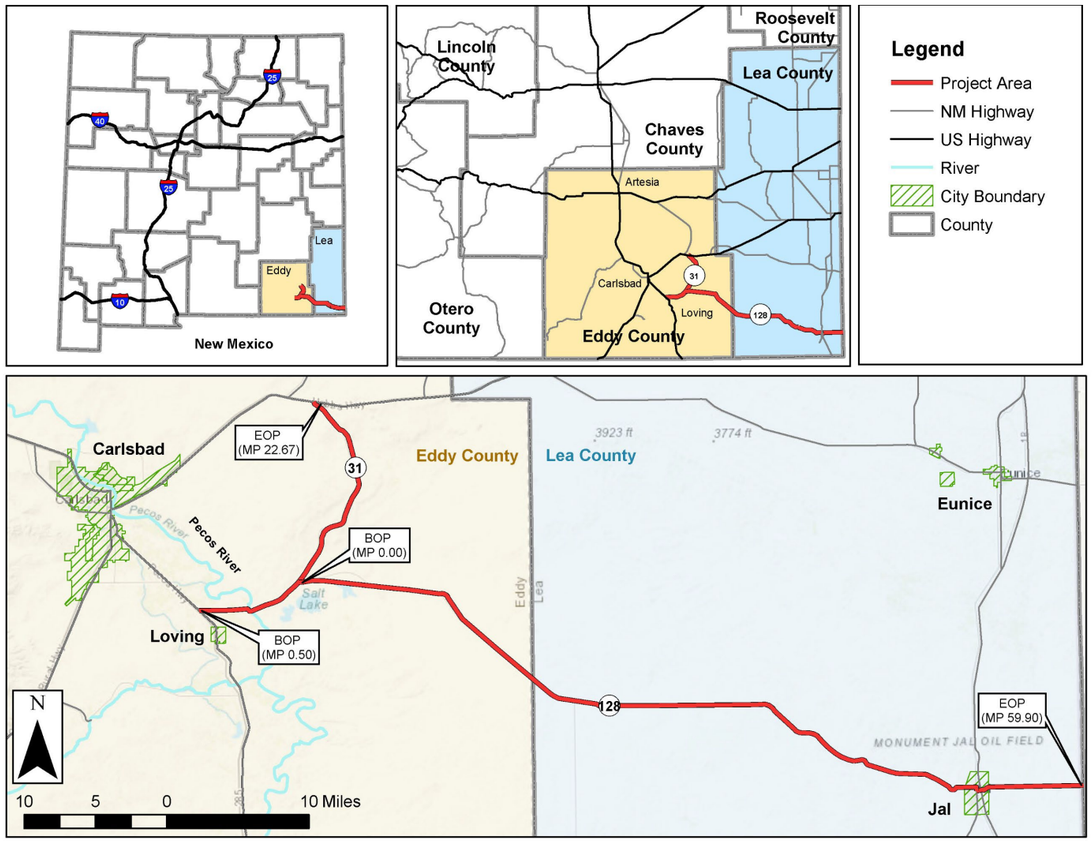
## ES.1 Introduction

The New Mexico Department of Transportation (NMDOT) proposes improvements to NM 31 and NM 128 in southeast New Mexico including NM 31 from milepost (MP) 0.5 east of the intersection of US 285 to the terminus of NM 31 at its junction with US 62 at MP 22.6, and NM 128 from its junction with NM 31 east to its terminus at the New Mexico/Texas state line at MP 59.9. The general location and study limits of the proposed project are shown in **Exhibit ES-1**.

The study followed the guidelines and procedures of the NMDOT Location Study Procedures. Because federal funding will be used for the project, the study was performed in cooperation with the Federal Highway Administration (FHWA). Because the project involves lands under the jurisdiction of other federal, state, and local agencies, the study was coordinated with these entities including the Bureau of Land Management (BLM), New Mexico State Land Office (SLO), Eddy and Lea Counties, and the City of Jal.

NM 31 and NM 128 are both classified as "major collectors" on the NMDOT Roadway Functional Classification System. They provide access to major oil fields in the Delaware Basin portion of the Permian Basin and provide access to several large potash and salt mining operations in Eddy County east of the Pecos River. Commercial and industrial trucks and other industrial traffic are a substantial portion of the overall traffic using these highways. Two rail lines — the BNSF Loving Spur and Texas / New Mexico short line cross the highways in several locations.

**Exhibit ES-1, Project Location and Vicinity Map**




## ES.2 Summary of Project Purpose and Need

Both NM 31 and NM 128 have operational, safety, and infrastructure problems that need improvement. Major problems with the existing highways include:

- NM 31 south of NM 128 currently operates at level of service (LOS) C or D, depending on location in the AM and PM peak periods. NM 128 also operates at LOS C for one or both peak periods. The NMDOT State Access Management Manual (SAMM) establishes LOS of B or better for rural, two-lane highways.
- Significant delays occur at several intersections along NM 31 and NM 128. These include the intersections of Refinery Road and NM 128 on NM 31 and WIPP Road, Buck Jackson Road, Orla Road, 3rd Street, and NM 18 along NM 128. The intersection of NM 31 and NM 128 is particularly problematic for the northbound-to-eastbound movement in the mornings and the westbound-to-southbound in the evening.

Westbound Traffic Queue at the NM 31/NM 128 Intersection

- Both highways have high crash rates. For the years 2014 to 2019 a total of 174 crashes were reported for NM 31 including 58 that resulted in injuries or fatalities. A total of 548 crashes were reported for NM 128 including 146 that resulted in injuries or fatalities. Predominant crash types were rear-end, overturn, and head-on crashes. The crash types and rates for both NM 31 and NM 128 are indicative of conflicts associated with passing maneuvers, turning conflicts, pavement condition, and narrow shoulders. Speed differential is also a contributing factor. Larger trucks, especially those associated with oil field development (drilling) and equipment transport, often travel in platoons and at slower speeds than other traffic. This condition results in a substantial amount of passing maneuvers. Because passing lanes are not available, passing occurs in the opposite direction driving lane, resulting in potential for severe conflicts.
- The pavement condition is very poor for all of NM 31 and most of NM 128. Likewise, drainage structures and other roadway infrastructure are in poor condition and in need of rehabilitation or replacement.

## ES.3 Project Programming

The current Statewide Transportation Improvement Program (STIP) includes several projects specific to NM 31 and NM 128. Programmed projects are summarized in **Exhibit ES-2**.

**Exhibit ES-2, Summary of STIP Program for NM 31 and NM 128 Improvements**

| Control Number | Description | Limits | Program Year | Amount |
|---|---|---|---|---|
| 2102101 | Jal Roadway Reconstruction | MP 51.5 to MP 52.6 | Future FFY | $3.1M |
| 2104330 | NM 31/NM 128 Preliminary Engineering | this project | FFY 2022 | $4.2M |
| 2104331 | NM 31 First Construction Phase | MP 0.5 to MP 8.0 | Future FFY | $93.0M |
| 2104332 | NM 128 Design Build | MP 0.5 to MP 11.8 | Future FFY | $75.0M |
| 2104333 | NM 128 Design Build | MP 50.7 to MP 53.9 | Future FFY | $31.0M |
| 2104334 | NM 128 Widening | MP 11.8 to MP 50.7 | Future FFY | $176.7M |
| 2104335 | NM 128 Roadway Widening | MP 53.9 to MP 59.9 | Future FFY | $17.0M |
| 2104336 | NM 31 Roadway Widening | MP 8.0 to MP 22.7 | Future FFY | $62.9M |

The goal of the NMDOT is to let the first phase of construction using the Design-Build procurement methodology in mid to late 2023. The timeline will be finalized once the total funding has been identified.

## ES.4 Project Alternatives

Because the proposed project includes over 80 miles of highway and passes through both urban and rural areas, the project alternatives include a mixture of typical sections and intersection types. The alternatives considered and those recommended for implementation are described below.

### Alternatives Considered

The evaluation of alternatives performed for the Phase A/B study considered four mainline alternatives for the rural portions of the highway, three alternatives of the urban segment through the City of Jal, and four alternatives for major intersections. The mainline rural alternatives considered include:

- An **Enhanced 2-Lane** configuration that would reconstruct NM 31 and NM 128 as a 2-lane section with auxiliary lanes at major intersections and passing lanes at regular intervals — about every 5 to 8 miles depending on location within each corridor. Auxiliary lanes would include speed change lanes and turn lanes, as determined needed by traffic volumes and SAMM criteria.
- A **Super 2-Lane** configuration that would reconstruct NM 31 and NM 128 to have continuous alternating passing lanes every 2 to 3 miles. Auxiliary lanes would be provided at major intersections.
- A **4-Lane Divided Highway** with a 14-foot paved median signed and striped to limit median use to intersections only. Auxiliary lanes would be provided at major intersections.
- **A 4-Lane Divided Highway with a 38-foot to a 60-foot depressed median**. Median cross-overs would be provided at select intervals and auxiliary lanes would be provided at major intersections.

In addition to the rural alternatives, the following urban alternatives were considered for NM 128 through the City of Jal:

- A **3-lane section** consisting of a single driving lane for westbound and eastbound traffic and a continuous 14-foot center turn lane to accommodate left-turns onto side streets and driveways.
- A **4-lane section** with two driving lanes in each travel direction. Left-turns would occur from the inside driving lane.
- A **5-lane section** with two driving lanes in each travel direction and a continuous 14-foot center turn lane to accommodate left turns onto side streets and driveways.

The four intersection configurations considered include:

- A **Two-way stop controlled** (TWSC) intersection with stop signs used on the minor road approaches to the main highway.
- A **High-T intersection** with stop-sign control for the side street and channelization provided on the mainline to separate the minor road left-turn movement from the far-side through movement on the major road. Consideration of this concept was limited to three-legged intersections or four way intersections where one leg could be eliminated.
- **Restricted Crossing U-Turn Intersections** (RCUT) that prohibit left-turn and through movements from minor road approaches. The prohibited movements are required to turn right onto the major road and then make a U-turn maneuver at a one-way median opening 400 to 2,000 feet downstream of the intersection, depending on the posted speed of the major roadway.
- **Roundabout (RAB) intersections** consisting of a circular intersection controlled by yield signs on each approach leg. RAB intersections were sized to accommodate large trucks that are common within the oil fields.

The above alternatives were evaluated using an iterative screening process followed by a detailed evaluation of the alternatives not eliminated by the screening process. The detailed evaluation considered traffic and safety performance, implementation costs, right-of-way needs, impacts to utilities, natural, cultural, and community resources, compatibility with industrial operations, and other similar factors. Input from the public, elected officials, businesses, and major industry was also considered.

### Preferred Alternative for NM 31

Based on the detailed evaluation, coordination with local entities and industrial users, and public input, the preferred alternative for NM 31 consists of several mainline typical sections and intersection treatments. **Exhibit ES-3** provides a summary of the recommended mainline typical sections for each major segment of the corridor.

**Exhibit ES-3, NM 31 Recommended Typical Sections**

| Roadway Milepost | Travel Lanes | Median Type / Width | Shoulder Width |
|---|---|---|---|
| BOP to MP 3.25 | 4, 12-foot lanes | 14 ft. flush paved | 10 ft. outside |
| MP 3.25 to MP 4.0 | 4, 12-foot lanes | Transition from 14 ft. flush to 38 ft. depressed | 10 ft outside<br>6 ft. inside |
| MP 4.0 to MP 7.0 | 4, 12-foot lanes | 38 ft. depressed | 10 ft outside<br>6 ft. inside |
| MP 7.0 to MP 7.6<br>NM 31/128 Intersection, South Leg | 4, 12-foot lanes | 38 ft. depressed | 10 ft. outside |
| MP 7.6 to MP 8.0<br>NM 31/128 Intersection, North Leg | 2, 12-foot lanes | None | 10 ft. outside |
| MP 8.0 to EOP at MP 22.6 | 2, 12-foot lanes<br>2 NB and 2 SB Pass Lanes | None | 10 ft. outside |

The flush median was used from the BOP to MP 3.25 to avoid relocations and to accommodate the frequent access points that exist. Several houses and industrial operations are present adjacent to the existing right-of-way and would be acquired with the depressed median alternative. Traffic and safety analyses show this typical section meets the safety and operational goals of the project and NMDOT.

### NM 31 Intersections

Eighteen intersections exist within the project limits for NM 31 at local roads and major driveways to industrial facilities. In addition, two major intersections are present including NM 31 at Refinery Road and at NM 128. The proposed alternative adds left-turn lanes and right-turn deceleration lanes at all eighteen intersections and maintains the existing stop-control for the side streets. The two major intersections are proposed to be reconstructed using a roundabout configuration with by-pass lanes to accommodate over-dimension permitted vehicles. The by-pass lanes will be closed to all other traffic but will be available to help manage traffic if a major crash impacts traffic flow through the roundabout.

### NM 31 Right-of-Way

The preferred alternative for NM 31 will require acquisition of approximately 95 acres of property to accommodate the proposed roadway, drainage, and intersection improvements. The property to be acquired consists of a mixture of public lands under the jurisdiction of the Bureau of Land Management, New Mexico State Land office, and private property from various owners.

### NM 31 Cost

The estimated cost to construct the NM 31 preferred alternative is $87,279,770 for the segment from the BOP to MP 8.0 and $78,602,327 for the segment from MP 8.0 to the EOP at MP 22.6. Costs include mainline reconstruction, intersection improvements, drainage, five railroad crossings, a new 2-lane bridge over the Pecos River, cost escalation, engineering and construction management, and New Mexico Gross Receipts tax. The estimate assumes a 45% multiplier applied to major cost categories (i.e., roadway and drainage) to cover the miscellaneous items and for contingency purposes. Cost of right-of-way is not included.

## Preferred Alternative for NM 128

Based on the detailed evaluation, coordination with local entities and industrial users, and public input, the preferred alternative for NM 128 consists of four mainline typical sections and three major intersection types. **Exhibit ES-4** provides a summary of the recommended mainline typical sections for each major segment of the corridor.

**Exhibit ES-4, NM 128 Recommended Typical Sections**

| Segment | Roadway Milepost | Travel Lanes | Median | Shoulders | Other Elements |
|---|---|---|---|---|---|
| NM 128 from BOP to MP 50.5 | MP 0.5 to MP 6.4 | 4, 12-ft. lanes | 38-ft. Depressed | 10-ft | Auxiliary Lanes at major intersections |
| | MP 6.4 to MP 50.5 | 4, 12-ft. lanes | 60-ft. Depressed | 10-ft | Auxiliary Lanes at major intersections |
| NM 128 in the City of Jal | MP 50.5 to MP 53.5 | 2, 13-ft. lanes | 14-ft. flush TWLTL | 6-ft | Additional 12-ft. eastbound lane from 4th St. to NM 18, 5-ft. sidewalks on both sides |
| NM 128 from MP 53.5 to EOP at MP 59.9 | MP 53.5 to MP 59.9 | 2, 12-ft. lanes | None | 10-ft | 1 Passing Lane in both directions |

### NM 128 Intersections

Ten major intersections exist within the project limits for NM 128 at local roads and side streets. A High-T intersection configuration is proposed at WIPP Road, Buck Jackson Road, and Orla Road. Two-way stop-controlled intersections with left-turn and right-turn deceleration lanes are proposed five locations. Signalized intersections with left-turn lanes are proposed at 3rd Street and NM 18 in Jal.

### NM 128 Right-of-Way

The preferred alternative for NM 128 will require acquisition of approximately 163 acres of property to accommodate the proposed roadway, drainage, and intersection improvements. The property to be acquired consists of a mixture of public lands under the jurisdiction of the Bureau of Land Management, New Mexico State Land office, and private property from various owners.

### NM 128 Cost

The cost to construct NM 128 was prepared in six distinct segments to allow phased implementation. The sum cost for all six segments is approximately $345.5M, not including cost of right-of-way. Costs include mainline reconstruction, intersection improvements, drainage, railroad crossing in Jal, cost escalation, engineering and construction management, and New Mexico Gross Receipts tax. The estimate assumes a 45% multiplier applied to major cost categories (i.e., roadway and drainage) to cover the miscellaneous items and for contingency purposes. Cost of right-of-way is not included.

## ES.5 Public Involvement

Stakeholders for the NM 31/NM 128 project include the residents and community members, business owners related to oil, natural gas and potash extractive industries, freight and trucking companies, schools, local utilities, emergency service providers, the United States Postal Service, private landowners, federal and state land management agencies, and general users of the highway. Input from these groups and others was used to identify issues of interest and concern and to develop, evaluate, and refine project alternatives. Outreach activities performed during the Phase I-A/I-B study included:

- Two series of public meetings. Each series consisted of a public meeting that presented the overall corridor and a second meeting focused on the improvements within Jal. The first series of public meetings were held in August 2021. The second series occurred in May 2022. Both series were conducted using virtual meeting tools.
- Other outreach included small group and one-on-one meetings with various stakeholders including the City of Jal, City of Carlsbad, Eddy County, Lea County, New Mexico Oil and Gas Association, Mosaic Potash, Intrepid Potash, United Salt Corporation, Permian Basin Strategic Partnership, Permian Basin Road Safety Coalition, Texas DOT, and various property owners.
- Coordination also occurred with BLM, FHWA, NM State Land Office, BNSF, and Texas/New Mexico Railroad.

## ES.6 Next Steps

Several activities are underway to begin the implementation of the priority segments of NM 31 and NM 128. These steps include:

- Preparation of right-of-way maps to enable the acquisition of properties needed for right-of-way. This effort is underway and is based on the Enhanced Conceptual Design Plans prepared for the corridor. Right-of-way acquisition will commence after the NEPA documents have been approved.
- Completion of NEPA investigations, NEPA documents for the priority projects, and associated supporting investigations for cultural resources, natural resources, and community impacts. Separate NEPA documents will be prepared for NM 31 and NM 128. The anticipated level of effort is a categorical exclusion (CE). The CEs will be completed in late 2022.
- Consultation and coordination with the New Mexico Historic Preservation Division, New Mexico State Land Office, Bureau of Land Management, and other land management and resource management agencies.
- Design of the railroad crossings on NM 31 at MP 2.99 and MP 4.0 and on NM 128 at MP 0.05 and at the NM 128/NM 18 intersection are underway. Design of these crossings will be completed by the NMDOT project team outside of the design-build process and will be provided to the selected contractor team for construction of the adjacent highway segments. Construction of the track and associated signals and crossing arms will be by the railroad owner.
- Utility coordination and execution of Master Utility Agreements with utility companies for the initial Design Build phases are underway. SUE Level B and Level A potholing have been completed for these areas.
- Three Design Build teams have been shortlisted and preparation of the Design Build Request for Proposal documents is underway.