilities to satisfy the Pueblo's needs and is based upon the existing conditions and anticipated future development within the Pueblo priorities. The plan should not be thought of as a static document. It should be viewed as a dynamic document capable of being modified to meet changing social and economic development demands.

It is recommended that the Pueblo of Nambé Tribal Council adopt this plan and use it as the basis for programming and budgeting road construction funds. The plan should be reviewed by the Tribe and BIA Southwest Regional office on an annual basis to keep up with changes in Pueblo development that may warrant a change in the project listing and/or a change in a project's priority. Changes in the project listing should be coordinated with and accomplished within the time frames established by the funding agency so as not to hamper the implementation of the agency's road improvement program on the Pueblo. The overall Pueblo transportation plan should be reviewed and updated every five years or when there are major changes in the tribe's land use plan. Five year updates are currently planned by the BIA.

A key component in the continuation of the transportation planning process is the annual coordination between the Pueblo and the BIA Southwest Regional Office, regarding adjustments in road construction priorities and implementation schedules, road maintenance needs and priorities and TTP program funding.

Several resources are available to facilitate this process. Some Pueblos establish a transportation committee composed of tribal members and key tribal staff. This committee usually reports and makes recommendations to either the tribal planning commission, if one exists or directly to the pueblo council. In other instances, the annual coordination function is assigned to the tribal planning commission or if no such body exists it is undertaken as a formal process directly by the pueblo council. However the process is handled it is recommended that it be an annual function with a formalized process, an official tribal body as discussed above is assigned which has the responsibility to undertake this coordination.

## Road Improvements Procedures

In the future, it is possible that roads will be constructed using funds from developers who will benefit from the road construction. Therefore, it is important that the tribal government establish policies and guidelines to monitor and control the construction of roads by developers. It is the recommendation of this study that the Tribe consider this approach to funding development roads. Should such an approach be acceptable, the Pueblo should adopt a process for approving these roads to ensure that they will be constructed and maintained too an acceptable standard. The essential elements of such a process are outlined below.

## Design Standards

The first element in the process is to define what is expected. When a development project is submitted for review, it should only be given conditional approval subject to the roads and other infrastructure improvements being constructed to proper standards. Roads should be designed to meet minimum geometric and structural standards for the anticipated traffic volumes and classification of vehicles' loads.

Roadway design standards should be adopted by the Tribe and available to potential developers. Standards currently used by the BIA and NMDOT are readily available. These design standards could be adopted as is, or modified, as the Tribe would prefer for specific design items.

## Plan Submittal and Review

The second element in the approval process is the submittal and review of construction documents (Plans and Specifications). The Tribe should employ an experienced engineering consultant to review proposals and ensure that the plans are in accordance with minimum design standards. The BIA should be asked to review and approve road construction documents from a developer if the Tribe anticipates it will request that the road be added to the BIA's road system for long-term maintenance. Plans and specifications should be approved for construction only when they are in conformance with minimum design standards based on anticipated traffic and loads.

## Construction Monitoring

Another essential step in the process is the monitoring of the actual construction. The construction should be inspected periodically by a qualified representative of the Pueblo to insure that construction is proceeding in conformance with the approved plans. A final inspection should also be performed prior to accepting the responsibility for maintenance. To insure proper construction, most jurisdictions require that the developer post a performance bond. The bond is held until the roadway has been accepted and all conditions for release have been met.

## Maintenance Funding

The process should also address a method for financing the long-term maintenance of these development roads. A desirable procedure would be to make those who benefit from the road responsible for the longterm maintenance. If a road is primarily for the benefit of the adjacent tenants then the Pueblo would need some form of revenue generated by the tenants.

This could be in the form of an annual assessment or fee for the use of roads and other non-revenue generating components of the infrastructure. This revenue would be very similar to an "ad valorem" tax assessed by most municipalities against the value of land. The funds received should be put in a sinking fund that would accumulate and be available for maintenance as needed.

## LRTP Tribal Resolution

## Appendix A

## Appendix B



2017

## ANNUAL AVERAGE DAILY TRAFFIC (AADT) ON STATE OWNED AND MAINTAINED ROADS DISTRICT 5 - SANTA FE



2017 AADT ANNUAL AVERAGE DARY TRAFFIC ON 5 TATE OWNED AND MAINTAINED ROADS

3000-7999

2017
ANNUAL AVERAGE DAILY TRAFFIC (AADT) ON STATE OWNED AND MAINTAINED ROADS DISTRICT 5 - ESPANOLA AND POJOAQUE


# Nambé Pueblo Boundary Map 

Appendix C


Nambé Pueblo Boundary Map

# Pueblo of Nambé Road Settlement Agreement 

## Appendix D

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

## SETTLEMENT AGREEMENT

This Settlement Agreement ("Agreement") is by and between the Pueblo of Nambe ("Nambe" or "Pueblo"), Santa Fe County ("County"), and the United States Department of the Interior ("Department"). The Pueblo, the County, and the Department are sometimes each referred to as a "Party" and together as the "Parties."

## RECITALS

WHEREAS, certain County-Maintained Roads ("CMR") are located within the exterior boundaries of the Pueblo, segments of which traverse Pueblo Land and segments of which traverse Private Land; and

WHEREAS, the Department and the Pueblo have asserted that the CMRs traversing Pueblo Land are in trespass; and

WHEREAS, the County disputes that the CMRs are in trespass on Pueblo Land; and
WHEREAS, judicial resolution of this disagreement regarding the CMRs would be timeconsuming, expensive, and divisive, and would adversely affect the Parties' efforts to work collaboratively on other issues of critical concern; and

WHEREAS, conclusively resolving longstanding issues that have the potential to divide the community and providing long-term access to Private Land is of paramount importance to the Parties; and

WHEREAS, the CMRs are currently categorized as Bureau of Indian Affairs ("BIA") Roads on the National Tribal Transportation Facility Inventory ("NTTFI") without existing ROWs; and

WHEREAS, the Parties agree that granting long-term ROWs to the BIA for all of the CMRs in accordance with this Agreement, such that they remain BIA Roads during the term of such ROWs, will provide long-term access to the public, which includes access by non-Pueblo residents to houses located within the Pueblo's exterior boundaries.

## AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants and obligations set forth herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree to the terms contained herein.

Section 1. Definitions. Capitalized terms are defined either in the text of this Agreement or in this Section. In addition, the definitions found at 25 C.F.R. Parts 169 and 170 apply to this Agreement.

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

A. "Access Point" means the point identified on the County's survey conducted in cooperation with the Pueblo at which lawful ingress and egress to Private Land can occur. Access Points that serve two or more subdivided lots on Private Land are called "Common Access Points."
B. "Bureau of Indian Affairs" or "BIA" means the agency within the United States Department of the Interior that is responsible for carrying out, administering and overseeing the programs, functions, services and activities available to Federallyrecognized Indian Tribes, including the Pueblo.
C. "BIA Road ROWs" means long-term rights-of-way for each and every BIA Road on Pueblo Lands.
D. "BIA Road" means an existing or proposed public road listed on the National Tribal Transportation Facility Inventory that is, or will be, owned by the BIA as a Public Authority and for which the BIA has or plans to obtain a legal right-of-way. 25 C.F.R. § 170.5.
E. "Construction" means any road work activities that are not considered Maintenance as defined below.
F. "Contributed Funds Agreement" or "CFA" means the funding agreement to be entered into between the Secretary and the County pursuant to Sec. 611(d)(1) of the Aamodt Litigation Settlement Act, Pub. L. 111-291. The CFA will provide for the County's contribution of the non-Federal share of the costs of constructing the Regional Water System in accordance with the August 27, 2009 Cost Sharing and System Integration Agreement.
G. "County-Maintained Roads" or "CMR" means the following already existing Public Roads, whether on Pueblo Land or Private Land, within the exterior boundaries of the Pueblo: CMR 84E, CMR 84F, CMR 84G, CMR 106, CMR 113, CMR 113 South, CMR 113A, CMR 113B, CMR 115, CMR 117 South, CMR 117 North, CMR 119 South, and CMR 119 North. The CMRs are depicted on Exhibit A to this Agreement.
H. "Effective Date" means the date of last signature.
I. "Gap" means a gap of Pueblo Land located directly between Private Land and a Public Road that prevents lawful ingress and egress from the Private Land to the Public Road.
J. "Maintenance" means the preservation of the entire road, including surface, shoulders, roadsides, structures, and such traffic-control devices as are necessary for safe and efficient utilization of the road. 23 U.S.C. § 101 (a)(13).

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

K. "National Tribal Transportation Facility Inventory" or "NTTFI" means the comprehensive national inventory maintained by the Secretary of tribal transportation facilities that are eligible for assistance under the Tribal Transportation program. 25 U.S.C. § 202 (b)(1).
L. "Part 169" means 25 C.F.R. Part 169 - Rights-of-Way on Indian Land.
M. "Part 170" means 25 C.F.R. Part 170 - Tribal Transportation Program.
N. "Private Land" means the land located within the exterior boundaries of the Pueblo that the United States patented to private claimants or to which Indian Title has otherwise been duly extinguished. Discrete areas of Private Land may consist of one lot under common ownership or several lots under different ownership.
O. "Public Authority" means a Federal, State, county, town, or township, Indian Tribe, municipal, or other local government or instrumentality with authority to finance, build, operate, or maintain toll or toll-free transportation facilities. 23 U.S.C. § 101 (a)(21).
P. "Public Road" is a road open to public travel, and not subject to any type of tolls or fees collected by the Pueblo. 23 U.S.C. § 101 (a)(22).
Q. "Pueblo Land" or "Pueblo Lands" means real property owned by the Pueblo of Nambe in fee simple subject to Federal restrictions against alienation, or lands owned by the United States in trust for the benefit of the Pueblo.
R. "Regional Water System" means the Pojoaque Basin Regional Water System the Bureau of Reclamation will construct pursuant to the Aamodt Litigation Settlement Act, Title VI, Aamodt Litigation Settlement Act of the Claims Resolution Act of 2010, Public Law 111-291, 124 Stat. 3064, 3134-3156.
S. "Road Maintenance Agreement" or "RMA" means an agreement among the BIA, the Pueblo and the County authorizing the County to perform Maintenance and such other transportation-related activities on the BIA Roads as may be agreed in writing among the parties to the RMA from time-to-time.
T. "ROW" means right-of-way.
U. "Secretary" means the Secretary of the Interior or the Secretary's authorized representative.
V. "Trespass Damages" means all damages suffered by the Pueblo because of the CMRs presence, maintenance, and use from the beginning of time to the date of the approval of each ROW for each CMR; provided, however, that Trespass Damages does not include

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

damages, if any, relating to the release of regulated hazardous substances or other dangers on or below the surface of the earth, known or unknown.

## Section 2. Settlement Amount; Escrow; Survey Payment; and Waiver of Valuation.

A. The County agrees to pay the Pueblo a one-time, lump sum of One Million dollars ( $\$ 1,000,000.00$ ) ("Settlement Amount"), if and when the Secretary grants all of the ROWs to the BIA across Pueblo Land for each CMR. The purpose of the Settlement Amount is to: (1) provide compensation to the Pueblo for the Pueblo's consent to the grant of such ROWs to the BIA that is fair and reasonable under the circumstances; and (2) finally settle and resolve all Trespass Damages.
B. Within thirty (30) days after execution of this Agreement, the Parties shall select an Escrow Agent. Within 60 days after selection of the Escrow Agent, the County shall deposit the Settlement Amount with the Escrow Agent. The Escrow Agent shall hold the Settlement Amount until it receives notice from the Department that the Secretary will grant the Road ROWs to the BIA pursuant to Section 3(C)(5), or until the Escrow Agent receives notice of termination of this Agreement from the County or the Pueblo pursuant to Sections 13(B)(2) or 13(C)(2).

1. In the event that the Department gives the Escrow Agent notice that the Secretary will grant the ROWs, the Escrow Agent shall transfer the Settlement Amount directly to the Pueblo according to the instructions to be provided by the Pueblo's Governor.
2. In the event that the Escrow Agent receives notice of termination of this Agreement, the Escrow Agent shall transfer the Settlement Amount to the County according to the instructions provided by the County Manager.
C. As set forth by Tribal Resolution attached hereto as Exhibit B, the Pueblo:
3. Agrees that the Settlement Amount is satisfactory to the Pueblo as compensation for the Road ROWs and any Trespass Damages relating to past use of the CMRs;
4. Waives valuation of the Road ROWs;
5. Represents that it has determined that accepting such agreed-upon compensation and waiving valuation is in its best interest; and
6. Provides a limited waiver of the Pueblo's sovereign immunity as further described in Section 19(E).

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

D. The County shall reimburse the Pueblo fifty thousand dollars ( $\$ 50,000.00$ ) toward costs incurred by the Pueblo for the survey work by Precision.

## Section 3. General Obligations, County Funding, Consideration.

A. County Obligations: As may be further described in more detail in later Sections of this Agreement, the County has the following general obligations under this Agreement:

1. Transfer the Settlement Amount into escrow in accordance with Section 2(B).
2. Pay $\$ 50,000$ for access to the Precision survey in accordance with Section 2(D).
3. Within one (1) year after execution of the CFA, or earlier, which deadline may be extended by written agreement between the County and the Pueblo, the County shall at its expense:
a. Obtain such appropriate temporary permits or other written authorizations from the Pueblo, the BIA, or both, as may be required to conduct work on Pueblo Land.
b. Survey proposed ROWs for the CMRs. The survey shall identify all of the Access Points to the CMRs. In addition, the survey of the proposed ROWs for the CMRs shall eliminate or, if elimination is not feasible, minimize the number and width of Gaps between the Access Points and Private Land.
c. Prepare such plats and legal descriptions of the CMR ROWs as may be required to support ROW applications for these Roads on Pueblo Land under Part 169.
d. Conduct such studies, assessments, and investigations and prepare such reports as may be required to support the ROW applications under Part 169 for the CMRs on Pueblo Land.
e. Submit draft ROW applications and related documents to Pueblo staff and the BIA for review and comment.
f. After incorporating the comments of Pueblo staff and the BIA on the draft ROW applications, transmit the applications to the Pueblo for the Council's consideration and consent.
g. Convey the County's existing ROWs to the BIA for the CMRs where they traverse Private Land. The forms of conveyance shall be prepared by the County Attorney and approved by the BIA, in consultation with the Office of the Solicitor, Southwest Region.

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

B. Pueblo Obligations. As may be further described in more detail in later Sections of this Agreement, the Pueblo has the following general obligations under this Agreement:

1. Upon the County's payment pursuant to Section 2(D) above, the Pueblo will provide to the County any and all Precision survey data related to the CMRs in the possession of the Pueblo or Precision.
2. As soon as practicable after the Effective Date, the Pueblo will provide to the County such environmental, archaeological, cultural or other information, data, and reports as may be pertinent under Part 169 and that is within the possession of the Pueblo or its agents.
3. Cooperate with and assist the County as may reasonably be necessary to facilitate the County's performance of its obligations under this Agreement.
4. Timely issue permits and such other authorizations as may be necessary for the County to work lawfully on Pueblo Land.
5. Timely consider and provide written comment on the County's submission of draft ROW applications and related documents.
6. Timely submit proposed ROW applications approved by Pueblo staff to the Council for consideration.
7. Timely obtain resolutions from the Council consenting to submission of complete ROW applications to the BIA.
8. The Pueblo agrees to submit the completed ROW applications along with the Council's consenting resolution to the BIA.
C. Department Obligations. As may be further described in more detail in later Sections of this Agreement, the Department has the following general obligations under this Agreement:
9. Cooperate with and provide technical assistance to the County and the Pueblo as may reasonably be necessary to facilitate the performance of their obligations under this Agreement.
10. Timely issue permits and such other authorizations as may be necessary for the County to work lawfully on Pueblo Land.
11. Timely consider and provide technical assistance on the County's submission of draft ROW applications and related documents.

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

4. Timely review ROW applications for completeness and compliance under Part 169 , timely request additional documentation or information from the submitting party as may be necessary and timely forward complete ROW applications to the Secretary.
5. In the event that the Secretary, after review of the documentation submitted by the County, with the support and consent of the Pueblo pursuant to this Agreement, and under his authority and any applicable laws or regulations, decides to grant the ROW, the Department will notify the Parties and the Escrow Agent at least ten (10) days before the Secretary will grant the ROW.
D. General Obligations of All Parties. All Parties have the following general obligations under this Agreement:
6. Cooperate in good faith and reasonably assist each other in performing their respective obligations under this Agreement.
7. Timely execute the releases of liability required under this Agreement.
8. Timely prepare and execute, as appropriate, such other instruments and documents as may reasonably be required to carry out the purposes of this Agreement.
E. Satisfactory Consideration. The Pueblo agrees that the purpose of the County's payment of the Settlement Amount and performance of its other obligations under this Agreement is to: (1) provide consideration to the Pueblo for the Pueblo's consent to the Secretary's grant of ROWs on Pueblo Land for the CMRs that is fair and reasonable under the circumstances; and (2) finally settle and resolve all Trespass Damages. Further, the Pueblo agrees that the County's payment of the Settlement Amount and performance of its other obligations under this Agreement is satisfactory to the Pueblo as consideration for the BIA Road ROWs and other permitted access described herein.
F. Special County Funding Source. The source of County revenue that the County will use to perform its obligations under this Agreement is
$\qquad$ Special Funding Source fails to generate sufficient revenue for the County to timely perform its obligations under this Agreement, the County may use other funds for such performance as may be approved and appropriated by the Board of County Commissioners in its discretion.

## Section 4. CMR ROWs--General.

A. The County shall promptly complete the ROWs applications for the CMRs on Pueblo Lands and submit them to the Pueblo for review and comment. After the County and the

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

Pueblo agree on the contents of the application(s) for a given CMR on Pueblo Land, the Parties shall follow the process set out in Section 3(A)(3) above.
B. Each CMR ROW that traverses Pueblo Land and that complies with Part 169 shall be for a proposed term of ninety-nine (99) years with an automatic renewal for another ninetynine (99) years, and the Pueblo shall consent to such initial and automatic renewal terms by resolution of its Council or in such other form as the Secretary may require. The width of the CMR ROWs on Pueblo Land shall be from the centerline of the CMR to the boundary of the Private Land, so long as the width does not exceed twenty five (25) feet on either side of the centerline of the CMR.
C. For those portions of a CMR that traverse Private Lands, the County, in consultation with the Pueblo and the BIA, shall convey its existing ROWs to the BIA under the laws of the State of New Mexico for a term of ninety-nine (99) years with an automatic renewal for another ninety-nine (99) years. The County shall assign its existing ROWs over Private Lands to BIA no later than sixty (60) days after the Secretary grants all of the CMR ROWs across Pueblo Land for a given road. The effective date of the County-granted ROWs shall be the same as the Secretary-granted ROWs for a given CMR. In the event an existing County ROW is challenged in State or Federal court, the County shall defend the ROWs and its conveyance to BIA, and, if necessary condemn the necessary rights, subject to Section 3(F).
D. Upon expiration of the second ninety-nine (99) year term of a CMR ROW, whether on Pueblo Land or on Private Land, the portion of the CMR that was within the expired ROW shall return to the same legal status held prior to this Agreement, unless the Parties otherwise agree.

## Section 5. ROW Application and Approval.

A. The Pueblo and the County agree that federal law, including 25 U.S.C. §§ 323-328 and Part 169, controls the application, granting and administration of ROWs on Pueblo Lands. Nothing in this Agreement shall be construed to restrict the authority of the Secretary, or the Pueblo under applicable laws or regulations, including but not limited to, laws and regulations applicable to the review and grant of ROWs by the Secretary. However, the Department represents that nothing in this Agreement is inconsistent with the applicable federal laws and regulations.
B. In order to expedite the ROW development, submission and review process, the Pueblo and the County agree to use ROW templates to be provided by the BIA. The BIA has been and will continue providing technical assistance to the Pueblo and the County with respect to developing the ROW applications. The Pueblo and the County acknowledge,

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

however, that such technical assistance shall not constitute a grant of, or promise to grant, any ROW across Pueblo Land by the Secretary.
C. For each CMR ROW application, the County shall develop an accurate legal description of the ROW, including its boundaries, Access Points, and a map of definite location of the ROW. Additionally, the County shall place survey caps at agreed-upon locations five hundred (500) feet along both sides of the ROWs. The County shall be responsible for conducting any surveys necessary to support application to the BIA for the ROWS including the costs of such surveys.
D. The Pueblo and the County shall cooperate with respect to the preparation and filing of documentation necessary for the Secretary to grant ROWs for the CMRs (across Pueblo Land). The Pueblo agrees to prepare, execute, and submit to the BIA such further documents as may be required by the BIA in support of the County's application(s) subject to any limitations contained herein. The Pueblo shall pay no additional costs related to any surveys.
E. As soon as practicable after the Pueblo and County agree on the contents of the CMR ROW applications, the Pueblo shall submit the applications to the BIA Southwest Regional Road Engineer for initial review, execution and forwarding for the Secretary's review. The documentation shall comply with the requirements of Part 169, including but not limited to, identifying the Pueblo Lands affected by the ROWs, maps of definite location for each and every ROW, and the ownership of permanent improvements associated with the ROWs.
F. All CMR ROWs shall be for the primary purpose of maintaining a BIA Road, with Construction identified as a secondary purpose.
G. The Parties agree that the insurance provided by the County under Section 11(G) satisfies the requirement of 25 C.F.R. § 169.103. In addition, the Pueblo shall request and the BIA shall agree to a waiver of the requirement that a bond, insurance, or alternative form of security be submitted with the ROW application.
H. The Secretary shall accept the Pueblo's determinations as reflected in this Agreement and the Tribal Resolution attached as Exhibit B, including: (1) that payment of the Settlement Amount constitutes adequate compensation to compensate it for Trespass Damages; (2) that valuation is waived; (3) that accepting such agreed-upon compensation and waiving valuation is in the Pueblo's best interest; and (4) that the Pueblo provides a limited waiver of the Pueblo's sovereign immunity as further described in Section 19(E).

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

I. The Department shall cause the granted ROWs to be recorded with the BIA's Land Title and Records Office as expeditiously as possible.

Section 6. Automatic Renewal of ROWs. The ROWs for the CMRs will automatically renew for an additional ninety-nine (99) year term unless this Agreement has been terminated prior to expiration of the initial term in accordance with the terms of this Agreement and Part 169.

## Section 7. Roads to Remain Open to the Public.

Consistent with the Pueblo's resolution consenting to the ROW for the BIA Roads, the Pueblo shall confirm that each BIA Road remains on, or is added to, the NTTFI. The Pueblo further confirms and agrees that the Pueblo shall not request Secretarial approval for the closure and removal from the NTTFI of any BIA Road, or revocation of the ROW for such BIA Road, during the terms of the BIA Road ROW and any renewal or extension thereof, unless this Agreement is terminated as provided below. The Pueblo and the County may mutually request closure of any BIA Road and revocation of its associated ROW in the event that the BIA Road no longer provides access to any Private Land. The Pueblo may temporarily close BIA Roads for cultural activities pursuant to 25 C.F.R. § 170.114.

## Section 9. Interim Access.

A. The Pueblo agrees to provide legal access to all Private Land through a grant of temporary access from either an Access Point or Common Access Point off of a Public Road for a maximum term of one (1) year or until the ROWs are granted, whichever is first. This grant of temporary access does not, and shall not, authorize access over Pueblo Land from any unauthorized roads.

## Section 10. Gap and Other Access Issues.

A. Each lot on Private Land shall be paired with one surveyed Access Point; provided, however, that in some cases the same Common Access Point may be paired with multiple lots on Private Land.
B. When it surveys the CMRs, the County shall survey the Gaps that exist within twentyfive (25) on either side of the centerline of the CMR, and shall include such surveys in the ROW applications described herein.
C. For any Gaps, if any, that extend beyond twenty-five (25) feet on either side of the centerline of the CMR, the Pueblo will provide a process for private residents to obtain a ROW pursuant to 25 CFR Part 169. The Pueblo agrees that such Gap ROWs shall be for a term of up to thirty five (35) years for a nominal fee.

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

D. The County shall require access to be solely through legal Access Points for future development on non-Pueblo land.

## Section 11. Road Maintenance and Construction.

A. The County shall maintain the CMRs at the County's expense pursuant to an RMA for the entire term of the ROWs granted in accordance with this Agreement. Between the Effective Date and the date of the grant of the ROWs in accordance with this Agreement, the County shall continue to maintain the CMRs.
B. Within sixty (60) days of the granting of the ROWs by the Secretary, the Parties shall execute a Road Maintenance Agreement authorizing the County, in consultation with the Pueblo, to perform Maintenance and such other transportation-related activities on the BIA Roads as may be agreed in writing among the Parties from time-to-time. The RMA may also permit the County to transfer to the BIA an agreed-upon amount of funds to adequately maintain the BIA Roads. The Parties acknowledge, and the RMA shall reflect, that "Adequate Maintenance" means maintaining each and every one of the BIA Roads at the existing Level of Service or above for each road as agreed upon by the Parties on or before the date of execution of the RMA.
C. Nothing in the RMA or this Agreement shall be construed to restrict or otherwise interfere with the BIA's authority to carry out, oversee, inspect, enforce or approve Maintenance, other transportation-related activities, or any other lawful activity on the BIA Roads.
D. For any Maintenance or other activities carried out on the ROWs by County contractors, the County shall require its contractors to provide performance bonds and have insurance covering all aspects of the Maintenance or Construction activities to ensure that any such activities, including any remediation work, are completed and any damage to land within the exterior boundaries of the Pueblo, or real or personal property is remedied.
E. The County shall not assign the RMA without the consent of both the Pueblo and the BIA.
F. The County does not currently have plans to request any Construction activities to improve any of the BIA Roads. In the event the County plans to propose Construction within any ROW, including but not limited to replacing an earthen-driving surface with an asphalt surface, the provisions of the ROW grant and the RMA shall apply.
G. The County agrees to maintain throughout the term of the ROWs general liability insurance to cover its maintenance of the BIA Roads, which shall be subject to approval in amount of coverage and form by the Office of the Solicitor, Southwest Region. The

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

United States, the BIA and the Pueblo shall be named as "additional insureds" under such policy

The Parties agree to address in the RMA claims/occurrences arising from the County's or its contractors' maintenance of BIA Roads that are excluded by the County's or its contractors' insurance, and claims/occurrences that exceed the County's or its contractors' insurance coverage limits.
H. The Pueblo shall not tax any current or future road improvements within the ROWs; provided, however, that the Pueblo reserves the right to levy gross receipts taxes in accordance with applicable law on any contractors or subcontractors conducting the Maintenance or Construction activities. In addition, nothing herein shall affect the applicability of the Pueblo's business license requirement to all contractors and subcontractors performing Maintenance or Construction activities within the ROWs, nor shall this Agreement affect the application of any other Pueblo laws and ordinances within the ROWs; provided, however, that no such law or ordinance shall operate to terminate or change the terms of any ROW granted to the BIA.
I. In no event shall the County, BIA or Pueblo be responsible for maintaining the Gaps.

## Section 12. Utilities.

A. The County agrees that the Pueblo has sole jurisdiction to grant easements, subject to BIA approval, for utilities along any and all CMRs on Pueblo Land..
B. The Parties acknowledge that any ROW granted pursuant to this Agreement shall not authorize the installation of utilities within the ROWs or any other uses, unless specifically otherwise provided in that ROW instrument.
C. The County will not issue road cut permits for installation of utilities or other purposes for any BIA Road.

## Section 13. Contingencies.

A. No ROW applications shall be submitted to either the Southwest Regional Road Engineer for initial review and forwarding to the Secretary, or by the County to the Secretary, for review until the Contributed Funds Agreement for construction of the Regional Water System is executed by the County and the Bureau of Reclamation. The Contributed Funds Agreement shall identify a funding source for the County's contribution.
B. In the event that the County and the Bureau of Reclamation do not enter into a Contributed Funds Agreement by April 2, 2018, the following provisions shall apply:

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

1. The County shall notify the Pueblo that the County and the Bureau of Reclamation have not entered into a Contributed Funds Agreement, which notice shall be given in accordance with Section 20; provided, however, that the County shall have no obligation to provide such notice if the County has executed the Contributed Funds Agreement and it is merely awaiting due execution by the Bureau of Reclamation.
2. The Pueblo shall have sixty (60) days from the date of such notice to terminate this Agreement by giving the County notice of such termination, which notice shall be given in accordance with Section 20. Should the Pueblo not timely terminate this Agreement, all other provisions of this Agreement shall continue to be valid and binding.
3. Notwithstanding Sections 13(B)(1) and 13(B)(2), this Agreement shall not terminate, if the Bureau of Reclamation provides written notice, with copies to the County and the Pueblo, that the Bureau of Reclamation and the County require additional time to finalize and execute the Contributed Funds Agreement and that the delay in executing that Agreement will not delay substantial completion of the Regional Water System.
C. Should the Secretary deny the grant of any of the ROWs, the following provisions shall apply:
4. If the Secretary issues a final decision denying the grant of any of the ROWs pursuant to 25 C.F.R. § 169.24, the Pueblo and the County agree to discuss whether to appeal the decision or modify this Agreement. If they choose to appeal and the appeal is unsuccessful, the Parties shall promptly meet to renegotiate this Agreement. If the Parties are unable to agree on amendments to this Agreement or on some other mutually agreeable outcome, any Party shall have the option to terminate this Agreement within thirty (30) days from receiving notice from the BIA that the ROWs were denied. The Party choosing to terminate this Agreement will give notice to the Parties in accordance with Section 20.
5. If the Secretary denies the grant of any of the ROWs because the Secretary requires modifications to the application or any measures needed to meet applicable law in order to grant the ROW applications, the Parties shall promptly meet to discuss and revise this Agreement or applications, or both, as appropriate, unless the Parties agree otherwise. If the Parties are unable to agree on amendments to this Agreement, applications, or on some other mutually agreeable outcome, any Party shall have the option to terminate this Agreement within thirty (30) days from receiving notice from the BIA that the ROW applications required

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

modification. The Party choosing to terminate this Agreement will give Notice to the Parties in accordance with Section 20.

## Section 14. Release of Claims.

A. Release of Claims Against the County. If the Secretary grants the ROWs for the CMRs, then on the day that the last such ROW is granted and the Settlement Amount is paid to the Pueblo, the Department and the Pueblo shall irrevocably and forever release and discharge the County, former and current County employees, and former and current County elected officials from any and all past claims of Trespass Damages, from the beginning of time to the date of the grant of the ROWs for the CMRs.
B. Release of Claims Against the United States and the Department. If the Secretary approves the ROWs for the CMRs, then on the day that the last such ROW is granted the Pueblo and the County agree to irrevocably and forever release and discharge the United States and the Department, former and current Department employees from any and all past surface trespass claims, known or unknown, at law or in equity related to the CMRs from the beginning of time to the date of the approval of the ROW for each CMR. The Pueblo also hereby waives, releases, and covenants not to sue the United States in any administrative or judicial forum for any alleged harms or violations, including any breach of the trust responsibility of the United States to the Pueblo, related to past surface trespass claims for the CMRs, negotiation and entry by the Department into this Agreement, from the beginning of time to the date of approval of each ROW for each CMR.
C. Release of Claims Against Nambe. If the Secretary grants the ROWs for the CMRs, then on the day that the last such ROW is granted the County agrees to irrevocably and forever release and discharge the Pueblo, former and current Pueblo employees, and former and current Pueblo elected officials from any and all claims, known or unknown, at law or in equity related to the CMRs from the beginning of time to the date of the approval of each ROW for each CMR.

## Section 15. Reservation of Rights, Compromise Discussions, No Admission of Liability.

A. Upon the expiration or early termination of this Agreement, the Parties expressly reserve all rights and claims.
B. In the event a Party terminates this Agreement pursuant to Section 13 and there is subsequent litigation concerning the CMRs or the BIA Roads, this Agreement shall be regarded as inadmissible compromise negotiations under Rule 11-408 NMRA and Federal Rule of Evidence Rule 408; provided, however, that this Agreement may be

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

admitted for the sole purpose of enforcing the terms of the Agreement, including to challenge any claims by any Party that a claim asserted against it is barred or waived.
C. This Agreement shall not constitute or be construed as an admission of liability by any Party or as an admission of violation of any law, rule, regulation or policy by any Party. This Agreement also shall not constitute or be construed as an admission or denial by any Party with respect to any factual or legal allegation or issue with respect to the CMRs.

## Section 16. Governing Law.

A. This Agreement shall be governed by the laws of the United States.
B. The Pueblo and the County acknowledge that nothing in this Agreement confers jurisdiction on any non-Federal court to interpret Federal Law regarding health, safety, or the environment, or to otherwise determine the duties of the United States or other parties pursuant to such Federal law, or to conduct judicial review of any Federal agency action.

## Section 17. Merger, Amendments, Rules of Construction, Successors and Assigns.

This Agreement: (a) fully states the agreement between the Parties; (b) may be amended only by written amendment signed by all Parties; (c) shall not be construed against any Party as the drafter of the Agreement; and (d) shall be binding on and inure to the benefit of the Parties' successors and assigns.

## Section 18. Representations.

The undersigned represent and warrant that they are fully authorized to execute this Agreement on behalf of the persons and entities indicated below.

## Section 19. Dispute Resolution.

A. If any of the Parties disagree concerning the interpretation or implementation of any provision of this Agreement, or if any dispute arises out of or relates to this Agreement, or the breach thereof, the disputing Parties shall commence direct good faith negotiations within thirty (30) calendar days concerning the dispute after one Party notifies the other of the dispute in writing.
B. If the Parties are unable to resolve a disagreement within sixty (60) calendar days of their first meeting on the subject, the Parties shall promptly refer the disagreement to a single mediator upon whom the Parties can agree. The Pueblo, the Department and the County shall share the costs of the mediator equally. If the Parties are unable to agree upon a mediator, or if they are unable to resolve the disagreement within sixty (60) calendar days of its referral to the mediator, or within any other time interval on which the Parties

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

unanimously agree, the Pueblo and County may have recourse to any legal or equitable remedies available to them in Federal court.
C. The Pueblo and the County acknowledge that while the Department may participate as a Party in the mediation process described above, neither such participation in mediation nor anything else in this Agreement waives, or shall be construed as any waiver of, the sovereign immunity of the United States. Except as provided in Section 14, nothing in this Agreement shall limit any remedies available to the Pueblo or the County pursuant to 25 C.F.R. Part 2, 25 C.F.R. Part 169, the Administrative Procedure Act, or any other applicable Federal law.
D. If after the Pueblo and the County fail to resolve the dispute by mediation and there is still an unresolved controversy, claim, or dispute arising from or relating to this Agreement, or breach thereof, the Pueblo and the County agree that such dispute shall be brought before a court of competent jurisdiction. In the absence of the Department or the United States, the Pueblo and the County each agree not to raise F.R.C.P. Rule 19 as a defense to any such lawsuit.
E. The Pueblo waives its sovereign immunity only as to suits limited to interpretation or enforcement of this Agreement brought in a court of competent jurisdiction. Attached hereto as Exhibit B is a Resolution of the Pueblo approving this Agreement, including the limited waiver of sovereign immunity provided herein. The County's sovereign immunity is waived as to actions to interpret or enforce this Agreement in accordance with NMSA 1978, Section 37-1-23.

## Section 20. Notices.

A. Any notice, demand, request, or information authorized or related to this Agreement shall be deemed to have been given if mailed by certified or registered mail, return receipt requested, hand delivered, or faxed as follows:

To The County:
County Manager
Santa Fe County
P.O. Box 276

Santa Fe, New Mexico 87504
Fax: 505.995.2740
With a Copy To:
County Attorney
Santa Fe County
P.O. Box 276

Santa Fe, New Mexico 87504

## DRAFT PUEBLO OF NAMBE ROAD SETTLEMENT AGREEMENT JANUARY 19, 2018, DISCUSSION DRAFT

Fax: 505.986.6362
To the Pueblo of Nambe:
Governor
With A Copy To:

To the Department of the Interior:
Regional Director, Southwest Region 1001 Indian School Road NW
Albuquerque, NM 87104
Fax: 505.563.3101
With A Copy To:
Office of the Solicitor, Southwest Region 505 Marquette Ave NW
Suite 1800
Albuquerque, NM 87102
Fax: 505.248.5623
Notice shall be deemed to have been given based upon the method of delivery, as follows: notices sent by facsimile or hand delivered shall be deemed given on the date of delivery, as evidenced, with respect to facsimile delivery, by a printout showing successful transmission of all pages included in the notice; notices sent by mail shall be deemed given three (3) business days after the notice is mailed with postage prepaid.
B. A Party may change the persons to whom or addresses at which notice shall be given by giving all other parties notice of the change in accordance with this Section.

## Section 21. No Third Party Beneficiary Rights.

This Agreement is not intended to and shall not be construed to give any Third Party any interest or rights (including, without limitation, any Third Party beneficiary rights) with respect to or in connection with any agreement or provision contained herein or contemplated hereby.

## Section 22. Private Claims Unaffected.

The Parties acknowledge and agree that this Agreement and the subsequent grant of any of the ROWs do not waive, satisfy, or discharge claims (if any) at law or in equity that Third-parties may have against the County, the Pueblo, or the Department related to the CMRs or access to Private Lands.

## Section 23. Contingency of Federal Appropriations.

The expenditure or advance of any money or the performance of any obligation of the United States under this Agreement shall be contingent upon appropriation or allotment of funds. No liability shall accrue to the United States in case funds are not appropriated or allotted.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the dates set forth below.


# Multi-use Trail and Recreation Trail Map 

## Appendix E

Nambe Pueblo Proposed Multi-Use Trail Map


Legend - Proposed Multi-Use Trail
—_— Phase 1-1.73 Miles
Phase 3-1.96 Miles
$0 \begin{array}{lll} & \\ 0 & 0.5 & 1 \\ & & 1 \text { inch }=0.68 \text { miles }\end{array}$

## Nambe Pueblo Recreational Trail Map



## Legend - Recreational Trails

Subdivsion Street - 84 Miles

## Appendix F

Nambe Pueblo Transportation Network


Appendix G

# LONG RANGE TRANSPORTATION PLAN UPDATE PLANNING CHARRETTE 

Summary<br>12 November 2019<br>Phase I. Preliminary Plan Development Planning Charrette

The planning group goal was to provide and share historical data, review, discuss existing conditions and projected changes that will be utilized in developing the long range transportation plan update. The following is a summary of that event.

On the above referenced date a planning meeting was conducted by ICA on behalf of and in conjunction with department members of Nambe Pueblo. Introductions complete, Raymond Lopez, along with Marcus Lopez, Nambe Pueblo took the opportunity to explain the purpose and importance of a Long Range Transportation Plan (LRTP). The purpose of transportation planning is to address current and future transportation, land use, economic development, traffic demand, public safety, health, and social needs.

A substantial amount of time was spent discussing conveyance, crime reduction and areas that may be open, illegal dumping along with access control, economic, housing, recreational/interpretative development and enforcement of tribal laws. Multi-use trails seem to be the common thread of discussion, with the Pueblo of Cochiti Multi-use Trail System used as a frame of reference.

Additional thought was also given to economic development with an emphasis on NP101, Nambe Falls and NM Highway 503 including agriculture, turning fallow fields into production. A concern was expressed with respect to non-tribal lands within the pueblo and how access could be a problem.

Recreation was also a topic of discussion with an emphasis on sustainable programs, introduction of new sport activities like kayaking, use of arroyos for ATV's, pedestrian walkways with bridge crossings, improving the Old Wagon Trail (Old Santa Fe Trail), river walk and lake boat ramp.

Interconnectivity was discussed; the effects on existing facilities with regard to access and expanded use. Some of those facilities of concern included the services provided by the senior center, inclusive of providing transportation to the elderly with respect to socializing through assistance of special and daily activity, the RTD, an area school late and commodities shuttle, increased ability to connect present and future population clusters such as subdivision 117 and 118. Access to Bison Range was briefly discussed.

Prepared by:
ICA, LTD.

# LONG RANGE TRANSPORTATION PLAN UPDATE PLANNING CHARRETTE 

## Agenda <br> 12 November 2019

## Phase I. Preliminary Plan Development Planning Charrette

Compile/Update Planning Information and Present: The planning group goal is to provide and share historical data, review, discuss existing conditions and projected changes that will be utilized in developing the long range transportation plan update.
*Highways, Tribal \& Other Roads
Pueblo Inventory Data (Accidents, Traffic Flow)
Intermodal Infrastructure
*Socio-economic Trends
Households and Families
Geographical Mobility
Education
Income
Labor Force and Employment
Employment Travel
*Economic \& Community Development Plans
Forecasts
Travel Behaviors
Demands
*Pueblo Land Use Plans
Pueblo Land Use
Primary Growth Centers
Secondary Growth Centers and Pueblo Satellite Communities
Environmental Resources, Impacts
*Health Services Plans
Community Health Representative (CHR)
Social Services
Availability and Conveyance
*Housing Plans
Populations Centers
Housing Programs

# LONG RANGE TRANSPORTATION PLAN PLANNING PROCESS 

Phase I. Preliminary Plan Development Planning Charrette<br>Compile/Update Planning Information<br>*Highway, Tribal \& Other Funding<br>*Socio-economic Trends<br>*Economic \& Community Development Plans<br>*Pueblo Land Use Plans<br>*Health Services Plans<br>*Housing Plans<br>Phase II. Preliminary Plan Development Review<br>Update Nambe Pueblo Transportation System<br>*Pueblo Inventory Update Data<br>*BIA/US Highways, Tribal, County, State<br>Intermodal: Airport, Bridges, Transit, Rail<br>\section*{Phase III. Final Plan Development}<br>Transportation Needs Assessment<br>Transportation Issues:<br>*Funding Issues, Policy Issues, Other Issues<br>PUBLIC PARTICIPATION<br>*Development Needs<br>*Future Land Use Plans<br>*ADT/Traffic Demand Analysis<br>*Road Design Deficiency Needs<br>*Safety Analysis<br>Needs and Recommendations<br>LRTP Policies:<br>*Goals<br>*Financial Plan<br>*Strategies \& Priorities<br>*Criteria<br>Needs and Recommendations:<br>*BIA Roads/US Highway<br>*Tribal Roads<br>*State Roads<br>*County Roads<br>PUBLIC PARTICIPATION<br>*Safety Needs<br>*Multi-use Pedestrian Path/Walkway Needs<br>\section*{Phase IV. Review \& Finalize Plan}<br>Pueblo Roads \& Transportation Department Review<br>Final Plan Submittal<br>Final Plan Approval



LONG RANGE TRANSPORTATION PLAN UPDATE PLANNING CHARRETTE

Sign-In Sheet
12 November 2019
Phase I. Preliminary Plan Development Planning Charrette
Compile/Update Planning Information and Present: The planning group goal is to provide and share historical data, review, discuss existing conditions and projected changes that will be utilized in developing the long range transportation plan update.

Name:
Affiliation:
Address/Telephone:
Email:
Marcus Lopez NambéPreblo Sos-45s-4424 mkper@narbepuebleors
Fy liger ICAA CTI,
 Joelc.m-Htorse Coast. Manager $505-455-7443$ jmchorse Enambepubblarg.
 Rod Kasksill NPAFS-DVP Cowdinator $455-5593$ rkaskalla promhepuetso.ory
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# Citizen Participation Questionnaire Community Needs Assessment 

## Appendix H

# NAMBE PUEBLO ROADS \& TRANSPORTATION DEPARTMENT 

15A NP 102 West<br>Nambe Pueblo, New Mexico 87506<br>Phone: 505-455-4424

## 2020 Community Needs Assessment

1. Are you currently or have you ever been a pedestrian or bicyclist on any roads in the Pueblo? $\qquad$ If yes, what roads are you using and what destination are you heading to?
2. Do you believe that it is dangerous being a pedestrian or bicyclist in the Pueblo? $\qquad$
If yes, what roads do you feel are dangerous and why?
3. Would you support a Multi-Use Pedestrian/Bicyclist Trail in the Pueblo? $\qquad$
If yes, what areas in the Pueblo would you like to see connected by the Trail?
4. Are you currently or have use ever used the NCRTD Dial-A-Ride Service? $\qquad$
If no, please explain why you do not use the Dial-A-Ride Service?
5. Would you prefer a fixed NCRTD Bus Route over the Dial-A-Ride Service?
6. Would you or your family benefit from a Pueblo Owned On-Demand Free Transit Service? $\qquad$
7. Do you feel that there is a lack of options for alternative modes of transportation besides a car? Explain?
8. Do you feel that the roads in the Pueblo are clear \& not obstructed? $\qquad$ If no, what roads do you think need to be better maintained?
9. What roads in the Pueblo do you feel should be a priority for improvements or rehabilitation?
10. What are your major safety concerns in the Pueblo with the roadways?
11. Where in the Pueblo would you like to see future residential development (i.e. a new housing subdivision)?
12. Where in the Pueblo would you like to see future economic/recreational development (i.e. renewable energy, stores, off-road trails etc.)
13. What can the Roads \& Transportation Department do to make your roads safer?
14. Any other comments or suggestions?
$\qquad$
$\qquad$
$\qquad$

The first 80 people who fill out and return this survey to Marcus Lopez with the Roads \& Transportation Department will receive a brand new long sleeve shirt. Note: SURVEY MUST BE COMPLETE TO RECEIVE PRIZE. Thank you in advanced for doing your part to make our roads better. Form can also be scanned and emailed to mlopez@nambepueblo.org.


## Nambe Pueblo Roads and Transportation Department

15A NP 102 West
Nambe Pueblo, New Mexico 87506
Prepared By: ICA, LTD
2020 Community Needs Assessment
TABULATION
1 Are you currently or have you ever been a pedestrian or bicyclist on any roads in the Pueblo?
2 Do you believe that it is dangerous being a pedestrian or bicyclist in the Pueblo?
3 Would you support a Multi-Use Pedestrian/Bicyclist Trail in the Pueblo?
4 Are you currently or have use ever used the NCRTD Dial-A-Ride Service?
5 Would you prefer a fixed NCRTD Bus Route over the Dial-A-Ride Service?
6 Would you or your family benefit from a Pueblo Owned On-Demand Free Transit Service?
7 Do you feel that there is a lack of options for alternative modes of transportation besides a car?
8 Do you feel that the roads in the Pueblo are clear \& not obstructed?
9 What roads in the Pueblo do you feel should be a priority for improvements
or rehabilitation?

10 What are your major safety concerns in the Pueblo with the roadways?

11 Where in the Pueblo would you like to see future residential development
(i.e. a new housing subdivision)?

| YES | NO | TOTAL |
| :---: | :---: | :---: |
| 22 | 8 | 30 |
| 26 | 4 | 30 |
| 26 | 4 | 30 |
| 5 | 25 | 30 |
| 12 | 18 | 30 |
| 21 | 9 | 30 |
| 21 | 9 | 30 |
| 19 | 11 | 30 |
|  | NP101/Rd to Falls | 9 |
|  | Plaza | 2 |
|  | All Roads | 2 |
|  | None | 5 |
|  | CR84F | 2 |
|  | CR119 | 1 |
|  | Bayay Poe | 1 |
|  | Back Roads | 1 |
|  | NP101 \& 102 East | 3 |
|  | Buu Pingeh | 1 |
|  | SF C47 | 1 |
|  | Povi Din | 1 |
|  | Kudi Road | 1 |
|  | None | 3 |
|  | Potholes | 1 |
|  | Over Grown Vegetation | 2 |
|  | Drainage | 2 |
|  | Speeding | 13 |
|  | Non-tribal Driving | 1 |
|  | Speed Hump Removal | 2 |
|  | Lighting | 1 |
|  | Roadway Guardrails | 1 |
|  | Pedestrian Visibility | 2 |
|  | Mud, Livestock | 1 |
|  | Feral Animals | 1 |
|  | Distracted or Impaired Motorist | 1 |
|  | No Development | 4 |
|  | Near Wellness Center | 2 |
|  | Senior Center (Comodities) | 1 |

12 Where in the Pueblo would you like to see future economic/recreational development (i.e. renewable energy, stores, off-road trails etc.)

13 What can the Roads \& Transportation Department do to make your roads safer?

14 Any other comments or suggestions?

503 North of (Comodities) 10 Buffalo Range / Subdivision Area 4
All of the Pueblo 1
Eastside
Existing Developed Areas
Ko Range
NP118
Across from Headstart 1
Gravel Pits 1
Off Road Trails 3
Along the River 1
Behind the Senior Center 4
Park \& Wellness Center Area 2
503 North of Commodities 8
No Particular Location 5
Lake Facilities 1
Travel Center/Convienence Store $\quad 1$
None
Cuyamungue Area 1
Buffalo Range 1
Regular Roadway Maint. 1
Speeding /Speed Bump Review 1
Bike and Pedestrian Roadway Improvements $\quad 1$
Information and Road Signage 1
Snow Removal 1
Crosswalks 1
School Zone Lighting
Livestock Fencing along Poechunu Poe 1
$\begin{array}{ll}\text { Drainage and Driveway Improvements } & 1 \\ \end{array}$
Roadway Lighting 1

Railing at Arroyos 1
Traffic updates, Road Closures, Construction Delays 1
Bi-lingual Road Signs 2
Do not Urbanize Pueblo 1
Keep up the good work 2
Enforce Feral Animal Ordinance 2
Better Information Signage 2 2

Roads with Separate Paths 1
Speed Humps on NP175 \& Buffalo Subdivision 2
Closswalks from Wellness Cntr to Buffalo Range 1
New Ways Around Plaza 1

## Appendix B-Collision Data Table

## COLLISION DATA NMDOT 2014-2018 NAMBÉ PUEBLO STUDY AREA

| $\begin{array}{\|c\|} \hline \text { CRASH } \\ \text { REPORT } \\ \text { NUMBER } \\ \hline \end{array}$ | CRASH | момтн | $\begin{gathered} \text { TME } \\ \text { CRE } \\ \text { CRASH } \end{gathered}$ | $\begin{gathered} \text { Hour } \\ \text { cif } \\ \text { CRASH } \end{gathered}$ | $\begin{gathered} \text { Day } \\ \text { of } \\ \text { weEk } \end{gathered}$ | Law enforcement agencr | countr | cाr | Primary Street | SECONDARY STREET | Lanomark Location | $\begin{gathered} \text { GIS } \\ \text { DERIVED } \\ \text { ROUTE NAME } \end{gathered}$ |  | CRASH | DIRECTION FROM NTERSECTION | $\begin{aligned} & \text { DISTANCE } \\ & \text { FROM } \\ & \text { LANDMARK } \end{aligned}$ |  | $\begin{gathered} \text { NUMBER OF } \\ \text { PEOPLE KILLED } \\ \text { IN CRASH } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${ }^{23377599}$ | ${ }^{201401010}$ | Januar | ${ }^{12,00}$ | ${ }^{12 \mathrm{P}, \mathrm{m} .}$ | deast | SANTA FECOUNTY SHERIR F S OFFICE | SANTAFE | CHUPADERO | NM 592 | PUEELODE |  | NM592 | $\stackrel{2}{181}$ | w | E | 210 |  |  |
| $\frac{233717353}{2381781}$ | ${ }^{201400 \cdot 13}$ | Janaray | ${ }^{7}{ }^{7,48}$ | ${ }_{\text {7am．}}^{\text {2am．}}$ | Moroay | SANTA EEOUNTY SHERRIFS OFFICE |  | Poloabue | CaAMINO CERRADO | US 84285 |  |  |  |  |  |  |  |  |
| ${ }_{\text {23377882 }}^{23}$ | ${ }^{\text {20，40，－3 }}$ | Janar | ${ }_{4}^{2.03}$ | ${ }_{\text {a }}^{\text {a am．}}$ am． |  |  | SANTAFE | CUYAMMNGUE | Us 84285 |  |  | US848 | ${ }^{178}$ | N | N | ${ }_{0}^{150}$ | ${ }^{\text {m }}$ | 0 |
| $\frac{7710155433}{2315347}$ | ${ }^{20140 \cdot 1-2}$ | Januay |  | ${ }_{\text {11am．}}^{18}$ | Suray | NEW MEXICO STATE POLLCE（MMSP） | SANTAEE | PoJoane | Countr foal 503 | US 84285 | US 82885 | US 84N | ${ }^{181}$ | w |  |  |  |  |
| ${ }^{203}$ |  |  |  | ${ }^{10 \mathrm{p}, \mathrm{m} \text { ．}}$ |  | SANTA FECOUNTY SHERIFFS OFFFCE | SANTAFE | NAMBE PUEBLO | SUMMMER Ro |  | Y Road 113s |  |  |  |  | ${ }_{0} 0.08$ | M |  |
| ${ }_{2}^{23357740}{ }_{20}$ | ${ }^{2101402020}$ | Febuar | ${ }^{10.59}$ |  | Tuessay | SANT AE COUNTY SHERRIFS OFFICE | SANTAFE | CHHPADERO | State Ro 592 | NoNE | AMINO CHUPADERO | NM592 | 4 | ${ }_{\text {N }}^{\text {N }}$ | N |  | TT |  |
| 碝 | ${ }^{2014030307}$ | Maray | ${ }^{116: 37}$ | ${ }_{\text {Pr．m．}}$ | Itiosay | TTA EE COUNTY SHERIRFSS OFFICEE | SANTAEE | PEAK PLACE | STATE R 5 592 | OS CAMINTOS | ， | NM 592 | 1 | s | SE | 500 | ${ }_{\text {FT }}$ |  |
| 23386809 | $201403 \cdot 14$ | Mach | ${ }^{9,48}$ | gam． | Friday | A $A$ C Count S SHERIFS OFFICE | SANTAFE | PoJoalue |  | NSHINNG SUN |  | NM 503 | ， |  |  |  |  |  |
| ${ }_{2}^{2333575742}$ | ${ }^{20140303}$ | March | －8.52 <br> 9.01 | ${ }_{\substack{8 \mathrm{amm} \\ 9 \mathrm{am} .}}$ | ${ }_{\text {Finday }}^{\substack{\text { Finday } \\ \text { Sund }}}$ | SAATA FE COUTY SHERIFFS OFFIIE | $\xrightarrow{\text { SANTAEE }}$ SANTA | CUUAMMNUE |  | NONE |  |  | $\stackrel{177}{1}$ |  |  |  |  |  |
| 23368860 | 20140410 | Appil | ${ }^{17,09}$ | ${ }^{5 \mathrm{p} . \mathrm{m} .}$ | Thussay | SANTA FE COUNTY SHERIFFS OFFICE | SANTAFE | ChUPADERO | N1592 |  | COUNTY POAD 76 | NM592 | ${ }^{3}$ | N | N | $\frac{2009}{0.1}$ | M |  |
| 退 | 200404．18 | ${ }_{\text {Aporil }}^{\text {Apil }}$ |  |  | ${ }^{\text {Saturay }}$ | ANTA FEC COUNTY SHERIIFFS C | SANAFAFE | NAONE | State Ro 503 |  | STATE RDP 503 | NM 503 | 5 |  | N |  |  |  |
|  | 0014．041 | April | ${ }^{0.52}$ | ${ }^{12}$ am． | Saurday | A EE COO |  | PoJoa | CAMINO DEL RINCON |  |  |  |  |  | w | ${ }^{330}$ | T |  |
|  | ${ }^{2014.4}$ | ${ }^{\text {Aparil }}$ | ${ }^{8.01}$ | ${ }^{8 \text { amm．}}$ | Tuessay | SANA AECOUNT SH | SANTAEE | Roon meolo | STATER R 5922 | CAUE DE LOS TRUJILIOS |  | ${ }^{\text {NM } 592}$ | 8 |  |  |  |  |  |
| ${ }^{23371156}$ | ${ }^{201405054}$ | May | ${ }^{2645}$ | $4 \mathrm{p} . \mathrm{m}$ ． | － | SANTA AE COUNTY SHERIFFS OFFICEE | SANTAEE | NAMEE PUEELO | Countr foad 84 G |  | COUNTY RoAD 846 |  |  | E | E | 5 | FT |  |
| ${ }^{233802959}$ | ${ }^{2014050.24}$ | ${ }_{\text {May }}^{\text {May }}$ | ${ }_{\text {12，52 }}^{1129}$ | ${ }^{11 \mathrm{am}} \mathrm{Pa}$ ． | Statay | SATT AE COUNTY SHERRIFS OFFICE SANT FECOUNT SHERIIFS OFFICE | SANTAE | NaME PUEBLO | State Ro 5 | 267 STATE R0 503 | US 8485 | NMS 503 | ${ }_{315}^{3}$ |  | N | 0.4 | M |  |
|  |  | May |  | ${ }^{11 \mathrm{p}, \mathrm{m} \text { ．}}$ | Thussay | ANTA EE Count s Shenlifs orf | SANTAFE | NONE | JUAN M EDINA RD |  |  | NM |  |  |  |  |  |  |
| ${ }_{23271661}^{206361}$ | ${ }^{201406-12}$ | June | ${ }^{\text {19，299 }}$ | ${ }_{7}^{7 \text { P．m．m．}}$ | ${ }_{\text {Thussay }}$ Tusay |  | ${ }_{\text {SANTAF }}$ SANA | NAMBE PUEELO |  |  |  |  | ${ }^{181}$ | ${ }_{\text {WE }}^{\text {NE }}$ | ${ }_{\text {E }}^{\text {E }}$ | ${ }_{12}^{14}$ | M ${ }_{\text {M }}$ |  |
| 235688 | 214070 | Juy |  |  | Tuessay | SANTA EE COUNTY SHERRIFS S OFFICE | SANTAFE | NoNE | JUAN MEDINA |  |  | NM 503 | 8 |  |  |  |  |  |
| ${ }^{233309280}$ | ${ }^{2014070700^{2}}$ | ${ }_{\text {Juy }}$ | ${ }^{19,495}$ | ${ }^{\text {Prp．m．}}$ | Tiesay | SANT AEPOLLEE DPARTMENT | ${ }^{\text {SANTAFE }}$ | COVAMMVGUE | US 842825 |  |  | US285N | － $\begin{aligned} & \text { 315 } \\ & 181\end{aligned}$ | N |  |  |  |  |
| 23371825 | 201407 －19 |  |  |  |  | AANA AE Count S SERIIFS OfFICE | SANTAEE | curamungu |  |  |  |  |  |  |  |  |  |  |
| ${ }^{23370990}$ | 2014 | Aupust | ${ }^{12004}$ | ${ }^{12 \mathrm{pm} .}$ | Friay | ANTA E COUNTY StERIFS OFFICE | Santa | NaMEE Puebeio | STATE RP 503 | UNTY RoAD 115 | WWMETOSTAE | ${ }^{\text {NM } 503}$ | 2 |  |  |  |  |  |
| 込 | 204083 |  | 14.5 | ${ }^{\text {20．．．．}}$ |  | SATAECOUNT SHChtrsorice | SaNat | NaMBerueb | Count road ili | NW53 | NEW MEXICOSTATE HOAD OO3 |  |  |  | E | ${ }^{0.5}$ | M |  |
| ${ }_{2}^{23689789}$ | 2014090．04 | Seprember | $15: 17$ | ${ }^{\text {3p．m．}}$ | Thussay | SAATA FECOUNTY SHERIIFSS OFFICE | SANTAEE | Poojoalue | STATE ER 5 |  | 34 STATE R0 503 | NS 503 | ${ }^{181}$ | E | E | ${ }^{80}$ | FT |  |
| 53355 | ${ }^{201409 \cdot 14}$ | Sepember | ${ }^{23.45}$ |  | Suuday | POJOAQUE TRIBAL POUCE DEPARTMENT | SANTAEE | PJJOAQE |  | NM STATE HWY 502 |  |  |  | s | s | 210 | M1 |  |
| 23370150 | 201409：24 | Senember | 8：15 | ${ }_{8} 8$ am． | Uenhesay | ANTA FE COUNTY SHERIFFS OFFICE | SANTAFE | NAMBE PUEBLO | NM 503 | RANCHO ENRIOUE |  | ${ }^{\text {NM } 503}$ |  |  |  |  |  |  |
| 60957 | 201409.2 |  | ${ }^{14.43}$ | 2 2．．．． | Saturay | NTA AE Count s Sterif If Soffil | ANTA FE | CHUPADE |  |  | W MEXICO STATE ROAD 592 | NM | ${ }_{3}^{3}$ | w | E | ${ }_{0} 0.6$ | M |  |
| 退 309378 | 2014．00 | Novem |  | gp．．． |  | Ster |  | Colonuve | US ${ }_{\text {U4 } 82855}$ | NM 502 |  |  | ${ }^{315}$ |  |  |  |  |  |
| 23155769 | ${ }^{2014.1-1 / 4}$ | Novern | ${ }^{10.37}$ |  | Firioay | SANTA FE COUNTY SHERIIFS OFFICE | SANTAEE | CuTAMUNGUE | Us 84285 |  |  |  |  | N | w | ${ }^{0.4}$ | M |  |
|  | ${ }^{204411+15}$ | Novemer | 5.45 | ${ }_{5}^{5}$ am． | Saturay | SANTA EECOUTTY SHERRIFS OFFCCE | SANTAEE | NAMBE PUEBLO | New Mexico state road 503 | Countr foad ily |  | NM503 | 2 |  |  |  |  |  |
| 271068 | 0014－12．01 |  |  |  |  | ANTA FE COUNTY SHERIIFS OFFI | SANTAFE | POJJAOUE | CITIES OF GOLD R ${ }^{\text {d }}$ |  | TIES OF GOLD CASINO ENTRANCE |  |  |  | s | 15 | ${ }_{\text {FT }}$ |  |
| ${ }^{233377375}$ |  | Decenber | ${ }_{0}^{0.14}$ | ${ }^{12 \mathrm{am} .}$ | Surnay | SAATA AECOUNTY SHERRIFS OfFICE | SANTAEE | NONE NAMBE PUEBLO | JUAN MEEINA AD |  |  | N 503 | 8 |  | s | ${ }^{\frac{1393}{0,}}$ | $\stackrel{\text { FT }}{\text { M }}$ |  |
|  |  |  |  |  | Morday | SANTA EE POLCC D DEPARTMENT | SANTAFE | CHUPADERO | EAST PALACE AVE | CIENEGA ST |  |  |  |  |  |  |  |  |
|  | ${ }^{201414 \cdot 2 \cdot 24}$ | Decenber | ${ }^{13: 13}$ | ${ }_{\text {1 } 1 \mathrm{pm} .}$ |  | SATA AECOUNTY SHERRFFS OFFCE | SANTAEE | CuYamuNGUE | US 82885 |  |  | US 285 N | ${ }_{315}^{15}$ | N | N | ${ }_{5}^{0.1}$ | M |  |
| 23558202 | ${ }^{201500103}$ | Janalay | ${ }_{3}^{1.48}$ |  | Stausay | SANTA FE COUNTY SHERIIFFS Offlce | SANTAEE | CuIAMUNGUE | WLEST R Roantage Ro | LB | АLP ROAD | US 845 | ${ }_{177}$ |  |  |  | ${ }_{\text {FT }}$ |  |
| 退 371212 | 20150．0．04 | Januar | ${ }^{11,46}$ | ${ }_{\text {comam }}^{\text {liam．}}$ | Suray | NTAFE COUNTY SHERIRFSOFFFC | SANTAEE | NAMBE E PUEELO | STATE EOAO | B |  |  |  | W |  |  |  |  |
| 30142946 | 2015001－22 | Janalay | ${ }^{10: 33}$ | ${ }^{10 . \mathrm{am}}$ ． | Thussay | SANTA FE COUNTY SHERIFFSS OfFICE | SANTAFE | CUYAMUNGUE | US $84 / 285$ |  | MLLE MARKER 177 | 84N |  |  |  | ${ }^{150}$ | T |  |
| ${ }^{23370965}$ | ${ }^{20150.2033}$ | Feobuar | ${ }^{18,28}$ | ${ }^{6 . p . m .}$ | Tuessay | SATA AECOUNTY SHERRFFS OFFCEE | SANTAEE | PEAK Plac | N 5922 |  |  | NM 592 | $\stackrel{1}{1}$ | s | s |  |  |  |
| 360322 | 2015－20－14 | Februar | 10.42 | ${ }^{10 \mathrm{am}}$ ． | Saturay | SANTA EE COUNTY SHERIFS OFFICE | SANTAFE | POJOAOUE | Clites of Gold Road | NM STAAE ROO 502 |  | NM 502 | 18 | N |  |  |  |  |
| 2386774 | ${ }^{20150.52-24}$ | boray | 136 | $9 \mathrm{pm.m}$. | TTestay | SANTA AECOUNT SHERIRFFS OFFICE | SANTAEE | PJJoadee | US $84 / 285$ |  | STATE ROAD 503 | ＋ | ${ }^{181}$ |  | s | ${ }_{50}$ | FT |  |
| ${ }^{233603325}$ | ${ }^{2015030.04}$ | March | ${ }^{8.08}$ | ${ }_{8} 8 \mathrm{am}$ ． | Weotrosayay | SANTA FECOUNTY SHESIIFFSSOFOFICE | SANTAFE | NAMBE PUEBLO |  | SANTA EE CCOUNTY ROAO 106 |  |  | 2 |  |  |  |  |  |
| 98817 | ${ }^{2015.53-10}$ | Mach | ${ }^{22,35}$ | $10 \mathrm{pm}$. ． | Tuessay | SANTA EE COUNTY SHERRIFS S OfFICE | SANTAEE | Peak Place | NM 592 |  | MILEPSOST 1 | NM 592 | 1 | N | N | ${ }^{314,7}$ | FT |  |
| ${ }^{233339592888}$ | ${ }^{201503-20}$ | Mach | ${ }^{\text {P／45 }}$ | ${ }^{17 \mathrm{am}}$ ， | ${ }_{\text {cher }}^{\substack{\text { Fuesay } \\ \text { Tusay }}}$ |  | ${ }_{\text {Stantat }}^{\text {SANTAEE }}$ | Poojoatoue |  |  | Citesof Golo casino | ${ }^{\text {NM } 502}$ | 18 <br> 18 <br> 18 | N |  |  |  |  |
| ${ }^{301237763}$ | 2015.0403 | Apill | 20.45 |  | Firiay | NEW MEXICO STATE POLICE（NMSP） | SANTAEE | NAMEE PUEBLO | State moad 503 |  | MLIEPSST 2 | NM 503 | 2 |  | N | ${ }^{0.5}$ | M |  |
| ${ }^{2388888067}$ | ${ }^{20150.9+12}$ | ${ }_{\text {Aporl }}^{\text {Aporl }}$ | ${ }^{13.06}$ | ${ }_{\text {Pam．}}$ | ${ }_{\text {Sturay }}$ Stuesay |  |  | PaOSAOUEE | US 855 R285 | NM 503 | STATE ROAD 503 MLE MARKER2 | US $84{ }^{\text {U }}$ | $\stackrel{{ }_{181}^{21}}{ }$ | N |  |  |  |  |
| $\frac{23353775}{2387796}$ | ${ }^{20150.5066}$ | ${ }_{\text {Nay }}^{\text {Nay }}$ | ${ }^{12.56}$ | ${ }_{\text {lapam }}^{12 \mathrm{mam}}$ | Weenesaray | SANTA AEOUNTY SHERRIFS OFFICE |  | PEAK PLACE |  |  | TESUOUE VILIAGE RD． | －${ }_{\text {NM } 5 \text { 522 }}$ | 0 | ¢ | NE | $\stackrel{2}{2}$ | M |  |
| ${ }^{23388605}$ | ${ }^{201505521}$ | ${ }^{\text {Nay }}$ | ${ }^{13,55}$ | ${ }_{\text {a }}^{\text {a }}$ | Thursay | SANTA FE COUNTY SHERIIFS OFFFICE | SANTAEE | curamungue | EXIT T78 US $84 / 285$ | SULFALO THUNDER TRL |  | US 84N | ${ }^{178}$ |  |  |  |  |  |
|  | O21．5．5． | May | ${ }^{1020}$ | ${ }_{\text {10am．}}^{\text {10am }}$ | ${ }^{\text {Sauturay }}$ | BA OORTHERN PUEBLOS AGE | SANTAEE | NAMBE PUEELO | COUNTY Boad | CALLE JONCITO ROAD | Tle post |  |  | N |  |  | M |  |
| ${ }^{233868176}$ | 2015．5525 | Nay | 11：00 | ${ }^{\text {a }}$ Itam． | Mornay | SANTA AE COUNTY SHERIFFS OFFFCEE | SANTAEE | Pouoanue | NMMW 50 | BOUQUET TN | Crest | ${ }^{\text {Nu } 5023}$ | ${ }^{181}$ | w |  |  |  |  |
| ${ }^{23383196083}$ |  | June | ${ }^{11,40}$ | ${ }^{119 a m}$ | Tuesay | ANA AECOUNTT SHERIFS O OFFCEE | SANTAEE | Podoane | US HIGHWAY 882885 NORTH OFF RAMP | NEW M MXXCO HIGHWAY 502 | Cites of Goli casino | US 880 | ${ }^{180}$ |  | w | ${ }^{8}$ | $\stackrel{\text { FT }}{\text { M }}$ |  |
| 23371888 | 2015．00－20 | June | 18.29 | ${ }_{\text {cram }}$ | ${ }_{\text {Saturay }}$ | SANTA AE COUNTY SHERIFS O OFFICE | SANTAFE | POJOAOUE | NM 84285 NB | NM 503 |  | US 84N | ${ }^{181}$ | ${ }^{\text {N }}$ | N |  |  |  |
| 23368200 | ${ }^{201500.22}$ | June |  | ${ }_{\text {7a．a．}}^{8}$ | Mornay | SANA EECOUTV SHERRFIFS OFFCE | SANTAE | CHHPAQERO | NeW M MXCO SB HIGHWAY 592 | Braway | IEEECT | NM 592 |  |  |  |  |  |  |
| ${ }^{2338850854}$ | ${ }^{20150.50-27}$ | june | ${ }^{\text {14，27 }}$ | ${ }_{\text {comm }}$ | Wenausay | SANTA FECOUNTY SHERIIFFFS OFFFICEE | SANTAEE | PoJoanoue | US $84 / 2885$ | STATE ROAD 503 | JEMEZELECTRIC Pole 5 5／30 | US 845 | ${ }^{181}$ | ${ }_{\text {SE }}^{\text {w }}$ | SE | ${ }^{56}$ | F |  |
| $\frac{23886238}{}$ | ${ }^{20150.70 .04}$ | ${ }_{\text {Juy }}$ | ${ }^{9.92}$ | ${ }_{\text {gam．}}^{\text {gam．}}$ | ${ }_{\text {Saturay }}$ | SANT FE COUNTY SHERIRFS OFFCEE | SANTAEE | Curamuncue | US 84.2 285 HIGHWNY BRIIGEE MLEPOSTT 177 | US HIGHWA 84－285 | BUFFALO THUNDER CASINO | US 84N | ${ }^{177}$ | E |  | ${ }^{0.2}$ | MI |  |
| ${ }^{30137302}$ | 5．07－16 | Juy | 19.4 | ${ }_{7} 7$ P．． m ． | Thus | W MEXICOOS STATE POLIC | SANTAFE | PoJohaue | $84 / 2$ | STATE ROAD 503 |  | US 848 | ${ }^{181}$ |  |  |  |  |  |
|  | ${ }^{20150 \cdot 7.17}$ | Juy | ${ }_{1924}^{1920}$ |  | ${ }^{\text {chinday }}$ | New MEXCO STAT P Polce（MSSP） | SANTAE | PoJoanue | Us 8 ＋1／285 |  |  | US 8 S | ${ }_{\text {c }}^{181}$ | N | N | $\stackrel{0.3}{10}$ | $\frac{\mathrm{Ml}}{\text { FT }}$ |  |
| 30142927 |  | Juy |  | 10 am ． | Thussay | SANTA EE COUNTY SHERIIFS OFFICE | NTAFE | CHUPADERO |  | CAMINO CHUPADERO |  | NM |  | N |  |  |  |  |
|  | ${ }^{20150.0 .03}$ | Aupust | ${ }^{7} 788$ | ${ }^{7} \mathrm{am}$. ． | Moray | SANA EECOUNT SHERIFFS OFFFICE | SANTAE | Poloaque | Clities Of GOLD RD． |  | PETRoalyPHCIRCLE | （ ${ }_{\text {NM } 502}$ | ${ }^{18}$ | s | N | ${ }^{0.5}$ | M |  |
| ${ }^{23369436}$ | ${ }^{2015.59 .292}$ | Seperemer | 14.50 | $2 \mathrm{pm.m}$. | Tuessay | SANTA AE COUNTY SHERIFFS SFFFICE | SANTAFE | PoJoadeve | Us 841285 | Nu 503 |  | US 84N | ${ }^{181}$ | N |  |  |  |  |
|  | 20，510．10． |  | ${ }_{\text {li．36 }}^{16.36}$ | ${ }_{\text {copm．}}^{\text {apam．}}$ | ${ }_{\text {Thursay }}$ Thusday | SANA ELEOUNT SHHRRIFS | $\xrightarrow{\text { SaNAFt }}$ SANTAEt | PJJOOAOA | US 884 | STATE ROAD 503 | ${ }^{84 / 225 ~ A N O ~ S R ~} 503$ | Us |  |  | N | ${ }_{110}$ |  |  |
| ${ }^{238689871}$ | ${ }^{2015-10.19}$ | ${ }^{\text {Ofoco }}$ | ${ }^{110} 109$ | ${ }^{\text {ITam．}}$ | Moray | ANTA FE COUNTY SHERIIFS O OFICEE | SANTAEE | Poojoanue | 84－285 | NM 503 |  | ${ }^{\text {US } 845}$ | －181 |  |  |  |  |  |
| $\frac{717017092923}{}$ |  | Ocober |  | ${ }_{\text {loam．}}^{10}$ |  | EW ExCO STATE POLCE AMSP | TAFE | Curamunae | US 8 E／ 1285 | SuE |  | US 84N | ${ }^{178}{ }^{177}$ |  | N | ${ }_{0}^{0.3}$ | M1 |  |
| 2369424 | ${ }^{2015 \cdot 10.22}$ | Ocober | 17：07 | ${ }_{5 \text { p．m．}}$ | Thussay | ANTA EE COUNTY SHERIIFFS OPFICICE | SANTAEE | PoJoanue | Us $84 / 1285$ | arhoocuanunave | NM 503 | US 845 | ${ }_{181}$ | $\stackrel{\text { N }}{ }$ | s | 0.01 | M |  |
| ${ }_{23360027}^{23372034}$ | ${ }^{201510.25}$ | $\xrightarrow[\text { Ocouber }]{\substack{\text { Ooverber }}}$ | ${ }^{18.35}$ | ${ }_{\text {cop．m．}}^{\text {bam．}}$ | Surnay | SATA ELCOUTY SHERAFF Offlice | ${ }^{\text {SANAR }}$ SANTA | Pouvanume |  | STATE ROAD 003 |  | US 88N | 1881 <br> 178 <br> 188 | N | s | $\frac{8.6}{150}$ <br> 150 | ${ }_{\text {FT }}^{\text {FT }}$ |  |
| 2388635 | $2015 \cdot 1 \cdot 1.0$ | vember | 3.40 | ${ }^{3 \text { am．m．}}$ | Surday | SANTAFE COUNTY SHERIFSS OFFICE | SANTAFE | curamungue | curvmungue briog |  | SUFALIO THUNDER TRAL |  |  | w |  |  |  |  |
| ${ }^{2338989892}$ | ${ }^{20151-1-166}$ | ${ }^{\text {Noven }}$ Noven | ${ }^{13.47} 8$ |  | Mondey |  | ${ }_{\text {Santate }}^{\text {SANTAEE }}$ | AMBE P Pu | STATE ROAD 5 |  | MLE Post 178 | NM503 | ${ }^{\frac{3}{178}}$ | W | W | ${ }^{0.1}$ | ${ }_{\text {FT }}$ |  |
| 2389399 | 2015－12－20 | December | 7：19 | ${ }^{\text {Left Baak }}$ | Morday |  | ${ }^{\text {SaNTAFE }}$ SANTA |  | TeSuQuevilage Ro． | ${ }_{\text {NM } 592}^{\text {US } 8485}$ | MLEPSOST 18 | NM 592 | 0 <br> 18 | w | E | 5 | FT |  |
|  |  | eembe |  | ${ }_{\text {10am．}}^{10}$ | Thursay | NNA E COUNTY SHERIFSS OFICEE | SANTAFE | Curamuncue | （1744US 842858 | Us $84 / 285$ Frontage road |  | Us 880 |  |  |  |  |  |  |
| 253433 | 2016．010．08 | Janarar | ${ }_{10,57}$ | ${ }_{\text {a }}^{\text {com．}}$ | Friday | PAOOAOUE TRIBAL POLCCE DEFARTMENT | SANTAFE | PoJoande | CITEES OF GOLD POAD | 10 CTIES OF GOLL ROAD | SLEOES | N ${ }^{\text {L } 502}$ | ${ }_{18}^{28}$ | N | s | 0.1 | m | O |
| $\underset{\substack{23372153 \\ 2332066}}{2}$ |  | Januay | ${ }_{\text {l }}^{14.24}$ | ${ }_{\text {a }}^{\text {ap．m．m．}}$ | $\xrightarrow{\text { Eriaay }}$ Finday |  | $\xrightarrow{\text { SANTAFE }}$ SANTAEE | Covamungue | SSTATE ROAD 5 So2 | US 8412850 OFF RAMP | US $84 / 285$ WESTBOUND OFF RAMP ONTO 502 |  | ${ }_{18}^{177}$ | N |  |  |  |  |



|  | Aleohol | dinug | PEDESTRIAN |  | PEDALCYCLE <br> INVOLVEMEN | HEAVY TRUCK INVOLVEMENT | HAZARDOUS <br> MATERIAL <br> INVOLVEMENT | STATE HIGHWAY DEPT\＃PROPERTY | $\begin{aligned} & \text { INVOLVEMENT } \\ & \text { OF NON } \\ & \text { LOCAL DRIVER } \end{aligned}$ |  | $\underset{\substack{\text { maxmum } \\ \text { vexhlicic }}}{\text { and }}$ $\begin{aligned} & \text { VEACILLE } \\ & \text { DAMAGEE } \end{aligned}$ | FIRST HARMFUL <br> EVENT <br> OCCURRED |  | $\underset{\substack{\text { Road } \\ \text { GRADE }}}{ }$ | Jinibal | GIS DERIVED <br> RESERVATIO |  |  | $\begin{array}{\|c} \hline \text { GIS DERIVED } \\ \text { STATE POLICE } \\ \text { DISTRICT } \end{array}$ | $\begin{gathered} \text { GIS DERIVED } \\ \text { STATE HIGHWAY } \\ \text { MAINTENANCE } \\ \text { DISTRICT } \end{gathered}$ | $\begin{aligned} & \text { GIS DERIVED } \\ & \text { UTM } X \\ & \text { COORDINATE } \end{aligned}$ | $\begin{array}{\|c\|c} \hline \text { GIS DERIVED } & \text { GIS } \\ \text { UTM Y } & \text { L } \\ \text { COORDINATE } & \text { COC } \end{array}$ | GIS DERIVED  <br> LATITUDE  <br> COORDINATE COO | GIS DERIVED COORDINATE | Case number ${ }^{\text {S }}$ | SAPTORT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{2337}{238}$ | Not | Not hoo | Not inv | Not hro | Not Imol | Vot | Not inm | Siqns | Ocal invers | Pural Nor－nterstale | Appeara |  | traigt | evel |  |  |  |  |  |  | ${ }_{\text {Ll }}^{41649668893}$ | ${ }^{3982884.169}$ | ${ }^{\text {S5097}}$ |  | ${ }^{214000031}$ | No |  |
| $2{ }^{23371}$ | Nothroved Notluowed | Nothool | $\frac{\text { Not livo }}{\text { Notluo }}$ | Noth hoo | Nothoved | Nothoo | Nothve |  | ${ }_{\text {Local invers }}^{\text {Looal }}$ |  | ${ }_{\text {Apearano }}^{\text {Absabing }}$ |  | ${ }_{\text {Straiahm }}^{\text {Straigt }}$ | evel Onalael | ${ }_{\text {res }}^{\text {Yet }}$ | OUE PUE |  |  |  |  |  |  |  |  | 214000 |  |  |
|  | Not troved | Not thowed | Not troved | Not livoved | Not troved | Not troved | Stim |  | Local Divers | Rural Nor．mers | Disabing | Off Roadway | Stragm | OnGrade | Lett Baak |  |  |  |  |  |  | 38898888.69 |  | 108.0 |  |  |  |
| 7710155143 | Not troved | Not troved | Not troved | Not troved | Not tro | Not livoved |  |  |  |  |  |  |  |  |  | Joadue Peblo |  |  |  |  | ${ }_{\text {L07350．499 }}$ | ${ }^{3973041}$ | ${ }^{358973197}$ |  |  |  |  |
|  | Not thoved | Nothroved Not troved | Not $\begin{aligned} & \text { Not troved } \\ & \text { Not luved }\end{aligned}$ | Not thoved Not 1 luwe | Not | Not thoved Not luvored | Not hao Notrivo | Sions |  |  | netional | Onfoaway | ${ }_{\text {Staine }}^{\text {Staght }}$ | evel Ongade | Lett bank | NAMBE P PeElo |  |  |  |  |  | ${ }_{\text {30682929 }}$ | ${ }^{5} 5.85949696856$ | 105.9 |  | ${ }_{\text {No }}^{\text {No }}$ No |  |
| ${ }_{\text {2 }}^{23357740}$ | Nothroved | Not trov | Not | Not move | Not | Not | Not inoo |  | Local | INor－messale | Fune | Roa | ajobl |  |  | TEEP |  |  |  |  | ${ }_{4}^{41799}$ | ${ }^{396}$ | 13929 | 05．908236 | 42 |  |  |
|  | ${ }^{\text {Inmoned }}$ | Not thooved |  |  |  |  |  |  |  | Rural Non－ineesiate | functional |  |  | evel |  | ASSOUE PUEELO |  |  |  |  |  | ${ }^{39640134}$ |  |  |  |  |  |
| 2336869 | Not troved | Not thove | Not tino | Not hovo | Not Ino | Not thwolio | Not lime |  | Local | Rural Non－meststaie | Appeara |  | Straight |  | Ves | OJOAQUE PUEBLO |  |  |  |  |  | ${ }^{397301}$ | ${ }_{35} 889747468$ |  |  |  |  |
|  | Not IToved | Nothoved | Not | Not thoved | Not ITMoved | Nothouved | Not Thoveded | Guartail |  | Von－inesestate | Searac | R Hoad | Statemt | －evel | Nos | NTESUOUE PUCEELO |  |  |  |  | ${ }_{4}^{401515852023}$ |  |  |  | （14003 |  |  |
| 23388860 | Not thove | Not trool | Not thoow | Not truol | ditu | Not thwo | Not tro |  | Ocal ${ }^{\text {Privers }}$ | Noonimest |  | Off foad |  |  |  |  |  |  |  |  | 417855.4667 | 3862947.545 | 35.8072124 | 059，90 | 21405 |  |  |
|  |  | Not mowee | Nothonved | Nothoo |  | Nothmoved | Not troved |  |  | Noorniestae | Oisabing |  | cure | ade | ${ }_{\text {Nos }}$ | BE PUEB |  |  |  |  | ${ }^{\text {a }}$ | 退 6175 |  |  |  |  |  |
| 2328 | Imoved | Not limowe | Not IToved | Not Imoved | Not thoot | Not thoo | dinow |  | Locald | Rural Nor－ntesstate | Disabing | Off fooxwy | aive | de | Yes | POUOAOUE PUEBLO |  |  |  |  | 4078806.029 | 39744002 | 35.8923460 |  | 21400 |  |  |
| ${ }^{30094448}$ |  | Not troved | Not Itwo |  | Not tho | Invo | Not theved Not luoved | Bath Wrie Fene | － | anineest | Disabing | Onf foadway | traigm | arad | No | JAMBE PU |  |  |  |  | ${ }_{4}^{418265993585}$ | ${ }^{39950359688}$ | ${ }_{\substack{358280774888 \\ 35553682}}$ |  | 2．14 |  |  |
| 23711 | Imoved | Not trove | Not thwo | Not troved | Not limo | Invo |  |  | Looal irivers | Ual Nor－menestate | Disabaing | Off foadway | aure |  | Yes | NAMBE PUEELO |  |  |  |  | 411879 | ${ }_{3972423,486}$ | ${ }^{35598921216}$ |  |  |  |  |
| ${ }^{233877160}$ | ${ }_{\text {Nothtinoved }}$ | Nothwoved | Nothroved | Nothroved | Nothroved | Nothluwved | Nothroved |  |  | Ruran | Stimutional | on foamey | Straigt | Grade | Ves | NAMBEE PUEELO |  |  |  |  |  |  |  | － 10.9 .9 96973 | ${ }^{\text {a }}$ |  |  |
|  | Inoved | Not troved | Not hrove | Not troved | Not trum | Invoved | Not troved |  | Ivives | al Nor．inessale | sabiling | Bank | aight |  | No |  |  |  |  |  | 4153828700 | ${ }^{3799273} 3$ | ${ }^{35.554481811}$ |  | ${ }^{21400888}$ |  |  |
| 2327661 | Not Inoved |  | Nothoved | Nothoved | Nothoved | Nothnoved | Not thoved Notliwowed a |  | Local ${ }^{\text {Localiveris }}$ | Urav Nornersisale | Ssino Dal |  | ave | vel | ${ }_{\text {Lest }}^{\text {Let bank }}$ | NAMBE PUEELO |  |  |  |  |  | ${ }^{39729739654641}$ | ${ }_{35}^{358999739397}$ |  |  | ${ }_{\text {No }}^{\text {No }}$ |  |
|  | Imoned | Not troved | Not troved | Not livoved | Not troved | Not thoved | Not troved |  | Sivers | Wal Non－mestatale | Sbing | ff oasway | triapt |  |  |  |  |  |  |  | 4158828706 | ${ }_{3979273.317}$ | ${ }^{35.55418111}$ | 105 |  |  |  |
| 2337118 | Not $\begin{aligned} & \text { Nothoved } \\ & \text { Not Trowed }\end{aligned}$ | Nothoted | Not $\begin{aligned} & \text { Not troved } \\ & \text { Not luoved }\end{aligned}$ | Nothoved | Not lioved Not luoved | Not $\begin{aligned} & \text { Not troved } \\ & \text { Not Troed }\end{aligned}$ | Not hoved <br> Not luowed |  |  | aile | Lination | Off Baak | ${ }_{\text {Staght }}^{\substack{\text { Sraght }}}$ | Cvel | $\xrightarrow{\text { Nos }}$ | EEPUEBLO |  |  |  |  |  | ${ }_{\substack{39678454522 \\ 39750494}}$ | ${ }_{\substack{3588888939 \\ 3.59739593}}$ | 105.947757 100.9212787 | （140 | No |  |
| 23377825 | Not thro | Not trove |  | Not troved |  |  |  |  | ers | Nor－19 |  | Roadway |  | Grade |  | Aque P |  |  |  |  | ${ }_{4096428289}$ | ${ }^{3969132629}$ |  | 000793 |  |  |  |
| 退 | Not Inoved | Notroved | Nothoved | Involed | Nothoved | Nothooed | Nothoved |  | local | Ruranorniersaie | Funcoural | Onfoamay | Straiam | ever | Lets | Eepue |  |  |  |  |  |  |  | 006 |  | 皆 |  |
| $\underline{233712}$ | titwoved | Not troved | Not troved | Not troo | Not trve | Not troved | Not thove |  |  | Vor－1 | No Damage |  | alat | brade |  | OJOAOUE PUEBLO |  |  |  |  |  | 730969941 | ${ }^{35} 509730969$ | ${ }^{2127}$ |  |  |  |
| ${ }^{2333533951}$ | Notmoved | Nothovod | Not Inoved | Not Inoved | Not ITwoved | Not troved | Nothroved |  | Local invers | Rurall | Disabing | Oth foasway | Sunue |  | Yes | Po，OAOOUE PUEBLO |  |  |  |  | ${ }_{4}^{40774595935}$ | ${ }^{\text {3932326587 }}$ | ${ }^{\text {35．892121177 }}$ | ${ }^{\text {－1060023234 }}$ | ${ }^{\text {PPOLOP90982 }}$ |  |  |
| ${ }^{23337039} 0$ | Nothroved | Nothoved | Nothoved | Not | Nothonved | Nothonved | Nothoned |  | Local ${ }^{\text {divers }}$ | Pural（on－hiessate | Appearame | R Roaway | ${ }_{\text {Caire }}$ | Garad | ett | POUOQUE PUEBIO |  |  |  |  |  | ${ }_{\text {39627999944 }}^{\text {3029069 }}$ | 358058779 <br> 5897195 | －1059．910108 | ${ }^{2414015399}$ |  |  |
|  | Not tro |  |  |  |  |  |  |  |  |  |  |  |  | Grade | ott tank |  |  |  |  |  | 417584．9292 | ${ }^{39850292137}$ | ${ }^{3558080}$ |  |  |  |  |
|  |  |  |  |  |  | tinvo | Not troved |  |  | lonim | Disabing |  | Saight |  |  |  |  |  |  |  | ${ }^{410171.0}$ | ${ }^{396}$ |  | ${ }^{1059997757}$ | ${ }^{12140717540}$ |  |  |
| ${ }^{202034315}$ | Nothoved | Nothoved | Not | Nothoved | Not | Imoon | Invered |  | Leoal Loravers | Ruran ooninersaie |  | On Roaday | live | Onirade | Lets Вam | PoJoatue plebio |  |  |  |  | ${ }^{4074972} 4$ | ${ }_{\substack{39927573^{2} \\ 3061}}$ | ${ }_{\text {chemen }}$ | －100．02999494 | ${ }^{\text {Poltili }}$ |  |  |
| ${ }^{23370184}$ | Not troved | Not troved | Not troved | Not troved | Not troved | Imoved | throved |  | Missing Data | Tal Nor－nerestate | Disabing |  | Straight | Grade | No | POUJAOUE PUUEBLO |  | 5 |  |  | ${ }_{4040433.1096}$ | ${ }^{39729855.124}$ | ${ }^{355897}$ | 1.105 .9927745 | ${ }^{2140102054}$ |  |  |
| 行 | Nothoved | Not trov | Not trove | Not troved |  | tivoved | Not | Signs |  | Rural（or－neressiae | ${ }^{\text {Dispabamama }}$ | （ooamay | aigm | Grade |  | OUE PuEBLO |  |  |  |  | ${ }^{407917,5805}$ | ${ }^{\text {3927r273 } 299}$ | ${ }^{\text {chabigied }}$ | 2024 | ${ }^{141401}$ |  |  |
|  | Not troved | ot trowe | Not troved | Not trove | Not troved | Not troveod | Not lowe |  |  | Norn |  | aamy |  |  |  |  |  |  |  |  | 15382870 | ${ }^{3979273} 317$ | 35.5418111 | 05．938303 | ${ }^{214019}$ |  |  |
|  | Not invored | Not invoved | Not inoved | Not imo ived | Not inoved | Not inoved | the |  |  | Nor．niestaie | 为 | On Roamay | ${ }_{\text {Straiahm }}^{\text {Staidm }}$ | evel | Left bank | NAMEE PUEBLO |  |  | 1 |  | ${ }_{\text {a }}^{41128}$ | ${ }^{\frac{3}{397255555458585}}$ | ${ }^{35898}$ |  | ${ }_{\text {214011 }}^{1401}$ |  |  |
| ${ }^{233039694}$ | Sthoo | Nothuoved | Not thoved | Notitmoved | Not thoved | Not thove | Notinoov | Siqns | Localolivers | Rural | Funcioral | On Roadway | Straigm | vel | Ves | Nan |  |  |  |  |  |  | ${ }^{355888}$ | ${ }_{-1055994757}$ | ${ }^{2140199976}$ |  |  |
| ${ }^{23365928}$ | Not inoved | Not | Not | Not $\begin{aligned} & \text { Not livoved } \\ & \text { Nod }\end{aligned}$ | Not $\begin{aligned} & \text { Not livoveded }\end{aligned}$ | Not $\begin{aligned} & \text { Not livoveded }\end{aligned}$ | Nothoved | Batb Wrie Fence | Local invers |  | ${ }^{\text {a }}$ | Off roamay | ${ }_{\text {Straigm }}^{\text {Straith }}$ | evel |  | NAMEE P Peblo |  |  |  |  | ${ }_{4}^{4107435293}$ | ${ }^{\text {ancris }}$ | ${ }_{\text {cosem }}$ | － 1055.959508398 |  |  |  |
| 121 | St livove | Not thoved | Nothe | Notinove | Nothoved | Nothmoved Not troved |  |  |  | Rural | Disabing | ARoatway | arve | harade | Left Bank | OUJAOUE PUEBL |  |  |  |  | ${ }_{\text {40997．844 }}^{4010}$ |  |  |  | （2， 15.50 | No |  |
| 142946 | Not troved | Not thover | Not troved | Not troved | Not troved | Not troved | Not troved |  | Local invers | Rural Non－MITessate | Disabing | On Roasway | Stragm | Level | Lett Bank | NAMBE PUEBLO |  |  |  |  | 410771.078 | ${ }^{36764545}$ | ${ }^{35.8488939}$ | 05．994757 | 21500 |  |  |
|  | Nothroved | Nothroved Notruoved | Nothothed | Nothooved | Nothorved | Nothoted | Nothoted | Tratic Sigals | Missing Oata | Rual Nor－neestaie | bing | A Roatay | ave | flicest | eft bank | ESUUUE PUEBLO |  |  |  |  | ${ }^{414550.283}$ | ${ }^{396613,47}$ |  |  | 何 5001722 |  |  |
| ${ }^{23860322}$ | Nothoved | Not thovered | Not limoved | Not luvoved | Not limoved | Nothluoved | Not limoved | Hatcosymas | Locallinivers | Ruran Nonimesessae | No Damame | On | Straigm | Level | Lest Bank | Poojoaioue Puebio |  |  |  |  | ${ }^{407844.3838}$ | ${ }^{3972270.041}$ | ${ }_{\text {35 }}$ | 106．0210507 | ${ }^{21500227}$ | ${ }^{\text {No }}$ |  |
|  |  | Noth | Noth | Not |  | oved | Notm |  | vees | Von－inestae | Mishng oa |  | raght |  | at Blak | OJoaue puebio |  |  |  |  | ${ }_{\text {L0783323 }}$ | ${ }^{\frac{1}{3930464941}}$ |  | \％oile |  |  |  |
|  | throved | Not liwo | Not hao | Not liwo |  | Not trove | devor |  | Sort Loal and OuO OTSale | Travornine |  | Roasway | tragm |  |  | NAMBE PUEGI |  |  |  |  |  | ${ }^{24089} 96$ |  |  |  |  |  |
| ${ }^{233888877}$ | Not troved | Not linvove | Not troved | Not linvove | Not troved | Not troved | Not troved |  | ocalorivers | allor－mestatae | Disabing | On Roadway |  | harade | Lett Bank | TESUOUE PUEEBLO |  |  | 1 |  | ${ }^{4155502833}$ | ${ }^{39661034745}$ | ${ }^{35,789958838}$ | ${ }^{105593945121}$ | ${ }^{21500355}$ |  |  |
| ${ }^{233392988}$ | Not thoved |  | Not troved | Not thoved | Not troved | Not troved | Not troved |  | cal ivives | Rural Non－inesessaie | Appoearame | On foasway | Straigh | tilcest | Yes | PoJoadue Pueblo |  |  |  |  | ${ }_{4004972}$ | 3992273，973 | ${ }_{35}^{35.8093983}$ | 100．0249194 |  |  |  |
| ${ }^{30012378}$ | Not Itoved |  | lmowed | Not trove | Not Ino | throved | Not troved |  | ocal invers | Rural（on－Merstate | rama | Roasay | urve | Shate |  | AMBEP P |  |  |  |  | ${ }^{4108877.39}$ | ${ }^{3973028.195}$ | 5．8974794 |  | 15079880 |  |  |
|  | Not livoved | Not livoved | Not livoved | Not livoved | Not livoved | Invoved | Not livoved |  | Localliviers | Rural Non－inestasale | Disabing | nn foomey | Straigm | evel | Lett bank | POUSOAOLE PUEELO |  |  |  |  | ${ }_{40750.486}$ | ${ }^{\text {char3041279 }}$ | ${ }^{55.98731965}$ | －10．0．0209964 | 215005 |  |  |
| ${ }_{2}^{2333577756}$ | Not theved Not luowed | Nothroved Not troved | Not | Nothroved Not troved |  | Not Inoved | Notho | Baab Wrie Fene | Local irves | Rural（oon－herssate | Disabiog | Ceft bank | ${ }_{\text {Couve }}$ Straight | evel | Lett bank | TESUOUE PUEBLO |  |  |  |  |  |  | ${ }_{35}^{3577777198}$ | 9437238 | 21500770 |  |  |
|  | Not thoved | Not trover | Not troved |  |  | Not thoved |  |  |  | alNor－memestate |  |  |  | licost |  | OJOAUUE P |  |  |  |  | 409880.985 | ${ }_{398977.688}$ | ${ }^{3} 5.86268609$ | 06．000375 |  |  |  |
| －3041699 | Nothoved | Nothoved | Nothooved | Nothooved | Nothoved | Nothouved | Nothoved |  | Semers | Vorinestaie | Disabing | Roaway | ${ }_{\text {Staight }}$ | evel | Ceft Bank | NAMEE P PEB |  |  |  |  | ${ }_{4}^{412470.626}$ | ${ }^{3987242279}$ | ${ }^{35.59216382}$ | （05969832 | ${ }^{\text {BoI } 5150079}$ |  |  |
| 386716 | Nothtroved | Not thovered | Not luoved | Not livoved | Not Inoved | Not livoved | Not luvoved |  | Local Livivers |  | Itionctional |  | ${ }_{\text {cher }}$ Straigh | 隹 |  |  |  |  |  |  |  | ${ }^{\text {a }}$ | ${ }^{\text {35．88655065 }}$ | ${ }^{1060.186744}$ | 2150 | ${ }^{\text {No }}$ |  |
| ${ }^{23377196}$ | thlmoved | thrve | Not trw | Notm |  | Not troved | Not |  |  | al ${ }^{\text {anoril }}$ |  |  | Stragm | vel | Lett Bank | OJOAOUE PUEELO |  |  |  |  | 4078593.34 | 3972001．028 | ${ }^{35887992929}$ | －106．020873 | 2150 |  |  |
|  | Not | Nothve |  | Nothoved |  | Nothwo | Nothoved |  | Oataines |  |  |  |  | Oevarad | Lett Bank | POJOAOUE PUEELO |  |  |  |  | ${ }_{4075750.439}$ | ${ }^{39735041}$ | ${ }^{\text {50．897314 }}$ | －106．0202045 | ${ }^{2150009358}$ |  |  |
|  | Not troved | Not thowe | Not thove | Not 1 m | Not troi | Inowe | tinoved |  | Local ivivers | Rural Oor－nestestate | Funcional |  | ve |  |  |  |  |  |  |  |  | ${ }^{3982840.4}$ |  | 2007 |  |  |  |
| ${ }^{2338503084}$ | Nothoved | Nothoved | Not thoved | Nothoved | Not thoved | Not thoved | Nothoved |  | Locall | Ruran | Apobaname | Roamay | ${ }_{\text {Stragm }}^{\text {Straight }}$ | ontas | Ves |  |  |  |  |  |  |  | ${ }^{\text {a }}$ 3．8．893939393939 | －100．0249494 | ${ }^{\text {2 }}$ | No． |  |
|  | St moved | Not luove | ，thro | Nothroved | thuv | Nothoved | Not troved |  | Local Divers | Ural Nor－henestate | veional | Roamay | Staide | evel | ， |  |  |  |  |  | ${ }^{401077.1078}$ | ${ }^{3967}$ | ${ }^{\text {35，} 388893989}$ | ${ }^{10559997757}$ |  |  |  |
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| ${ }^{301405927}$ | Nothoved | Nothoved | Northoved Notlivoved | Nothened | Northoved Notluoved | Nothoved | Notheved |  | Boat Localan Outo Staie | uran Nor．nessaie | Sing Data | （oacuay | ${ }^{\text {Straight }}$ | Onarade | Lett bank | Podoalue pueb |  |  |  |  | ${ }_{40878385923}^{4}$ |  | ${ }_{\substack{5 \\ 35989200015}}$ | － 100.0227878 | － 17617274 |  |  |
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| ${ }^{203722066}$ | Not thoved | Not troved | Not livoved | Not livoved | Not livoved | Not livoved | Not livoved |  | Locall iviers | Ruall | Appoearane | On Roaday | Cuve | On Sorade | Let bank | PoJJoaut Pueblo |  |  |  |  | 40755．8．818， | ${ }^{39723000.71}$ | ${ }_{\text {35，9066 }} 5$ | －10．0．243 | 21600040 |  |  |






| $\begin{array}{\|c\|c} \substack{\text { CRASH } \\ \text { Report } \\ \text { NuMBR }} \end{array}$ | $\left.\begin{array}{\|c\|c\|c\|} \text { y } \mathrm{CAR} \end{array} \right\rvert\,$ | Col mx | COL TYPE | col mvw | RTr | Col ImPaired | COL SURFACE <br> CONDITION | col Llehr conomions | $\begin{gathered} \text { cot } \\ \text { Location } \end{gathered}$ | CoL VUL USER | Risky Benaviors | $\left\lvert\, \begin{gathered} \text { col } \\ \text { ROAOWWar } \\ \text { Rof } \end{gathered}\right.$ | COL HIGHEST CONTRIBUTING FACTOR | $\begin{aligned} & \text { COL } \\ & \text { ROADWAY } \\ & \text { GEOMETRY } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
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| 6824 |  | Vvenicieparty | Animal | Animal | Property Damage ony Crash | not | Dy | DakkNoititighe | On noad | No viluraide Pa | Noe isyly |  | Oineer－．No Divier Etror | Level |
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|  |  | 2 venicios Pataties | Onter V vehice－Turiniga nocle | Other Venicie | Property amase o ony crash | No Aloforolong I lmoved | Dy | Daylogt | On Roadawa | No vunerabie Bo | Oiver $m$ |  |  | ${ }_{\text {Level }- \text { Straight }}$ |
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|  |  | Vinder ary | 践 | 为 |  | Alcalo |  | Daylom | Onfoaw |  | 㖪 |  |  |  |
|  |  | 2 V Veniociessparaties | Onter Venicie－From opopositie direction | Onter Venicio | Properly amage onl Crash | Actohololoug livo | dy | SakeNolotithed O | On Roadual | No v vinerababe Road $U$ | No istry ehavioiss lvove |  | Immoroerer Backing | Level Straight |
|  |  | $\frac{3}{2}$ venicices Parities | Other Venicle－verico on | Venice on othe |  | Actomolory |  | $\frac{\text { Daylight }}{\text { Oaxight }}$ | Onf haoaway | No vinerab | orisy |  | Spoeding Imporoer Baxing |  |
|  |  | 2 Velicicss $P$ a | ater enice Steswe | Other venicle | proert |  |  |  | Road |  |  |  |  |  |
|  |  | Veniofe Paty | Fexad obea | Exed obear | Ropery Damage ony Crash | ， |  | Oay yigh | Off Roamey | Uneabe |  |  | lochovaru havod | cure |
| ， 66 |  |  | Oner | Sterer | Oopery yamae ony crash | No Aconolvong hoved | Dry | Daymghi | Onf haoawa |  | No |  | Impoper Lane charge | Leovel Stagh |
|  |  | Lespaties | hervenicice－TuringAngle | Vehicie | perty Damage ony Crash | No Alconolon | by |  |  | No vunerabe Ra | Rishy Behaviors hwoved |  | aade Improper Tum | Level Uuk |
| 2938 |  | Veniciep Pary |  |  | Propenty amame o only crash | ${ }^{\text {Acorono }}$ | dy | gm |  | Vinerabe R | No isisy Ben |  |  |  |
|  |  | ${ }^{\text {V }}$ Veniofe Pary | dober | Exed obeer | eery Oamae | No Alconolong inved |  | Skilighed | Off foama | Vuleral | ${ }^{\text {Nof iscy }}$ |  |  | Evel Straigh |
|  |  | 1 veniclepary | umpalover | （olover | nuiur Crash | No Alconolorog livoved |  |  |  | No vunerabe Foad User Invoved |  |  |  | evel－stagat |
|  |  | ciempantes | 俍 |  |  | ， |  | den | n | 隹 |  |  |  |  |
|  |  | I venicieparty | Other（ Oijecer） | Oher（Object） |  | No Alconolong in |  | Dayligh | Off Roady | No vunerabe Road User | ved |  | Lero | Evel－Sta |
|  |  |  | Fixedobieat |  | Y Cash | 隹 |  | Daylot |  |  | ved |  |  |  |
|  |  | 1 Veniciep | Obiect | ject | Property Oamage only Cras | No Alcohlolong hivoved | Dry | Sak－Not Lighed |  | OV Vunerabbe R oad U S ser ITvoved |  |  |  | On Grade Coluve |
|  |  | dide | dobed |  | Crash | Aconotug trove |  |  |  |  |  |  |  | 㑑 |
|  |  |  | ${ }^{\text {Fen }}$ | Frixed obeed | Propenty Damage o ony crash | dug luvove |  |  |  |  |  |  |  | Sto． |



| $\begin{array}{\|l\|l\|} \hline \text { CRASH } \\ \text { Report } \\ \text { RNMER } \end{array}$ | NUMBER OF PEOPLE WITH INCAPACITATING INJURIES CLASS A IN CRASH | NUMBER OF PEOPLE WITH VISIBLE INJURIES CLASS B IN CRASH | NUMBER OF PEOPLE WITH VISIBLE INJURIES CLASS C IN CRASH | NUMBER OF PEOPLE INJURED CLASS A+B+C IN CRASH <br> A+B+C IN CRASH | NUMBER OF PEOPLE NOT INJURED CLASS O IN CRASH |  |  |  |  |  | Crash severir | ${ }_{\text {classashication }}^{\text {chat }}$ | CRASH ANALYSIS | HIGHEST FACTOR CONTRIBUTING TO CRASH | WEATHER | LGGHTMG | $\begin{array}{\|c\|} \hline \text { Hirn } \\ \substack{\text { ANBASH } \\ \text { CRASH }} \\ \hline \end{array}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{233724}{2325}$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |  |  | 2 |  |  | 0 |  | ${ }_{\text {Propery }}$ Promaje ony Crash |  |  | diver raterition | Cliar | Oaylight | $\frac{\text { Yes }}{}$ |
| ${ }^{2386872712}$ | 0 | 0 | 0 | 0 |  |  |  |  | 0 |  |  |  |  | ${ }_{\text {None }}$ Disegarded Tratic Sigral | cloar |  |  |
| ${ }^{238742799}$ | - |  |  |  |  |  |  |  | $\bigcirc$ |  | Inimu Crash | Onter Venice | Onher venicle From mame irection Rear End Collision | Execosive Speed | ciar | Oaylom | No |
| ${ }^{23360385}$ | $\bigcirc$ | 0 |  |  |  |  |  |  | 4 |  |  | Onter velice |  | din | 兂 | Sayumt |  |
| $\frac{23744850}{2345888}$ | $\bigcirc$ |  |  | 1 |  |  |  |  |  |  | Inury Cash |  | ieed obetet - Dit | Aconolovy luvoed |  | med |  |
|  |  | ${ }^{3}$ |  |  |  |  |  |  |  |  | Inury | Oninervenicie |  | Followne Tooco cosely | Cioar | Sayy | ${ }_{\text {No }}$ |
| 234739797 | $\bigcirc$ | 0 | 0 | 0 | 6 | 6 |  | 6 | 0 |  | Propery Damage ony Crash | Other Velicice |  |  |  |  |  |
| ${ }^{234623939}$ | $\bigcirc$ | 1 | 1 | ${ }^{2}$ |  | ${ }^{2}$ |  |  | 0 |  | Proper vamage ony Corash |  |  | Nosessve spead | dioar | deater | ${ }^{\text {No }}$ |
| ${ }^{\frac{2}{24743948}}$ | $\bigcirc$ | 1 | ! |  |  |  |  |  |  |  | Inury Crash | Oveturn Palover | verumenalover-R.ight Side of forad | eod Too Fasat tor Conditior |  | OaikNotLighed |  |
| ${ }^{233659912}$ | 0 | 0 |  | 0 | ${ }^{2}$ | ${ }^{2}$ |  | 2 | 0 |  | Property damage ony Crash | Onfer (Obieary |  | Avoiol N | Ciar | Coun | ${ }^{\text {No }}$ |
| ${ }^{\text {23372413 }}$ | $\bigcirc$ | $\bigcirc$ | 0 | $\bigcirc$ | ${ }^{2}$ | $\frac{2}{5}$ |  |  | 0 |  |  |  |  |  |  | Lealiven |  |
| 3488754 | 0 | 0 | 0 | 0 |  |  |  |  | 0 |  | Property Damage ony Cras | Other vel |  |  | Claar | Oajight |  |
|  | $\bigcirc$ | $\bigcirc$ |  | ! |  |  |  |  |  |  |  | $\frac{\text { Onher vencele }}{\substack{\text { Fredobicet }}}$ |  |  | ${ }_{\text {coiar }}^{\text {Lett }}$ | Cater |  |
|  | $\bigcirc$ | 0 | 0 | 0 | 2 | ${ }_{2}$ | 2 | ${ }^{2}$ | 0 | 2 | Property amaje ony crash | Other velice |  | Oivive ratantion |  | Dayioth |  |
| ${ }^{23855733}$ | $\bigcirc$ | 0 |  | 0 | IT | T |  |  | 0 |  | Propery damage ony crash | Oner veniole |  | Other Impopen brivina | Lett |  |  |
| ${ }^{2364747965}$ |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  | Ceiear | busk |  |
|  |  | $\stackrel{1}{1}$ |  | $\stackrel{1}{1}$ |  |  |  |  |  |  |  | Other vencice | Onher Venico- From Sane iriection Boh Going strabt | diverin |  |  |  |
| ${ }^{23466568}$ | $\bigcirc$ | 0 | 0 | 0 |  |  |  |  |  |  | Property l amage ony Crash | Other venice |  | Onter mpopoer Divivg | coar | Dayiomt |  |
|  | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |  |  |  |  | ! |  |  | Oner eniole |  | Feled | licar | Coay | No <br> No <br> No |
| ${ }^{23372422}$ 2374766 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |  |  |  |  | 0 |  | Propery Pamaje ony Crash | Fred obert |  | Ootere- No Divere Eror | lioar |  |  |
|  |  | ! |  | ${ }_{2}^{0}$ |  |  |  |  |  |  |  | Onter evicie | Oner venicle Foim Same Direction Both Going Strialt |  | Coter |  |  |
| ${ }^{23465989}$ | $\bigcirc$ | 0 | 0 | 0 |  | ${ }^{3}$ | 2 | ${ }^{3}$ | 0 | 2 | Property damage ony Crash | Other veniole | Onher veinicle From Same Sirectionsideswipe Collison | Impoper Overatas | Clear | Oarloth |  |
| ${ }^{23468785}$ | $\bigcirc$ |  |  | 1 |  |  |  |  |  |  |  | OVenturfuliover |  |  | cioar | Dater | ${ }_{\text {No }}$ |
| ${ }_{\substack{2337850 \\ 2385326}}^{\substack{\text { 20, }}}$ | $\bigcirc$ | $\bigcirc$ |  | $\bigcirc$ |  |  |  |  | 0 |  |  | Fred ober | Fried ojeat Lunt Slamad (Layt Pole) |  | $\frac{\text { claar }}{\text { claar }}$ | OakkLighed | ${ }_{\text {No }}{ }^{\text {No }}$ |
|  |  |  |  |  |  |  |  |  |  |  | Propery Damae ony Crash | Fried obied |  | Ditiver rateremion | ${ }_{\text {coiar }}^{\text {Coart }}$ |  |  |
|  |  |  |  | 0 |  |  |  |  | 0 |  | Property amame ony Crash | Freod obied | Fredod oiect - Banicade | Alobolovov luveved | Raing | Oouk |  |
| ${ }^{234633^{2}}$ |  |  |  |  |  |  |  |  |  |  |  | Freorer |  |  |  |  |  |


| CRASH REPORT NUMBER |  |  |  | ｜Mororccote | $\left\lvert\, \begin{aligned} & \text { Pepalcral } \\ & \text { NVOLVEMEN }\end{aligned}\right.$ | Heavi Teuck | $\begin{array}{\|c\|} \hline \text { HAZARDOUS } \\ \text { MATERIAL } \\ \text { INVOLVEMENT } \\ \hline \end{array}$ | State higwar |  | $\begin{array}{\|c\|} \hline \text { ROAD SYSTEM } \\ \text { URBAN RURAL OR RURAL } \\ \text { INTERSTATE } \\ \hline \end{array}$ | MAXIMUM VEHICLE DAMAGE | FIRST HARMFUL EVENT OCCURRED |  |  |  | GIS DERIVED <br> RESERVATIO | $\begin{gathered} \text { GIS DERIVED } \\ \text { STATE HIGHWAY } \\ \text { TRANSPORTATION } \\ \text { DISTRICT } \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline \text { GIS DERIVED } \\ \text { STATE POLICE } \\ \text { DISTRICT } \\ \hline \end{array}$ | GIS DERIVED STATE HIGHWAY MAINTENANCE DISTRICT |  |  |  | GIS DERIVED LONGITUDE COORDINATE |  | ORT | A |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{2337240}{23825555}$ | $\frac{\text { Nothvo }}{\text { Not Imo }}$ | $\frac{\text { Not trove }}{\text { Not }}$ | Nothroved Nothoved |  | Notholved Not luoved | Nothroved | Nothrved |  | Localaliovers | mat Norninestale | Frumbitanal | 隹 froaway | traigh | evar | ${ }_{\text {Yes }}^{\text {ves }}$ | Po，PaOUE PUEBLO |  |  |  |  |  |  |  | ${ }^{218013}$ | $\xrightarrow{\text { No }}$ |  |
| 23462 | Notitrove | Nothoved | Nother | timoved | Not linoved | Not Nom | Not luoved |  | Local Livivers | Furan Inornimestisae |  |  |  | evel | Ves | Poojoaile Pebbio |  |  |  |  |  |  |  |  |  |  |
|  | Not livoved Notluoved | Not tovorved Not luoved | ${ }_{\text {Not h liol }}$ | Not troved Not luoved | Notholved Not luoved | Not | Not hoved |  | Loeal invers | ${ }^{1}$ | Fubicioral |  | Lett Bank | Lever |  | NAMBE PUEELOE POOOOUE PUEBLO |  |  |  |  | （3987801．954 |  | － 10.50 .95958 |  |  |  |
| ${ }^{71003883817}$ | Not lovoved | Not hoole | Not tru | Nothoo | Not troved | Noth | Noth |  |  | Rural Nor．hesestale |  | if foadw | Strajth | Level | ${ }^{\text {No }}$ |  |  |  |  | ${ }_{4}^{4010993677_{21}}$ | ${ }^{398675}$ |  |  | ${ }_{\text {7 }}$ | Atima |  |
|  | Nothool | Not tro |  | Not troved |  | Not trw |  |  |  |  |  | ama |  |  |  | POJOAOUE PUEBLO |  |  |  |  |  | ${ }^{35.8975}$ | 106.0 | 21801 |  |  |
| ${ }^{7}$ | Notituo | Noth | Not | $\xrightarrow{\text { Noththo }}$ | $\xrightarrow{\text { Not }}$ | Nothoved | Nothoved |  | boill | Uual | 为 |  | traight |  | Ves | NAMEE PUEEBLO |  |  |  | － | 39672 |  | －105．9， |  | No |  |
| ${ }_{2}^{234763939}$ | $\xrightarrow{\text { Not lito }}$ Not | Nothroved Not troved | $\xrightarrow{\text { Noth liov }}$ Nothol | Inow | Nothmeded | Nothorved | Nothoted | de Barier | Local Livivers |  |  |  | Straigh | evel | $\xrightarrow{\text { No }}$ | Pojoaub Pueblo |  |  |  | ${ }^{4101877.1}$ | 36999797999 306788997 | ${ }^{35.8887}$ | ${ }^{-1005000}$ | ${ }^{\frac{2188074388}{21804568}}$ |  |  |
| 3988 | Not hroved | Nothorved | Nothorved | throved | Nothorved | Nothonved | Nothoved |  | dindis | In |  |  |  |  |  |  |  |  |  | ${ }^{415377.7}$ | ${ }^{\text {39792772 } 25}$ | － | －105938 |  |  |  |
| ${ }^{233559912}$ | Not livoved | Not thoved | Nothroved | Nothwoved | Not trovered | Not thoved | Nothowod |  | Local livivers | Ruran lornimestaste | Aponearane | ninoadway | Straight | evel | Ves | Poojoave Pueblo |  |  |  | ${ }_{407837.196}$ |  |  | －106．02124 |  | ${ }^{\text {No }}$ |  |
| 4413 | Not troved | Oot hoved | Not troved | Not troved | Not trover | Not troved | Not troved |  | Sing Data | Ural Nor．inestatae | netional | Roadway |  | evel |  | IAMBE PUE |  |  |  | 411689.99 | 39731172948 | 35．992 | 10.597859 | 2180 |  |  |
| ${ }^{2934585754}$ | Not ITMoved | Nothotivoved | Not tinoved | Not | Not | Nothoved | Not Itroveded |  | Local inivers | furan Inon－imestsate | Appoearame | （en | Straigm | evel | Ves | JoAOUE PUEELO |  |  |  |  | ${ }^{\text {39730347．06999 }}$ | ${ }_{\text {cose }}$ |  | ${ }^{218800665516}$ | ¢ |  |
| 2236 | Not troved | Not troved | Not troved | Not troved | Not troved | Not troved | Not troved |  | Local Divers | Fural Nor－ntestasale | Disabaing | Roadway |  | evel |  |  |  |  |  | 407760.6 | 3973070．41 | 35.897 | 6．02293 | 218016999 |  |  |
| ${ }^{233464776}$ | Not Not Inovedved | Nothoved | Not | Not hoved | $\frac{\text { Not }}{\substack{\text { Notoved } \\ \text { Not troved }}}$ | Not | Not Itoved | Sign | Missing Oaia Bont ocal and Out Of State |  | Dispobarame | Off | ${ }_{\text {Straiabt }}^{\text {Stait }}$ |  | Yes | OUSAOUE PUUE |  |  |  | ${ }_{\text {a }}^{409566}$ | 972886，34 | ${ }_{\substack{35.860 \\ 3080}}$ | 600190 | ${ }^{\frac{21800977999}{21807256}}$ | ${ }^{\text {No }}$ No |  |
| ${ }^{23488887}$ | Not limoved | Not troved |  | Not luvoved | Not troved | Not troved | Not trovered |  | al Diviers | wal Nor－hinestate | Isabing | Roadway | traght |  |  | OJOAQUE PUEBLO |  |  |  | ${ }^{409637.66}$ | ${ }^{3969197479}$ | ${ }^{358629}$ | 1006000 | ${ }^{218017629}$ |  |  |
| ${ }^{234632397}$ | Not $\begin{aligned} & \text { Not troved } \\ & \text { Noved }\end{aligned}$ | Nothoted | Nothoved | Not | Nothoted | Nothoved | Not IToved |  | Looal Loalivers |  | Disabin | On orama） | cinve | evel | Yes | O－SUAOUE PUUEBLOLO |  |  |  | ${ }_{4}^{4075996.73}$ | ${ }^{398723253}$ | $\underset{\substack{35.890 \\ 35.79}}{\substack{\text { a }}}$ | －106．03 | ${ }^{\frac{2170017}{218018}}$ | ${ }^{\text {No }}$ No |  |
| 2347476 | Not trover | Not troved |  | Not livoved | Not troved |  | Not luw |  | Local invers | wal Nor－hinestate |  | Roatway | stragh |  |  | AMBE PUEELIO |  |  |  | ${ }^{412085} .1$ | ${ }^{3972506,2}$ |  | ${ }^{105.974}$ | 218018 |  |  |
|  | Notituol | Nothovod | Not Inowed | Not Inoved | Notholved | Nothoved | Nothroved |  | Locali inivers | Mand | ${ }^{\text {Appeararae }}$ | Onfoasumy | ${ }_{\text {Stagm }}$ Stragm | evel | Ves | NAMBE PUEELIO |  |  |  | ${ }_{4}^{4124656533}$ |  |  | ${ }^{\text {cti00．57009 }}$ | ${ }^{2188019924}$ | $\stackrel{\text { No }}{\text { No }}$ |  |
| 退 615 | Not imo | Nothonved |  |  | Nothotvod | Notituved | Not hoved |  | Local irivers | Ruran oriniestaie | Finctional | Oon Roaway | Sraigh |  | $\frac{\mathrm{No}}{\mathrm{No}}$ | OODAOUE PUEBLO |  |  |  |  |  |  |  | ${ }^{\frac{218019098}{21801900}}$ |  |  |
|  | Not thoved | Not thoved | Not lowed | Nothroved | Not tmoved | Not thoved | Not troved |  | Loal inivers | Rural orinemessae | Funcional | On foaswy | Cure | Level |  | AOUEP |  |  |  |  |  |  |  | ${ }^{2130099645}$ | ${ }^{\text {No }}$ |  |
| 4460 | ${ }_{\text {Not }}$ Notimo | ${ }_{\text {Not }}$ | Notituoved | Not livoved | $\xrightarrow{\text { Notituoved }}$ Notured | Nothvoved | Not Inoved |  | Local inivers | Ruran onimeessae |  | Off foaseavy | cure | Level | Ves | Pouoanue puebio |  |  |  |  | ${ }^{\text {3Th729432025 }}$ | （5， | － | （18019 |  |  |
| ${ }^{2} \mathbf{7} 23859695$ | Not Not troved | Not | Not | Nothoved | $\xrightarrow{\text { Nothor }}$ | Not | Invoved |  | Sivers | Non－inessaiae | Stasaliog |  |  |  |  | OMOAOL PUEBELO |  |  |  |  |  |  |  |  |  |  |
|  |  | Notro |  |  | Nothroved | Nothonved | Not troved |  | Local Divers | tar Nor．inessale | nctional | On | Straidt | OnGrade | Yes | POJOAOUE PUEELO |  |  |  | ${ }^{4008377.683}$ | ${ }^{36999974799}$ |  | 106．000858 | ${ }^{218800614}$ | No |  |
| ${ }^{2337309911}$ | Not liovored | Not thoved | Not trv | Not troved | Not troved | Not luoved | Not luoved |  | Localionvers | Ruran | Appoarance |  | Straigt | Level | No | TESSOULE PUEBLIO |  |  |  |  |  |  | ${ }^{\text {He5．9475439 }}$ |  | ${ }^{\text {No }}$ |  |
| 18350 | $\frac{\text { Not hao }}{\text { Not }}$ | $\frac{\text { Nothrove }}{\text { Nothove }}$ |  | Nothorved | Notholved | Nothonved | Nothoted | LothtPoles | Out of Staie | Mural Norninestaie |  |  |  | Level | ${ }_{\text {Noter Bank }}^{\text {Ler }}$ | TESUOUE PUEBLO |  |  |  | ${ }^{4143688}$ |  |  | － | ${ }^{214008}$ | ${ }^{\text {No }}$ |  |
| 940 | Not hrowed | Not troved | Not troved | Not troved | Not troved | Not troved | Not troved |  | Localivivers | wral Nor－mesestato | Disabiling | n Roatway | stragh | ovel | Yes | ESSOUUE PUEBLO |  |  |  | ${ }^{144688.49}$ | 336039.425 |  | －105．94751 | 216016 | No |  |
|  | Notheved | Nothoved | Notino | Nothen | Not | Nothoved | Nothoved |  | Leor | Uual | Msising oata |  | ${ }_{\text {Stajamm }}^{\text {Staint }}$ | ever |  | Tesule |  |  |  |  |  |  | $\xrightarrow{-10598871}$ | ${ }^{2177007858}$ |  |  |
| 74019 | $\xrightarrow{\text { Not live }}$ | Not |  | Not Inoved | Nothoved | Nothoved | Not troved | Guaraial | Saliners | Rural | Disabior |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ${ }^{\text {23a62334 }}$ | Nothotreved | $\xrightarrow{\text { Nothrinoved }}$ Notroved | Not hoved | $\xrightarrow{\text { Not }}$ Notrovod | $\xrightarrow{\text { Not haoved }}$ Notroved | Not | $\frac{\text { Not throved }}{\text { Not }}$ |  | Local Lorivers |  | Disabing | On foaduay | Citraigh | tonglade |  | TTESSUOUE P PUEBLO |  |  |  |  |  |  | $\stackrel{-105.59797861}{-105961}$ | ${ }^{218180156929} 2$ |  |  |


|  |  | col mx | COL TYPE | col wvw | col severrir | COL LIMPARED | COL SURFACE CONDITIONS | COL LIGHT CONDITION | ${ }_{\text {Location }}^{\text {col }}$ | Col Vul user | Risky Eehav | $\begin{gathered} \text { col } \\ \text { ROAFWAY } \\ \text { ROAF } \end{gathered}$ | $\begin{aligned} & \text { COL HIGHEST } \\ & \text { CONTRIBUTING } \\ & \text { FACTOR } \end{aligned}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${ }^{23372440}$ |  | Venicoss Patios | Oiner Venicle Turingatage | Oiner Venicle |  |  | ${ }^{\mathrm{Dr}}$ |  | On Roa |  |  |  |  |  |
|  |  | Veniole Paty | Frea obi |  |  | No Acconovory invoved |  |  |  | No vinerabe Road U | No Risy Eenuors moved |  | None NhKown |  |
|  |  | Venio | Other venicie－Rear End | Ontere Venicie | Clash | No Acolonolorug Invoved | dy | Daylot | ${ }^{\text {on foaoavay }}$ | V vinearabe Poad User Invoved | － |  |  |  |
|  | 2018 |  | Other venico． | Other venicie | Damage Ony Crash |  | Wet |  | Roadw |  |  |  |  |  |
|  |  |  |  | Oner vence |  | Io Aconorongi INowed |  |  |  |  |  |  |  |  |
|  |  | Vheremary |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | ash |  |  |  |  |  |  |  |  |  |
| 234737 |  | Venicoss Parties | Oher velicie－Rear End | aer venicle | Property Oamage ony Crash | No Alchololong livoved | Dr | Davil | Onfoadway | Nov vinerabe Road User in | dive |  | Diver linatemion |  |
| $\frac{2343949}{2362391}$ |  | Venciof aryly | Going Stra | ded obect | Crash ory | A $A$ Ac |  | Dayu | Onf haoamy | Nov vineraa | Speaing |  | Speaing |  |
| 948 |  | 1 Veniceleparty | Overtumfololver | Overturnfolo | mury Crash | No Alcoholong ilvoved | dy | Dakk－Notitighed | don oaamay |  |  |  | Speoding | vel． |
|  |  | 2 Veiniesf |  | Onter venice | ，Crash | OAconolonu invoved | $\mathrm{Dr}^{\text {r }}$ | Dayight | On Roazear | No Vunearabe | ed |  | Ser Tum | ght |
| 13 | 2018 | Venicieparty | edobiect | dobiect | Propenty Damase ony Crash |  | Wet |  |  |  |  |  |  |  |
| 23874570 |  | venicieparty | Anima | Animal | Perty Damage ony Crash | No Aloonolong livoved |  | arkNot Lighted | d On Roasway | No v vinerabe Road User in | No ischy Behavios lmoved |  | Other－No Diver EEror | vel．Straight |
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## Appendix C- Safety Plan Presentation

NAMBÉ PUEBLO STSP PRESENTATION

## 2020 Strategic Transportation Safety Plan Development



December 11, 2020
Web Meeting

## Meeting Agenda:

- Review Strategic Transportation Safety Plan Emphasis Areas, Goals and Strategies (Phase 2 Tasks 1-4)
- Discuss and Finalize Safety Plan
- Web Application-Public


## Project Status Report:

- June 2020 - Contract awarded to Red Plains Professional
- July-August 2020 -Phase 1 Tasks 1-4 completed
- GIS Web Mapping Environment Developed
- Collision data acquired from NMDOT-mapping, analysis and tables developed
- Project Kickoff Meeting-Developed Vision Statement, Study Area, Safety Partners/ Champions
- Research of existing safety and planning efforts
- Community Safety Concerns and Draft Safety Plan Goals Developed
- August 2020 - Phase 1 Task 5 completed
- Project Final Meeting-Review Findings and Finalize Safety Plan Goals
- Send Project Deliverables


## Project Status Report:

- September-November 2020 - Phase 2 Tasks 1-4 Completed
- GIS Web Mapping Environment Updated
- Current Conditions Photos Field Collected by Nambé Pueblo
- Emphasis Areas, Goals and Strategies Developed
- Draft Final Plan Developed
- Client Review Completed
- Final Plan Developed Per Nambé Pueblo Review Comments
- December 2020 - Phase 2 Task 5 Completed
- Project Final Meeting - Review Final Plan
- Send Project Deliverables


## What is a Strategic Transportation Safety Plan

Strategic Transportation Safety Plans:

- Communicate the story of transportation safety in your community and a comprehensive strategy on how to address your transportation safety needs:

- Foster increased transportation safety, reduction of transportation related inj uries and fatalities through Proactive Transportation Planning and Community Involvement
- Build on established Long Range Transportation Planning, TTP Inventory and The TTIP
- Are supporting/ required documentation for RSA's and FAST Act Tribal Transportation (TTP) funding.

Transportation fatalities and injuries severely impact the quality of life in Indian country. Statistics are consistently higher than the rest of the nation as a whole.

Motor vehicle crashes are the leading cause of death for Native Americans and Alaska Natives ages 1 to 44.

# What is a Strategic Transportation Safety Plan 

## Required Section checcemarkecompletion in this spoject pphase boxcoonpletion in next project phase

> Introduction - Describes Tribe's commitment to transportation safety through this planning process and the drafting of this document. An introduction can be one or more paragraphs, and can be as general or specific as you'd like. It servestwo purposes: it gives readers an idea of what the rest of the plan will say; and it provides a reason to keep reading.
> Vision - A vision statement is an idealized description of your success. It should inspire, energize, focus, and help you and your partners picture success as you develop the plan.
> Safety Partners/ Champions - List of partnersthat will be able to provide advice in acquiring and analyzing data, selecting emphasis areas, developing safety strategies, and implementing the final plan. Examples: Tribal Departments, State DOT, County, City, Emergency Services, Forest Service.
> Process - Process used to develop the plan. This would include identification of team members, public outreach efforts, partner involvement, the timeline, study area, etc.

- Describe your efforts, activities, programs, and policies that were already in place or in development to
 address transportation safety and perhaps led to this planning effort. Identify those that are being evaluated, and those that are beneficial and will continue to be implemented for the foreseeable future.


# What is a Strategic Transportation Safety Plan 


Data Analysis - Use the best available incident data to look for similarities between incidents. We will be using collision data from ODOT mapped in a GIS database. Analysis on data, statistics and graphicstelling the data's story are developed. Other data used is Tribally sourced.

- Include three parts: a description, a goal, and strategies. Emphasis areas should describe the issue where there is opportunity to improve. Emphasis area descriptions should also explain what information led to the identification of the issue. Strategies should describe the activities that will have an impact on the issue.
- Describe the process that will be used to evaluate the success of the plan, ensure implementation, and determine when an update is needed.


## Additional Section RPP Provides:

- List describing safety concerns from Stakeholders and Public Input. Is the main source for development of project focus and Emphasis Areas.
- Dyanamic GIS data driven web mapping environment with project specific data layers.


# Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1) 


https:/ / redplains.xyz/NambePu eblo

## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

Sections of Safety Plan Developed:

## Introduction

## Vision .

It is our vision to provide a network of multi-modal transportation that is safe for our community, sustainable for the future of our youth, and respectful of our people's culture and traditions. Nambé Pueblo is committed to partnering with stakeholders and agencies to achieve a safer tomorrow.

## Nambé Pueblo

- Tribal Administration/Operations
- Tribal Road and Transportation-Planning Department

Pojoaque Pueblo

- Pojoaque Tribal Police

Santa Fe County
$\therefore$ Santa Fe Public Works Department

- Santa Fe Sheriff

State of New Mexico

- New Mexico Department of Transportation (NMDOT) - District 5
- New Mexico State Police

BIA Northern Pueblos Regional Transportation Planning Organization (NPA)
Bureau of Indian Affairs (BIA)

- sw Regional Office Division of Transportation
- BIA Northern Pueblos Justice Services

Jemez Mountains Electric COOP - District 6

# Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1) 



Study Area includes TTP road inventory and other public roadways connecting Nambé Pueblo Tribal Lands, Tribal Enterprises, Tribal Administration and main community housing areas. Main highway arterials include NM 503 MP 0-9, NM 592 MP 0-5, and interchanges with US 285/ 84

## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

## Existing Efforts

Nambé Pueblo:

- 2017 NP 101 Road Improvements Study NM 503 to Nambé Falls Reservoir - Nambé O-Ween-Gé (RIS)
- 2018 and 2020 Community Needs Assessment Surveys
- 2020 Nambé Pueblo Long Range Transportation Plan (LRTP)
- 2019-2020 Roadway Improvement and Safety Projects

Santa Fe County Public Works Department and BIA Northern Pueblos Agency (NPA):

- Road Maintenance

State of New Mexico (ODOT):

- Statewide Transportation Improvement Program (STIP) - No projects in study area


## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

## Data Analysis - Summary

- NMDOT Collision Data for the time frame J anuary 1, 2014 to December 31, 2018
- 251 reported collisions
- 4 fatality
- 83 Injury
- 164 property damage
- 54\%involved 2 Vehicles



## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

## Data Analysis - Type

- 31\%Fixed Object
- 13\%Turning/ Angle
- 12\%Rear End
- $10 \%$ Sideswipe
- 7\%were Overturn/ Rollover


Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

Data Analysis -
Environmental Conditions and Roadway Factors

- 30\%at night or in low light conditions
- $10 \%$ Wet or Snow driving conditions
- $41 \%$ On Grade (hillslope), Hillcrest or Dip



## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

## Data Analysis - Highest

Contributing Factor

- 17\%Driver Inattention - Highest Contributing Factor
- $15 \%$ Speeding
- 11\%Alcohol or Drug Involvement
- 11\%Following Too Closely
- $6 \%$ Failed to Yield Right of Way



## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

## Data Analysis - Highest Contributins <br> Factor

- Fatal
- $75 \%$ Alcohol or Drug Impairment
- $25 \%$ Speeding
- Injury
- $25 \%$ Speeding
- $13 \%$ Alcohol or Drug Impairment
- 12\% Driver Inattention
- 10\%Following Too Closely



## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

## Data Analysis - Roadway Departure

- FHWA (Federal Highway Administration) defines Roadway Departure as a crash/ collision which a vehicle crosses an edge line, center line or otherwise leaves the traveled way. For this study, Roadway Departure collisions include those identified by NMDOT as occurring off the roadway, as well as Collision Types involving lane departure: Overturn/ Rollover, Head-On, Fixed Object, Sideswipe, or Vehicle on Other Road
- $57 \%$ of all collisions involved Roadway Departure. The top three Highest Contributing Factors
 involving Roadway Departure were Speeding, Driver Inattention and Alcohol or Drug Involvement


## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

## Data Analysis - Risky Driving

## Behavior

- 5 Highest Contributing Factors of Driver Inattention, Speeding, Alcohol or Drug Impairment, Following Too Closely and Failed to Yield Right of Way are identified as Risky Driving Behaviors (RDB) due to the high occurrence of collision fatality or injury
- $60 \%$ of all collisions reported involved RDB.
- $100 \%$ of all reported fatal collisions involved RDB's.
- $65 \%$ of RDB collisions resulted in Injury.




## Revie of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

Data Analysis - Risky Driving Behavior

- $75 \%$ of all Fatality collisions involved Alcohol or Drug Impairment, $25 \%$ involved Speeding.
- $57 \%$ of all RDB collisions involving Speeding and $50 \%$ involving Alcohol or Drug Involvement resulted in Fatality or Injury. Speeding and Alcohol or Drug Involvement represented the highest occurrences of Fatality or Injury for both all reported and RDB only collisions



## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)



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## Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1)

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Comprehensive list identified by planning processes:

- Stakeholders meetings in J une 2020
- Public Input through Community Needs Assessment Surveys
- 2017 NP 101 Road Improvements Study NM 503 to Nambé Falls Reservoir - Nambé O-Ween-Gé (RIS)
- 2020 Nambé Pueblo Long Range Transportation Plan (LRTP)


# Review of Strategic Transportation Safety Plan Data Analysis Results (Phase 1) 



Comprehensive list identified by planning processes:

- Stakeholders meetings in J une 2020
- Public Input through Community Needs Assessment Surveys
- 2017 NP 101 Road Improvements Study NM 503 to Nambé Falls Reservoir - Nambé O-Ween-Gé (RIS)
- 2020 Nambé Pueblo Long Range Transportation Plan (LRTP)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Final Emphasis Areas/Safety Plan Goa

Developed through analysis of collision data, existing efforts, Community Safety Concerns and current priorities of FHWA

- Emphasis Area 1 - Roadway Safety Audit - School Bus Routes within Nambé Pueblo
- Emphasis Area 2 - NP 101 Improvements
- Emphasis Area 3 - Improving Pedestrian and Bicycle Facilities
- Emphasis Area 4 - Systemic Infrastructure Improvements
- Emphasis Area 5 - Reducing Risky Driving Behaviors and Roadway Departures


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 1 - Roadway

## Nambé Pueblo

A Road Safety Audit (RSA) is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users.

- 4 School Bus Routes - Approximately 11.5 miles of roadway including SR 503 MP 1.8-3.6, NP 101 and community roads


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 1 - Roadway Safety Audit

## Nambé Pueblo

Safety Concerns 1-16

- Standing water, drainage issues and sediment building up on roadways and intersections limiting safe bus travel and the ability to turn around.
- Reduced or blocked visibility due to vegetation and other obstructions at intersections and along roadways.
- Lack of designated pedestrian and bicycle walkways.
- Narrow road shoulders and poor road surface conditions.
- Speeding is an issue on NP 102 Rd West-Bayay Poe and East-Tayeh Huu U.

Collisions 5-year period from 2014 to 2018

- Total of 37 reported, 14 Injury collisions and 23 property damage only collisions. 2 collisions involved pedestrian. 26 collisions likely involved roadway departure.


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 1 - Roadway Safety Audi -

## Nambé Pueblo

RSA Priority Locations - 9 Intersections

- SR 503 and CR 113A
- SR 503 and J immy Perez Road
- SR 503 and Don Bernardo Road
- SR 503 and CR 119N
- SR 503 and NP 101
- CR 113A and CR 84F and 84G
- CR 84G and CR 119N and CR 119 S
- CR 117 N and CR 119 N
- CR 84 F and CR 119S and Bayay Poe


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 1 - Roadway <br> Nambé Pueblo <br> RSA Priority Location <br> Intersection of SR 503 and CR 113A

- Limited sight distance approaching intersection County Road 113A due to vegetation blocking, embankment, grade, and sharp curve. No Lighting. Intersection and signage improvements needed.
- 2 collisions reported- 1 injury collision, 1 roadway departure collision.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 1 <br> Nambé Pueblo <br> RSA Priority Location <br> Intersection of SR 503 and <br> Jimmy Perez Road

- 4 collisions reported- no injury crashes, 2 collisions reported made improper turn, 1 roadway departure collision.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

```
Emphasis Area 1 - Roadway
Nambé Pueblo
RSA Priority Location
Intersection of SR 503 and Don Bernardo Road
```

- 2 collisions reported- 2 injury, 1 involving motorcycle, 1 roadway departure collision.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

```
Emphasis Area 1
Nambé Pueblo
RSA Priority Location
Intersection of SR 503 and CR 119N
```

- Intersection on major curve.
- 5 collisions reported- 2 injury collisions- 1 involved a pedestrian, 2 roadway departure collisions.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

```
Emphasis Area 1-Roadway
Nambé Pueblo
RSA Priority Location
Intersection of SR 503 and NP
101
- Major Intersection.
- 3 collisions reported- 1 Overturn/ Rollover, 3 roadway departure collisions.
```



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

```
Emphasis Area 1 - Roadway Safety Audi
Nambé Pueblo
RSA Priority Location
Intersection of CR 113A and CR 84F and 84G
- Limited sight distance approaching CR 113A from both directions of CR 84 due to fences and vegetation blocking.
- Sharp curve and unseen drainage ditch on CR 84F.
- Intersection and signage improvements needed.
- No reported collisions, high collision risk.
```



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 1 - Roadway Satefy Aluch pueblo Nambé RSA Priority Location Intersection of CR $84 G$ and CR 119 N and CR 119S - Multiple roads merging with arroyo, vegetation blocking visibility. Intersection and signage improvements needed. - collision reported- non-injury, disregarded traffic signal, roadway departure.

Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 1 <br> Nambé Pueblo <br> RSA Priority Location <br> Intersection with CR 117N and CR 119N

- Sharp curve and grade turning left from CR 117N onto CR 119 N .
- Paved and dirt surface types.
- 2 collisions reported- 2 roadway departure collisions.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 1 - Roadway Saf <br> Nambé Pueblo <br> RSA Priority Location <br> Intersection of CR 84F and CR 119 S and Bayay Poe

- Erosion/ flooding/ drainage improvements needed.
- No collisions reported, high collision risk location.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

[^3]
## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Nambé Pu Strategies

- Apply for a Federal Highway Tribal Transportation Safety Grant to secure funding for RSA. (Strategy Champion: Nambé Pueblo)
- Implement recommendations of RSA in planning improvement and maintenance projects. (Strategy Champion: Nambé Pueblo, Santa Fe County, NMDOT, Jemez Mountains Power COOP, NPA, BIA)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

Emphasis Area 2 - NP 101 I

- NP 101 (Poechunu Poe)- eight mile lon
two lane collector road that provides access to NM 503 from the residential and tourist destinations within the Pueblo.
- NP 101 Road Improvements Study (RIS) completed in 2017- identified roadway, intersection and drainage conditions, deficiencies and strategies.


## Goals

- Complete improvementsto NP 101 by 2023.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 2 - NP 101 Impr

NP 101 Road- Roadway, speeding
reduction, signage and lighting
improvements needed.


## Strategies

- Develop and enforce Speed Control Plan (Strategy Champion: Law Enforcement)
- Develop a Wayfinding Sign and Striping Plan (Strategy Champion: Nambé Pueblo)
- Replace all missing, damaged and non-conforming signs (Strategy Champion: Nambé Pueblo, NPA, BIA)
- Remove existing bike and pedestrian signs (Strategy Champion: Nambé Pueblo)
- Install retroreflective delineator markers along road shoulders and at culverts (Strategy Champion: Nambé Pueblo, NPA, BIA)
- Install lighting (Strategy Champion: Nambé Pueblo, J emez Mountains Power COOP, NPA, BIA)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 2 - NP 101 Improvemen

NP 101 Road between NP
117 and Crossing \#1- Roadway
improvements needed. Vegetation
blocking. Retroreflective delineator markings need to be installed.

## Strategies

- Extend and flatten roadside/ clearzone
- Clear trees from right of way
- Install retroreflective delineator markings

(Strategy Champion: Nambé Pueblo, NPA,
BIA)
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## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 2 - NP 101 Improveme

NP 101 Road between NP
175 J ust S of Crossing \#5-
Roadway improvements needed. Arroyo needs to be extended. Retroreflective warning signage, delineator markings need to be installed.
Strategies

- Extend and flatten roadside/ clearzone
- Extend arroyo
- Clear trees from right of way
- Install retroreflective delineator markings and warning signs

(Strategy Champion: Nambé Pueblo, NPA, BIA)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 2 - NP 101 II

NP 101 Road between Yates
Rd and Crossing \#10 - Narrow
shoulder, high drop off height on east slope. Roadway improvements needed. Arroyo needs to be extended. Retroreflective warning signage, delineator markings need to be installed.

## Strategies

- Extend shoulder on east side
- Clear trees from right of way
- Install retroreflective delineator markings and warning signs for slope and driveway approaches

NP 101 between NP Yates fid and Crossine 210.
(Source: Nambé Pueblo)

[^4]REDPATINS

## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 2 - NP 101 Improven

Intersection with NP 101
Road and NP 102/ Bayay
Poe/ Tayeh Huu U- obstructions and horizontal curvature issues that affect sight distance. Tribal Court sign blocking northbound. Warning signs, obstruction removal needed.

## Strategies

- Clear trees from right of way
- Relocate Tribal Court sign
- Install retroreflective warning signs
(Strategy Champion: Nambé Pueblo, NPA, BIA)



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 2 - NP 101

Intersections with NP 101
Road and Pohuu U Poe/ Widi
Anya Ea E - Obstructions and horizontal curvature issues that affect sight distance in both directions. Warning signs, obstruction removal needed. Driveway consolidation needed.

## Strategies

- Design and construct access management and speed management improvements.
- Clear trees from right of way
- Install retroreflective warning signs
(Strategy Champion: Nambé Pueblo, NPA, BIA)



 to






## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 3 - Improving Pedest

- Vulnerable Road Users (VRU's) for this study included pedestrians, bicyclists, and motorcyclists.
- $4 \%$ of all reported collisions involved VRU's, 3 occurred within Pueblo all on SR 503 and all resulted in injury.
- Pueblo has no pedestrian or bicycle roadway transportation facilities (designated pathways along roadways, crossings) pedestrians feel very unsafe sharing roadways with vehicles.
- Children walking along roadways to bus stops in the low light conditions of early morning are especially vulnerable.
- There are no documented collisions involving pedestrian or cyclist for this study, however, the risk is high for these types of collisions to occur due to the lack of designated facilities.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 3 - Improving

- Addition of multi-use trails needed increase and encourage walking or cycling between housing and community places, increasing health, safety and reducing the need for vehicular use.
- Addition of multi-use trail along NP 101 would benefit both community members and tourists.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 3 - Improving

- To improve roadway safety for pedestrian and cyclists, the following designated multi-use pathways with wayfinding signage need to be planned and constructed:
- Phase 1 - Plaza and Governor's Office to Wellness Center, Early Childhood and Senior Centers 1.7 miles
- Phase 2 - NP 118 Subdivision and NP 101 from SR 503 junction to Housing Entity 2 miles
- Phase 3 - NP 101 from Bayay Poe to Upper Village 2 miles
- Phase 4 - NP 101 from Upper Village to Ranger Station 1.6 miles



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

Emphasis Area 3 - Improving Pedes

## Goals

- Develop Pedestrian and Bicycle Master Plan. Plan and construct Phase 1 and 2 of multi-use trails by 2025.


## Strategies

- Develop Pedestrian and Bicycle Master Plan to connect tribal community members to local goods and services as supported by foot or bicycle travel. Walking and hiking trails provide a great opportunity for Tribal community enhancement by incorporating cultural education and preservation through interpretive signage, planned bench seating location with educational placards and interactive stations, the display of traditional tribal art, and environmental enhancement and education of plant and animal species. For increased safety and extended hours of use, path lighting will be considered. The plan should consider connectivity to other internal and external paths and trails. The Pedestrian and Bicycle Master Plan should be developed simultaneously with the Master Sign, Wayfinding and Striping Plan. (Strategy Champion: Nambé Pueblo)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 3 - Improving Pedestri

## Strategies

- Select a collaborative planning team with community members and road ownership entities to discuss, design and create viable plans for bicycle and pedestrian trails and lighting identified by the Pedestrian and Bicycle Master Plan and LRTP. Develop a design and construction project that is broken out into phases. (Strategy Champion: Nambé Pueblo, Santa Fe County, NMDOT, NPA, BIA)
- Complete an NTTFI Inventory update to add proposed trails to TTP, with as needed proposed road justification reports. (Strategy Champtions: Nambé Pueblo)
- Apply for a Federal Highway Tribal Transportation Safety Grant in 2021 to secure funding for planning and construction of multi-use trails on qualifying TTP routes. (Strategy Champion: Nambé Pueblo)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 4 - Systemic Infras

 priorities identified by this plan will be the focus of systemic transportation planning, design improvement and construction efforts:- Standing water, drainage issues and sediment building up on roadways and intersections limiting safe bus and vehicle travel and the ability to turn around.
- Reduced or blocked visibility due to vegetation and other obstructions at intersections and along roadways.
- Narrow road shoulders and poor road surface conditions.
- Lack of designated pedestrian and bicycle walkways.
- Need for proper warning and wayfinding signage.
- Speeding reduction.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 4 - Systemic Infrastr

To accomplish the Tribe's safety goals, the following plans and audits have been identified as necessary to implement safety improvement strategies identified in Emphasis Areas 1-3 of this plan as well as established existing planning efforts including the Tribe's existing LRTP, RIS and Community Needs Assessment Surveys:

- Roadway Safety Audit - School Bus Routes within Nambé Pueblo
- Master Sign, Wayfinding and Striping Plan
- Bike and Pedestrian Master Plan
- Road Maintenance Plan



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

Emphasis Area 4 - Systemic Infrastru
Goals

- Improve safety throughout the Nambé Pueblo by 2025 through systemic planning and physical roadway improvements.


## Roadway Safety Audit Strategies

- Conduct a systemic, multidisciplinary RSA (See Emphasis Area 1) on all bus route roads within Nambé Pueblo to determine cost-effective improvements that could be done to improve bus and all transportation user travel, ingress and egress, safety, reduce crash risk and the number of vehicular collisions. (Strategy Champion: Nambé Pueblo, Santa Fe County, NMDOT, NPA, BIA)
- Apply for a Federal Highway Tribal Transportation Safety Grant to secure funding for RSA. (Strategy Champion: Nambé Pueblo)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 4 - Systemic Infrastru

## Master Sign, Wayfinding and Striping Plan Strategies

- Develop Master Sign, Wayfinding and Striping plan. Signs and striping are essential transportation infrastructure. Installation and maintenance is as a low cost way to significantly improve and maintain transportaiton safety, providing guidance, wayfinding and warning to all roadway users. Conduct a systemic audit of the existing sign inventory within Pueblo roads and facilities for compliance, need, location, and retroreflectivity. Identify signs that need to be removed or added. Include areas of high risk: intersections, pedestrian crossing, drainage crossings, congested areas, narrow shoulder, horizontal and vertical curves. Consider developing plan in phases of current need and future needs for projected development, trails, etc. Develop with recommendations of the RSA, RIS and simultaneously with the Bike and Pedestrian Master Plan. (Strategy Champion: Nambé Pueblo)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

Emphasis Area 4 - Systemic Infrastruc

## Road Maintenance Plan Strategies

- Develop a Road Maintenance Plan to comprehensively address and prioritize maintenance needs on Tribal and community roads. The Tribe currently does not have the capacity required to perform routine and heavy maintenance of their transportation network. Maintenance work is contracted out as the need for such work arises. Continued maintenance planning will be needed to ensure that a uniform, accurate, and systematic approach is implemented, resulting in the efficient use of limited maintenance funding. The Road Maintenance Plan should be developed with recommendations of the RSA, RIS and Master Sign, Wayfinding and Striping Plan. (Strategy Champion: Nambé Pueblo)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 4 - Systemic Infrastructure Road Infrastructure Improvement Strategies

- Join or form cooperative committees of all road maintenance servicers in the Pueblo Community. The committee would coordinate and plan maintenance and project work to combine resources and maximize efforts. (Strategy Champion: Nambé Pueblo, Santa Fe County, NMDOT, NPA, BIA)
- Complete improvement project design and construction based on the recommendations of The Road Maintenance Plan, and RSA identifying well supported, required traffic control revisions and infrastructure improvements. (Strategy Champion: Nambé Pueblo, Santa Fe County, NMDOT, NPA, BIA)
- Apply for a Federal Highway Tribal Transportation Safety Grant to secure funding for design and construction. (Strategy Champion: Nambé Pueblo)


## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

Emphasis Area 5 - Reducing Risky

- Risky Driving Behaviors (RDB's) for this study include Driver Inattention, Speeding, Alcohol or Drug Impairment, Following Too Closely and Failed to Yield Right of Way.
- $60 \%$ of all collisions reported involved RDB.
- $100 \%$ of all reported fatal collisions involved RDB's.
- 65\% of RDB collisions resulted in Injury.



## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 5 - Reducing Risky [

- $43 \%$ of all collisions involved Roadway Departure. The top three RDB's/ Highest Contributing Factors involving Roadway Departure were Speeding, Driver Inattention and Alcohol or Drug Involvement.


## Goals

- Reduce Fatalities and Serious Injuries Involving Roadway Departure and Risky Driving Behaviors by at least $25 \%$ by 2025 .



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## Review of Strategic Transportation Safety Plan Development Results (Phase 2)

## Emphasis Area 5 - Reducing Risky Drivi

## Strategies

- Conduct a Systemic RSA that evaluates Roadway Departure risks including roadway condition, visibility, striping and signage in the community. The RSA should evaluate locations with reported crashes involving Roadway Departure including collision types: Overturn/ Rollover, Head-On, Fixed Object, Sideswipe or Vehicle on Other Road. (Strategy Champions: Nambé Pueblo, Santa Fe County, NMDOT)


## Education and Safety Culture Strategies

- Create a media campaign using billboards and displays to encourage drivers to adopt a culture of safe driving. (Strategy Champions: Nambé Pueblo, Public Relations)
- Implement an education program for the community that involves safety signage and a mock Crash similar to the "Every 15-Minutes" program. (Strategy Champions: Law Enforcement)


## Review of Strategic Transportation Safety Plan Development Results（Phase 2）

## Emphasis Area 5 －Reducing Risky

## Enforcement and Policy Strategies

－Enforce Laws related to Driver Inattention，Speeding，Alcohol or Drug Impairment，Following Too Closely and Failed to Yield Right of Way．Renewed police patrols and presence at community concern locations for driving enforcement．（Strategy Champions：Nambé Pueblo，Law Enforcement）
－Create a task force to evaluate，refine，and improve laws and policies for traffic enforcement in the community．The task force should specifically evaluate laws and policies concerning the following topics： Risky Driving Behaviors and Roadway Departure．（Strategy Champions：Nambé Pueblo，Santa Fe County， NMDOT）
－Intersection and Speed Management．Develop a policy for conducting studies that are used to monitor intersection driving behaviors and set speed limits．（Strategy Champions：Nambé Pueblo，Law Enforcement）
－Questions？
－Discussion

## Conclusion:

- Thank-You !!
- Should you have any questionsPlease let us know

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[^0]:    Inflation assumed @ 3\% per year, specific materials and detailed sub-specs and item nos. would be developed with a design, based on NMDOT 2017 Unit Prices, with adjustments for small and large quantities.

[^1]:    Inflation assumed @ 3\% per year, specific materials and detailed sub-specs and item nos. would be developed with a design, based on NMDOT 2017

[^2]:    Inflation assumed @ 3\% per year, specific materials and detailed sub-specs and item nos. would be developed with a design, based on NMDOT 2017 Unit Prices, with adjustments for small and large quantities.

[^3]:    Emphasis Area 1 - Roadway Safety Aud
    Nambé Pueblo

    ## Goals

    - Complete RSA by 2022.


    ## Strategies

    - Conduct a systemic, multidisciplinary RSA on all bus route roads within Nambé Pueblo to determine cost-effective improvements that could be done to improve bus and all transportation user travel, ingress and egress, safety, reduce crash risk and the number of vehicular collisions. The RSA will have a particular focus on pedestrian, bicycle safety, roadway drainage and vehicular roadway departure prevention improvements. The RSA should include a traffic analysis defining the roadway and intersection level of service during peak hours, traffic volumes, traffic speeds, and general modeled traffic patterns. The RSA will include a pedestrian count and audit. The RSA corridor will include approximately 11.5 miles of roadway including: Baseball Field Road, Bayay Poe, Buffalo Range Subdivision Road, County Roads 113A, 117N 119N, 119S, 84F, 84G, Ditch Rider Road, Don Bernardo Road, NP 101, SR 503, and Tayeh Huu U. (Strategy Champion: Nambé Pueblo, Santa Fe County, NMDOT, NPA, BIA)

[^4]:    (Strategy Champion: Nambé Pueblo, NPA, BIA)

