Environmental Assessment

NM 41
Clark Hill to US 285 (MP 46.1 to MP 62.1)
Santa Fe County, New Mexico

Project No. & CN U500010

April 2012

Federal Highway Administration
Environmental Assessment

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This environmental assessment is submitted pursuant to 42 U.S.C. 4334(2) and the New Mexico Department of Transportation's Location Study Procedures by the US Department of Transportation, Federal Highway Administration, New Mexico Division, and the New Mexico Department of Transportation.

Date of Approval

NMDOT Project Development Engineer

Date of Approval

NMDOT Environmental Division

Date of Approval

FHWA Division Administrator

The following people may be contacted for additional information about the NM 41 Project and this environmental assessment:

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Comments on this EA are requested by June 30, 2012. Please send all comments to the following address: Parsons Brinckerhoff, Attn: NM 41 Environmental Assessment, 6100 Uptown Boulevard NE, Suite 700, Albuquerque, NM 87110.
EXECUTIVE SUMMARY

This Environmental Assessment (EA) discusses proposed modifications to New Mexico State Highway 41 (NM 41) in Santa Fe County, New Mexico (see Figure 1-1). The project area extends along NM 41 from Milepost (MP) 46 to MP 62.1 and passes through the community of Galisteo. The project is proposed by the New Mexico Department of Transportation (NMDOT) in cooperation with the Federal Highway Administration (FHWA) and has been completed under the Project Number and Control Number U500010.

The purpose of the project is to provide geometric and safety improvements for highway users and area residents. The need for the project is based on identified safety and geometric deficiencies including, but not limited to:

- Structural and geometric deficiencies with the Galisteo Creek Bridge and San Cristobal Arroyo Bridge;
- Segments of the highway where safe stopping sight distance is substantially limited by vertical curves;
- An absence of safe shoulders for use by motorists, pedestrians, and bicyclists;
- Poor pavement condition; and
- Various other roadway conditions that affect safety or that do not meet modern design standards.

Three alternatives are discussed in this EA including the No Build Alternative and two build alternatives. The major design features of each alternative are summarized below and a detailed description is provided in Chapter 2.

- **No Build Alternative** – The No Build Alternative assumes NM 41 would remain in its existing condition and no major changes to the roadway or the bridges would be made. Improvements would be limited to routine maintenance and emergency repairs, as needed.

- **Build Alternative 1** – This build alternative would reconstruct NM 41 within the project limits. Reconstruction would include the roadway pavement and subgrade, the addition of shoulders, replacement of the San Cristobal Arroyo Bridge and Galisteo Creek Bridge on their existing alignments, and replacement/upgrades of ancillary features such as right-of-way fencing, signing, and drainage structures. This alternative would maintain the existing functional classification of NM 41 as a 2-lane rural collector highway, but would upgrade the roadway to a safe and modern highway that is consistent with the rural and historic character of the Galisteo Basin. Specific design details are described in Chapter 2.

- **Build Alternative 2** – This alternative provides the same features as Alternative 1 except that new bridges across San Cristobal Arroyo and Galisteo Creek would be constructed parallel to the existing bridges. The new bridges would be offset by approximately 15 feet to the west. The segments of NM 41 approaching the bridges and between the bridges from MP 55.6 to 56.15 would also be offset to align with the new bridges.

Public involvement and agency coordination started early and was continuous throughout the study process. Activities have included four public information meetings and coordination with resource agencies. Chapter 4 contains a summary of public involvement activities to date.
Impacts to the human and natural environments as a result of the proposed project are minor and are similar between the two build alternatives. No major impacts were identified for the following areas:

- Access
- Community Facilities and Environmental Justice
- Land Use
- Hazardous Materials
- Floodplains
- Air Quality
- Indirect and Cumulative Impacts

Impacts were identified in the following areas. The impacts are minor for both build alternatives:

- **Utilities** – Both build alternatives would require the relocation of existing utilities, mailboxes, and an Official Scenic Historic Marker.

- **Cultural Resources** – Alternative 1 would have an adverse effect to both historic bridges but would not adversely affect the seven historic buildings, the Galisteo Historic District, or the historic road. Alternative 2 would have an adverse effect to the San Cristobal Bridge and the Galisteo Historic District but would not adversely affect the Galisteo Bridge, the historic road, or the seven historic buildings. For both alternatives, the seven archaeological sites would be protected from construction activities.

- **Section 4(f) Resources** – Potential impacts to Section 4(f) resources as a result of either build alternative will be evaluated. The impact to Section 4(f) resources and need for a Section 4(f) evaluation will be determined by the FHWA.

- **Water Quality** – Both build alternatives would involve placing fill within waters of the U.S. and would be regulated under Section 404 of the Clean Water Act.

- **Wetlands** – While the location of the impacts would be different between the alternatives, both alternatives would involve less than 0.01 acres of permanent impacts and 0.005 acres of temporary impacts to the San Cristobal wetlands. Both alternatives would also involve less than 0.01 acres of permanent impacts at the Galisteo wetlands; however, Alternative 1 could include up to 0.013 acres of temporary impacts while Alternative 2 would have negligible temporary impacts. This difference is based on the existing Galisteo Bridge not being removed and a temporary bridge not being needed for Alternative 2. All wetland impacts will be mitigated in consultation with the US Army corps of Engineers.

- **Vegetation and Wildlife** – For upland habitat, Alternative 1 would have a temporary disturbance of 42 acres and 22 acres of permanent loss. For riparian habitat, Alternative 1 would have a temporary disturbance of 0.69 acres and negligible permanent losses. Alternative 2 would involve the same impacts to upland habitat. For riparian habitat, Alternative 2 would have 0.22 acres of temporary impacts and 0.42 acres of permanent loss. All areas disturbed but not physically occupied by the roadbed will be seeded with native plant species and riparian trees upon completion of construction.

- **Threatened and Endangered Species** – Both alternatives would remove potential habitat for southwestern willow flycatcher and yellow-billed cuckoo. Acreages would include the riparian habitat discussed above for Galisteo Creek and, to a lesser extent, San Cristobal Arroyo. The
USFWS has concurred with the finding that both Alternative 1 and Alternative 2 may affect, **not likely to adversely affect**, the southwestern willow flycatcher. There will be **no effect** to the other protected species. As stipulated in consultation with the USFWS, the area around the Galisteo Creek Bridge disturbed by construction will be replanted to match the community type and composition that currently exists at the site.

- **Visual Resources** – Both build alternatives would minimally alter the visual appearance of NM 41 as well as some of the views of and from the roadway. Both alternatives would involve replacement bridges with a historic design aesthetic. Alternative 2 would have greater visual impact due to the new bridges being placed on an offset alignment.

- **Construction Activities** – Both alternatives would have the same construction impacts except at the Galisteo Creek and San Cristobal Arroyo bridges. These impacts include temporary delays to motorists, nuisance level noise, dust, and lighting from construction activities. Access to homes and businesses along NM 41 would also be affected during construction. Increased traffic delays would occur under Alternative 1 if the new bridges are constructed in place without the use of temporary bridges. Residents and business owners will be informed of any temporary driveway or side street closures or detours. Signs will direct motorists to businesses and access to all adjacent properties will be maintained.

Based on the technical investigations and analyses conducted as part of this environmental assessment, and input received thus far from stakeholder agencies and the public, the NMDOT’s preferred alternative is Build Alternative 1. This alternative is preferred because reconstructing the bridges on the current alignment would have fewer impacts to the Galisteo Historic District as well as to the wetlands and riparian habitat. In addition, public comments generally favored this design.

An opportunity for additional public and agency review and comment will be provided before the final decision is made and FHWA authorizes funding. The EA will be made available to the general public and local public agencies. In addition, a public hearing will be held to present and disclose the information included in the EA and to obtain additional comments. Following the 30-day review and comment period, the NMDOT and FHWA will review and respond to all comments.

The proposed project is not expected to have significant adverse social, economic, or environmental impacts that would warrant an environmental impact statement. Unless significant impacts are identified as a result of public review or at the public hearing, a Finding of No Significant Impact (FONSI) will be prepared for the proposed action in accordance with FHWA and NMDOT procedures. The FONSI will address any concerns raised during the circulation of the EA, public hearing comment period, or coordination of the project with the appropriate agencies. The FONSI will be used as a basis for federal-aid authorization for final design, right-of-way acquisition, and construction.
CHAPTER 1.0 INTRODUCTION AND BACKGROUND

This environmental assessment (EA) discusses proposed modifications to New Mexico State Highway (NM) 41 in Santa Fe County, New Mexico. The project area extends along NM 41 from Milepost (MP) 46 to MP 62.1 and passes through the community of Galisteo (Figure 1-1). The project is proposed by the New Mexico Department of Transportation (NMDOT) in cooperation with the Federal Highway Administration (FHWA). This study has been completed under the Project Number and Control Number U500010. Construction costs for overall improvements to NM 41 within the project limits are estimated at between $18,356,394 and $19,034,311. Construction funding has been programmed for two initial phases including $4,350,000 programmed for the replacement of the Galisteo Creek and San Cristobal Arroyo bridges in Fiscal Year (FY) 2013 under CN D5016 and $6,325,000 programmed for the reconstruction of NM 41 from Clark Hill (MP 46) to the community of Galisteo in FY 2014 and 2015 under CN 5100450 in the Fiscal Year 2012-2015 Statewide Transportation Improvement Plan (STIP) (September 28, 2011). Due to their poor condition, the bridge replacements are considered a high priority action by the NMDOT. Copies of the relevant STIP pages are in Appendix A.

1.1 Project Background

A primary consideration of this project is structural bridge deficiencies as well as geometric improvements to the highway and the two historic bridge structures located within the southern portion of Galisteo. Deficiencies with the highway and bridges are of concern to the safety of highway users, including drivers, bicyclists, and pedestrians. For the San Cristobal Bridge in particular, the critical concern is the poor condition of the bridge components and the potential danger for catastrophic failure if scour undermines the bridge foundation.

Public input obtained during the course of this study and comments received during a previous NMDOT study of the two bridges indicate concerns by some residents that improvements to the highway and bridges could have adverse impacts to the community, the historic character of Galisteo, and environmental resources. Documented in Chapter 4, this concern extends to the physical destruction of the historic structures as well as the secondary impacts from increased traffic including commercial truck use and higher travel speeds. Based on the feedback from these and other stakeholders, this analysis emphasizes the need to achieve a safe highway for users while minimizing impacts to the community and to environmental and cultural resources.

1.2 Project Setting

NM 41 is classified as a rural major collector highway on the New Mexico State Highway System. It begins at United States Highway (US) 60 south of Estancia and extends north for 62 miles through the Estancia and Galisteo Basins. The highway ends at its junction with US 285, about 15 miles southeast of Santa Fe. The project corridor extends from MP 46 northward, through the Village of Galisteo, and ends at MP 62.1.

Traffic volumes are consistent with a rural collector highway. Counts collected in October of 2009 show average daily traffic volumes of approximately 1,200 vehicles south of Galisteo and 1,400 north of Galisteo with large trucks accounting for approximately 9% of the traffic volume. Traffic projections do not indicate a significant increase in the future. Additional information concerning traffic operations is found in NM 41 Traffic Report, May 2009 and NM 41 Clark Hill to US 285 (MP 46.1 to MP 62.1) Detailed Evaluation of Alternatives, February 2011. Both documents are available at the NMDOT District 5 Office.
Figure 1-1: Project Vicinity and Location
Between I-40 and MP 46 (the beginning of the proposed improvements), the highway section has been improved and includes two 12-foot travel lanes with 8- to 10-foot shoulders. From MP 46 to MP 62.1 (the junction of NM 41 and US 285 and the end of the project), the highway section consists of two 12-foot travel lanes without shoulders. Exceptions include Clark Hill and the approach to the US 285 junction, where auxiliary lanes for climbing and turning exist. The project limits do not include any locations where traffic on NM 41 stops for intersecting roadways, with the exception of the termini of NM 41 and US 285.

Three bridges exist within the project limits. These include bridge structures over the Arroyo de la Jara (Structure #8368 at MP 53.5), San Cristobal Arroyo (Structure #1814 at MP 55.6), and Galisteo Creek (Structure #1782 at MP 56.1). The structure over Arroyo de la Jara was constructed in 1981 and is in good condition both structurally and geometrically. In contrast, Galisteo Creek Bridge and San Cristobal Arroyo Bridge were constructed in 1936 and 1939, respectively, and are in poor condition and have geometric deficiencies and safety concerns.

The San Cristobal and Galisteo bridges generally mark the southern boundary of Galisteo, a small unincorporated village consisting of approximately 265 residents. It is classified as a Traditional Community by Santa Fe County. The village extends to the highway curve north of the prominent ridgeline at milepost 57.25.

1.3 Project Purpose and Need

The purpose of the NM 41 project is to provide geometric and safety improvements between MP 46 and MP 62.1 for highway users and area residents. The need for the project is based on identified safety and geometric deficiencies including, but not limited to:

- Structural and geometric deficiencies with the Galisteo Creek Bridge and San Cristobal Arroyo Bridge.
- Segments of the highway where safe stopping sight distance is substantially limited by vertical curves.
- An absence of safe shoulders for use by motorists, pedestrians, and bicyclists.
- Poor pavement condition.
- Various other roadway conditions that affect safety or that do not meet modern design standards.

1.3.1 Infrastructure Condition

Data and a discussion of key issues pertinent to the current condition of infrastructure and the need for improvements are provided in this section.

Roadway Condition

The general condition of roadway features is poor and inconsistent with current design guidelines for collector highways. Representative photographs of roadway conditions are presented in Appendix B. Notable problem areas include:

- **Poor Pavement Condition** – In general, the existing pavement throughout the project area is in poor condition. Longitudinal and transverse cracking occurs throughout. In addition, pavement rutting and settling is evident in several locations, indicating subgrade failures. Maintenance efforts by the NMDOT have been made with surface patches placed in several locations. Overall, the need for major rehabilitation or reconstruction of the pavement sections is indicated.

- **Guardrail** – Guardrail is installed at 36 locations within the 16-mile length from Clark Hill to US 285. Of the 72 end treatments, 64 of them do not meet current design criteria and need to be
replaced. Depending on modifications to the roadway geometry and roadside clear zone, the number of sub-par end treatments could change.

- **Drainage** – Forty-two drainage structures cross NM 41 within the project limits. Of these, seven are large concrete box culverts (CBCs) or large oval pipes. The remaining are corrugated metal pipes (CMPs) ranging from 24 inches in diameter to 84 inches in diameter. Of these, approximately 25% have ends that are in poor condition and would be replaced if the roadway is reconstructed. Thirteen of the CBCs and CMPs indicate insufficient grade for proper drainage.

**Galisteo Creek Bridge Condition**

The Galisteo Creek Bridge is a 4-span rolled steel girder bridge, with concrete abutments and solid-wall piers on concrete footings. No major changes to the bridge have been made since its construction, although extensive maintenance activities have occurred on the bridge deck. The total bridge length is 240 feet 10 inches, consisting of four 59-foot spans. Total bridge width is 33 feet 3 inches, which provides two 12-foot driving lanes, two 7.5-inch curbs, two 3-foot sidewalks, and two 1-foot concrete post and pedestrian rails. The deck is supported by five W36x170 steel girder lines spaced at 6 feet 4 inches on center. Figure 1-2 illustrates the bridge typical section and general configuration.

**Figure 1-2: Galisteo Creek Bridge Typical Section**
Most of the bridge elements are in poor condition in and around the deck joints due to the effects of long-term water leakage and corrosion from salts used for roadway de-icing. Representative photographs of the Galisteo Bridge condition are presented in Appendix B. The bridge is classified as “structurally deficient” (according to FHWA criteria) due to the condition of major bridge elements described below:

- **Deck** – The deck has evidence of extensive prior repair in many areas. Deck cracking is mainly evident near deck joints. The deck underside has advanced deterioration, cracking, discoloration and staining near deck joints; cracking and discoloration is also observed away from joints. The damage is less severe away from joints; however, there are large areas of efflorescence on the underside of the bridge deck. This indicates that the deck is likely saturated with chlorides from the many years of exposure to de-icing salts. Soundings on the underside of the deck show large areas where concrete is deteriorated and delamination is likely to occur in the near future.

- **Safety Railing** – The railing is in poor condition throughout with major concrete deterioration, extensive concrete loss, and heavy reinforcing steel corrosion.

- **Beams** (including bearing devices) – Moderate to heavy rusting occurs near joints. Condition is fair away from the joints with light to moderate rusting.

- **Abutments and Piers** – The abutment and pier cap beams have extensive cracking, concrete separation, and exposed reinforcement and reinforcement corrosion. Pier walls have extensive map cracking in areas, vertical longitudinal cracks, and some areas of section loss. The Phase B Report discusses additional problems revealed through recent concrete tests with the abutments.

- **Waterway** – There is no visible evidence of major scour. A low-flow stream channel cuts transverse to the upstream face of Pier No. 3. The waterway is well vegetated.

- **Typical Section** – The existing typical section does not meet the minimum Green Book criteria of 22-foot travel way and 3-foot shoulders.

- **Foundation** – Foundation load capacity and stability is not an issue; however, recent tests of the concrete within the abutments revealed problems.

### San Cristobal Arroyo Bridge Condition

San Cristobal Arroyo Bridge crosses San Cristobal Arroyo at milepost 55.6, just south of the community of Galisteo and the Galisteo Creek Bridge. The existing structure is a 3-span steel beam bridge with concrete abutments, solid-wall piers, and timber pile foundations. No major changes to the bridge have been made since its construction, although, like the Galisteo Creek Bridge, extensive maintenance activities have occurred on the bridge deck. The total bridge length is 212 feet 8 inches from the back of backwall to back of backwall and includes three simple spans of 69 feet 6 inches. The abutments are u-shaped concrete approximately 36 feet 6 inches in length (parallel to the roadway alignment).

The width of the bridge deck is 28 feet 2 inches with 24 feet between the pedestal curbs. The section includes two 12-foot lanes, 6-inch curbs, 7-inch rail mounts, and concrete post and rail railings. No pedestrian facilities are present. Therefore, pedestrians, bicyclists, and equestrians must use the travel lanes. The deck is supported by five W36x170 steel girder lines spaced at 4 feet 10 inches on center. The girders are supported by steel rocker bearings which rest on the substructure elements. Figure 1-3 illustrates the typical section of the existing San Cristobal Arroyo Bridge.

Most bridge elements have been affected by long-term leaking deck joints. In particular, the abutments and piers have severe damage and are in overall poor condition. The bridge railing is also in poor condition.
Representative photographs of the San Cristobal Bridge condition are presented in Appendix B. The bridge is classified as “structurally deficient” (according to FHWA criteria) due to the condition of major bridge elements. As the untreated timber pile foundations are expected to be significantly deteriorated, the bridge is considered vulnerable to scour as described below:

- **Waterway** – The waterway is vegetated with trees and shrubs. There is no visible evidence of major scour. However, scour analysis indicates that in a major storm event, the maximum scour would extend to 26 feet at the abutments and over 14 feet at the two piers. This depth is below the pile caps. Therefore, scour from a major storm event could undermine the substructure pile caps and result in catastrophic failure of the foundation and collapse of the bridge.

- **Deck** – The deck has been repaired in many areas. Deck deterioration is evident along the deck underside. The most severe damage is located near deck joints, where the concrete has numerous cracks, section loss, and indications of reinforcing steel corrosion. The damage is less severe away from joints; however, there is cracking along with leaching throughout. Soundings on the underside of the deck show large areas where concrete is deteriorated and delamination is likely to occur.
• **Safety Railing** – The railing is in poor condition throughout with major concrete deterioration, extensive concrete loss, and heavy reinforcing steel corrosion.

• **Beams** (including bearing devices) – There is moderate to heavy rusting near joints with some minor section loss.

• **Abutments and Piers** – The abutment and pier cap beams and bearing areas that support the beams have extensive and severe damage. This is a result of years of water intrusion and leaking deck joints. Extensive concrete and steel degradation is evident by advanced cracking and section loss in most cap areas. Abutment and pier walls have numerous areas of advanced damage such as concrete cracking and section loss and exposed and corroded reinforcing steel.

Substructure elements are founded on “untreated” timber piles approximately 25 feet long. The condition of the timber piles has not been determined, as they are buried and the tops are covered by pier caps. However, due to varying water flows within the arroyo, the piles have had intermittent exposure to moisture and, in combination with being untreated at the time of installation, are highly likely to be in a deteriorated condition. It is reasonable to expect that the structural capacity of the foundations has been significantly reduced, and some of the load carrying capacity has been shifted to the pile caps which are acting as spread footings.

• **Typical Section** – The existing typical section does not meet the minimum Green Book criteria of 22-foot travel way and 3-foot shoulders.

1.3.2 Safety

The alignment of NM 41 includes several locations with short vertical and sharp horizontal curves, several of which are less than desirable for the posted speed of 55 mph. The vertical alignment of the highway was evaluated against the existing posted speed of 55 mph, and a design speed of 60 mph was assumed. The rate of vertical curve (K-value) listed in Exhibit 3-72 of the *A Policy on Geometric Design of Highways and Streets, 5th Edition*, AASHTO, 2004 (Green Book) is 151 for crest curves and 136 for sag (dip) curves.

The vertical curve analysis identified nine vertical curves with an existing K-value less than that specified by AASHTO. These nine curves include six crest curves and three sag curves. An example of a vertical curve deficiency is provided in Figure 1-4. Table 1-1 lists the location, length, and existing K-value for each of these curves. As shown in this table, all of the problem curves have a design speed that is significantly less than that recommended for a posted speed of 55 mph.

In contrast, most of the existing alignment of NM 41 meets AASHTO design criteria for horizontal curvature. Analysis of the horizontal alignment identified one location with two back-to-back curves where the existing design does not meet criteria for the posted speed. This location is at MP 46.5 where the highway ascends/descends Clark Hill. The Green Book specifies a minimum curve radius of 1,330 feet for a 60-mph design speed and an $e_{\text{max}}$ (super-elevation or “banking”) of 6%, although a larger radius is needed if the super-elevation is 4% or less. The radii of the two existing curves at this location are 860 feet.
The alignment and geometric problems summarized above contribute to crashes. Crash data for the years 2002 through 2010 show 39 reported accidents on NM 41 within the proposed project limits. Almost one-half (48.7%) of all reported crashes resulted in vehicles over-turning — an indication that roadway geometry and roadside clear zones are a significant contributor.

For comparison purposes, crashes on the segment of NM 41 south of the project area (I-40 to MP 46) were also reviewed. Even though the traffic volumes are essentially equal and the posted speed is 10-mph higher, the crash rate was lower south of Clark Hill, and only 19% resulted in a vehicle over-turning (19 crashes during a 6-year period with three resulting in a vehicle over-turning). This section of road has 8-foot paved shoulders with rumble strips and wide roadside clear zones. It is assumed that the safer roadside environment has contributed to the much lower over-turning crash rate on NM 41 south of the study area.

Safety is also a concern with the condition of the two bridges. The critical concern with the San Cristobal Arroyo Bridge is the poor condition of the bridge components and the potential danger for catastrophic failure if scour undermines the bridge foundation. It is highly likely that the piles are in poor condition due to their 70 plus years of exposure to intermittent moisture from water flows. For this reason, it is reasonable to expect that the structural capacity of the foundations has been substantially reduced, and some of the load carrying capacity has been shifted to the pile caps acting as spread footings. This condition exacerbates the potential for bridge collapse after a high-flow event. Similarly, a variety of concrete tests have raised questions about the structural capacity of the Galisteo Creek Bridge. These safety threats, in combination with the very poor condition of the bridge decks, railings, and piers, support the need to replace the bridges.
CHAPTER 2.0 PROJECT ALTERNATIVES

The alternatives evaluated in this EA include the No-Build Alternative and two build alternatives. This section of the EA provides a description of each alternative under consideration, including their major design features, cost, and right-of-way needs. Brief information about other alternatives considered during the planning phase of the project development process is also provided.

Potential alternatives for the roadway and bridges within the project limits were identified during the initial and detailed evaluation phases (Phases A and B) of the NM 41 – Clark Hill to US 285 Project. Alternatives were developed in consideration of several factors including the need for the project; state and federal design guidelines for rural collector highways; the historic, natural, and community setting and context of the project area; and input from community, agency, and other project stakeholders. The initial set of alternatives considered, along with the findings of the initial and detailed analyses for each alternative, are described in two reports used to prepare and supplement this EA. These reports are:

- Phase 1-A Initial Alignment Study Report released by the NMDOT in June 2010.

These documents are on file with the NMDOT District 5 Office in Santa Fe and presently on the NMDOT website at http://nmshtd.state.nm.us/main.asp?secid=15562.

Public meetings were held concurrent with the completion of both of these reports. Based on the findings of the analyses and feedback received from the agency coordination and public involvement process, several of the initial alternatives were eliminated from further consideration, and two build alternatives and the no build alternative were advanced for evaluation and consideration in this EA.

Improvement concepts considered but eliminated during Phases 1-A and 1-B include:

- The use of 8-foot shoulders in the areas outside of Galisteo. Wide shoulders were determined to have excessive impacts to the roadside and visual character of the project area. This alternative would also require additional right-of-way and was eliminated due to visual impacts and cost.
- The use of 2-foot shoulders through the community of Galisteo. This concept was eliminated because the 2-foot width would not safely accommodate bicyclists.
- A new bypass roadway constructed to the east of Galisteo that would bypass the community and existing bridge structures across San Cristobal Arroyo and Galisteo Creek. This concept would begin just south of the rodeo grounds near milepost 55.5 and rejoin the existing highway near milepost 57.25. The bypass alignment would be approximately 0.5 miles east of the community center. This concept was eliminated due to its impacts and cost.
- Rehabilitation of the existing bridge structures over San Cristobal Arroyo and Galisteo Creek. For the purposes of this EA, rehabilitation was defined as the repair and restoration of the existing bridge decks, railing, girders, piers, and abutments. This alternative was eliminated because of the poor condition of the bridge structures as well as increased life cycle costs associated with using the existing substructure. The advanced deterioration of these bridge elements makes minor rehabilitation unfeasible.
- Various traffic calming strategies within the community area including roundabouts, traffic chokers, and transverse rumble strips. These strategies were eliminated because of the lack of support from the public and/or because they were impractical for the community setting.
This remainder of this chapter provides a description of each alternative evaluated by the EA, including the major design features, cost, and right-of-way needed for each alternative.

2.1 No Build Alternative

The No Build Alternative assumes that NM 41 would remain in its existing configuration. For the purposes of this EA, major rehabilitation or reconstruction of the roadway, bridges, and drainage would not be provided. Improvements would be limited to routine maintenance and emergency repairs, as needed.

While the No Build is a viable alternative for the overall NM 41 project, the deteriorated condition of the San Cristobal Arroyo and Galisteo Creek bridges will necessitate improvements to these structures in the near future. A precise estimate of the remaining life of these bridge structures cannot be made with any certainty, although they have exceeded design life expectations. If not included as part of the current project, separate actions would be needed to ensure these bridges are maintained in a safe condition for public use. Based on the findings of the bridge assessments, bridge replacement will be required and the No Build Alternative is not a viable long-term solution.

2.2 Build Alternatives

Two build alternatives (Alternative 1 and Alternative 2) are under consideration. These alternatives share the same design features except for the segment of NM 41 approaching and between the San Cristobal Arroyo Bridge and Galisteo Creek Bridge. The major design features of the build alternatives are as follows.

2.2.1 Alternative 1 (Preferred)

Alternative 1 would reconstruct NM 41 within the project limits. Reconstruction would include the roadway pavement and subgrade, replacement of the San Cristobal Arroyo Bridge and Galisteo Creek Bridge on their existing alignments, and replacement/upgrades of ancillary features of the roadways such as right-of-way fencing, signing, and drainage structures. This alternative would maintain the existing functional classification of NM 41 as a 2-lane rural collector highway, but would upgrade the roadway to provide a safe and modern highway that is consistent with the rural and historic character of the Galisteo Basin. The specific design details of this alternative are described below:

Typical Sections

The typical section of Alternative 1 would vary depending on location within the community and in the outlying areas of the project limits. Three typical sections are proposed for the roadway, and two typical sections are proposed for the bridges that cross San Cristobal Arroyo and Galisteo Creek. The roadway typical sections by location are described below:

- Typical Section #1 – The primary typical section would consist of two 12-foot travel lanes with 6-foot shoulders. This section would be used throughout the project area except for the segment of NM 41 within and approaching the community of Galisteo (MP 55.5 to MP 57.8) and at Clark Hill where a climbing lane is needed (MP 46.3 to MP 46.7). This typical section is illustrated in Figure 2-1.

- Typical Section #2 is proposed for a short segment of NM 41 at Clark Hill where the existing truck climbing lane would be reconstructed. This segment extends between MP 46.3 to MP 46.7 and would include a 12-foot travel lane in the northbound direction and two 12-foot lanes in the southbound direction. The southbound outside lane would serve as a truck climbing lane. Shoulders would be 6 feet wide. Figure 2-1 illustrates this typical section.
Figure 2-1: Proposed Typical Sections (Roadways)

Typical Section #1 – Areas Outside of Galisteo

Typical Section #2 -- Climbing Lane at Clark Hill

Typical Section #3 – Galisteo Community Area (MP 55.5 to 57.8)

Photo-simulation of the proposed typical section of NM 41 near milepost 56 (11-foot lanes with 4-foot shoulders).
Typical Section #3 is proposed for the portion of NM 41 through the Galisteo area. This typical would begin at MP 55.5 near the Galisteo Rodeo Grounds south of the community and would extend north 2.3 miles to MP 57.8. The roadway section in this area would be narrowed to minimize impacts to the community and to encourage slower travel speeds. The prevailing section would consist of two 11-foot lanes with 4-foot shoulders, as illustrated in Figure 2-1. Between the Rodeo Grounds and the San Cristobal Arroyo Bridge, the typical section would be 12-foot lanes and 4-foot shoulders in order to accommodate the transition to the narrower typical section through Galisteo.

The typical sections used at the San Cristobal Arroyo Bridge and the Galisteo Creek Bridge would be similar to the section used through the community of Galisteo. These are described below:

- **San Cristobal Arroyo Bridge Typical Section** – This bridge section would consist of two 12-foot travel lanes, 4-foot shoulders, and a 4-foot walkway along the east side of the bridge. The aesthetic design of the bridge railings would be developed to be historically consistent with the existing bridge. Figure 2-2 illustrates this typical section.

- **Galisteo Creek Bridge Typical Section** – This bridge section would consist of two 11-foot travel lanes, 4-foot shoulders, and a 4-foot walkway along the east side of the bridge. The aesthetic design of the bridge railings would be developed to be historically consistent with the existing bridge. Figure 2-3 illustrates this typical section.

**Figure 2-2: San Cristobal Arroyo Bridge Typical Section**

**Figure 2-3: Galisteo Creek Bridge Typical Section**
**Horizontal and Vertical Alignment**

In general, the horizontal alignment of Alternative 1 closely follows the existing roadway, except where the highway ascends Clark Hill. In this area, a minor shift of a few feet would be needed to achieve a 55 mph posted speed.

The vertical alignment with Alternative 1 would closely follow the existing highway profile. However, several areas would require a deviation from the existing profile where sharp crest curves limit visibility. Six crest curves between MP 49 and MP 54 do not meet safe stopping sight distance criteria for a posted speed of 55 mph. The profile of these hill sections and the adjacent dip sections would be modified to meet a 55 mph posted speed. In most locations, the change in profile is less than 5 feet, although a profile reduction of approximately 8 feet is proposed at one location near MP 47.8. One sharp dip section at MP 47.7 would be raised almost 12 feet. However, the change at this location is due to the construction of a large culvert to provide a livestock undercrossing area.

**Posted Speeds**

The posted speed for Alternative 1 would range from 30 mph within the community areas to 55 mph in the areas outside of Galisteo. The posted speed would be 30 mph between Avenida Vieja to just north of La Vega Road (MP 55.7 to 57.0). The speed would increase to 35 mph in the south and north approaches to Galisteo (MP 55.4 to 55.7 on the south and 57.0 to 58.0 on the north). The posted speed would be 55 mph in all other areas within the project limits.

**Pedestrian and Bicycle Facilities**

Separate bicycle facilities are not included in the proposed project. Bicycle travel will be accommodated on the roadway shoulders. Shoulders are continuous throughout the project limits and include 6-foot shoulders for 13.4 miles of the overall 16.1 mile project limits. Four-foot shoulders are provided for the remaining 2.7 miles of the route. A pavement friction course (open-graded asphalt) and longitudinal rumble strips at the edge of the driving lanes are proposed for all highway segments with a posted speed of 55 mph. The friction course will extend the full width of the driving lanes and shoulders to avoid interference with bicycle travel on the shoulder. Rumble strips will be narrow (7”) and intermittent to maximize the area available for bicycle travel. Intermittent gaps will be 10-12 ft every 40-60 ft.

Public comments received during scoping meetings were generally opposed to the inclusion of a pedestrian walkway parallel to NM 41 within the Galisteo area. For this reason, a designated pedestrian path is not part of the proposed project. Four-foot wide walkways are provided on the San Cristobal Arroyo Bridge and the Galisteo Creek Bridge. In addition, pedestrian crossings designated by colored or patterned concrete and/or pavement striping are included in two locations within Galisteo. The composition and exact location of these pedestrian crossings will be determined during final design and in collaboration with the community.

**Other Roadway Design Features**

Alternative 1 will include other improvements associated with the roadway. These features include:

- The extension and/or replacement of drainage pipes, culverts, and boxes, as needed.
- A corrugated metal pipe (CMP) at milepost 47.7 (station 140+00) will be sized to allow livestock movement under the highway.
- Weathered steel guardrail will be used throughout the corridor.
- Right-of-way fencing will be replaced as needed.
• Radar speed detectors combined with message boards that display the speed of vehicles. Two new detectors would be installed within the community transition sections: one in the northbound direction near milepost 55.6 and one in the southbound direction near milepost 57.7.

• Medians would be constructed to provide a visual cue to motorists entering the community transition segments. These would consist of raised areas within the roadway median approximately 20 feet wide by 125 feet long. The medians may include small shrubs and plantings and signage specific to the community (e.g., “Entering Galisteo Village”). Medians are proposed for the outskirts of the historic district, just south of the NM 41/Avenida Vieja intersection and in the vicinity of the Vista Clara Ranch driveway near milepost 57.8. Figure 2-4 illustrates the median cross section and plan view.

Figure 2-4: Roadway Median Example in Cross Section and Plan View

2.2.2 Alternative 2

Alternative 2 provides the same features as Alternative 1 except that new bridges across San Cristobal Arroyo and Galisteo Creek would be constructed parallel to the existing bridges. The new bridges would be offset by approximately 15 feet to the west. The segments of NM 41 approaching the bridges and between the bridges from MP 55.6 to 56.15 would also be offset to align with the new bridges.

With this alternative, the existing bridge across Galisteo Creek would be left in place. The existing bridge would be repaired and sealed for use as a pedestrian walkway. As an alternative to using the existing bridge for pedestrian travel, the existing Galisteo Bridge could be fenced off or removed, depending on its condition and the availability of funding for maintenance. Due to its failing structural condition, the San Cristobal Arroyo Bridge would be removed.

2.2.3 Preferred Alternative

Alternative 1, reconstruction of roadway and bridges on their existing alignment, has been identified by the NMDOT as the preferred alternative for the project. Alternative 1 is preferred by the NMDOT because reconstructing the bridges on the current alignment would have fewer impacts to the Galisteo Historic District as well as to the wetlands and riparian habitat. In addition, public comments generally favored this design.
2.3 Right-of-Way

With Alternative 1, the proposed project would be constructed entirely within the existing right-of-way. No additional right-of-way would be needed. However, construction maintenance easements (CME) may be needed at several locations where drainage boxes and culverts are extended and at the proposed livestock crossing at MP 47.7. Similarly, temporary construction permits (TCP) would be needed to accommodate the parallel detour structures, if used. The need for CMEs and TCPs will be determined during final design.

Alternative 2 would require approximately two acres of right-of-way along the west side of the highway as a result of the new bridge construction at San Cristobal Arroyo and Galisteo Creek. The acquisition of right-of-way would begin at MP 55.6 and extend north for approximately 3,200 feet to MP 56.15. Like Alternative 1, construction maintenance easements (CME) may be needed at several locations where drainage boxes and culverts are extended and at the proposed livestock crossing at MP 47.7. The need for CMEs will be determined during final design.

2.4 Cost

Table 2-1 summarizes the estimated costs for each major element of the proposed project. The estimated cost for Alternative 1 is $19,034,311. The cost for Alternative 2 is 3% less at $18,356,394.

Of the total costs shown, the roadway accounts for about $15.5M and is the same for both alternatives; only the bridge costs are different. The costs for the replacement bridges are higher with Alternative 1 due to the need for a parallel detour structure during construction to maintain traffic and/or the higher costs of using a phased approach to maintain one-way traffic on the existing bridge during construction.

| Table 2-1: Alternatives 1 and 2 – Estimated Implementation Cost for Roadway Portion |
|-----------------|--------|--------|
| Cost Item       | Alternative 1 | Alternative 2 |
| Roadway         |        |        |
| Construction Subtotal | $11,980,230 | $11,980,230 |
| Contingencies (30%) | $3,594,068 | $3,594,068 |
| **Roadway Estimate Total** | **$15,574,299** | **$15,574,299** |
| San Cristobal Arroyo Bridge | | |
| Construction Subtotal | $1,016,186 | $1,016,186 |
| *Contingencies | $351,715 | $95,058 |
| Demolition | $172,040 | $172,040 |
| Roadway Realignment | N.A. | $42,500 |
| **San Cristobal Arroyo Bridge Total** | **$1,539,941** | **$1,283,284** |
| Galisteo Creek Bridge | | |
| Construction Subtotal | $1,310,536 | $1,348,436 |
| *Contingencies | $438,535 | $107,875 |
| Demolition | $171,000 | N.A. |
| Roadway Realignment | N.A. | $42,500 |
| **Galisteo Creek Bridge Total** | **$1,920,071** | **$1,498,811** |

| **Alternative Total** | $19,034,311 | $18,356,394 |

*Alternative 1 cost is higher due to design contingencies involved with construction phasing
CHAPTER 3.0 POTENTIAL PROJECT IMPACTS

The information provided in this section includes a brief summary of existing conditions in the project area and the potential impacts from project alternatives. A discussion of the two build alternatives and their impacts relative to each factor are presented below.

The No-Build Alternative does not meet the need for the project, and in general, has no effect on the existing environment. NM 41 would continue to deteriorate and need reconstruction. Insufficient vertical curves north of Clark Hill would continue to limit sight distance. No bicycle or pedestrian facilities or traffic calming measures would be provided and hazards would persist for bicyclers and pedestrians. The bridges would remain in poor condition and present potential safety hazards for travelers. As discussed in Chapter 2, the No Build Alternative is a viable alternative for the majority of the NM 41 corridor; however, the existing bridges at San Cristobal Arroyo and Galisteo Creek are structurally deficient and are in need of replacement in order to be maintained in a safe condition for public use. The No Build Alternative is not a viable long-term solution for these two bridges.

3.1 Project Setting

NM 41 begins at US 60 south of Estancia and extends north for 62 miles through the Estancia and Galisteo Basins. The project area extends from MP 46 to MP 62.1 and passes through the community of Galisteo, a recently recognized Santa Fe County Traditional Community founded in 1816. The corridor serves local residents, commuters, and businesses.

Outside of the village, the project area is rural with habitat that varies from lower coniferous woodlands at the higher elevations to juniper savanna in the lower lying areas. The existing highway crosses several waterways including one perennial stream (Galisteo Creek), one intermittent stream (San Cristobal Arroyo), and several ephemeral arroyos. Riparian habitat is found within the perennial and intermittent waterways.

3.2 Access

Access to and from NM 41 is currently uncontrolled with access provided at several County Roads and approximately 17 other major access points. In addition, there are numerous driveways serving individual homes within Galisteo and between Galisteo and US 285.

Potential Effects of the Build Alternatives

Alternative 1 (Preferred) and Alternative 2 would have the same effects on access. The Build Alternatives would not alter existing access with the exception of one location. Goose Downs Road will be realigned to match the primary access route into Vista Clara Ranch (see Figure 3-1). This driveway realignment is proposed to consolidate access points and improve the safety of left turns at this location. The owners of Goose Downs Road and Vista Clara Ranch supported this change as a safety measure. The optional median proposed at this location would also serve as a visual cue to designate the start/end of the Galisteo community.

Minor changes would be made at other driveways and access roads to accommodate an acceptable grade between NM 41 and the intersecting roadway. Because the profile change of NM 41 is generally minor, it is anticipated that the needed changes could be accomplished with temporary construction permits.
3.3 Utilities and Other Roadside Features

Few utilities occur within or immediately adjacent to the NM 41 highway right-of-way. Those present include overhead power and telephone, buried telephone cable, and a fiber optic line. Overhead electric and phone utilities are inside the highway right-of-way and immediately outside of the right-of-way in the corridor from Galisteo north to US 285. Extensions from the main lines cross the highway at four locations to provide service to development along both sides of the highway. Buried phone and fiber optic lines are also present from Galisteo north. Both the overhead electric and buried phone/fiber optic cable appear to stop at the south end of Galisteo.

Several telephone boxes, an electric transformer box, and electric utility boxes are present inside the east right-of-way near MP 56.55. These units are approximately 20 feet from the edge of the existing pavement. In addition to the above, domestic utilities such as water, gas lines, and septic systems occur within the Galisteo area but no evidence exists that suggests these utilities extend into the right-of-way.

Several other objects exist within the roadway right-of-way that could be affected by highway improvements. These include an Official Scenic Historic Marker just north of the NM 41/County Road 42 intersection, newspaper vending boxes just south of the church in Galisteo, and mailboxes. The mailboxes include several isolated mailboxes and two clusters of mailboxes: one at the intersection of The Hill Road and NM 41 (south of the church), and a second cluster along the east side of NM 41 just north of the NM 41/Via la Puente intersection. In some instances, the mailboxes are within 10 feet of the existing pavement.

**Potential Effects of the Build Alternatives**

*Alternative 1 (Preferred)* and *Alternative 2* would have the same effects on utilities and the other roadside features. Some utility relocation may be necessary; however, impacts are expected to be minor. The individual mailboxes and mailbox cluster north of Via la Puente would likely require removal during
construction. These boxes are not used for US Postal Service deliveries and their removal and storage during construction would not affect US Postal mail delivery. After construction is complete, the boxes would be replaced at the outside edge of the highway clear zone. The Official Scenic Historic Marker is approximately 15 feet from the edge of the existing pavement. It is beyond the anticipated construction area and will likely not be affected unless it is within the highway clear zone. If the marker is within the clear zone it will be relocated outside the clear zone. See Section 3.6 Cultural Resources for more discussion of the Official Scenic Historic Marker.

### 3.4 Land Use

Land use within the study area varies from large cattle ranches with associated residences to residential properties within the community of Galisteo. Various community facilities exist within Galisteo including a Catholic church (Iglesia Nuestra Senora de Los Remedios), fire station, community center, museum, and rodeo grounds.

Parcel data from Santa Fe County show that most of the property in the project area is either coded as SRES (Single Family residential) or VAC (vacant). Other types of land use in the project area include:

- LOTR (residential) – two lots with manufactured homes
- COMM (commercial) – two parcels total, both in Galisteo; one large parcel between mileposts 57-58 on the east side of the highway
- SFCO (Santa Fe County) – one parcel, the Community Center and Fire Station, owned by the County
- NM (New Mexico) – two parcels owned by the State
- unclassified lands – some of which are owned by the BLM but are away from the highway

Several large developments exist in the northern portion of the corridor, including resorts, retreats, and equestrian stables. In general, the major land uses within the project area are low-density developments.

This land use is informed by the 2010 Sustainable Land Development Plan (SLDP), a revision and update of the Santa Fe County General Plan. The SLDP is a statement of the County’s vision for its own future and a guide to achieving that vision. One of the primary themes of the SLDP is a focus on preservation of the historic, cultural, and natural environment in the face of increasing population growth.

### Potential Effects of the Build Alternatives

The Build Alternatives would not change land use, traffic patterns, access, or development conditions. **Under Alternative 1 (Preferred),** right-of-way acquisition would be limited to Construction Maintenance Easements (CME) and would not affect any developed areas. While replacement of the Galisteo Creek and San Cristobal Arroyo Bridges is inconsistent with the goal of the SLDP to maintain historic bridges, the reconstructed bridges would incorporate a historic design aesthetic.

**Under Alternative 2,** up to 2 acres of right-of-way would be required and would not affect any developed areas. Alternative 2 would construct a new roadway alignment and would require use of currently vacant land; however, the new alignment would be in close proximity to the existing roadway and land use impacts would be minimal. Replacement of the Galisteo Creek and San Cristobal Arroyo Bridges is inconsistent with the goal of the SLDP to maintain historic bridges. However, Under Alternative 2,
the Galisteo Creek Bridge would be preserved in place. Alternative 2 would still require the removal of the San Cristobal Arroyo Bridge due to concerns of failure/collapse. The reconstructed bridges would incorporate a historic design aesthetic.

3.5 Community Resources and Environmental Justice

The project area is decidedly rural, even though the metropolitan areas of Santa Fe and Albuquerque are about 20 and 40 miles away, respectively. The village of Galisteo was founded in 1816 and considers its boundaries to include the bridges south of town and the volcanic dike north of town. There are no schools within the study area — the project area is served by the Santa Fe and Moriarty school districts. The Galisteo Community Center is located east of NM 41 and the Galisteo Volunteer Fire Department/EMS is located beside the community center. The (privately-owned) rodeo grounds are located just south of the village. These facilities, along with the Nuestra Señora de los Remedios Church, are the only community facilities within the project area.

Businesses

There is very little commercial activity and no industrial activity within the project area. The few businesses in operation in and near Galisteo include Linda Vista Stables, Vista Clara Ranch Spa and Resort, and the Galisteo Historical Museum. Many artists live and work out of their homes in the village. The Light Institute, a spiritual and meditational center, is located approximately one mile north of town. A large movie set is present south of Galisteo — accessed by County Road 40 — and, during production, generates considerable traffic from large trucks delivering props, trailers, and other equipment.

The business community outside of Galisteo includes large ranches primarily engaged in cattle and horse operations. San Cristobal Ranch owns the land along both sides of NM 41 between mileposts 47-55. At least two other large ranches including Zorro Ranch exist on the west side of NM 41 south of Galisteo. Goose Downs Farms operates a horse training facility north of Galisteo. Other smaller ranching operations also operate in the project vicinity.

Goods and services used by project area residents are generally found in Santa Fe and Moriarty. No motels, gas stations, stores, or restaurants exist within the project area.
Demographics and Environmental Justice

The demographic characteristics of the project area population were reviewed to identify the presence of groups that may require special consideration (consistent with Title VI and EO 12898) for public notification and involvement and in the assessment of project impacts. Data from the US Census Bureau’s 2000 Decennial Census were analyzed to determine the demographic characteristics of the project area. While the Census data are over 10 years old, they are likely still representative of the project area as it has undergone little substantive change since 2000. Population characteristics for the stakeholder communities are summarized in Table 3-1.

The demographic profile of Galisteo shows that the total population of the village area is 265 persons. According to Census Bureau data, 80.4% of the population of Galisteo is classified as white; 35.5% of the population is of Hispanic origin. The median age is 46.6 years. Only five persons are listed as under the age of 5 years.

Demographic data for the Census Block Groups that surround the area are generally similar to those for Galisteo. One block group (Tract 106 BG4), which is located north of the project area (and north of the railroad tracks), has higher percentages of persons of Hispanic origin and persons living below poverty level. Other than this block group there are no identifiable environmental justice populations within the project area. Census block group boundaries are shown in Figure 3-2.

Potential Effects of the Build Alternatives

Alternative 1 (Preferred) and Alternative 2 will have no effect on project area community resources, demographics, businesses, or ranching activities. While access to the ranches, movie set, and businesses may be temporarily altered during construction, no permanent impacts would occur. Portions of driveways within the NMDOT right-of-way affected by construction would be reconstructed. Temporary Construction Permits may be required to tie the reconstructed driveways.
driveways to private property. No disproportionate impacts will occur to any environmental justice populations within the project area.

**Table 3-1: Demographic Characteristics of the NM 41 Project Area**

<table>
<thead>
<tr>
<th>Geography</th>
<th>New Mexico</th>
<th>Santa Fe County</th>
<th>Tract 103.06 BG1</th>
<th>Tract 103.06 BG2</th>
<th>Tract 106 BG4</th>
<th>Tract 107 BG3</th>
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<tbody>
<tr>
<td>Total population</td>
<td>1,819,046</td>
<td>129,292</td>
<td>1,062</td>
<td>2,689</td>
<td>1,943</td>
<td>1,931</td>
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<tr>
<td>Black or African American</td>
<td>1.9%</td>
<td>0.6%</td>
<td>0.1%</td>
<td>0.4%</td>
<td>0.8%</td>
<td>0.5%</td>
</tr>
<tr>
<td>American Indian and Alaska Native</td>
<td>9.5%</td>
<td>3.1%</td>
<td>1.8%</td>
<td>1.2%</td>
<td>1.1%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Asian/Pacific</td>
<td>1.1%</td>
<td>0.9%</td>
<td>0.6%</td>
<td>0.7%</td>
<td>0.6%</td>
<td>1.2%</td>
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<tr>
<td>Some other race</td>
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<td>17.7%</td>
<td>14.3%</td>
<td>6.9%</td>
<td>17.0%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Two or more races</td>
<td>3.6%</td>
<td>4.1%</td>
<td>4.7%</td>
<td>3.9%</td>
<td>3.6%</td>
<td>3.4%</td>
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<tr>
<td>Hispanic or Latino</td>
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<td>34.3%</td>
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<table>
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<th>Age</th>
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<th>18-24</th>
<th>25-39</th>
<th>40-64</th>
<th>65 and over</th>
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<td>20.8%</td>
<td>9.8%</td>
<td>20.6%</td>
<td>30.0%</td>
<td>11.7%</td>
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<tr>
<td>Santa Fe County</td>
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<td>8.1%</td>
<td>21.3%</td>
<td>35.7%</td>
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<tr>
<td>Tract 103.06 BG1</td>
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<td>17.7%</td>
<td>5.9%</td>
<td>20.0%</td>
<td>42.7%</td>
<td>8.6%</td>
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<tr>
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<td>Tract 107 BG3</td>
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<td>18.7%</td>
<td>3.4%</td>
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<td>47.8%</td>
<td>7.8%</td>
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<table>
<thead>
<tr>
<th>Income</th>
<th>Median household income in 1999</th>
<th>$34,133</th>
<th>$42,207</th>
<th>$41,328</th>
<th>$46,302</th>
<th>$46,991</th>
<th>$73,250</th>
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<tr>
<td>Per capita income in 1999</td>
<td>$17,261</td>
<td>$23,594</td>
<td>$22,731</td>
<td>$19,088</td>
<td>$18,088</td>
<td>$38,146</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>4.4%</td>
<td>3.1%</td>
<td>1.4%</td>
<td>3.8%</td>
<td>1.7%</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>Income in 1999 below poverty level</td>
<td>18.4%</td>
<td>12.0%</td>
<td>10.6%</td>
<td>10.4%</td>
<td>17.4%</td>
<td>9.1%</td>
<td></td>
</tr>
</tbody>
</table>

### 3.6 Cultural Resources

Cultural resources within the project area are evaluated under the National Historic Preservation Act (NHPA) as well as several state statutes. Only those resources determined to be listed in or eligible for listing in the National Register of Historic Places (NRHP) or New Mexico State Register of Cultural Properties (SRCP) are afforded consideration under federal and state law. To qualify for listing in the NRHP, a property must have historic significance and integrity and generally be at least 50 years old. Sites, buildings, districts, structures, and objects may have historic significance in American history, architecture, archeology, engineering, and culture. A property must demonstrate significance in at least one of the following areas:
Chapter 3.0 Potential Project Impacts

A. Association with events that have made a significant contribution to the broad patterns of our history; or

B. Association with the lives of persons significant in our past; or

C. Embodiment of the distinctive characteristics of a type, period, or method of construction or representative of the work of a master, or possessing high artistic value, or representative of a significant and distinguishable entity whose components may lack individual distinction; or

D. Yielding, or likely to yield, information important in prehistory or history.

Intensive pedestrian survey of the NM 41 project area identified 14 archaeological sites, eight historic buildings (Table 3-2), two historic bridges, the historic NM 41 roadway, an Official Scenic Historic Marker, and the SRCP-listed Galisteo Historic District (HPD 129) in the project area. Detailed results of the survey are presented in Cultural Resources Survey, NM 41 Clark Hill to US 285, MP 46.1 to 62.1, Santa Fe, County, New Mexico, prepared by D. Pennington & Associates, January 2011.

The Galisteo Creek Bridge (#1782) was built in 1936 as part of a Works Progress Administration (WPA) project to realign NM 41 through Galisteo. The WPA was a New Deal-era government program that built numerous roads, bridges, and buildings in New Mexico in the 1930s and early 1940s. The bridge is a contributing element to the Galisteo Historic District and is individually eligible under Criterion A for its association with the WPA and New Deal. The NMDOT Bridge Survey (Van Citters 2003) also indicates the structure is eligible under Criterion C, presumably for its standard design and perhaps its relatively long spans (as described under Bridge 1814, below). However, Criterion C is not specifically discussed in Van Citters’ recommendation for the bridge (2003:73).

The San Cristobal Arroyo Bridge (#1814) was also constructed with New Deal funds in 1939. The San Cristobal Arroyo Bridge is not within the Galisteo Historic District, but has been determined eligible for inclusion in the NRHP under Criteria A and C for its association with the New Deal and for its exemplary steel-stringer design and unusually long 70-foot spans (HPD Log # 69394).

The roadway itself is also considered a historic resource. NM 41 has connected Willard and Lamy since at least 1912 (Wallace 2004). The geometry and alignment have changed since its original construction, although some historic features (including bridges) are still present. NM 41 is associated with the Early Statehood (1912-1926) and the New Deal (1931-1940) periods of significance in New Mexico highway history (Wallace 2004), and is considered to have undetermined eligibility to the NRHP without more extensive research that is beyond the scope of this undertaking. This level of documentation is consistent with the requirements for NMDOT “minor projects” as described by Wallace (2004).

The Galisteo Historic District (HPD 129) comprises approximately 472 acres and consists of the historic community of Galisteo and a 260-acre parcel of formerly irrigated field allotments to the southwest of the community known as the Galisteo Grant. Within the project area, the district is on both sides of NM 41 from the Galisteo Creek Bridge to the northern intersection of La Vega with NM 41, a distance of approximately ½ mile. The district also extends for some distance to the east and west. The Period of
Significance is defined as 1795 to 1941, including almost 150 years of settlement. The District is significant primarily for its settlement patterns and residential architectural examples.

Table 3-2: Historic Buildings within the NM 41 Project Area

<table>
<thead>
<tr>
<th>Historic Building No.</th>
<th>Description</th>
<th>Eligibility Determination*</th>
<th>Effect Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>30055 (Galisteo 031)</td>
<td>Gabled stucco pump house/storage building, ca. early 1900s</td>
<td>Non-contributing to Galisteo Historic District, not eligible</td>
<td>N/A</td>
</tr>
<tr>
<td>30056 (Galisteo 034)</td>
<td>Iglesia de Nuestra Senora de los Remedios, gabled stucco church with stone buttresses and copula, 1882-1884</td>
<td>Contributing to Galisteo Historic District, eligible (A)</td>
<td>No Adverse Effect</td>
</tr>
<tr>
<td>30057 (Galisteo 071)</td>
<td>San Jose Dance Hall, stucco Folk Territorial building with brick coping, ca. 1890s</td>
<td>Contributing to Galisteo Historic District, eligible (A)</td>
<td>No Adverse Effect</td>
</tr>
<tr>
<td>30058 (Galisteo 072)</td>
<td>Epifanio Mora House, stucco-covered courtyard home, ca. 1880</td>
<td>Contributing to Galisteo Historic District, individual eligibility undetermined</td>
<td>No Adverse Effect</td>
</tr>
<tr>
<td>30059 (Galisteo 074)</td>
<td>Jose Remedios y Yerbas, adobe and stucco residence/store, ca. 1850</td>
<td>Contributing to Galisteo Historic District, eligible (A)</td>
<td>No Adverse Effect</td>
</tr>
<tr>
<td>30060 (Galisteo 075)</td>
<td>La Tienda de Anaya, stucco-covered Territorial building, ca. 1900.</td>
<td>Contributing to Galisteo Historic District, eligible (A)</td>
<td>No Adverse Effect</td>
</tr>
<tr>
<td>30061 (Galisteo 077)</td>
<td>Davis y Ortiz House, L-shaped stucco-covered Spanish-Pueblo house, ca. 1860-1910.</td>
<td>Contributing to Galisteo Historic District, eligible (A and C)</td>
<td>No Adverse Effect</td>
</tr>
<tr>
<td>30062 (Galisteo 085)</td>
<td>Spanish-Pueblo stucco-covered house, ca. 1890-1910.</td>
<td>Non-contributing to Galisteo Historic District, individual eligibility undetermined</td>
<td>No Adverse Effect</td>
</tr>
</tbody>
</table>

*SHPO concurrence on eligibility determination is dated 4/4/11 (HPD Log # 91551). See Appendix C.

Potential Effects of the Build Alternatives

Effects of the build alternatives as discussed below reflect the findings of NMDOT and FHWA. Consultation with the New Mexico State Historic Preservation Officer (SHPO) to obtain concurrence with these findings and determine any necessary mitigation measures is ongoing. Agreement between the SHPO, FHWA, NMDOT and the Advisory Council on Historic Preservation (ACHP) concerning effect determinations and mitigation efforts will be obtained with a Memorandum of Agreement (MOA) between these agencies.

Alternative 1 (Preferred): Seven sites (LA 150613, LA 167739, LA 168909, LA 168910, LA 168912, LA 168913, and LA 168914) are located within the footprint of Alternative 1. These resources will be avoided and protected from construction activities.

The footprint of the roadway will not change significantly and the visual setting of the historic buildings in the project area will not be changed. The use of low-vibratory construction equipment in the community core area will ensure protection of historic buildings against potential vibratory damage. Therefore, Alternative 1 will have no adverse effect on any historic building.
The Galisteo Creek Bridge is a contributing element to the listed Galisteo Historic District and has been determined individually eligible for inclusion in the NRHP under Criteria A and C. Alternative 1 would remove and replace the existing structure which would result in an adverse effect to the resource. The San Cristobal Arroyo Bridge has been determined individually eligible for inclusion in the NRHP under Criteria A and C. Similar to the Galisteo Creek Bridge, Alternative 1 will remove and replace the existing structure. This would have an adverse effect on the San Cristobal Arroyo Bridge.

The addition of shoulders, minor changes in the roadway profile, and traffic calming strategies such as medians will alter the visual appearance of the historic roadway. Two historic bridges will be replaced. These minor visual changes would not affect the overall historical associations of the road and Alternative 1 will have no adverse effect on the historic NM 41 roadway.

The Galisteo Creek Bridge (#1782) is a contributing element of the Galisteo Historic District and replacing the bridge would have an adverse effect on the District. However, the new bridge would be constructed to be historically consistent with the existing bridge. This change would not significantly change the visual appearance of the District as a whole, nor would it affect the viewshed of any specific district resource.

The Galisteo Pueblo Official Scenic Historic Marker marks the location of a Tanoan pueblo whose residents were involved in, and eventually resettled after, the Pueblo Revolt. Any removal (including temporary removal), renovation, or replacement of a marker must be approved by the Cultural Properties Review Committee (CRPC) (NMAC 4.10.6.8). As determined in final design, if necessary the marker will be removed prior to construction and replaced outside of the highway clear zone after construction is complete.

Alternative 2 would have the same impacts as Alternative 1 with the following exceptions:

- In addition to the impacts of Alternative 1 on archaeological sites, Alternative 2 would potentially affect three additional archaeological sites: LA 168915, LA 168918, and LA 168919. While preliminary design plans show the alignment of the new parallel bridges as just outside the site boundaries of these sites, the sites are in such close proximity that the potential for impacts cannot be eliminated.

- Alternative 2 would leave the existing Galisteo Creek Bridge in place but the existing bridge may be closed. A new bridge would be constructed approximately 10-16 feet to the west. Alternative 2 would have no adverse effect on the Galisteo Creek Bridge.

- With the construction of a new offset bridge at Galisteo Creek, Alternative 2 would add a new visual element to the Galisteo Historic District and would realign a segment of NM 41 within the District, which would be an adverse effect to the district.

3.7 Section 4(f) Resources

Section 4(f) of the Department of Transportation Act of 1966, as amended (49 USC 303), states that the US Department of Transportation may not approve the use of land from a significant publicly-owned public park, recreation area, wildlife or wildfowl refuge, or a significant historic site unless a determination is made that:

- There is no feasible and prudent alternative to the use of land from the property; and
- The action includes all possible planning to minimize harm to the property resulting from such use.
Section 4(f) resources in the NM 41 project area include the two historic bridges, the Galisteo Historic District, and the seven individually eligible or contributing buildings within the Galisteo Historic District. Significant archaeological sites are present within the project area; however, under Section 4(f), archaeological sites important chiefly for information that can be gained through data recovery and have minimal value for preservation in place are excepted from the rule [23 CFR 774.13(b)].

**Potential Effects of the Build Alternatives**

The historic bridges are expected to be removed. An adverse effect under Section 106 is expected. The FHWA and NMDOT will negotiate a mitigation plan with the SHPO. A programmatic 4(f) for historic bridges will be prepared that discusses the consideration of alternatives and why options other than the preferred alternative are not prudent and feasible.

### 3.8 Water Quality

The Clean Water Act applies to all waters of the United States, which are defined as navigable waters and interstate waters, tributaries of these waters, and associated wetlands. Analysis is required for compliance with permitting requirements pursuant to Sections 401 (water quality certification), 402 (National Pollutant Discharge Elimination System, or NPDES) and 404 (dredge and fill) of the federal Clean Water Act. Fifteen waterways within the project area are likely to be considered jurisdictional by the United States Army Corps of Engineers (USACE). Of these, Galisteo Creek is perennial, San Cristobal Arroyo and Arroyo de la Jara are intermittent, and the remaining drainages are ephemeral. Table 3-3 lists the waterways within the project area and their location and general characteristics.

<table>
<thead>
<tr>
<th>Name</th>
<th>Milepost</th>
<th>Channel Width</th>
<th>Existing Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puertocito de Salado</td>
<td>46.7</td>
<td>10 ft.</td>
<td>2’7”x5’ CBC</td>
</tr>
<tr>
<td>Unnamed</td>
<td>47.2</td>
<td>4 ft.</td>
<td>2’7”x5’ CBC</td>
</tr>
<tr>
<td>Unnamed</td>
<td>47.7</td>
<td>15 ft.</td>
<td>84” CMP</td>
</tr>
<tr>
<td>Unnamed</td>
<td>48.0</td>
<td>3 ft.</td>
<td>2’–48” CMP</td>
</tr>
<tr>
<td>Unnamed</td>
<td>48.5</td>
<td>7 ft.</td>
<td>54” CMP</td>
</tr>
<tr>
<td>Unnamed</td>
<td>49.1</td>
<td>8 ft.</td>
<td>54” CMP</td>
</tr>
<tr>
<td>Gaviso Arroyo</td>
<td>50.7</td>
<td>18 ft.</td>
<td>16.5’ x 26’ Oval CMP</td>
</tr>
<tr>
<td>Arroyo de la Jara</td>
<td>53.5</td>
<td>68 ft.</td>
<td>Bridge</td>
</tr>
<tr>
<td>San Cristobal Arroyo</td>
<td>55.6</td>
<td>19 ft.</td>
<td>Bridge</td>
</tr>
<tr>
<td>Galisteo Creek</td>
<td>56.0</td>
<td>90 ft.</td>
<td>Bridge</td>
</tr>
<tr>
<td>Unnamed</td>
<td>57.1</td>
<td>3 ft.</td>
<td>6’x4’ CBC</td>
</tr>
<tr>
<td>Unnamed</td>
<td>57.3</td>
<td>20 ft.</td>
<td>6’x7’ CBC</td>
</tr>
<tr>
<td>Unnamed</td>
<td>57.5</td>
<td>25 ft.</td>
<td>3’–6’x7’ CBC</td>
</tr>
<tr>
<td>Unnamed</td>
<td>59.5</td>
<td>25 ft.</td>
<td>3’–6’x7’ CBC</td>
</tr>
<tr>
<td>Unnamed</td>
<td>61.1</td>
<td>18 ft.</td>
<td>2’–3’x6’ CBC</td>
</tr>
</tbody>
</table>

*CBC = concrete box culvert  
CMP = corrugated metal pipe*
Potential Effects of the Build Alternatives

Impacts to jurisdictional waterways were estimated based on the preliminary engineering drawings for the proposed project. Impacts involve placing fill within the ordinary high water mark to accommodate the wider roadway prism, extension of CBC and CMP structures, and the placement of bridge piers within the San Cristobal Arroyo and Galisteo Creek waterways. Placement of fill within the ordinary high water mark of waters of the U.S. are regulated under Section 404 of the Clean Water Act.

Alternative 1 (Preferred) has minor impacts to surface waters and would affect 13 of the 15 drainages within the project area. Impacts would not occur at Gaviso Arroyo and Arroyo de la Jara as neither of these structures would be modified. Impacts would occur at the other thirteen waterways as a result of the CBC and CMP extensions and the bridge replacement at San Cristobal Arroyo and Galisteo Creek. For the 11 ephemeral drainages, fill amounts at any individual drainage would be small and would range from approximately 0.002 to 0.01 acres. The cumulative maximum fill amount within the ephemeral channels would be approximately 0.06 acres.

Permanent fill placed within the ordinary high water mark at the perennial drainage of Galisteo Creek and the intermittent drainage of San Cristobal Arroyo would involve placement of the bridge piers. Abutments at both locations are above the ordinary high water mark. As described below in the Wetlands Section, Galisteo would involve 0.007 acres of fill total for two piers. The same amount of fill would also be needed for the San Cristobal Bridge. All of these fill amounts would likely be covered under a Section 404 Nationwide Permit 14. Project details, permitting needs, and mitigation requirements were discussed with the USACE during a meeting held July 26, 2011. The meeting concluded with a recommendation to update the USACE as the project progressed into final design.

Alternative 2 will have minor impacts to surface waters similar to the impacts described for Alternative 1. Only the location of impacts at San Cristobal Arroyo and Galisteo Creek would be different. Under Alternative 2, new bridge piers would be placed in a new alignment adjacent to the existing bridges. Bridge pier sizes would be the same as alternative 1 and fill amounts would be identical.

3.9 Wetlands

Wetlands are transitional lands between terrestrial and aquatic systems that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation that is typically adapted for life in saturated soil conditions (Environmental Laboratory, 1987). Construction in wetlands and waters of the United States is regulated under Section 404 of the Clean Water Act through a permitting process implemented by the U.S. Army Corps of Engineers (the 404 permit). The protection of wetlands is also mandated by Executive Order (EO) 11990 in furtherance of the National Environmental Policy Act (NEPA). This EO requires that transportation projects be planned, constructed, and operated to assure the protection, preservation, and enhancement of the nation's wetlands to the fullest extent possible.

Wetlands are defined by three essential characteristics:

- Hydrophytic vegetation which includes species that require the presence of permanent or semi-permanent water for their existence, such as cattails and water lilies;
- Hydric soils which are soils that have inundated by flooding during the growing season of sufficient duration to develop anaerobic (without oxygen) conditions; and,
- Wetland hydrology which refers to the availability of water that creates the wetland environment. Wetlands require permanent or periodic inundation at least during the growing season.

A wetland determination and delineation was completed in June 2011. The investigations included all of the waterways listed in Table 3-4 and was based on the three characteristics described above. The results of the investigations are documented in the report – Wetland Determination and Delineation Report for the Proposed Replacement of Two Bridges along NM 41, Santa Fe County, New Mexico. This report is on file at the NMDOT Environmental Bureau in Santa Fe. The investigations identified wetlands at two locations: Galisteo Creek and San Cristobal Arroyo. The details for each of these locations are as follows:

- **Galisteo Creek** – The banks and channel of Galisteo Creek support emergent wetland vegetation including three-square, Mexican rush, and the occasional cattail. Based on vegetation, soils, and hydrology, a clearly defined wetland zone was delineated including portions of the edge of the channel and the flanking banks of Galisteo Creek. The wetland habitat within the vicinity of the project impact area is approximately 0.023 acres in size. Figure 3-3 illustrates the wetlands at this location.

  *Function:* The perennial waterway supports dense canopy and subcanopy cover providing migration and nesting habitat for birds, functions as a corridor for terrestrial wildlife, provides for sediment removal during large flows, and may also provide the potential for nutrient and toxicant removal. The perennial nature of the waterway combined with the canopy and subcanopy riparian vegetation development makes the Galisteo Creek Wetland a high value habitat.

- **San Cristobal Arroyo** – Wetland habitat at San Cristobal Arroyo is limited to the immediate areas flanking the active channel. The wetland habitat at this location is approximately 0.015 acres in size within and immediately adjacent to the existing NM 41 right-of-way (see Figure 3-3).

  *Function:* While the riparian habitat along San Cristobal Arroyo generally consists of salt cedar and is of lesser quality than the Galisteo habitat, this intermittent drainage still provides sufficient cover for migrating and nesting birds, serves as a corridor for terrestrial wildlife movement, provides sediment removal during large events, and may also provide the potential for nutrient and toxicant removal. However, the wetland is poorly developed and, in relation to Galisteo Creek, it provides only minimal habitat for wildlife.

**Potential Effects of the Build Alternative**

Impacts to wetlands were estimated based on the preliminary engineering drawings for the proposed project. Impacts are both permanent and temporary. Permanent impacts are those where the resource would be permanently lost due to the placement of bridge piers within the San Cristobal Arroyo and Galisteo Creek waterways. Temporary impacts are areas affected by construction activity that can be restored following construction.

**Alternative 1 (Preferred)** has permanent impacts to wetland and riparian habitat within Galisteo Creek resulting from the placement of bridge piers. The bridge abutments are above the active channel and would not impact any wetland habitat. Because the wetland habitat is limited to narrows strips along the active 90-ft wide river channel, only a small amount of wetland habitat would be lost during construction. Assuming a 3-span structure is used, a maximum of two piers would fall within the active channel and could impact the existing wetland area. Assuming a maximum pier size of 36 feet by 4 feet, the potential loss of wetland habitat would be approximately 144 ft.$^2$ for each pier and 288 ft.$^2$ for both piers. The maximum potential permanent wetland impact would be less than 0.01 acre.
Figure 3-3: Galisteo Creek (top) and San Cristobal Arroyo (bottom) Wetlands Boundaries
Bridge construction would also involve temporary impacts to the wetlands and associated vegetation. These impacts would result from removal and reconstruction of the existing bridge, the potential construction of a parallel detour structure, and the operation of construction equipment and vehicles in the channel to demolish the existing bridge and construct the replacement bridge.

- Removal and reconstruction of the existing bridge would involve temporary impacts from construction activity potentially across the footprint of bridge as well as 10 feet on either side. With a proposed 37-ft wide bridge, this would be an area of 57 x 240 feet for a total area of 13,680 ft² (0.264 acres).
- Temporary impacts would also result from the placement of a temporary structure parallel to the existing bridge. A temporary structure may be used to maintain traffic flow while construction of the new bridge occurs. A decision to use a temporary structure will not be made until final design when additional design details are available. This assessment represents the worst-case condition — the actual impact may be much less if phased bridge construction is used and traffic can be maintained on the existing structure during construction. For a temporary structure, vegetation within the channel would be mowed but the root structure would remain intact to allow faster recovery of the impacted trees, shrubs, and grasses. Assuming a temporary structure width of 28 feet plus an additional 10 feet on each side to allow for its construction, approximately 0.314 acres of vegetation, including a maximum of 0.013 acres of wetlands, would be impacted to accommodate the 240-ft long bridge. The temporary structure would be located within 25 feet of the existing bridge. This area is vegetated with Russian olive, willow, and several small cottonwood trees.

The impacts, both permanent and temporary, to wetland and riparian habitat within the San Cristobal Arroyo channel would be similar to those described for Galisteo Creek. Like Galisteo Creek, the wetland habitat with this drainage is limited to narrow strips along the active 19-ft channel. However, the riparian habitat along San Cristobal Arroyo is of lower quality than that found in Galisteo Creek channel and is predominantly salt cedar, which is a weedy species with low wildlife habitat potential. A few small cottonwoods and Russian olive are present, but these species are scattered and in low densities.

Permanent impacts to wetland and riparian habitat within this waterway would result from the placement of bridge piers and abutments. Bridge design would be either a 3-span or 4-span structure. Assuming a maximum of two piers would be located within the active channel, the maximum permanent loss of wetland/riparian habitat would be less than 0.01 acre.

Temporary impacts would be similar to those described for Galisteo Creek and would result from removal of and reconstruction of the existing bridge, the placement of the parallel detour structure, and the operation of construction vehicles and equipment in the channel during bridge construction. The disturbed areas for these activities would include approximately 0.292 acres for the removal and reconstruction of the existing bridge and approximately 0.234 acres, including a maximum of 0.005 acres of wetlands, for the placement of the 212-ft parallel detour structure.

**Alternative 2** also has permanent impacts to wetland and riparian habitat within Galisteo Creek resulting from the placement of bridge piers. The bridge abutments are above the active channel and would not impact any wetland habitat. Bridge design would be either a 3-span or 4-span structure. Assuming a
maximum of three piers would be located within the active channel, the maximum permanent loss of wetland/riparian habitat would be less than 0.01 acres.

Temporary impacts would be limited to equipment operation in the channel needed to construct the new bridge. Because this alternative would construct the new bridge to the west of the existing bridge, removal of the existing bridge is not necessary. A temporary structure is not needed as the existing bridge can be used to serve traffic while the new bridge is constructed. Thus, this alternative would have less temporary impact at Galisteo Creek than Alternative 1 and would involve approximately 0.314 acres of riparian habitat, including up to 0.013 acres of wetlands.

Wetland impacts at San Cristobal Arroyo would be similar to those described for Alternative 1. Impacts would include the permanent loss of less than 0.01 acres of wetland habitat plus the removal of riparian vegetation under the new bridge. While some of the removed vegetation would be replaced, the loss of sunlight under the bridge deck would limit the type and amount of replacement vegetation. In general, the affected vegetation at San Cristobal Arroyo is predominantly salt cedar, which is a weedy species with low wildlife habitat potential. A few smaller cottonwoods and Russian olive trees would also be removed.

Since the existing San Cristobal Bridge cannot be left in place, temporary impacts would be similar to those described for Alternative 1 and would result from removal of the existing bridge and the operation of construction vehicles and equipment in the channel during construction of the new bridge. The disturbed areas for the removal of the existing bridge and construction of a new bridge would affect approximately 0.53 acres of riparian habitat, including up to 0.005 acres of wetlands. The use of a temporary structure is unnecessary as traffic would be maintained on the existing bridge while the new bridge is constructed.

**Mitigation Measures**

The maximum area of impact with either Alternative 1 or Alternative 2 would be approximately 0.2 acres; more than the delineated wetland acreage at either location. Any permanent take of wetland would require compensatory mitigation as regulated and directed by the USACE. A wetland mitigation plan will be prepared during final design after the design details for each bridge are known. The plan will be developed in collaboration with the USACE and NMED to fulfill the requirements of Section 404 and 401.

Measures to protect water quality from construction activities and to prevent sediments from entering waterways will be implemented during construction. These will include water quality protection features such as a combination of straw bale walls and filter fences placed around the portions of the Galisteo Creek and San Cristobal Arroyo wetlands that are not within the proposed construction limits. This barrier would be installed prior to any other work undertaken at this site, and all subsequent construction activities would be within the work zone delineated by the fence. The final placement of the barrier would be under the supervision of qualified personnel approved by NMDOT to ensure that no existing wetland areas (besides those designated for removal) are impacted by construction. In addition, water quality protection measures would be implemented to ensure that the construction activities do not impact water quality. These measures include:

- Confining refueling of all construction vehicles to outside the floodplain of any waterway;
- Inspecting all vehicles before onset of construction to ensure that there are no fuel or hydraulic leaks;
- Cleaning all vehicles before they enter the construction area to remove any contaminants that might be on the vehicle surface; and,
• Preventing any discharge of materials such as slurry, fuel, or other volatile materials from entering wetlands or waterways by installing protection between the construction site and the nearby wetland and drainage, such as a row of straw bales, filter fencing, or a low berm constructed around the construction site.

Upon completion of the project, any vegetated riparian zone outside the wetland that has been temporarily impacted by project activities would be replanted to match the habitat conditions prior to construction. Any cottonwood trees removed would be replaced with pole plantings. Replacement of lost wetlands and waters of the United States will come under the compensatory mitigation requirements of the USACE.

3.10 Floodplains

Floodplains within the project area were determined using the Digital Flood Insurance Rate Map Database (DFIRM) prepared by FEMA. A review of the DFIRM data indicates that there are two floodplain zones within the project vicinity. Zone X includes lands outside the 0.2% annual chance flood (500-year flood). The majority of the NM 41 corridor lies within Zone X, which is not considered to be a Special Flood Hazard Area (SFHA). The other zone – Zone A - is considered a Special Flood Hazard Area (SFHA), which is an area subject to a 1% annual chance of water inundation by the base flood (aka 100-year flood). Zone A includes lands that are subject to flooding during the 100-year flood event, but do not have base flood elevations determined.

Zone A floodplains include:

• Gaviso Arroyo, which crosses NM 41 near MP 50.7.
• Arroyo de la Jara, which crosses NM 41 near MP 53.6.
• San Cristobal Arroyo, which crosses NM 41 near MP 55.6.
• Galisteo Creek, which crosses NM 41 near MP 56.1. Just north of MP 57, which is where the creek encroaches on NM 41 ROW, the Zone A floodplain lies within 75 feet of the highway; the Zone A floodplain also lies within 75 feet of the highway near the intersection of NM 41 and US 285.

The flow depths for storm events Zone A floodplains at San Cristobal Arroyo and Galisteo Creek are shown in Table 3-4 below.

<table>
<thead>
<tr>
<th>Milepost</th>
<th>Ground Elev.</th>
<th>Bridge Pier Elev.</th>
<th>100-yr Flow Depth</th>
<th>500-yr Flow Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Cristobal Arroyo</td>
<td>55.6</td>
<td>6022’</td>
<td>6039’</td>
<td>12.77 feet</td>
</tr>
<tr>
<td>Galisteo Creek</td>
<td>56.1</td>
<td>6008’</td>
<td>6025’</td>
<td>7.43 feet</td>
</tr>
</tbody>
</table>

Potential Effects of the Build Alternatives

Floodplain impacts occur if a project adversely affects the functional characteristics of an existing floodplain or supports incompatible floodplain development.

Alternative 1 (Preferred) and Alternative 2 do not require that any existing structures be extended within Zone A floodplains. The existing 16.5-foot by 26-foot oval culvert metal pipe (CMP) at Gaviso
Arroyo (milepost 50.7) is in good condition and does not require replacement, but the addition of shoulders may require that the concrete end caps be widened. This work will not change the capacity of the culvert, so the floodplain will remain unchanged from its current condition. Therefore, changes to the Zone A floodplain in the vicinity of this CMP are not anticipated.

The depths of flow for the 100-year storm events are several feet below the bottom of the bridge decks, indicating sufficient depth to pass flows from both the 100-year and 500-year flow events. Alternatives 1 and 2 would be designed with a similar deck elevation and structure depth as the existing bridges. No flood plain impacts would occur since the proposed new bridges would allow the passage of the same flows as existing structures.

3.11 Vegetation and Wildlife

Most of the NM 41 project area passes through juniper savanna and plains-mesa grasslands. The corridor varies in elevation from a low of 6,050 feet at Galisteo Creek to a high point of 6,600 feet at Clark Hill. Although much of the project area is part of active cattle ranches and other livestock operations, the habitat is generally in a natural state and is used by various animal species. The specific biology of the project area was characterized by a review of existing databases and field surveys conducted in 2010 and 2011. Data from earlier biological surveys specific to the Galisteo Creek and San Cristobal Arroyo areas were also reviewed as part of the current efforts and findings, as applicable, are incorporated into the current investigations. The extent of the biological investigations included:

- Full pedestrian survey of the overall project area in 2010 and 2011.
- Protocol surveys were conducted for southwestern willow flycatcher and yellow-billed cuckoo at Galisteo Creek and San Cristobal Arroyo in 2008, 2009, 2010, and 2011. The first two years of the survey were conducted as part of a previous NMDOT project specific to these bridges.
- Protocol surveys were also conducted for gray vireo and mountain plover in 2010.
- A small mammal trapping program was conducted in the Galisteo Creek area in the fall of 2010.

A complete discussion of the biological surveys and investigations are documented in the report *A Biological Assessment of Proposed Improvements to NM 41 from MP 46.1 to 62.1, Santa Fe County, New Mexico*, prepared in July 2011. This report is on file and available for review at the NMDOT Environmental Bureau in Santa Fe. A summary of important findings of the biological investigations is provided below.

Vegetation

Several representative vegetation communities occur within the project area including Lower Coniferous Woodland, scattered patches of Juniper Savanna, Plains-Mesa Grassland, Arroyo Riparian vegetation, Lower Floodplain Riparian vegetation, and a mixture of weedy vegetation.

In addition to the native vegetation, several areas support small populations of noxious weeds. Noxious weeds include invasive and noxious weed species targeted as needing control or eradication pursuant to the Noxious Weed Management Act of 1998. These weeds have been divided into three divisions: Class A, Class B, and Class C.

- One Class A noxious weed, Scotch thistle (*Onopordum acanthium*), was found at two locations within the project area. The first location is a single plant near the southern terminus of the
project, at a spot where the right-of-way has been used to store equipment. The second location covers approximately 420 square feet near MP 59.5 on the west side of NM 41.

- One Class B noxious weed was found in the project area: tree-of-heaven. A small cluster of tree-of-heaven was found on the east side of NM 41 near MP 56.45 in Galisteo.

- Several Class C noxious weeds including salt cedar, Russian olive, jointed goatgrass (*Aegilops cylindrica*), cheat grass (*Bromus tectorum*), and Siberian elm were observed in the project area. Jointed goatgrass and cheatgrass are widespread throughout the project area. Salt cedar and Russian olive are locally abundant within the intermittent and perennial waterways and scattered in some of the ephemeral waterways. Isolated trees and small groups of Siberian elm are scattered throughout the general project area, with denser stands of this species noted within the rural residential disclimax habitat around the Village of Galisteo.

**Wildlife**

The field survey and review of records identified 80 species of vertebrates within the project area. These included 59 species of birds, 15 species of mammals, and 6 species of reptiles. The vast majority of these species were encountered either within or adjacent to the Galisteo Creek and San Cristobal Arroyo drainages. In addition to the variety of animals found within the project area, two wildlife issues warrant additional discussion. These include migratory birds and their habitat and the potential for wildlife/vehicle collisions.

- **Wildlife/Vehicle Collisions** -- The incidence of wildlife/vehicle collisions within the project area was determined from NMDOT crash data and field observations during the field survey. A review of the NMDOT crash records for the 15 year period from 1993 to 2007 found ten reported crashes involving wildlife. The field survey found the skeletal material of a mule deer and a coyote carcass adjacent to the highway. No other evidence of wildlife/vehicle collisions was found. The combination of these two data sources suggest a relatively low wildlife/vehicle impact rate. Only 12 confirmed incidents of wildlife/vehicle collisions occurred within the 16-mile project area in 15 years. Five of the eleven mule deer collisions occurred in the area near Galisteo between 56.7 to MP 57 and from MP 58.3 to MP 58.4. While the number of incidents is low, the data indicate some deer movement across the highway in the area along the Galisteo drainage near the community.

- **Migratory Birds** -- The Migratory Bird Treaty Act of 1918 (MBTA) protects nearly all species of birds as well as their eggs and nests. With the exception of cliff swallows, migratory bird nests were scarce within the NM 41 project limits and no occupied nests were observed. Cliff swallow nests were found on bridges and to a lesser degree within culverts within the project area. The most significant concentrations of cliff swallow nests were at the Gaviso Arroyo crossing near MP 50.75, and the bridge across Arroyo de la Jara near MP 53.5. Over 400 cliff swallow nests were found at these locations. Scattered cliff swallow nests occur on the structures at San Cristobal Creek, and a substantial concentration of nests occurred on the Galisteo Creek Bridge. In total eight locations within the NM 41 project area support 582 cliff swallow nests.

**Potential Effects of the Build Alternatives**

Construction of **Alternative 1 (Preferred)** will result in temporary disturbance and permanent loss of vegetation and wildlife habitat in the project area. The temporary habitat disturbances will occur during construction and include clearing and grubbing of the ground adjacent to the new roadway. An estimated 42 acres of existing habitat in the project area are likely to be subject to temporary disturbance.
Alternative 1 will also result in the permanent loss of approximately 22 acres of upland habitat where the new shoulders of the roadway are constructed and where cuts and fills are required. The affected upland vegetation is almost entirely within the existing right-of-way and is predominantly comprised of shrubs and grasses. Some upland trees, including juniper and some pinyon pine, will be lost. However, because few mature trees exist within the right-of-way, the number of trees lost will be low and will consist of smaller and immature specimens.

Alternative 1 will also result in temporary disturbance and permanent loss of riparian vegetation where the roadway crosses San Cristobal Arroyo and Galisteo Creek. Because this alternative would replace these bridges on their existing alignment and because the replacement bridges would be only several feet wider than the existing bridges, the loss of riparian vegetation would be minor. Temporary impacts would result from trimming of the existing trees and shrubs immediately adjacent to the existing bridge alignments (maximum of 10 feet from the edge of the existing structures), the removal of vegetation next to the existing piers while the piers are removed, and the installation of a temporary structure. The trimming of trees and shrubs is necessary to provide adequate room for construction vehicles and equipment and for the removal of the existing piers. The temporary structure is needed to serve detoured traffic while the bridges are replaced. Approximately 0.33 acres of vegetation would be disturbed at Galisteo Creek and another 0.36 acres would be disturbed at San Cristobal Arroyo. The predominant type of vegetation affected at Galisteo Creek would include cottonwood trees, Russian olive, and coyote willow. At San Cristobal Arroyo, the disturbed vegetation would consist mostly of salt cedar but would also include some Russian olive and a few immature cottonwood trees.

The amount of riparian vegetation permanently lost at San Cristobal Arroyo and Galisteo Creek would be minimal as the pier spacing and abutments would replace those of the existing structures. Riparian habitat would be replaced as part of a compensatory mitigation plan for the project.

Wildlife populations will be subject to temporary impacts from habitat disturbance and construction activities, and permanent impacts from habitat loss. Loss of upland habitat will most likely affect resident populations of small mammals, reptiles, and invertebrates in the areas where the new shoulders to the roadway are constructed. The wider roadway may act as a slight barrier to the movement of these small mammals, reptiles, and amphibians; however, the additional width of the shoulders is not expected to prevent small animal movement across the highway. These are considered unavoidable impacts of the project and are not anticipated to affect the wider range of the small mammal and reptile populations in the area or substantially alter their abundance in the overall area surrounding the project.

Wildlife benefits would result from the construction of the 8-foot diameter CMP at MP 47.7. While this structure is proposed for use as a livestock undercrossing, it would be available for use by other smaller mammals. Changes to the bridges at Galisteo Creek and San Cristobal Arroyo would not affect use of the river channels by wildlife to cross the highway, except temporarily during construction. The bridge height, width, and pier spacing would not be altered to an extent that would affect use of the channels by wildlife.

The addition of shoulders along the existing two-lane NM 41 facility is not anticipated to affect the movement of mule deer and other large mammals in the project area. To the contrary, the shoulders would provide motorists better visibility of animals entering the highway and would increase the area for avoidance maneuvers if a driver encounters an animal on the highway.
Impacts to vegetation and wildlife with Alternative 2 would be the same as described for Alternative 1 at all locations except for San Cristobal Arroyo and Galisteo Creek. Alternative 2 will result in temporary and permanent loss of riparian vegetation where the roadway crosses San Cristobal Arroyo and Galisteo Creek. Temporary impacts to riparian vegetation at Galisteo Creek would occur in the areas adjacent to the new bridge and would include approximately 10 feet along each side of the bridge. The vegetation in this area would be trimmed to provide an area for the operation of construction vehicles and equipment while construction occurs. Approximately 0.1 acre of vegetation consisting of cottonwood trees, Russian olive, and coyote willow would be disturbed at Galisteo Creek.

The permanent loss of vegetation at Galisteo Creek would affect the area under the new bridge. Because of the physical obstruction of the bridge and loss of direct sunlight, cottonwood, Russian olive, and coyote willow trees would not grow under the bridge. However, smaller shrubs and grasses would occupy this area. Approximately 0.2 acres of existing vegetation would be affected. The vegetation affected by the alignment of the new bridge includes several mature cottonwood trees and large stands of Russian olive and coyote willow.

At San Cristobal Arroyo, temporary impacts would result from the removal of vegetation next to the existing piers while the piers are removed, and trimming the vegetation adjacent to the new bridge (approximately 10 feet along each side of the bridge). The vegetation in this area would be trimmed to provide an area for the operation of construction vehicles and equipment while construction occurs. Approximately 0.12 acre of vegetation consisting of salt cedar, Russian olive, and several cottonwood trees would be disturbed at San Cristobal Arroyo.

The permanent loss of vegetation at San Cristobal Arroyo would affect approximately 0.22 acres under the new bridge. Most of the vegetation affected is salt cedar although some Russian olive and cottonwood trees would be lost. The impacted area would convert to smaller shrubs and grasses. Aside from those in the wetland habitats at Galisteo Creek and San Cristobal Arroyo, none of the plant species found during the surveys of the project area are rare or unique, and upon completion of the construction of the project, most of the species currently found in the right-of-way are likely to reoccupy the portions of the right-of-way subject to only temporary disturbance. Riparian habitat would be replaced as part of a compensatory mitigation plan for the project.

Impacts to wildlife at the bridges would be similar but slightly more than those described for Alternative 1. The additional loss of habitat would displace the small mammals and birds that use this vegetation for foraging, nesting, and roosting. Habitat is available in the adjacent areas and the loss of habitat under Alternative 2 would not be anticipated to have an adverse impact on the overall populations of these animals. The new bridge at Galisteo Creek would increase the roosting area available for bats and nesting area for swallows. This would be a benefit of Alternative 2.

**Mitigation Measures**

Upon completion of construction, the areas disturbed but not physically occupied by the roadbed will be seeded with certified weed free native plant species representative of species currently in the study area. Native riparian trees taken by the project such as Rio Grande cottonwood will be restored by the installation of cottonwood pole plantings into the water table in the floodplain riparian habitats along Galisteo Creek and San Cristobal Arroyo.
In order to avoid the spread of noxious weeds, areas with class A or B noxious weeds will be treated according to District 5 practices by staff trained and certified in the appropriate herbicide. Further, the contractor will ensure that all equipment is cleaned prior to off-loading and leaving the project area.

Bat boxes will be installed at Galisteo Creek and San Cristobal Arroyo. Both of these areas provide suitable habitat to support bats.

If the onset of construction cannot be scheduled outside the migratory bird breeding season (generally March – August) the construction area will be resurveyed for migratory bird nests, including those of raptors, prior to the onset of construction. If possible, the clearing and grubbing of trees and shrubs will occur prior to the nesting season and the onset of other construction activities.

### 3.12 Threatened and Endangered Species

Twenty-nine plant and animal species with agency status (USFWS threatened, endangered, proposed or candidate, and state threatened or endangered species) could potentially occur or are known to occur within Santa Fe County. Of these, 17 could potentially inhabit or visit the general project area including 2 plant species and 15 animal species (see Table 3-5). Efforts to determine the presence of species with agency status included protocol surveys for southwestern willow flycatcher and yellow-billed cuckoo at Galisteo Creek and San Cristobal Arroyo, and for gray vireo and mountain plover in the upland areas. In addition, a small mammal trapping program was conducted in the Galisteo Creek area in the fall of 2010 to investigate the presence of New Mexico meadow jumping mouse.

#### Table 3-5: Plant and Animal Species with Agency Status

<table>
<thead>
<tr>
<th>Name</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southwestern willow flycatcher (Empidonax traillii extimus)</td>
<td>E</td>
<td>E</td>
<td>Yes</td>
</tr>
<tr>
<td>Western burrowing owl (Athene cunicularia hypugaeae)</td>
<td>SOC</td>
<td>--</td>
<td>No</td>
</tr>
<tr>
<td>Bald eagle (Haliaeetus leucocephalus)</td>
<td>T</td>
<td>T</td>
<td>No</td>
</tr>
<tr>
<td>Peregrine falcon (Falco peregrines anatum/tundrius)</td>
<td>SOC</td>
<td>--</td>
<td>No</td>
</tr>
<tr>
<td>Yellow-billed cuckoo (Coccyzus americanus)</td>
<td>C</td>
<td>--</td>
<td>No</td>
</tr>
<tr>
<td>Gray vireo (Vireo vicinior)</td>
<td>--</td>
<td>T</td>
<td>No</td>
</tr>
<tr>
<td>Mountain plover (Charadrius montanus)</td>
<td>--</td>
<td>--</td>
<td>No</td>
</tr>
<tr>
<td>Baird’s sparrow (Ammogramus bairdii)</td>
<td>SOC</td>
<td>T</td>
<td>No</td>
</tr>
<tr>
<td>Least tern (Sterna antillarum athalossos)</td>
<td>E</td>
<td>E</td>
<td>No</td>
</tr>
<tr>
<td>Black tern (Chlidonias niger)</td>
<td>SOC</td>
<td>--</td>
<td>No</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Mexico meadow jumping mouse (Zapus hudsonius luteus)</td>
<td>C</td>
<td>E</td>
<td>No</td>
</tr>
<tr>
<td>Gunnison’s prairie dog (Cynomys gunnisoni)</td>
<td>C</td>
<td>--</td>
<td>No</td>
</tr>
<tr>
<td>Black-footed ferret (Mustella nigripes)</td>
<td>E</td>
<td>--</td>
<td>No</td>
</tr>
<tr>
<td>Townsend’s big-eared bat (Corynorhinus townsendi)</td>
<td>SOC</td>
<td>--</td>
<td>No</td>
</tr>
<tr>
<td>Swift fox (Vulpes velox)</td>
<td>SOC</td>
<td>--</td>
<td>No</td>
</tr>
<tr>
<td><strong>Plants</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Fe cholla (Opuntia viridiflora)</td>
<td>SOC</td>
<td>E</td>
<td>No</td>
</tr>
<tr>
<td>Dwarf milkweed (Asclepias uncialis var.uncialis)</td>
<td>SOC</td>
<td>--</td>
<td>No</td>
</tr>
</tbody>
</table>

E = Endangered     T = Threatened     SOC = Species of Concern    C = Candidate
With one exception, the investigations for species with agency status did not find any species within the project area. A solitary willow flycatcher, was documented at Galisteo Creek during the protocol surveys for this species in the spring of 2010. However, this bird was present only during the first of five protocol surveys and is thought to be a migrant. Since it did not nest, it was not ascertained that the observation was the subspecies *Empidonax traillii extimus* rather than typical *Empidonax traillii*. However for the purpose of this EA it is being treated as southwestern willow flycatcher (*Empidonax traillii extimus*).

Although yellow-billed cuckoo was not present within the project area, there was suitable habitat for the yellow-billed cuckoo at both Galisteo Creek and San Cristobal Arroyo. Potential habitat also exists for the Western burrowing owl and gray vireo. There is also marginal habitat for the New Mexico meadow jumping mouse present along portions of Galisteo Creek. Mountain plover was a proposed threatened species during the latter half of the biological surveys. In May of 2011 it was found to be not eligible for listing as threatened and has since been removed from the proposed status. None of the other protected species or their habitat were observed within the project area.

**Potential Effects of the Build Alternatives**

Both Alternative 1 (Preferred) and Alternative 2 have similar impacts to habitat for threatened and endangered species — specifically the southwestern willow flycatcher and the yellow-billed cuckoo. Impacts could result from construction within Galisteo Creek, and to a lesser extent, San Cristobal Arroyo. Both build alternatives would remove potential habitat for southwestern willow flycatcher and yellow-billed cuckoo. However, as noted, neither of these species was found within the project area except for a lone migrant bird that was possibly a southwestern willow flycatcher. The loss of habitat for these species would be minor and would be replaced after bridge construction is complete. Moreover, the project would provide an opportunity to remove salt cedar at San Cristobal Arroyo and replant the area within the right-of-way with trees more suitable for use by flycatchers and yellow-billed cuckoo.

The USFWS has concurred with the finding that both Alternative 1 and Alternative 2 may affect, not likely to adversely affect, the southwestern willow flycatcher. There will be no effect to the other protected species. As stipulated in consultation with the USFWS, the area around the Galisteo Creek Bridge disturbed by construction will be replanted to match the community type and composition that currently exists at the site.

**3.13 Visual Resources**

While there are no specific laws or regulations protecting visual resources or aesthetic values for highway projects, the visual environment is referenced in NEPA, and FHWA has developed guidance to assist with visual resource impact assessment. Publication No. FHWA-HI-88-054 *Visual Impact Assessment for Highway Projects* provides a general framework describing the visual characteristics of the project area, the visual resources and viewers affected, the significance of the main visual issues, and the effects of project alternatives. Project visual impacts are seen both in the view from the road and the view of the road. Establishing the visual environment of the project involves assessing the visual resources of the project area and identifying viewer response to those resources.

The project area is primarily undeveloped except for the village of Galisteo. The regional landscape is characterized by the Galisteo Basin, surrounded by a background of dramatic mountain views. The basin itself is characterized by rocky ridges and mesas and rolling hills, creating visual diversity and interest in the middleground views. Foreground views are primarily of roadside vegetation, which is primarily
grassland and scattered juniper. Mature trees and riparian plant species are also present along watercourses and in the community of Galisteo. For the most part, NM 41 maintains landform continuity, following the existing topography. To the extent possible, mature trees with a trunk of 12” or more in diameter will be preserved.

The NM 41 project area is considered to have high visual quality, as there is substantial evidence of natural processes (mountain formation, watershed drainage), as well as striking and distinctive visual patterns. The viewscape is largely intact as the man-made elements, including NM 41, are consistent with the natural surroundings and do not detract from the natural setting.

The primary viewers of and from NM 41 include the residents and ranchers living within the NM 41 corridor, commuters traveling between Santa Fe and the Moriarty area, trucks and other commercial traffic that originate in Moriarty and are destined to locations within and north of the project area, and tourist traffic. Observations made during the collection of traffic counts also indicate use by school buses and governmental entities from communities in northeast and south-central New Mexico, suggesting that this route is used to travel between these areas of the state. The character of this particular segment of NM 41 is distinctive from areas to the north and south; therefore, visual awareness is heightened as drivers enter the Galisteo Basin. While visual awareness may be lower for residents who are more accustomed to the visual environment, exposure for these viewers is much greater, and smaller-scale changes may be more apparent.

**Potential Effects of the Build Alternatives**

**Alternative 1 (Preferred) and Alternative 2** will minimally alter the visual appearance of NM 41 as well as some of the views of and from the roadway. The addition of shoulders, the reduction of a number of horizontal and vertical curves, and the addition of a southbound climbing lane on Clark Hill will enlarge the roadway’s apparent scale and will only minimally disrupt the visual continuity of the landform. These minor changes will not alter the most distinctive and high-quality visual elements in the area, which are the mesas and mountains in the middle and background views. Some additions of guardrail or concrete wall barrier may heighten the visual differences between the roadway and the surrounding natural setting. Guardrail design will be selected to be consistent with the natural landscape (i.e. rusticated or weathered steel).
The portion of the project within the community of Galisteo has been specifically designed to provide a visual change to drivers to help reduce speeds as they enter the community. A narrower roadway section (4-foot shoulders) is proposed for the area north and south of the community under both Build Alternatives. Traffic calming strategies including additional radar-reader boards and medians would also be intentional visual changes to the roadway to alert drivers and reduce speeds. They would constitute new visual elements and would alter foreground views for motorists. These elements may also be visible to some Galisteo residents on the north and south ends of town.

**Alternative 1 (Preferred)** will involve replacing two bridges with a historic design aesthetic. **Alternative 2** would have a greater visual impact than replacing the bridges on the current alignment. Overall, the Build Alternatives are designed to be as visually consistent with the existing roadway as possible while providing needed safety improvements.

### 3.14 Hazardous Materials

The Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA) covers additional hazardous substances. The presence of petroleum products are also considered since their presence in the existing easement or project corridor are a serious concern to workers’ health and safety, as well as potential cleanup liability.

A Preliminary Initial Site Assessment (PISA) was prepared by the NMDOT Environmental Geology Bureau. This PISA covered the two historic bridges in the project area (Galisteo Creek and San Cristobal Arroyo) as these are proposed for replacement before improvements to the rest of the corridor. The only issue of concern noted in the PISA is the presence of lead-based paint on the metal portions of the two historic bridges. The presence of lead-based paint will be specified in the construction notes and the contractor will be instructed to recycle any steel bridge elements removed as part of the project and disclose the presence of lead-based paint.

**Potential Effects of the Build Alternatives**

Most of the project corridor covered in the PISA appears to be free of contaminants. Either Alternative 1 (Preferred) or 2 will require an Initial Site Assessment Determination (ISAD) during final design. The NMDOT and construction contractor will be responsible for managing hazardous substances in compliance with federal and state laws.

### 3.15 Air Quality

Air quality regulations pertinent to transportation projects are found in the *Clean Air Act Amendments of 1990* (CAA) and the *Final Transportation Conformity Rule* (40 CFR Parts 51 and 93). The CAA required the US Environmental Protection Agency (EPA) to develop National Ambient Air Quality Standards (NAAQS) for several major air pollutants. These pollutants, known as criteria pollutants, are carbon monoxide, nitrogen dioxide (usually referenced as oxides of nitrogen (NOx)), ozone, particulate matter (PM10 and PM2.5), sulfur dioxide, and lead. The area surrounding the NM 41 corridor is classified by EPA as being in attainment of the NAAQS for all criteria pollutants. It is a rural area without any major point or area sources of air pollutants.

Because of the rural nature of the study area and the lack of major sources of air pollution, the Air Quality Bureau of the New Mexico Environment Department (NMED) does not perform ambient air quality monitoring in the study area. The nearest air quality monitoring stations operated by the NMED are
located in Santa Fe, an area with much higher traffic volumes and other sources of air pollutants. Based on the data from these monitor locations, air pollutant concentrations in the study area are likely to be well below the maximum thresholds established by the EPA.

**Potential Effects of the Build Alternatives**

Both Alternative 1 (Preferred) and Alternative 2 would have the same effects on air quality. Neither of the Build Alternatives will cause an increase in traffic flows or increase congestion. For this reason, the build alternatives are anticipated to have no adverse impacts to air quality. Construction dust abatement will be pursued consistent with Specification 107.14.5 of the *New Mexico State Department of Transportation Standard Specifications for Highway and Bridge Construction* (2007).

### 3.16 Noise

Noise levels within the project area are primarily a result of traffic traveling on NM 41, CR 42, and local streets. The predominant traffic noise sources are from a mixture of automobiles and large trucks. Sporadic train noise is also present in the last few miles of the project area where railroad tracks parallel the highway. No industrial noise or other major noise sources occur within the project area.

Existing noise level conditions within the NM 41 corridor were determined from field measurements collected on October 15, 2009 at five locations along NM 41. Four locations were selected to represent houses/buildings that were expected to experience the highest noise levels from existing traffic traveling on NM 41, and the fifth location was selected to measure noise levels at a location with a higher posted speed outside of the Galisteo area. The results of the data collection revealed noise levels ranging from 54 dBA to 62 dBA for four locations. Noise data recorded from the northeast corner of the stone wall of the church in Galisteo yielded a noise level of 67 dBA. This noise level is primarily due to the close proximity of the church to the vehicles and trucks traveling on NM 41 and CR 42 (to Madrid). The collected data are shown in Table 3-6. In general, the measured noise levels are low and are consistent with a rural, low-volume highway.

<table>
<thead>
<tr>
<th>Measurement Location</th>
<th>Distance from NM 41</th>
<th>Measured Noise Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site 1: East of NM 41 and south of Galisteo Bridge</td>
<td>108 feet</td>
<td>53.7 dB(A)</td>
</tr>
<tr>
<td>Site 2: West of NM 41 and south of El Tanque Viejo</td>
<td>151 feet</td>
<td>54.9 dB(A)</td>
</tr>
<tr>
<td>Site 3: SW corner of NM 41 and CR 42</td>
<td>29 feet</td>
<td>67.4 dB(A)</td>
</tr>
<tr>
<td>Site 4: Residence west of NM 41, 275’ north of CR 42</td>
<td>26 feet</td>
<td>62.2 dB(A)</td>
</tr>
<tr>
<td>Site 5: North of Galisteo near NM 41 MP 57.1</td>
<td>24 feet</td>
<td>59.8 dB(A)</td>
</tr>
</tbody>
</table>

FHWA noise impact assessment procedures and policies require the consideration of noise abatement when measured or model-estimated sound levels approach or exceed 67 dBA. NMDOT’s noise procedures further define noise impact as when predicted noise levels approach within 1 dBA of the FHWA’s noise abatement criteria (i.e., 66 dBA) and when predicted noise levels exceed existing noise levels by 10 dBA or more (NMDOT Infrastructure Design Directive IDD-2011-02).
Potential Effects of the Build Alternatives

Alternative 1 (Preferred) and Alternative 2 would have the same effects on traffic noise. As shown in Table 3-6, only one location has been identified that currently exceeds noise abatement criteria — Site 3, the SW corner of NM 41 and CR 42. As the project will not add capacity to NM 41 or move traffic any closer to existing development, noise is not expected to increase as a consequence of either build alternative.

Because Site 3 is within the historic district, the construction of a noise barrier is not practical. Moreover, it is unlikely that a barrier would meet FHWA and NMDOT cost-effectiveness criteria. Some noise abatement may be achieved by the proposed traffic calming measures as noise levels decrease due to slower travel speeds. This reduction would be minor and would not likely be noticeable.

3.17 Indirect Impacts

NEPA requires the analysis and disclosure of all foreseeable effects of transportation projects as part of the environmental assessment process. These effects include not only the direct effects, or impacts that occur as a direct result of the project, but also indirect impacts. Indirect impacts are those that occur either later in time or are removed in distance from the particular action being evaluated.

Potential Effects of the Build Alternatives

Alternative 1 (Preferred) and Alternative 2 would have the same indirect impacts. The majority of impacts associated with the proposed project concern the physical construction of the roadway and would occur at the time of construction. Minor indirect effects include changes in traffic flow and circulation as some drivers may search for alternate routes during construction.

3.18 Cumulative Impacts

Cumulative effects are impacts that result from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions. Few other projects are either planned or have been recently constructed with the exception of the recent repaving of CR 42 and the US 285 rehabilitation from Clines corners to Lamy. Based on current economic conditions and projected future traffic growth, additional development is not expected to be significant in the near future and would not result from the proposed project.

Potential Effects of the Build Alternatives

Alternative 1 (Preferred) and Alternative 2 would have the same cumulative impacts. Cumulative impacts from the proposed project together with recent past and future projects are negligible given that there are very few other projects in the vicinity.

3.19 Construction Activities

Construction activities result in temporary impacts that are unavoidable and cease upon completion of the project. Alternative 1 (Preferred) and Alternative 2 will have the same construction impacts except at the Galisteo Creek and San Cristobal Arroyo bridges. These impacts include temporary delays to motorists, nuisance level noise, dust, and lighting from construction activities. Access to homes and businesses along NM 41 would also be affected during construction. Residents and business owners will be informed of any potential driveway or side street closures or detours. Signs will direct motorists to
businesses. Access to all adjacent properties will be maintained during construction. Construction impacts will be minimized by requiring contractors to adhere to applicable federal, state, and specific NMDOT requirements for construction projects.

Increased traffic delays would occur under Alternative 1 (Preferred) if the new bridges are constructed in place without the use of parallel detour structures. Traffic would be limited to a single lane and would be controlled by a flagman, meaning traffic may be required to wait until traffic traveling in the opposite direction has crossed the bridge. Southbound delays may cause congestion within the community of Galisteo along with increased noise and fumes. Traffic control plans to minimize delays to motorists will be developed during project design. This impact would not occur if parallel detour structures are used for detoured traffic.

Temporary detours would also be needed to reconstruct the roadway and would be the same for both build alternatives. Due to the narrow existing roadway, it is likely that one-lane detours may be needed. In general, construction activities will result in temporary delays to commuters and other traffic. The need for and type of detours will be determined during final design.
CHAPTER 4.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

Input and feedback from agency and public stakeholders have been a significant part of the NM 41 Alignment Study throughout the planning process. The involvement of resource agencies, local jurisdictions, highway users, community residents, and others having an interest in the highway and project area has been used to identify issues of interest and concern to stakeholders and to develop, evaluate, and refine project alternatives. Agency and public outreach and involvement activities have generally followed the approach described in the Public Involvement Plan (PIP) and Context Sensitive Solutions (CSS) Plan prepared at the study onset. However, some deviations from these plans have occurred in response to feedback received. Both the PIP and CSS emphasize consideration of the historic context of Galisteo, the Galisteo Basin, and the natural environment, in balance with the safety of highway users.

The methods and timing of major public outreach activities and the input received from these activities are summarized in the remainder of this section. All public meeting notes and comments are consolidated in the Agency Coordination and Public Involvement Summary on file at the NMDOT District 5 Office in Santa Fe and presently on the NMDOT website at http://nmshtd.state.nm.us/main.asp?secid=15562.

4.1 Public Outreach and Feedback

Public outreach activities conducted to date have included four general public meetings, several meetings with community groups, and numerous meetings with individuals. To maximize access for the residents of Galisteo, all of the public meetings have been held at the community center in Galisteo. Public notice of these meetings included notices placed in The Santa Fe New Mexican and The Independent — a local newspaper distributed throughout the communities of Edgewood, Moriarty, Stanley, and others. The distribution areas of both The New Mexican and The Independent include the areas where commuters and businesses who rely on NM 41 reside. Roadside portable message boards were also placed along NM 41 at the north and south ends of Galisteo. These displays were set up several days in advance of the first three meetings. In addition, meeting announcements were emailed and mailed to about 300 residents, businesses, governmental agencies, elected officials, and special interest groups with a potential interest in the proposed project and/or project area. Examples of the public meeting advertisements and flyers are presented in Appendix D.

The timing of the four public meetings included: (1) a meeting at the study onset to inform the public that the NM 41 Alignment Study was underway; (2) a second meeting to present the initial set of project alternatives prior to the completion of the Initial Alignment Study; (3) a third meeting conducted during Phase B to present refinements (made in response to public feedback) to the initial set of alternatives and the findings of the evaluation of these alternatives, and (4) a fourth meeting to present the findings of the Phase B analysis and the recommendations of the Project Team. Questions, comments, and other feedback from the two meetings held during Phase A were summarized in the Initial Alignment Study report. While feedback from the public was extensive, the primary points raised by meeting participants are summarized below:

- Comments that NM 41 is used by bicyclists including sanctioned recreational rides. Request to include bike lanes or shoulders of adequate usable width on NM 41.

- Comments that large trucks are causing safety concerns to the residents of Galisteo and that speeding and careless driving by commercial truck operators have been observed. Comment that truck traffic is damaging the historic buildings and two historic bridges within Galisteo. Requests to restrict truck traffic by weight and size or to re-route to US 285.

- Comments to leave the vertical alignment of the roadway as is.
• Comments that improvements to bridges be limited to designs that preserve the historic integrity of the bridges.

• Request to include traffic calming and other measures to improve safety within Galisteo. Suggested measures included pedestrian crossings, speed limit reductions, police enforcement, addition of rumble strips, and advisory signing that motorists are traveling through a small community.

• Comment that driving lanes and shoulders should be narrow.

• Comment that 8-foot shoulders for the rural segments of NM 41 are excessively wide.

• General questions related to impacts to cultural and environmental resources.

• Comments supporting roundabouts as a viable traffic calming measure and request to consider this treatment further.

• Comments opposing roundabouts on the basis that they are inconsistent with the rural character of the Galisteo area.

• Comment to emphasize community preservation in the roadway and bridge designs.

• Comments opposed to consideration of a bridge bypass.

• Comment supporting the Community Bypass Alternative on the basis that nothing will effectively slow traffic through the village.

• Comments opposing right-of-way acquisition

Summaries of the Phase A public meetings are on file at the NMDOT District Offices in Santa Fe and on the NMDOT website.

The third public meeting was conducted in September 2010 as part of the Phase B process. The primary topics presented and discussed at this meeting included:

• The major design features of the proposed roadway alternatives. This discussion separated the alternatives for the rural highway segments from those of the community segments.

• The types of traffic calming strategies proposed and their anticipated benefits for reducing travel speeds.

• Bridge alternatives for San Cristobal Arroyo Bridge and Galisteo Creek Bridge. The discussion of these bridges included the findings of a supplemental structural conditions assessment and feedback received from outside historic bridge experts.

The comments received from meeting participants at the third meeting and in writing during the subsequent 3-week comment period are summarized below by topic/issue. A total of 17 written comments were received.

1. Project Need

• Request for crash statistics that support the need to flatten the roadway and comment that if crash data and statistics are not available that support the need to flatten the roadway, then it should not be done.

• Comment that improving the highway will encourage higher/unsafe travel speeds and that speeding through the village will be worse.
2. Alternatives
   - Comment that 6-foot shoulders on the rural highway segments are needed.
   - Comment opposing the proposal to flatten the vertical curves along the roadway.
   - Comment agreeing with the proposal to maintain 12-foot driving lanes and a 55-mph posted speed.
   - Comment to use 12-foot lanes with no more than 4-foot shoulders that serve both bikeways and walkways. This comment included a question about whether the shoulders need to be paved or could be dirt and/or gravel.
   - Comment that the unlabeled and paved area of 6 feet on the sides of the road would result in a total paved width of 48 feet. Question about why NM 41 needs to be nearly 14 feet wider than comparable roads in the area. (Note: A Project Team member provided a response to this comment to clarify that the area beyond the shoulders is not paved; the proposed width of the 12 foot lanes plus 6 foot shoulders is actually 36 feet).
   - Request to further evaluate the vertical curve reduction and keep it to a minimum to preserve the rural character of the road and to protect wildlife.
   - Comment that NM 41 is in great need of repair and that construction should move forward as soon as possible.
   - Comment agreeing with the proposed design for the rural segments and the community transition segment.
   - Comment to use guardrails with an “aged” look to fit the historic and scenic nature of the route.

3. Community Core and Transition Segment Issues
   - Request to extend the south boundary of the core area to Avenida Vieja.

4. Bicycle and Pedestrian Issues
   - Comment/question that bicyclists and pedestrians do not need to be accommodated by the roadway design.
   - Suggestion that bicyclists and pedestrians share the same path.
   - Question about the laws regarding pedestrian use of shoulders.
   - Comment opposing the use of crusher fines on the roadway edge to provide an area for pedestrian use.
   - Comments that crusher fines are carcinogenic.

5. Parking
   - Concern that the roadway through the community would eliminate parking for those who park alongside the roadway.

6. Construction Timing and Funding
   - Question about the source and availability of construction funds.
   - Question about when construction would occur.
7. Miscellaneous

- Comment that all wildlife concerns should be considered in the assessment, not just threatened and endangered species.
- Questions about whether San Cristobal Arroyo Bridge is safe to use in the interim period before reconstruction occurs and if trucks should be prohibited during this interim period.
- Comment that the improvements made to NM 14 between Madrid and Lone Butte by the NMDOT were well done.

Most of the written comments submitted after the public meeting included explicit statements regarding the commenter’s preference of alternatives, particularly for the bridges and the community core segment. For the community core, the alternative preference mentioned most often was for 11-foot lanes with a 4-foot paved shoulder. For the bridges, strong support was received for Galisteo Alternative 1 (bridge replacement on the existing alignment with 11-foot lanes, 4-foot shoulders, and a 4-foot walkway on one side only). No comments explicitly supported the other alternatives for Galisteo Creek Bridge. Likewise, almost all of the comments stating a preference for the San Cristobal Arroyo Bridge favored an approach that maintains the bridge on its existing alignment.

The fourth public meeting was conducted in May 2011 to present the results of the Phase B analysis and the Project Team recommendations. The primary topics presented and discussed at this meeting included:

- Background information including the project limits and project purpose and need
- Recommendations for alternatives to be carried forward into the environmental document, including:
  - Rural build alternative (12-foot lanes, 6-foot shoulders) including southbound climbing lane at Clark Hill and minor flattening of insufficient vertical curves. Friction surfacing across full shoulder width and intermittent rumble strips to better accommodate bicyclists.
  - Community build alternative (11-foot lanes, 4-foot shoulders) with radar reader boards and optional medians at the north and south ends of Galisteo and an optional pedestrian path on the east side of the roadway from the San Cristobal Arroyo Bridge to ¼ mile north of La Vega Road.
  - Replacement of the bridges at Galisteo Creek and San Cristobal Arroyo on the existing alignment with an option to build a parallel bridge. The parallel bridge at Galisteo Creek would preserve the existing bridge in place; the existing San Cristobal Arroyo Bridge would be removed under both options.
- Next steps in the study process.

Following the presentation, the meeting was opened to questions and comments. Three completed comment forms were returned at the public meeting. Forty-four additional comments were received via email or mail. In addition, eight comments were received prior to the meeting after the email announcing the public meeting was sent. All comments received at the meeting and in writing are summarized below.

1. Roadway Alternatives

- Question about location of right-of-way.
Concerns about width of roadway through the community of Galisteo: Effects on landscaping, walls, buildings, and historic character. Do not want to see roadway widened in Galisteo.


Want medians/reader boards as close as possible to the community.

Don’t want medians, concerns they are out of scale with community.

Want to see narrow shoulders (4’) throughout the corridor or no paved shoulders.


Concerns/questions about Clark Hill: It is dangerous. Will the grades change? Don’t need climbing lane.

2. Bridge Alternatives and Issues

Mixed support for bridge replacement. Many agreed with the need for replacement, while others did not. Concerns about width of new bridges. Suggestions to narrow lanes/eliminate walkways to narrow the bridges.

Mixed support for parallel bridges. Some people liked the idea of preserving the existing Galisteo Bridge, while many others did not want two bridges. Also concerns about impacts to the river and habitat with a parallel bridge.

Questions about construction methods and maintenance of traffic.

Concerns about aesthetic design of new bridges and maintaining historic character.

Questions about load limits of new bridges.

3. Bicycle Considerations

Requests to pave the entire shoulder and not leave a “lip” between the lane and shoulder. Minimize rumble strips.

Comments to keep a minimum 4’ shoulder.

Desire for a bike lane.

4. Wildlife

Comment that the Galisteo River is a well-used wildlife corridor and provides important wildlife habitat.

Concern that widening/realigning roadway will impact wildlife populations. The widened roadway would contribute to higher speeds, more vehicle-animal collisions, and increased habitat fragmentation.

There are many unreported vehicle-animal collisions in the project area. Need a better reporting system.

5. Other

Questions about project schedule.

Request to ban trucks from NM 41.
One suggestion to build a bypass around the community.

Statement that NMDOT isn't listening and is only catering to oil/gas and trucking industry.

Comment that the project will ruin a scenic byway and a traditional community.

**NMDOT Response to Comments**

The NMDOT has considered these comments and, to the extent possible, adjusted the project design accordingly. If a comment or concern could not be incorporated into the project design, an explanation is provided.

- To keep the roads and shoulders as narrow as possible, reduce driving speed through Galisteo, and remain consistent with the historic community the proposed typical sections will have 12-ft lanes with 6-ft shoulders in the rural portions of the project area and 11-ft lanes with 4-ft paved shoulders in the community portion. Medians will be included at the north and south ends of the community as a traffic calming measure and no buildings or walls will be affected.

- A separate pedestrian path will not be included but four-foot wide walkways are provided on the San Cristobal and Galisteo bridges. Additionally, pedestrian crossings designated by colored or patterned concrete and/or pavement striping will be included in two locations within Galisteo.

- Vertical and horizontal curves will be modified as little as possible to achieve a safe roadway facility for a 55 mph-posted speed. The horizontal alignment will closely follow the existing roadway with a minor shift required for the ascension of Clark Hill. Vertical alignment changes will also be minor; less than 5 feet in most locations. One profile reduction of 8 feet is proposed at MP 47.8 and the livestock crossing at MP 47.7 will require almost 12 feet of fill.

- Bridges will be replaced as described in Chapter 2. Replacement on the existing alignment and replacement with an alternative alignment are the options being considered. With Alternative 2, the NMDOT would leave the existing Galisteo Creek Bridge in place during construction to handle traffic during the construction period. However, the NMDOT does not intend to preserve this bridge after construction is complete. This intent is based on the cost to maintain the bridge and the potential safety liability if the bridge is not properly maintained. No other entity has been identified who is willing to accept responsibility for bridge maintenance. The San Cristobal Arroyo Bridge will not be maintained either for the same reasons cited for the Galisteo Creek Bridge and its even greater potential for catastrophic failure in the future. Replacement bridges will be designed with a historically sensitive aesthetic. No load restrictions would be imposed on the replacement bridges.

- Right-of-way needs are clarified in Chapter 2. Replacing the bridges on the current alignment would require only CMEs and TCPs with no new right-of-way acquisition. Replacing the bridges with an offset alignment would require approximately 2 acres of new right-of-way as well as CMEs and TCPs.

- Shoulders will include a consistent cover of OGFC asphalt as well as narrow and intermittent rumble strips to accommodate bicycle use.

- Wildlife crossing issues were explicitly studied and addressed to extent possible in the current design. A review of crash data and field observations indicated a low incidence of vehicle/animal collisions. Regardless, some wildlife crossing benefits would result from the construction of the livestock underpass at MP 47.7. This underpass could be used by smaller mammals and other wildlife.
Constructing a bypass around the community of Galisteo is not feasible due to extreme costs and additional disturbance to environmentally pristine and culturally significant areas. Similarly, banning trucks is not feasible because the alternate routes (NM 14 and US 285) either have higher average daily traffic, would involve significantly longer routes, or involve more difficult horizontal and vertical grades. These concepts were consistently presented at the public meetings.

4.2 Agency Coordination

Coordination with stakeholder agencies conducted to date has consisted of letter and email notifications, scoping letters, telephone discussions, and one-on-one meetings. Agencies with a potential interest in the project were notified by letter during the first study phase. Agencies notified of the NM 41 study included:

- US Army Corps of Engineers
- US Forest Service
- National Park Service Rivers, Trails, and Conservation Assistance
- New Mexico State Land Office
- New Mexico Environment Department
- New Mexico Department of Game and Fish
- New Mexico Historic Preservation Division
- New Mexico Mines, Minerals, and Natural Resources Department
- New Mexico State Police
- Santa Fe County Sheriff's Department
- Santa Fe County Planning and Development
- Santa Fe County Public Works Division
- Santa Fe Public Schools
- Moriarty-Edgewood School District
- Santa Fe County Commission

A meeting was held with the New Mexico Historic Preservation Division (HPD) during the initial study. The purpose of the meeting was to inform and discuss the proposed project with HPD staff and to begin the pre-consultation process for Section 106. The issues discussed with HPD include the need for the proposed project, the initial alternatives under consideration, and future coordination and consultation needs to meet the requirements of Section 106 of the National Historic Preservation Act (NHPA) and Section 4(f) of the Department of Transportation Act of 1966. Formal consultation with HPD on eligibility of project-area resources occurred in April 2011 (see Appendix C). Consultation on effects and potential mitigation measures is underway.

Coordination consisting of telephone discussions or meetings was held with representatives of the US Army Corps of Engineers and the New Mexico Department of Game and Fish. Formal consultation and coordination with primary agency stakeholders was initiated in November of 2010. Correspondence to request scoping input and to participate in the environmental documentation phase of the project, as either a cooperating agency or a participating agency, was sent to the United States Fish & Wildlife Service, US Army Corps of Engineers, New Mexico Department of Game & Fish, and the New Mexico Environment Department. Copies of the letters are included in Appendix C.
4.3 Public Hearing

Distribution of this EA and a public hearing will be held to obtain comment on the proposed project before a final decision is made. The EA will be available to the public and local public agencies for a minimum 30-day review and comment period. When the EA is available for review, notices will be sent to the project stakeholder list, and a notice will be published in the newspaper. An electronic copy of the document will be placed on the NMDOT District 5 website and a paper copy will be provided at public locations within the project area including Santa Fe, Galisteo, and Moriarty. Paper copies or CD copies will also be provided to agency stakeholders.

The public hearing will occur no sooner than 15 days after the EA is available for review. The hearing will follow established protocols and will include an opportunity for public comment. All activities at the hearing will be recorded and a transcript of the hearing will be prepared. Comments made at the hearing and written comments received during the comment period will become part of the record. Public and agency comments will be used to make refinements to the project, as appropriate, and to reach a final decision on the proposed project. The NMDOT will assemble all comments and responses to comments in an Input Synopsis. This Input Synopsis and a request for final decision will be transmitted to the FHWA New Mexico Division Office for final determination.
CHAPTER 5.0 ENVIRONMENTAL COMMITMENTS, MITIGATION MEASURES, AND CONCLUSION

The following mitigation measures are commitments made by NMDOT and FHWA and will be implemented as stipulations and provisions included in contracts between NMDOT and the design and construction contractors.

5.1 Design Phase Commitments

1. The NMDOT Environmental Geology Bureau (EGB) will complete an Initial Site Assessment Determination (ISAD) based on the alternative selected. Any recommendations for additional investigations will be completed and resolved in final design.

2. A traffic control plan to maintain traffic during construction will be developed during project final design.

3. A Preconstruction Notification for a Clean Water Act (CWA) Nationwide Permit 14 will be submitted to the US Army Corps of Engineers (USACE) during final design. An application will also be submitted to the New Mexico Environment Department Surface Water Quality Bureau for water quality certification under Section 401 of the CWA. During final design, NMDOT will determine temporary and permanent fill amounts and surface area within the ordinary high water mark, determine impacts to wetlands and riparian habitat, and develop a wetland mitigation plan and compensatory mitigation plan in consultation with the USACE.

4. Archaeological sites LA 150613, LA 167739, LA 168909, LA 168910, LA 168912, LA 168913, and LA 168914 will be protected from construction activities.

5. Potential impacts to Section 4(f) resources will be evaluated. The impact to Section 4(f) resources and need for a Section 4(f) evaluation will be determined by the FHWA.

6. If it is determined during final design that the Official Scenic Historic Marker will be impacted by the project, the marker will be temporarily removed during construction and replaced as close to the original location as the project design will allow. This activity will occur in consultation with the Cultural Properties Review Committee as per New Mexico Administrative Code 4.10.6.

7. The aesthetic design of the bridge railings will be developed to be historically consistent with the existing bridge.

8. Pedestrian crossings designated by colored or patterned concrete and/or pavement striping are to be included at two locations within Galisteo. The location of these pedestrian crossings will be determined during final design and in collaboration with the community.

5.2 Construction Phase Commitments

9. The NMDOT Standard Specifications for Highway and Bridge Construction (2007 Edition, Sections 104, 107, and 603) include mitigation requirements for the issues listed below. These specifications are commitments that will be implemented during project design and construction.

   a. The implementation of a Storm Water Pollution Prevention Plan (SWPPP) in accordance with NPDES regulations;

   b. The requirement to stop work in the event of an environmental or cultural resource discovery and notification of NMDOT personnel;
c. The implementation of air quality and dust control abatement measures during construction;

d. The implementation of noise abatement measures for construction equipment;

e. The reporting and cleanup of any hazardous materials, such as contaminated soils or landfill waste, within the construction area; and

f. Minimization of soil disturbance and erosion control and revegetation requirements.

10. Acquisition of right-of-way will be in accordance with the policies of the NMDOT and the Uniform Relocation Assistance, the Real Property Acquisitions Act, and other applicable federal and state legislation.

11. Water quality protection features such as a combination of straw bale walls and filter fences will be placed around the portions of the Galisteo Creek and San Cristobal Arroyo wetlands that are not within the proposed construction limits. This barrier will be installed prior to any other work undertaken at this site, and all subsequent construction activities will be within the work zone delineated by the fence.

12. Upon completion of construction, the areas disturbed, but not physically occupied, by the roadbed will be seeded with certified weed-free native plant species representative of species currently in the project area.

13. Areas with class A or B noxious weeds will be treated according to District 5 practices by staff trained and certified in the appropriate herbicide. Scotch thistle, a Class A noxious weed, is located at MP 46.1 and MP 59.5 on the west side on NM 41. Tree-of-heaven, a Class B noxious weed, is located on the east side of NM 41 at MP 56.45.

14. In order to prevent the spread of noxious weeds occurring within or near the project area, the contractor shall ensure that all equipment is cleaned prior to working in the project area, after every use in areas where noxious weeds are present, and again before leaving the project area.

15. Bat boxes will be installed at Galisteo Creek and San Cristobal Arroyo.

16. The decorative mailboxes north of Via La Puente will be removed during construction and replaced after the completion of construction at the outside edge of the NMDOT right-of-way.

17. A pavement friction course (open-graded asphalt) and longitudinal rumble strips at the edge of the driving lanes are proposed for all highway segments with a posted speed of 55 mph. The friction course will extend the full width of the driving lanes and shoulders to avoid interference with bicycle travel on the shoulder. Rumble strips will be narrow (12") and intermittent to maximize the area available for bicycle travel.

18. To the extent possible, mature trees with a trunk of 12" or more in diameter will be preserved.

19. Prior to commencement of construction, photos of the project area at Galisteo Creek and San Cristobal arroyo will be taken and provided to the US Fish and wildlife Service.

20. Construction will be minimized in the riparian areas to the minimum needed to accomplish the project.

21. Clearing and grubbing will be minimized in riparian areas to the minimum needed to accomplish the project. If possible, all tree, shrub, and brush clearing within the project area will be accomplished outside of the nesting season for flycatchers and other migratory birds.
22. A biological monitor will be on site once a week during construction during the flycatcher migratory season to survey for the presence of flycatchers and nests in the right-of-way. If flycatchers or nests are located, the US Fish and Wildlife Service will be contacted immediately. If any nests will be monitored, nest monitoring will only be conducted by biologists permitted for that activity. This biological monitor will also be utilized to ensure that construction workers are aware of all sensitive area. This biological monitor may also assist in determining rehabilitation needs and standards to reduce impacts from the construction activities.

23. During flycatcher surveys (preconstruction and during construction), any nests located within the right-of-way will be recorded. If nests are located, all construction activities should avoid flycatcher nests to the extent possible.

24. Best management practices will be utilized to minimize disturbance to the flycatcher during all construction activities. If flycatchers are located within the project area these best management practices will include not starting construction activities until after 9 am each day during the flycatcher nesting season since flycatchers call earlier in the morning.

25. Best management practices will be utilized to minimize impacts to water quality in Galisteo Creek and San Cristobal Arroyo. These best management practices include use of erosion control measures (such as silt fence, compost socks, etc) placed around the construction area; no equipment will be parked in the work area overnight; equipment will be cleaned and checked for leaks prior to accessing the floodplain area; and staging areas and fuel storage for equipment will not be located within 100 feet of Galisteo Creek and San Cristobal Arroyo.

26. Post-construction restoration of impacted riparian and wetland vegetation within the project area will occur. A wetland and riparian mitigation plan will be developed and provided to the US Army Corps of Engineers with the Clean Water Act Section 404 Nationwide Permit pre-notification application.

27. Following construction, an update will be provided to the US Fish and Wildlife Service that includes total acres of habitat affected and photographs of the project areas. If flycatchers were found during surveys, this update will also include individual flycatchers or nests impacted by construction activities.

5.3 Conclusion

Analysis of the two build alternatives indicates that impacts to the natural and human environments will be minor overall with Alternative 2 having slightly greater impacts to natural resources. Both build alternatives achieve the project purpose and need by correcting geometric deficiencies with the existing roadway and structural deficiencies with the bridges at Galisteo Creek and San Cristobal Arroyo. NMDOT has identified Alternative 1 as the preferred alternative because it will have fewer impacts to natural resources and the historic district and was generally preferred by the public.

An opportunity for additional public and agency review and comment will be provided before the final decision is made and any grants by FHWA are authorized. The EA will be made available to the public and local public agencies. In addition, a public hearing will be held to present and disclose the information included in the EA and to obtain additional comments. Following the 30-day review and comment period, the NMDOT and FHWA will review and respond to all comments.
The proposed project is not expected to have significant adverse social, economic, or environmental impacts that would warrant an environmental impact statement. Unless significant impacts are identified as a result of public review or at the public hearing, a Finding of No Significant Impact (FONSI) will be prepared for the proposed action in accordance with FHWA and NMDOT procedures. The FONSI will address any concerns raised during the circulation of the EA, public hearing comment period, or coordination of the project with the appropriate agencies. The FONSI will be used as a basis for federal-aid authorization for final design, right-of-way acquisition, and construction.
APPENDICES

APPENDIX A
Statewide Transportation Improvement Program (STIP) Pages

APPENDIX B
Roadway and Bridge Condition Photos

APPENDIX C
Agency Consultation Letters and Responses

APPENDIX D
Public Involvement Meetings Advertisements and Flyers

APPENDIX E
Bibliography
APPENDIX A
Statewide Transportation Improvement Program (STIP) Pages
### Northern Pueblos RPO

**MPO/RPO:** NORTHERN PUEBLOS RPO  
**Fed/State ID:** No ID Assigned  
**NMDOT Dist.:** 5  
**County:** Santa Fe  
**Municipality:** Rural

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**Project Scope:** Roadway Reconstruction and Shoulder Widening

**Proj. Phases:**  
- _Environ. Document_  
- _Prel. Engr._  
- _Design_  
- _Right-of-way_  
- _Construction_  
- _Other_  
**FHWA Work Type Zone:** S

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### Northern Pueblos RPO

**MPO/RPO:** NORTHERN PUEBLOS RPO  
**Fed/State ID:** No ID Assigned  
**NMDOT Dist.:** 5  
**County:** Santa Fe  
**Municipality:** Rural

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**Project Scope:** Median Landscaping

**Proj. Phases:**  
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- _Prel. Engr._  
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**FHWA Work Type Zone:** S

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APPENDIX B

Roadway and Bridge Condition Photos
Figure B-1: Photos Illustrating Various Roadway Conditions within the Project Limits

Roadway typical section at Clark Hill near MP 46

Example of sharp vertical curves north of Clark Hill

Roadway typical section near MP 52

Roadway typical section near MP 58

Roadway typical section at US 285 Junction

Example of pavement cracking and general poor pavement condition
Figure B-2: Galisteo Bridge Deck Surface

Figure B-3: Galisteo Bridge Deck Underside Examples

Figure B-4: Galisteo Bridge Railing Example

Figure B-5: Galisteo Bridge Pier Example

Figure B-6: Galisteo Bridge Pier Cap Example

Note: All photos are 2009 and 2010
Figure B-7: San Cristobal Arroyo Bridge Curb and Railing Examples

Figure B-8: San Cristobal Arroyo Bridge Abutment Example

Figure B-9: San Cristobal Arroyo Bridge Pier Condition Example

Note: All photos are 2009 and 2010
APPENDIX C

Agency Consultation Letters and Responses
November 9, 2010

Ms. Lesley McWhirter
US Army Corps of Engineers
Albuquerque District, Regulatory Division
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109-3435

RE: NM 41 Alignment Study (Clark Hill to US 285) – Scoping Request and Invitation to Become a Cooperating Agency

Dear Ms. McWhirter:

The New Mexico Department of Transportation (NMDOT), in cooperation with the Federal Highway Administration (FHWA), is initiating an environmental assessment (EA) for proposed improvements to NM 41 in Santa Fe County, New Mexico. The proposed project begins at milepost 46 and extends north to the junction of NM 41 with US Highway 285 near Lamy (see attached exhibit). The proposed project includes reducing several sharp vertical curves, adding shoulders, replacing or rehabilitating the bridge over Galisteo Creek, and replacing the bridge over San Cristobal Arroyo. The project will also include traffic calming measures through the community of Galisteo and other ancillary improvements. The purpose of the project is to improve safety and to replace aging infrastructure.

The US Army Corps of Engineers has been identified as an agency that may have an interest in and jurisdictional responsibility over some aspects of the project. All of the alternatives under consideration would cross the Galisteo Creek and San Cristobal Arroyo. The improvements under consideration at these locations could impact wetlands, riparian habitat, and water quality. Other minor drainage may be affected as well, although the impacts at these locations are likely to be minor. As a starting point, we would appreciate your input on issues of concern as they pertain to this project.

In addition, we are requesting that the Army Corps of Engineers serve as a cooperating agency with FHWA and the NMDOT in the development of the EA. This request is made because the proposed project will require application for a Section 404 permit before construction can begin. We understand that your agreement to serve as a cooperating agency does not imply that your agency supports the proposal.

In accordance with Section 6002 of SAFETEA-LU, cooperating and participating agencies are responsible for identifying, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts that could substantially delay or prevent an agency from granting a permit or other approval that is needed for the project. We suggest that your agency's role in the development of the NM 41 project should include the following as they relate to your area of expertise:
Your agency’s involvement should entail those areas under its expertise and no direct writing or analysis will be necessary for the document’s preparation. The following are activities we will take to maximize interagency cooperation:

1. Invite you to coordination meetings;
2. Consult with you on any relevant technical studies that will be required;
3. Organize joint field reviews with you
4. Provide you with project information, including study results;
5. Encourage your agency to use the above documents to express your views on subjects within your jurisdiction or expertise; and
6. Include information in the project environmental documents that cooperating agencies need to discharge their NEPA responsibilities and any other requirements regarding jurisdictional approvals, permits, licenses, and/or clearances.

You have the right to expect that the EA will enable you to discharge your jurisdictional responsibilities. Likewise you have the obligation to tell us if, at any point in the process, your needs are not being met. We expect that at the end of the process the EA will satisfy your NEPA requirements including those related to project alternatives, environmental consequences and mitigation. Further, we intend to utilize the EA as our decision-making document. As the process dictates, this environmental documentation will contribute to the eventual goal of Federal-aid project authorization.

Please let us know as soon as possible if the Army Corps of Engineers agrees to serve as a cooperating agency. Your written response by November 19, 2010 would be appreciated. If your agency declines this invitation, we would appreciate the reason for your decision.

A representative of the NMDOT Project Team will contact you in the next week to answer any questions you may have about the proposed project. In the interim, if you have questions about the project, please contact me at (505) 820-2027 or anyone of the following project representatives:

- Jeff Fredine, Acting Manager, Human and Natural Resources Bureau, (505) 827-5681 or Jeffrey.Fredine@state.nm.us;
- Christina Kelso, Environmental Scientist, (505) 827-1873 or Christina.kelso@state.nm.us;
- David Pennington, D. Pennington & Associates, (505) 884-0667, dave@dpenningtonassociates.com

Sincerely,

[Signature]

Gregory L. Heitmann
Environmental Specialist

For: J. Don Martinez
Division Administrator

Enclosure

cc: Mr. Jeff Fredine, NMDOT Environmental Services Division
Ms. Christina Kelso, NMDOT Environmental Services Division
Mr. David Quintana, P.E., NMDOT Project Manager
Mr. David Pennington, D. Pennington & Associates
DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 Jefferson Plaza NE
Albuquerque, NM 87109-3435
505-342-3284
FAX 505-342-3498

November 17, 2010

REPLY TO
ATTENTION OF:

Regulatory Division
New Mexico/Texas Branch

SUBJECT: Action No. SPA-2010-00480-ABQ; FHWA/NMDOT, NM 41 Alignment Study, Santa Fe County, NM

Mr. Gregory Heitmann
Federal Highway Administration
New Mexico Division
4001 Office Court St., Ste 801
Santa Fe, New Mexico 87507-4902

Dear Mr. Heitmann:

This is in response to your letter dated November 9, 2010, requesting the U.S. Army Corps of Engineers' (Corps) participation as a cooperating agency in the preparation of an Environmental Assessment (EA) for the Federal Highway Administration (FHWA) and New Mexico Dept. of Transportation's (NMDOT) proposed NM 41 Alignment Study from Mile Post 46 to US Highway 285, near Galisteo, Santa Fe County, New Mexico. Potential waters of the United States that may be affected by the project include Galisteo Creek, its tributaries and adjacent wetlands. We have assigned Action No. SPA-2010-00480-ABQ to this activity. Please include this number in all future correspondence concerning this project.

In response to your request, the Corps agrees to be a cooperating agency in the preparation of this EA. Our participation will satisfy the procedural and statutory requirements of the Corps (33 CFR 325, App. B and Sec. 230.16) and allow our review for adoption of the document in accordance with 40 CFR 1506.3 for a permit decision under Section 404 of the Clean Water Act. Our participation will include providing available information, coordination, review, and meeting attendance as scheduling allows. The Corps will not contribute funds to the EA preparation other than our participation.
The Corps' area of expertise or jurisdiction by law is generally flood control, navigation, hydropower, and regulatory responsibilities under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. We will provide comments on the draft EA within our areas of expertise or jurisdiction.

As a cooperating agency, we expect to receive invitations to meetings and field reviews, to be consulted on technical studies, to be provided study results and draft documents, and to have our comments appropriately included in the EA. When design specifics are available and upon request, we will review the project for Section 404 permit requirements. The FHWA and NMDOT must also obtain certification that the project complies with the State of New Mexico and/or tribal water quality standards prior to our permit issuance.

We encourage the FHWA and NMDOT to coordinate with the Corps during production of the EA regarding preliminary investigations pertinent to jurisdictional waters potentially impacted by the NM 41 Alignment Study project. Concurrent with preparation of the EA, an alternatives analysis should be conducted in accordance with the 404(b)(1) Guidelines (40 CFR Part 230), which are the substantive criteria for discharges of dredged or fill material into waters of the United States. The (b)(1) Guidelines state that "...no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. ... An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. ..."

Our contact for this action is Mr. William Oberle at the Albuquerque District Office, 505-342-3284, e-mail: william.m.oberle@usace.army.mil.

Sincerely,

Lesley McWhirter
Chief, NM/TX Branch
Copies furnished:

Mr. Jeffrey Fredine  
Human and Natural Resources Bureau  
NM Dept. of Transportation  
PO Box 1149  
Santa Fe, NM 87504-1149

Ms. Christina Kelso  
Human and Natural Resources Bureau  
NM Dept. of Transportation  
PO Box 1149  
Santa Fe, NM 87504-1149

Mr. Neal Schaeffer  
New Mexico Environment Department  
Surface Water Quality Bureau  
PO Box 5469  
Santa Fe, NM 87502-5469
November 9, 2010

Mr. Matt Wunder
New Mexico Department of Game and Fish
Conservation Services Division
PO Box 25112
Santa Fe, New Mexico 87504

RE: NM 41 Alignment Study (Clark Hill to US 285) – Scoping Request and Invitation to Become a Participating Agency

Dear Mr. Wunder:

The New Mexico Department of Transportation (NMDOT), in cooperation with the Federal Highway Administration (FHWA), is initiating an environmental assessment (EA) for proposed improvements to NM 41 in Santa Fe County, New Mexico. The proposed project begins at milepost 46 and extends north to the junction of NM 41 with US Highway 285 near Lamy (see attached exhibit). The proposed project includes reducing several sharp vertical curves, adding shoulders, replacing or rehabilitating the bridge over Galisteo Creek, and replacing the bridge over San Cristobal Arroyo. The project will also include traffic calming measures through the community of Galisteo and other ancillary improvements. The purpose of the project is to improve safety and to replace aging infrastructure.

The New Mexico Game and Fish Department has been identified as an agency that may have an interest in and jurisdictional responsibility over some aspects of the project. All of the alternatives under consideration would cross the Galisteo Creek and San Cristobal Arroyo. The improvements under consideration at these locations could impact habitat used by federal and state threatened and endangered species. Habitat used by wildlife may also be affected in other parts of the project corridor. As a starting point, we would appreciate your input on issues of concern to your agency as they pertain to this project.

In addition, we are requesting that the Game and Fish Department serve as a participating agency with FHWA and the NMDOT in the development of the EA. This request is made because of the potential impacts the proposed project could have on threatened and endangered species and any consultation that may be needed for compliance with the Endangered Species Act. We understand that your agreement to serve as a participating agency does not imply that your agency supports the proposal.

In accordance with Section 6002 of SAFETEA-LU, cooperating and participating agencies are responsible for identifying, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts that could substantially delay or prevent an agency from granting a permit or other approval that is needed for the project.
We suggest that your agency's role in the development of the NM 41 project should include the following as they relate to your area of expertise:

1. Provide input on the project purpose and need, the range of alternatives to be considered, and the methodologies and level of detail required in the alternatives analysis.
2. Participate in coordination meetings and field reviews, as appropriate.
3. Provide timely review and comment on the pre-draft environmental document to reflect the views and concerns of your agency regarding the adequacy of the document, alternatives considered, and the anticipated impacts and mitigation.

Please let us know as soon as possible if the Game and Fish Department agrees to serve as a participating agency. Your written response by November 19, 2010, would be appreciated. If your agency declines this invitation, we would appreciate the reason for your decision.

A representative of the NMDOT Project Team will contact you in the next week to answer any questions you may have about the proposed project. In the interim, if you have questions about the project, please contact me at (505) 820-2027 or anyone of the following project representatives:

- Jeff Fredine, Acting Manager, Human and Natural Resources Bureau, (505) 827-5681 or Jeffrey.Fredine@state.nm.us;
- Christina Kelso, Environmental Scientist, (505) 827-1873 or Christina.kelso@state.nm.us;
- David Pennington, D. Pennington & Associates, (505) 884-0667, dave@dpenningtonassociates.com

Sincerely,

[Signature]

Gregory L. Heitmann
Environmental Specialist

For: J. Don Martinez
Division Administrator

Enclosure

cc:
Mr. Jeff Fredine, NMDOT Environmental Services Division
Ms. Christina Kelso, NMDOT Environmental Services Division
Mr. David Quintana, P.E., NMDOT Project Manager
Mr. David Pennington, D. Pennington & Associates
29 November 2010

US Department of Transportation New Mexico Division
Gregory Heitmann
4001 Office Court Dr., Ste 801
Santa Fe NM 87507

Re: NM 41 Alignment Study; NMDGF No. 13862

Dear Mr. Heitmann;

The New Mexico Department of Game and Fish (Department) has reviewed your letter of November 9, 2010, for the above-referenced project. Since the bridge planned for reconstruction spans the Galisteo Creek, we provide you with the Department’s Bridge and Road Reconstruction Guidelines for Wetland and Riparian Areas. These guidelines should assist in minimizing impacts to Galisteo Creek, and are likely similar to standard best management practices for these types of construction activities.

The Department also recommends that occurrence of bats under the bridge be assessed and work be scheduled to avoid impacting bats that may roost there (i.e., conduct work in winter months). If feasible, we recommend bat boxes be constructed beneath the bridge to increase bat populations. These animals provide an important ecological benefit to humans in relation to insect control.

For your additional information, we have enclosed a copy of New Mexican Wildlife of Concern for Santa Fe County (Biota Information System of New Mexico, BISON-M, New Mexico Dept. of Game and Fish electronic database). Species accounts and habitat associations can be accessed from the BISON-M database via the World-wide Web at http://www.bison-m.org.
Thank you for the opportunity to review and comment on your project. If you have any questions, please contact Brandon Griffith, Northwest Area Office Depredation Specialist at (505) 22-4721 or brandon.griffith@state.nm.us.

Sincerely,

[Signature]

Matt Wunder, PhD
Chief, Conservation Services Division

MW/bwg

xc:  Wally Murphy, Ecological Services Field Supervisor, USFWS
     Brian Gleadle, NW Area Operations Chief, NMDGF
NEW MEXICO WILDLIFE OF CONCERN
SANTA FE COUNTY

For complete up-dated information on federal-listed species, including plants, see the US Fish & Wildlife Service NM Ecological Services Field Office website at http://www.fws.gov/tfw2es/NewMexico/SBC.cfm. For Information on state-listed plants, contact the NM Energy, Minerals and Natural Resources Department, Division of Forestry, or go to http://nmrareplants.unm.edu/. If your project is on Bureau of Land Management, contact the local BLM Field Office for Information on species of particular concern. If your project is on a National Forest, contact the Forest Supervisor's office for species information.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>NMGF</th>
<th>US FWS</th>
<th>critical habitat</th>
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<tr>
<td>Rio Grande Chub</td>
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<td>Bald Eagle</td>
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<td>Northern Goshawk</td>
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<td>White-tailed Ptarmigan</td>
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<td>Socorro Mountainsnail</td>
<td>Oreohelix neomexicana</td>
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November 9, 2010

Ms. Georgia Cleverley
New Mexico Environment Department
Office of the Secretary
Harold Runnels Building
1190 St. Francis Drive
Santa Fe, New Mexico 87505

RE: NM 41 Alignment Study (Clark Hill to US 285) – Scoping Request and Invitation to Become a Participating Agency

Dear Ms. Cleverley:

The New Mexico Department of Transportation (NMDOT), in cooperation with the Federal Highway Administration (FHWA), is initiating an environmental assessment (EA) for proposed improvements to NM 41 in Santa Fe County, New Mexico. The proposed project begins at milepost 46 and extends north to the junction of NM 41 with US Highway 285 near Lamy (see attached exhibit). The proposed project includes reducing several sharp vertical curves, adding shoulders, replacing or rehabilitating the bridge over Galisteo Creek, and replacing the bridge over San Cristobal Arroyo. The project will also include traffic calming measures through the community of Galisteo and other ancillary improvements. The purpose of the project is to improve safety and to replace aging infrastructure.

The New Mexico Environment Department has been identified as an agency that may have an interest in and jurisdictional responsibility over some aspects of the project. All of the alternatives under consideration would cross the Galisteo Creek and San Cristobal Arroyo. The improvements under consideration at these locations could impact wetlands, riparian habitat, and water quality. Other minor drainage may be affected as well, although the impacts at these locations are likely to be minor. As a starting point, we would appreciate your input on issues of concern as they pertain to this project.

In addition, we are requesting that the NMED serve as a participating agency with FHWA and the NMDOT in the development of the EA. This request is made because the proposed project will require Section 401 Water Quality Certification. As a related matter, the application for a Section 404 permit through the US Army Corps of Engineers will occur before construction can begin. We understand that your agreement to serve as a participating agency does not imply that your agency supports the proposal.

In accordance with Section 6002 of SAFETEA-LU, cooperating and participating agencies are responsible for identifying, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts that could substantially delay or prevent an agency from granting a permit or other
approval that is needed for the project. We suggest that your agency’s role in the development of the NM 41 project should include the following as they relate to your area of expertise:

1. Provide input on the project purpose and need, the range of alternatives to be considered, and the methodologies and level of detail required in the alternatives analysis.
2. Participate in coordination meetings and field reviews, as appropriate.
3. Provide timely review and comment on the pre-draft environmental document to reflect the views and concerns of your agency regarding the adequacy of the document, alternatives considered, and the anticipated impacts and mitigation.

Please let us know as soon as possible if the NMED agrees to serve as a participating agency. Your written response by November 19, 2010 would be appreciated. If your agency declines this invitation, we would appreciate the reason for your decision.

A representative of the NMDOT Project Team will contact you in the next week to answer any questions you may have about the proposed project. In the interim, if you have questions about the project, please contact me at (505) 820-2027 or anyone of the following project representatives:

- Jeff Fredine, Acting Manager, Human and Natural Resources Bureau, (505) 827-5681 or Jeffrey.Fredine@state.nm.us;
- Christina Kelso, Environmental Scientist, (505) 827-1873 or Christina.kelso@state.nm.us;
- David Pennington, D. Pennington & Associates, (505) 884-0667, dave@dpenningtonassociates.com

Sincerely,

[Signature]

Gregory L. Heitmann
Environmental Specialist

For: J. Don Martinez
Division Administrator

Enclosure

cc:
Mr. Jeff Fredine, NMDOT Environmental Services Division
Ms. Christina Kelso, NMDOT Environmental Services Division
Mr. David Quintana, P.E., NMDOT Project Manager
Mr. David Pennington, D. Pennington & Associates
December 20, 2010

Gregory L. Heitmann
4001 Office Court Dr., Ste 801
Santa Fe, NM 87507

RE: NM 41 Alignment Study (Clark Hill to US 285) - Scoping Request and Invitation to become a Participating Agency. (NMED File Number: 3346 ER)

Dear Mr. Heitmann:

Your letter regarding the above named project was received in the New Mexico Environment Department (NMED) and was sent to various Bureaus for review and comment. Comments were provided by the Surface Water Quality Bureau and Air Quality Bureau and are as follows.

Surface Water Quality Bureau
Surface Water Quality Bureau (SWQB) has reviewed the above referenced document. SWQB has no comments to make at this time.

Air Quality Bureau
The New Mexico Environment Department-Air Quality Bureau has evaluated the scoping document you have submitted with respect to the proposed road construction along NM 41 from US 285 to Clark Hill, Santa Fe County. The Air Quality Bureau would like to be a participating agency as you proceed with the planning for this project.

I apologize for the delay in responding to you and hope this information is helpful.

Sincerely,

Julie Roybal for
Georgia Cleverley
NMED File #3346
November 9, 2010

Mr. Wally Murphy  
U.S. Fish & Wildlife Service  
New Mexico Ecological Services Field Office  
2105 Osuna Road  
Albuquerque, New Mexico 87113

RE: NM 41 Alignment Study (Clark Hill to US 285) – Scoping Request and Invitation to Become a Participating Agency

Dear Mr. Murphy:

The New Mexico Department of Transportation (NMDOT), in cooperation with the Federal Highway Administration (FHWA), is initiating an environmental assessment (EA) for proposed improvements to NM 41 in Santa Fe County, New Mexico. The proposed project begins at milepost 46 and extends north to the junction of NM 41 with US Highway 285 near Lamy (see attached exhibit). The proposed project includes reducing several sharp vertical curves, adding shoulders, replacing or rehabilitating the bridge over Galisteo Creek, and replacing the bridge over San Cristobal Arroyo. The project will also include traffic calming measures through the community of Galisteo and other ancillary improvements. The purpose of the project is to improve safety and to replace aging infrastructure.

The U.S. Fish & Wildlife Service has been identified as an agency that may have an interest in and jurisdictional responsibility over some aspects of the project. All of the alternatives under consideration would cross the Galisteo Creek and San Cristobal Arroyo. The improvements under consideration at these locations could impact habitat used by threatened or endangered species. As a starting point, we would appreciate your input on issues of concern to the FWS as they pertain to this project.

In addition, we are requesting that the Fish & Wildlife Service serve as a participating agency with FHWA and the NMDOT in the development of the EA. This request is made because of the potential impacts the proposed project could have on threatened and endangered species and any consultation that may be needed for compliance with the Endangered Species Act. We understand that your agreement to serve as a participating agency does not imply that your agency supports the proposal.

In accordance with Section 6002 of SAFETEA-LU, cooperating and participating agencies are responsible for identifying, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts that could substantially delay or prevent an agency from granting a permit or other approval that is needed for the project. We suggest that your agency’s role in the development of the NM 41 project should include the following as they relate to your area of expertise:
1. Provide input on the project purpose and need, the range of alternatives to be considered, and the methodologies and level of detail required in the alternatives analysis.

2. Participate in coordination meetings and field reviews, as appropriate.

3. Provide timely review and comment on the pre-draft environmental document to reflect the views and concerns of your agency regarding the adequacy of the document, alternatives considered, and the anticipated impacts and mitigation.

Please let us know as soon as possible if the Fish & Wildlife Service agrees to serve as a participating agency. Your written response by November 19, 2010 would be appreciated. If your agency declines this invitation, we would appreciate the reason for your decision.

A representative of the NMDOT Project Team will contact you in the next week to answer any questions you may have about the proposed project. In the interim, if you have questions about the project, please contact me at (505) 820-2027 or anyone of the following project representatives:

- Jeff Fredine, Acting Manager, Human and Natural Resources Bureau, (505) 827-5681 or Jeffrey.Fredine@state.nm.us;
- Christina Kelso, Environmental Scientist, (505) 827-1873 or Christina.kelso@state.nm.us;
- David Pennington, D. Pennington & Associates, (505) 884-0667, dave@dpenningtonassociates.com

Sincerely,

[Signature]

Gregory L. Heitmann
Environmental Specialist

For: J. Don Martinez
Division Administrator

Enclosure

cc:
Mr. Jeff Fredine, NMDOT Environmental Services Division
Mr. Christina Kelso, NMDOT Environmental Services Division
Mr. David Quintana, P.E., NMDOT Project Manager
Mr. David Pennington, D. Pennington & Associates
Thank you for your recent request for information on threatened or endangered species or important wildlife habitats that may occur in your project area. The New Mexico Ecological Services Field Office has posted lists of the endangered, threatened, proposed, candidate and species of concern occurring in all New Mexico Counties on the Internet. Please refer to the following web page for species information in the county where your project occurs: http://www.fws.gov/southwest/es/NewMexico/SBC_intro.cfm. If you do not have access to the Internet or have difficulty obtaining a list, please contact our office and we will mail or fax you a list as soon as possible.

After opening the web page, find New Mexico Listed and Sensitive Species Lists on the main page and click on the county of interest. Your project area may not necessarily include all or any of these species. This information should assist you in determining which species may or may not occur within your project area.

Under the Endangered Species Act of 1973, as amended (Act), it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with us further. Similarly, it is their responsibility to determine if a proposed action has no effect to endangered, threatened, or proposed species, or designated critical habitat. On December 16, 2008, we published a final rule concerning clarifications to section 7 consultations under the Act (73 FR 76272). One of the clarifications is that section 7 consultation is not required in those instances when the direct and indirect effects of an action pose no effect to listed species or critical habitat. As a result, we do not provide concurrence with project proponent’s “no effect” determinations.

If your action area has suitable habitat for any of these species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts. Please keep in mind that the scope of federally listed species compliance also includes any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect or cumulative effects.
Candidates and species of concern have no legal protection under the Act and are included on the
web site for planning purposes only. We monitor the status of these species. If significant
decreases are detected, these species could potentially be listed as endangered or threatened.
Therefore, actions that may contribute to their decline should be avoided. We recommend that
candidates and species of concern be included in your surveys.

Also on the web site, we have included additional wildlife-related information that should be
considered if your project is a specific type. These include communication towers, power line
safety for raptors, road and highway improvements and/or construction, spring developments and
livestock watering facilities, wastewater facilities, and trenching operations.

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the
destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their
natural and beneficial values. We recommend you contact the U.S. Army Corps of Engineers for
permitting requirements under section 404 of the Clean Water Act if your proposed action could
impact floodplains or wetlands. These habitats should be conserved through avoidance, or
mitigated to ensure no net loss of wetlands function and value.

The Migratory Bird Treaty Act (MBTA) prohibits the taking of migratory birds, nests, and eggs,
except as permitted by the U.S. Fish and Wildlife Service. To minimize the likelihood of
adverse impacts to all birds protected under the MBTA, we recommend construction activities
occur outside the general migratory bird nesting season of March through August, or that areas
proposed for construction during the nesting season be surveyed, and when occupied, avoided
until nesting is complete.

We suggest you contact the New Mexico Department of Game and Fish, and the New Mexico
Energy, Minerals, and Natural Resources Department, Forestry Division for information
regarding fish, wildlife, and plants of State concern.

Thank you for your concern for endangered and threatened species and New Mexico’s wildlife
habitats. We appreciate your efforts to identify and avoid impacts to listed and sensitive species
in your project area.

Sincerely,

Wally Murphy
Field Supervisor
April 4, 2011

Gregory Heitmann  R. Blake Roxlau
FHWA Environmental Specialist NMDOT Cultural Resources Bureau Manager
New Mexico Division 604 West San Mateo
4001 Office Court Drive, Ste. 801 Santa Fe, NM  87505
Santa Fe, NM  87507

Re: NM 41 Improvements between Clark Hill and US 285 in the Village of Galisteo

Dear Mr. Heitmann and Mr. Roxlau:

I am writing in response to the above referenced project and request for comment on the alternatives for the project and comments on the determinations of eligibility. We received this project for review on February 28, 2011 and thank you for allowing us additional to provide comment.

Eligibility
As your letter summarizes, the cultural resource inventory identified eight historic buildings adjacent to NM 41 within the village of Galisteo, two historic bridges and a segment of NM 41. Six of the buildings are contributing to the historic district and are eligible for individual listing in the National Register of Historic Places (NRHP). Two buildings, (#31 and #85) are non-contributing to the historic district. Building #31 is not eligible for individual listing but building #85 is undetermined. The Galisteo Creek Bridge and the San Cristobal Bridges are individually eligible for listing in the NRHP and the Galisteo Bridge is also contributing to the historic district. The segment of NM 41 is of undetermined eligibility for listing. The SHPO concurs with these determinations of eligibility.

In addition, fourteen archaeological sites were identified. Of the fourteen sites, eleven are of undetermined eligibility or are eligible for listing and LA 168912, LA 168917 and LA 149345 are not eligible for listing. The SHPO concurs with the eligibility as proposed except for LA 168912. Although we agree that the portion of the site within the NM 41 roadbed no longer has integrity, the site form states that the “site likely extends west of NM 41 ROW fence”. Since we cannot be certain that the site does not extend beyond the right-of-way, this site should be considered undetermined for its eligibility to be listed in the National Register.
Alternatives
Your letter requests comments on the proposed alternatives. As presented, it is hard to visualize the proposed improvements and we request that a map or maps be provided showing each of the different categories and where the proposed improvements will be constructed. In addition, it appears that there are no alternatives presented for the Rural Segments (1 a-d) and the Transition Zones (2ai-iii). Below are more specific comments by category.

1. Rural Segments.
   a. The general proposed typical section is two 12 foot lanes with 6 foot shoulders except Clark Hill. The Clark Hill typical section has three proposed areas with additional slow traffic lane. Where are these areas located and what will this section look like in plan view?
   b. Crest and sag sections from MP 47 to 48 will be smoothed out. Please show this section on a map. In addition, does this mean that there will be cuts? If so how much and what does it look like in plan?
   c. Please show the locations of the drainage improvements and the underground livestock crossing.
   d. Please show the locations of the areas proposed for weathered steel guardrail.

2. Community Subarea and Transition Zones:
   a. Transition Zones:
      i. Please show these transition areas on a map.
      ii. What does it mean to “match the bridge width”? How wide will it be and what will the section look like in plan?
      iii. Please show the locations of the proposed medians and roundabouts and provide an example of what these will look like.
   b. Community Core:
      i. Please show the community core area on a map.
      ii. Community Core Alternative 1 includes an optional 10 foot wide multi-use trail on the south side of the road. Please show the proposed location of the trail, the proposed pedestrian crossings and proposed medians.
      iii. Community Core Alternative 2 is different from Alternative 1 in that a 2 foot concrete shoulder is proposed instead of a 4 foot paved shoulder. Please provide a cross-section of these alternatives.

3. Bridge Alternatives:
   a. Galisteo Creek Bridge:
      i. Rehabilitation Alternative. The SHPO prefers this alternative. However, we will need additional information on the proposed replacement of the bridge deck and railings and the repair of the girders, abutments, piers and foundation. We consider the character defining features to be the railings, posts, railing supports including outriggers, builder’s plate, WPA markings, visible girders, abutments and piers. In addition, the new railing should be very similar in design to what is present on the bridge currently and not “attempt” to be consistent with bridges from the 1930s (it should succeed at being similar in design to the existing features).
ii. **Reconstruction Alternative.** We have the same comments regarding this alternative as above. If this alternative is chosen, the new bridge deck and railing should be very similar in design to the current bridge.

iii. **Parallel Bridge Alternative.** We have no comments.

b. **San Cristobal Arroyo Bridge**
   
i. **Rehabilitation.** No Comment
   
ii. **Reconstruction Alternative.** The SHPO prefers this alternative and the same comments made above for the Galisteo Creek Bridge apply. The new bridge deck and railing should be very similar in design to the current bridge.
   
iii. **Parallel Bridge Alternative.** We have no comments

It is our understanding that you will be sending a letter with recommendations of effect following the determinations of eligibility and a final selection of an alternative. To assist us in evaluating and commenting on the alternatives for the Community Subarea and Transition Zones, please provide a map showing the locations of the categories, the location of the proposed improvements and the cross-sections. We will need the same information for the other categories in order to evaluate effects. Lastly, it was our understanding that a corridor study would be provided that would assist FHWA and NMDOT in understanding the qualities of NM 41 and the transportation issues. Has this study been conducted or will there be a different study that looks at the rural landscape?

Please do not hesitate to contact Michelle Ensey or Harvey Kaplan if you have any questions on these comments. Michelle Ensey can be reached by telephone at (505) 827-4064 or by email at michelle.ensey@state.nm.us and Harvey Kaplan can be reached at (505) 827-3971 or by email at harvey.kaplan@state.nm.us.

Sincerely,

Michelle M. Ensey
Archaeologist

Harvey Kaplan
Architectural Review Staff

Log: 91551
Ms. Debra Hill  
U.S. Fish and Wildlife Service  
New Mexico Ecological Services Field Office  
2105 Osuna Road NE  
Albuquerque, NM 87113-1001

RE: NM 41 Bridge Replacements at Galisteo Creek and San Cristobal Arroyo,  
NMDOT CN U500010

Dear Ms. Hill:

The New Mexico Department of Transportation (NMDOT), in cooperation with the Federal Highway Administration (FHWA), is proposing improvements to the NM 41 corridor between mileposts 46.1 and 62.1 in Santa Fe County, New Mexico. An Environmental Assessment is being prepared for the project. The preferred alternative is the proposed replacement of two bridges on their same alignment over Galisteo Creek (a perennial drainage) and San Cristobal Arroyo (an intermittent drainage) in Galisteo, New Mexico. These bridges have outlived their design life and are in poor physical condition. The purpose of the project is to provide bridges that comply with current safety standards. This letter follows a telephone discussion with Christina Kelso, NMDOT Environmental Bureau staff, and you concerning the project.

Suitable habitat for the southwestern willow flycatcher occurs at Galisteo Creek, consisting primarily of cottonwoods and willows, and to a lesser degree at San Cristobal Arroyo, consisting primarily of salt cedar. Protocol surveys were performed in 2008, 2009, and 2010. One willow flycatcher was documented at Galisteo Creek during protocol surveys in the spring of 2010. It was present only during the first of the protocol surveys and is believed to be a migrant. Since it did not return or nest, we were unable to ascertain if it was the southwestern willow flycatcher. The bridge replacement work will be tightly contained around the existing bridges and will require the temporary clearing of adjacent riparian vegetation immediately next to the bridge. The construction of the new bridges is not anticipated to permanently remove any suitable migration habitat, but the construction will temporarily disturb habitat as construction will take approximately one year to complete and will occur during the summer migration and breeding season. After the project, we will be replanting to match the community type and composition that currently exists at the site. Project activities will temporarily affect migration habitat, but is unlikely to adversely affect the southwestern willow flycatcher. The biological report listed a “may affect, not likely to adversely affect” the southwestern willow flycatcher due to this impact to potential habitat.
The project is anticipated to be constructed over the 2013 to 2014 timeframe. The NMDOT will perform a full protocol survey for the southwestern willow flycatcher at the Galisteo Creek and San Cristobal Arroyo project areas in 2012. A full protocol survey will be performed also in 2013 if the construction start date is scheduled after September 2013.

The following recommendations will be implemented to minimize impacts to the southwestern willow flycatcher (flycatcher) and their habitat during construction of the proposed project:

1. Prior to commencement of construction, photos of the project area at Galisteo Creek and San Cristobal arroyo will be taken and provided to the US Fish and Wildlife Service.

2. Construction will be minimized in the riparian areas to the minimum needed to accomplish the project.

3. Clearing and grubbing will be minimized in riparian areas to the minimum needed to accomplish the project. If possible, all tree, shrub, and brush clearing within the project area will be accomplished outside of the nesting season for flycatchers and other migratory birds.

4. A biological monitor will be on site once a week during construction during the flycatcher migratory season to survey for the presence of flycatchers and nests in the right-of-way. If flycatchers or nests are located, the US Fish and Wildlife Service will be contacted immediately. This biological monitor will also be utilized to ensure that construction workers are aware of all sensitive areas. This biological monitor may also assist in determining rehabilitation needs and standards to reduce impacts from the construction activities.

5. During flycatcher surveys (preconstruction and during construction), any nests located within the right-of-way will be recorded. If nests are located, all construction activities should avoid flycatcher nests to the extent possible.

6. Best management practices will be utilized to minimize disturbance to the flycatcher during all construction activities. If flycatchers are located within the project area these best management practices will include not starting construction activities until after 9 am each day during the flycatcher nesting season since flycatchers call earlier in the morning.

7. Best management practices will be utilized to minimize impacts to water quality in Galisteo Creek and San Cristobal Arroyo. These best management practices include use of erosion control measures (such as silt fence, compost socks, etc) placed around the construction area; no equipment will be parked in the work area overnight; equipment will be cleaned and checked for leaks prior to accessing the floodplain area; and staging areas and fuel storage for equipment will not be located within 100 feet of Galisteo Creek and San Cristobal Arroyo.
8. Post-construction restoration of impacted riparian and wetland vegetation within the project area will occur. A wetland and riparian mitigation plan will be developed and provided to the US Army Corps of Engineers with the Clean Water Act Section 404 Nationwide Permit pre-notification application.

9. Following construction, an update will be provided to the US Fish and Wildlife Service that includes total acres of habitat affected and photographs of the project areas. If flycatchers were found during surveys, this update will also include individual flycatchers or nests impacted by construction activities.

Attached please find the completed Biological Assessment for your review and comment. We request your evaluation of effects resulting from the proposed project, and would also appreciate any information on resources near the project area. Please contact Greg Heitmann, FHWA Environmental Specialist at (505) 820-2027, email at Greg.Heitmann@dot.gov, contact Christina Kelso at the NMDOT Environmental Bureau at (505) 827-1873, email at Christina.Kelso@state.nm.us, if you have any questions or concerns.

Sincerely yours,

Gregory L. Heitmann
Environmental Specialist

For: J. Don Martinez
Division Administrator

Enclosure
March 14, 2012

Cons. #02ENNM00-2012-I-0041

Gregory L. Heitmann
Federal Highway Administration
New Mexico Division
4001 Office Court Drive, Suite 801
Santa Fe, NM 87507

Dear Mr. Heitmann:

Thank you for your letter dated February 9, 2012 and biological assessment regarding ESA consultation on the New Mexico 41 (NM 41) Bridge Replacements at Galisteo Creek and San Cristobal Arroyo (bridge replacements). You requested consultation for the proposed bridge replacements under Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1534 et seq.). Implementation of this project and its accompanying conservation measures will be undertaken by the New Mexico Department of Transportation (NMDOT) in coordination with the Federal Highway Administration (FHWA). The FHWA is the Federal action agency for section 7 consultation on the proposed project. The project consists of NM 41 improvements such as widening shoulders, improving roadway geometry in areas that provide poor sight distance to travelers, reconstructing deficient bridges, improving drainage, and replacing right-of-way fencing. Construction of the bridge replacements has the potential to affect the southwestern willow flycatcher (Empidonax traillii extimus) (flycatcher). The project is anticipated to be constructed over the 2013 to 2014 timeframe.

The proposed project and conservation measures to be undertaken are described in the "Biological Assessment of Proposed Improvements to NM 41 from MP 46.1 to MP 62.1" dated December 2011, the biological assessment cover letter dated February 9, 2011, and in subsequent electronic correspondence from NMDOT staff dated February 27, 2012. The information contained in these documents is incorporated by reference and will not be repeated here except to the extent needed to support our conclusion.

The New Mexico Ecological Services Field Office (Service) concurs with the FHWA's determination for the proposed bridge replacements of “may affect, not likely to adversely affect” the flycatcher because effects are insignificant and discountable. Our concurrence is based on the following understanding of the proposed project:
Habitat Considerations

- Galisteo Creek is a perennial drainage and San Cristobal Arroyo is an intermittent drainage. Habitat at the Galisteo Creek site is primarily willows and cottonwoods, and is primarily salt cedar at the San Cristobal Arroyo site.
- Before, during and after construction, photos of the project area at Galisteo Creek and San Cristobal arroyo will be taken and provided to the Service.
- Any habitat lost will be restored to match the community type and composition currently existing at the site.
- A wetland and riparian mitigation plan will be developed and provided to the US Army Corps of Engineers with the Clean Water Act Section 404 Nationwide Permit pre-notification application.
- Long-term effects of the project are expected to result in improved habitat for flycatchers.

Flycatcher Monitoring

- Flycatcher protocol surveys were performed in 2008, 2009, and 2010. In spring of 2010, one migrant was detected but it was not verified as a Southwestern willow flycatcher. No territorial or breeding birds have been detected.
- NMDOT will perform a full protocol survey for the flycatcher at the Galisteo Creek and San Cristobal Arroyo project areas in 2012. A full protocol survey will be performed also in 2013 if the construction start date is scheduled after September 2013.
- If construction must occur during the migratory season, a biological monitor will be on site once a week to survey for the presence of flycatchers and nests in the action area. If breeding flycatchers or nests are located, the Service will be contacted immediately.
- If any nests will be monitored, nest monitoring will only be conducted by biologists permitted for that activity.
- The biological monitor will ensure that construction workers are aware of all biologically sensitive areas. The biological monitor may also assist in determining rehabilitation needs and standards to minimize effects of construction activities.
- After completion of the project, all habitat and flycatcher information and coordination conducted with the Service, including efforts to avoid impacts to any breeding birds and nests, will be included in a report.

Project Implementation Considerations

- If feasible, construction and all tree, shrub, and brush clearing will be accomplished in the non-breeding season.
- Proposed bridge replacements will occur on the existing alignment.
- Construction will be minimized in riparian areas. However, vegetation immediately adjacent to the bridges will need to be cleared and later replanted.
- Construction workers will be made aware of all biologically-sensitive areas.
- If breeding flycatchers are detected, coordination with the Service will be undertaken immediately.
- Additional best management practices will be utilized to minimize impacts to water quality in Galisteo Creek and San Cristobal Arroyo. These best management practices include use of erosion control measures (such as silt fence, compost socks, etc) placed around the construction area; no equipment will be parked in the work area overnight;
equipment will be cleaned and checked for leaks prior to accessing the floodplain area, and staging areas and fuel storage for equipment will not be located within 100 feet of Galisteo Creek and San Cristobal Arroyo.

Short term effects to flycatcher habitat are anticipated; however, no long-term effects are expected since the habitat will be restored. While a single migrant may have been detected in 2010, it was not a confirmed Southwestern willow flycatcher. Surveys will be conducted and the Service will be contacted immediately if flycatchers are detected. Potential effects of the project on flycatcher are discountable because it is unlikely that flycatchers will be present; however, if flycatchers do utilize the locations, effects are anticipated to be insignificant because measures are in place to avoid impacts to territories and breeding flycatchers that may exist in the future.

Please contact the Service to verify the above determination and concurrence are still valid if: 1) future surveys detect listed, proposed or candidate species in habitats where they have not been previously observed; 2) the projects are changed or new information reveals effects of the actions to the listed species or their habitats to an extent not considered in these evaluations; or 3) a new species is listed that may be affected by these projects.

This concludes section 7 consultation on the proposed NM 41 Bridge Replacements at Galisteo Creek and San Cristobal Arroyo. The Service appreciates the FHA’s and NMDOT’s concern for endangered species and New Mexico’s wildlife habitats. In future communications regarding this letter or the proposed project please refer to Consultation #02ENNM00-2012-I-0041. If you have any questions, please contact Lori Robertson of my staff at (505) 761-4710.

Sincerely,

Wally Murphy
Field Supervisor

cc:
Christina Kelso, Environmental Bureau, New Mexico Department of Transportation, Santa Fe, NM (Christina.Kelso@state.nm.us)
Director, New Mexico Department of Game and Fish, Santa Fe, NM, (kristin.madden@state.nm.us)
APPENDIX D

Public Involvement Meetings Advertisements and Flyers
The New Mexico Dept. of Transportation (NMDOT) NM 41 Corridor Project Team will host a public information workshop to discuss potential improvements to the northern portion of the NM 41 Corridor from milepost 46 to milepost 62 (Clark Hill to the NM 41/US 285 Junction). This workshop will be held on **November 17, 2009** at the Galisteo Community Center, 35 County Road 33A. The workshop will begin at **6:30 p.m.** and end at **8:00 p.m.**

The workshop will include: (1) a brief presentation with information specific to what the study of the NM 41 corridor will encompass, and (2) roundtable discussions to identify issues of concern and importance to area residents and other stakeholders. The perspectives, needs, and interests of the NMDOT will also be discussed.

Please join us at this public workshop. If you have questions about this notice and/or the study of NM 41, please contact any of the following persons:

- David Quintana, NMDOT Project Development Engineer, (505) 827-1635
- Karyn Lujan, NMDOT District 5, (505) 827-9567

If you require special accommodations for this meeting, please contact Dawn Tibbetts with D. Pennington & Associates at (505) 263-6835 at least 3 days before the meeting.
Invitation to Participate in a Public Workshop for the NM 41 Corridor Study
Project No. TPA-1502(20)46

The New Mexico Dept. of Transportation (NMDOT) NM 41 Corridor Project Team will host a public information workshop to discuss potential improvements to the northern portion of the NM 41 Corridor from milepost 46 to milepost 62 (Clark Hill to the NM 41/US 285 Junction). This workshop will be held on November 17, 2009 at the Galisteo Community Center, 35 County Road 33A. The workshop will begin at 6:30 p.m. and end at 8:00 p.m.

The purpose of this workshop is to continue discussions about highway improvements with the residents who live along NM 41, the users of this state highway, and others who have an interest in the NM 41 corridor. The workshop will include:

- A brief presentation that provides background information specific to what the study of the NM 41 corridor will encompass, and
- Roundtable discussions with the community to help the Project Team working on this study better understand issues of concern and importance to area residents and other stakeholders. The perspectives, needs, and interests of the NMDOT will also be discussed.

The NMDOT Project Team desires to work with project stakeholders to identify and develop highway improvement strategies that achieve the mission and responsibilities of the NMDOT, while respecting the interests and expectations of residents along this route, as well as the needs and interests of other stakeholders.

To achieve this goal, it is important that we have broad participation and input from the full range of stakeholders. Please join us at this public information workshop.

If you have questions about this notice and/or the study of NM 41, please contact any of the following persons:

- David Quintana, NMDOT Project Development Engineer, (505) 827-1635
- Karyn Lujan, NMDOT District 5, (505) 827-9567

If you require special accommodations for this meeting, please contact Dawn Tibbetts with D. Pennington & Associates at (505) 263-6835 at least 3 days before the meeting.
The New Mexico Department of Transportation (NMDOT) NM 41 Corridor Project Team will host a public information meeting to discuss potential improvements to the portion of NM 41 from milepost 46 to milepost 62 (Clark Hill to the NM 41/US 285 Junction). The date, time, and location of the public meeting are:

**Meeting Date and Time:** Wednesday, April 7, 2010; 6:30 PM  
**Meeting Location:** Galisteo Community Center (35 County Road 33A in Galisteo)

The purpose of this meeting is to present and discuss the initial set of highway improvement alternatives identified and evaluated by the NMDOT Project Team. Several design concepts have been developed in consideration of prior input received from the community, users of NM 41, and the safety and operational objectives of the NMDOT. These design concepts will be presented for discussion including options specific to the rural segments of the corridor, concepts specific to the portion of highway that passes through the community of Galisteo, and concepts specific to the Rio Galisteo and San Cristobal Creek bridges.

The input resulting from this meeting will be used by the NMDOT to select highway improvement concepts to be evaluated in greater detail. Please join us at this meeting and provide us with your ideas, comments, and suggestions.

If you have questions about this notice and/or the study of NM 41, please contact the following persons:

- David Quintana, NMDOT Project Development Engineer, (505) 827-1635
- David Pennington, D. Pennington & Associates, (505) 884-0667
- Karyn Lujan, NMDOT District 5, (505) 827-9567

If you require special accommodations for this meeting, please contact Dawn Tibbetts with D. Pennington & Associates at (505) 884-0667 at least 3 days before the meeting.
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The input resulting from this meeting will be used by the NMDOT to select highway improvement concepts to be evaluated in greater detail. Please join us at this meeting and provide us with your ideas, comments, and suggestions.

If you have questions about this notice and/or the study of NM 41, please contact the following:

- David Quintana, NMDOT Project Development Engineer, (505) 827-1635  
- David Pennington, D. Pennington & Associates, (505) 884-0667  
- Karyn Lujan, NMDOT District 5, (505) 827-9567

If you require special accommodations for this meeting, please contact Dawn Tibbetts with D. Pennington & Associates at (505) 884-0667 at least 3 days before the meeting.
The New Mexico Department of Transportation (NMDOT) NM 41 Corridor Project Team will host a public information meeting to discuss potential improvements to the portion of NM 41 from milepost 46 to milepost 62 (Clark Hill to the NM 41/US 285 Junction). The date, time, and location of the public meeting are:

**Meeting Date and Time:** Tuesday, September 14, 2010; 6:30 PM

**Meeting Location:** Galisteo Community Center (35 County Road 33A in Galisteo)

The purpose of this meeting is to present and discuss bridge alternatives and highway improvement alternatives developed by the NMDOT Project Team. The current design concepts were developed in consideration of prior input received from the community and users of NM 41 and the safety and operational objectives of the NMDOT. The latest concepts will be presented for discussion. The concepts include design options specific to the Galisteo Creek and San Cristobal Arroyo bridges and the rural and community highway segments.

Comments will also be received on bicycle, pedestrian, and equestrian issues, as well as natural and cultural resources.

The input resulting from this meeting will be used by the NMDOT to select roadway and bridge alternatives to be evaluated further as part of an environmental document. Please join us at this meeting.

If you have questions about the meeting and/or the study of NM 41, please contact:

- David Quintana, NMDOT Project Development Engineer, (505) 827-1635
- David Pennington, D. Pennington & Associates, (505) 884-0667

To request Americans with Disabilities Act (ADA) related accommodations for this meeting, please contact Dawn Tibbetts with D. Pennington & Associates at (505) 884-0667 at least two days before the meeting.
The New Mexico Department of Transportation (NMDOT) NM 41 Corridor Project Team will host a public information meeting to discuss potential improvements to the portion of NM 41 from milepost 46 to milepost 62 (Clark Hill to the NM 41/US 285 Junction). The date, time, and location of the public meeting are:

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(35 County Road 33A in Galisteo)

The purpose of this meeting is to present and discuss bridge alternatives and highway improvement alternatives developed by the NMDOT Project Team. The current design concepts were developed in consideration of prior input received from the community and users of NM 41 and the safety and operational objectives of the NMDOT. The latest concepts will be presented for discussion. The concepts include design options specific to the Galisteo Creek and San Cristobal Arroyo bridges and the rural and community highway segments.

Comments will also be received on bicycle, pedestrian, and equestrian issues, as well as natural and cultural resources.

The input resulting from this meeting will be used by the NMDOT to select roadway and bridge alternatives to be evaluated further as part of an environmental document. Please join us at this meeting.

If you have questions about the meeting and/or the study of NM 41, please contact:

- David Quintana, NMDOT Project Development Engineer, (505) 827-1635
- David Pennington, D. Pennington & Associates, (505) 884-0667

To request Americans with Disabilities Act (ADA) related accommodations for this meeting, please contact Dawn Tibbetts with D. Pennington & Associates at (505) 884-0667 at least 2 days before the meeting.
Public Meeting for the NM 41 Corridor Study
Project No. TPA-1502(20)46, CN U500010

The New Mexico Department of Transportation (NMDOT) and Federal Highway Administration will hold the fourth public meeting to discuss proposed improvements to the portion of NM 41 from milepost 46 to milepost 62 (Clark Hill to the NM 41/US 285 Junction). The date, time, and location of the public meeting are:

**Meeting Date and Time:** Tuesday, May 3, 2011; 6:30 PM  
**Meeting Location:** Galisteo Community Center (35 County Road 33A in Galisteo)

The purpose of this meeting is to present and discuss the findings of the analysis of alternatives conducted since the last public meeting held in September 2010. The information presented at this meeting will include the findings and recommendations specific to roadway and bridge alternatives. The current design concepts were developed and evaluated in consideration of previous input received from the community and users of NM 41 and to meet the safety and operational objectives of the NMDOT.

In addition to the engineering analyses, information will be presented and public comment solicited on bicycle, pedestrian, and equestrian issues, and natural and cultural resources.

Please join us at this meeting. If you have questions about the NM 41 study and/or the public meeting, please contact:

- David Quintana, NMDOT Project Development Engineer, (505) 827-1635, or
- David Pennington, D. Pennington & Associates, (505) 884-0667

Public input for the proposed project will be accepted at any time; however, the NMDOT asks that comments and/or questions specific to the information presented at this meeting be sent no later than May 20, 2011. Please send comments to: D. Pennington & Associates, 6605 Uptown Blvd. NE, Suite 240, Albuquerque, NM 87110, Attn: NM 41 Project, or email your comments to dawn@dpenningtonassociates.com.

To request Americans with Disabilities Act (ADA)-related accommodations for this meeting, please contact Dawn Tibbetts with D. Pennington & Associates at (505) 884-0667 at least two days before the meeting.
The New Mexico Department of Transportation (NMDOT) and Federal Highway Administration will hold the fourth public meeting to discuss proposed improvements to the portion of NM 41 from milepost 46 to milepost 62 (Clark Hill to the NM 41/US 285 Junction). The date, time, and location of the public meeting are:

**Meeting Date and Time:** Tuesday, May 3, 2011; 6:30 PM  
**Meeting Location:** Galisteo Community Center (35 County Road 33A in Galisteo)

The purpose of this meeting is to present and discuss the findings of the analysis of alternatives conducted since the last public meeting held in September 2010. The information presented at this meeting will include the findings and recommendations specific to roadway and bridge alternatives. The current design concepts were developed and evaluated in consideration of previous input received from the community and users of NM 41 and to meet the safety and operational objectives of the NMDOT.

In addition to the engineering analyses, information will be presented and public comment solicited on bicycle, pedestrian, and equestrian issues and natural and cultural resources.

Please join us at this meeting. If you have questions about the NM 41 study and/or the public meeting, please contact:

- David Quintana, NMDOT Project Development Engineer, (505) 827-1635, or
- David Pennington, D. Pennington & Associates, (505) 884-0667

Public input for the proposed project will be accepted at any time; however, the NMDOT asks that comments and/or questions specific to the information presented at this meeting be sent no later than May 20, 2011. Please send comments to: D. Pennington & Associates, 6605 Uptown Boulevard NE, Suite 240, Albuquerque, NM 87110, Attn: NM 41 Project, or email your comments to dawn@dpenningtonassociates.com.

To request Americans with Disabilities Act (ADA)-related accommodations for this meeting, please contact Dawn Tibbetts with D. Pennington & Associates at (505) 884-0667 at least two days before the meeting.
APPENDIX E

Bibliography
Bibliography

American Association of State Highway and Transportation Officials (AASHTO)

D. Pennington & Associates, Inc.
*Cultural Resources Survey: NM 41 Clark Hill to US 285, MP 46.1 to 62.1. Santa Fe County, New Mexico.* Albuquerque, NM, January 2011.

*Noise Technical Memorandum: NM 41 Corridor between MM 46 (Clark Hill) and the US 285 Junction (MM 62.1), Santa Fe, County, New Mexico.* Albuquerque, NM, May 2010.

Federal Highway Administration

Harwick Transportation Group

Marron and Associates, Inc.
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