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**Gregory S. Shaffer**  
*County Manager*

June 28, 2023

**SANTA FE COUNTY**  
**RFP No. 2023-0228-PW/APS**  
**DESIGN ENGINEERING SERVICES FOR THE**  
**AVENIDA DEL SUR WEST EXTENSION**

**ADDENDUM NO. 1**

Dear Proponents,

This addendum is issued to reflect the following immediately. It shall be the responsibility of interested Offerors to adhere to any changes or revisions to the RFP as identified in this Addendum No. 1. This documentation shall become permanent and made part of the departmental files.

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***Attachment A: Pre-Proposal Agenda and Sign-In Sheet***

***Attachment B: Preliminary Engineering Study***

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Please add this Addendum No. 1 to the original proposal documents and refer to proposal documents, hereto as such. This and all subsequent addenda will become part of any resulting contract documents and have effects as if original issued. All other unaffected sections will have their original interpretation and remain in full force and effect. Responders are reminded that any questions or need for clarification must be addressed to Amanda Patterson-Sanchez, Procurement Planner Analyst at [apatterson-sanchez@santafecountynm.gov](mailto:apatterson-sanchez@santafecountynm.gov).



**PRE PROPOSAL CONFERENCE  
RFP No. 2023-0228-PW/APS  
DESIGN ENGINEERING SERVICES FOR THE  
AVENIDA DEL SUR WEST EXTENSION  
JUNE 20, 2023 AT 1:30PM**

**Contracting Agency: Santa Fe County**

- |                            |                              |                     |
|----------------------------|------------------------------|---------------------|
| • Amanda Patterson-Sanchez | Procurement Planner Analyst  | Purchasing Division |
| • Bill Taylor              | Procurement Manager          | Purchasing Division |
| • Ivan Trujillo            | Engineering Services Manager | Public Works        |
| • Johnny P. Baca           | Project Manager              | Public Works        |

**Project Information**

Santa Fe County Public Works Department is requesting proposals from qualified Offerors to provide design engineering services related to the Avenida del Sur West Extension.

**Proposal Information**

- Carefully read the Request for Proposal for requirements, terms & conditions including the sample contract.
- Sequence of Events are listed on page 26.
- Proposal Organization - Proposal should be organized as outlined in the RFP on page 36 and 37.
- Selection of finalist(s) – the most qualified proposal received based on the evaluation factors outlined in the RFP (pages 38-41) will be scored by a three to four-member evaluation committee.
- Preferences -
  - 1) N.M. In-State Business Preference Certificate 50 points total of all evaluation factors added to score.

**OR**

- 2) N.M. Resident Veterans Preference Certificate, 100 points total of all evaluation factors added to score. For more information on State Preference visit [www.tax.newmexico.gov](http://www.tax.newmexico.gov)

**AND**

- 3) Santa Fe County Preference, 50 points total of all evaluation factors added to score. For more information on County Preference visit <https://www.santafecountynm.gov/finance/purchasing-division>
- Please submit all questions via email to Amanda Patterson-Sanchez at [apatterson-sanchez@santafecountynm.gov](mailto:apatterson-sanchez@santafecountynm.gov). The last day for questions will be **Friday, June 23, 2023**. (*Any contact with any other County staff member or persons other than the Procurement Planner Analyst may be grounds for disqualification.*)
  - Addendum will be issued on **Wednesday, June 28, 2023**. (*Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.*)
  - Proposal Submittal –

**Due Date: Thursday, July 13, 2023**

**Time: 2:00 PM**

**Location: 102 Grant Avenue 1<sup>st</sup> Floor, Santa Fe, NM**

**Electronic submission also available via Dropbox utilizing**

**Dropbox link:**

<https://www.dropbox.com/request/RBi8xfwwz6QkudJVdlQ3>





**SANTA FE COUNTY**

**PRE-PROPOSAL CONFERENCE**

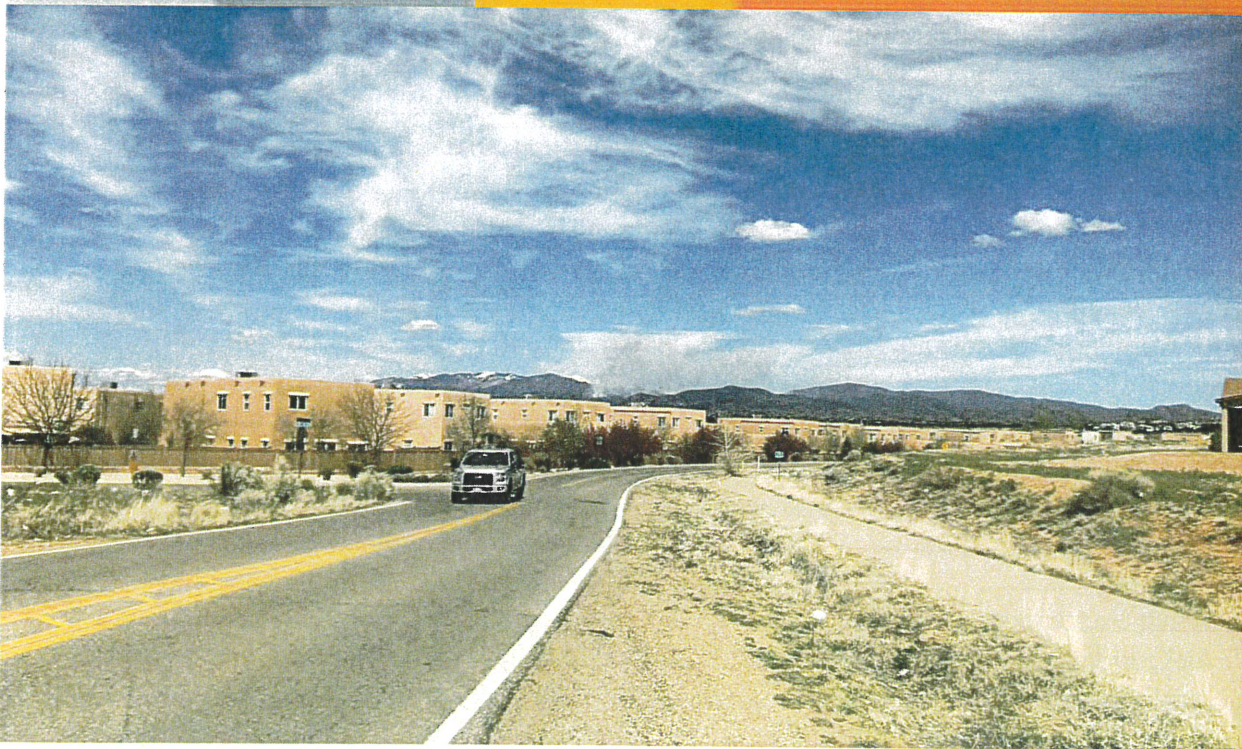
**RFP No. 2023-0228-PW/APS**

**DESIGN ENGINEERING SERVICES FOR THE AVENIDA DEL SUR WEST EXTENSION**

**JUNE 20, 2023 AT 1:30PM**

NAME	COMPANY	TELEPHONE	E-MAIL ADDRESS
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# AVENIDA DEL SUR WEST EXTENSION PRELIMINARY ENGINEERING STUDY FINAL REPORT



**Prepared For:** Santa Fe County

**Prepared By:** Horrocks Engineers  
Ecosphere Environmental Services  
Eco Resource Management Systems

**June 2019**



**Table of Contents**

1	Executive Summary .....	1
1.1	Purpose and Need .....	1
1.2	Alternatives Evaluated .....	1
1.3	Constructon Cost Estimate .....	1
1.4	ROW Impacts .....	1
1.5	Conclusion .....	2
2	Avenida Del Sur West Extension .....	3
2.1	Existing Conditions .....	3
2.2	Typical Section .....	4
2.3	Alternative 1: Hold South ROW Line .....	5
2.4	Alternative 2: Hold Centerline .....	11
3	Project Construction Cost Estimate .....	17
3.1	Project Design and Construction Cost Estimate .....	17
3.2	Project Estimated ROW Impacts and Encroachments by Property .....	18
4	Utility Investigation .....	19
4.1	Conclusions .....	20
5	Traffic Modeling .....	21
5.1	Modeling Methodology .....	21
5.2	Forecast Inputs .....	21
5.3	Forecast Volumes .....	23
6	Existing Environmental Conditions Report .....	26
6.1	Introduction .....	26
6.1.1	Environmental Setting Summary .....	26
6.2	Natural Resources .....	26
6.2.1	Soils .....	26
6.2.2	Floodplains .....	26
6.2.3	Wetlands .....	26
6.2.4	Water Resources .....	27
6.2.5	Air Quality .....	28
6.2.6	Biological Resources .....	28
6.3	Social and Economic Resources .....	33
6.3.1	Archaeological, Cultural, and Historic Resources .....	33
6.3.2	Community Resources .....	34
6.3.3	Environmental Justice .....	34
6.3.4	Land Use and Economic Resources .....	36
6.3.5	Visual Resources .....	37
6.3.6	Traffic Noise .....	37
6.3.7	Hazardous Materials .....	38
7	References .....	39
	Appendix A .....	A

**List of Tables**

Table 6-1. Federal and state protected wildlife species for Santa Fe County .....	30
Table 6-2. Comparison of project area demographic characteristics .....	35

**List of Figures**

Figure 2-1. Typical section, Avenida del Sur .....	4
Figure 2-2. Alternative 1 – Project plan and profile .....	6
Figure 2-3. Alternative 1 – ROW impacts .....	7
Figure 2-4. Alternative 1 – ROW impacts .....	8
Figure 2-5. Alternative 1 – ROW impacts .....	9
Figure 2-6. Alternative 1 – ROW impacts .....	10
Figure 2-7. Alternative 2 – Project plan and profile .....	12
Figure 2-8. Alternative 2 – ROW impacts .....	13
Figure 2-9. Alternative 2 – ROW impacts .....	14
Figure 2-10. Alternative 2 – ROW impacts .....	15
Figure 2-11. Alternative 2 – ROW impacts .....	16
Figure 5-1. CCD area .....	22
Figure 5-2. CCD area, housing growth by subdivision .....	22
Figure 5-3. Model land use by category .....	23
Figure 5-4. Projected 2040 Avenida del Sur volumes .....	24
Figure 5-5. Projected 2040 Avenida del Sur volumes with aerial .....	24
Figure A-1. Map of project area .....	A

## Abbreviations and Acronyms

abms	above mean sea level
ADT	average daily traffic
AQCR	Air Quality Control Regions
bgs	below ground surface
BISON-M	Biota Information System of New Mexico
BMP	best management practice
CAA	Clean Air Act
CCD	Community College District
CFR	Code of Federal Regulations
CGP	Construction General Permit
CWA	Clean Water Act
dba	decibels
EMNRD	Energy, Minerals, and Natural Resources Department
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
GHG	greenhouse gas
MBTA	Migratory Bird Treaty Act
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NMCRIS	New Mexico Cultural Resource Information System
NMDA	New Mexico Department of Agriculture
NMDGF	New Mexico Department of Game and Fish
NMDOT	New Mexico Department of Transportation
NMED	New Mexico Environment Department
NMOSE	New Mexico Office of the State Engineer
NPDES	National Pollutant Discharge Elimination System
NRCS	USDA Natural Resources Conservation Service
NRHP	National Register of Historic Places
ROW	right-of-way
SFMPO	Santa Fe Metropolitan Planning Organization
SWPPP	Storm Water Pollution Prevention Plan
TDM	Travel Demand Model
TNM	Traffic Noise Model
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
vph	Vehicles per hour
WUS	Waters of the United States



# 1 Executive Summary

A Preliminary Engineering Report for the Avenida del Sur West Extension has been developed and is summarized herein.

## 1.1 PURPOSE AND NEED

The purpose of the proposed project is:

- Widen Avenida del Sur, from the BOP west to the tie-in (reverse curve) to the Vista del Monte alignment; then reconstruct/construct new roadway to tie in with new roundabout at the EOP intersection of Avenida del Sur and A Van Nu Po.
- Provide for multimodal transportation with facilities to accommodate bicyclists and pedestrians.
- Provide these features with a design that conforms to both Santa Fe County Planning and Design criteria, consistency of features with the Rabbit Road and the NE-SE Connector projects, and NMDOT design standards and guidelines.

## 1.2 ALTERNATIVES EVALUATED

Two alternatives were analyzed in the evaluation process. Both alternatives included two typical section options: One with a 5-foot pedestrian path and one with a 12-foot multiuse trail, each with a 7-foot buffer.

Alternative 1: Hold South ROW Line. Place the outside edge of the pedestrian path 1 foot from the South ROW line.

Alternative 2: Roadway Centerline at Existing Centerline of Roadway Easement.

In each of these alternatives, impacts were evaluated for both the 5-foot path option and the 12-foot trail option. At the progress meeting on April 23, 2019, the 12-foot trail option was removed by the County from further evaluation. This decision was made to maintain continuity with the Rabbit Road and the NE-SE Connector projects (which both plan 5-foot pedestrian paths), and to reduce the project footprint, ROW, and other impacts on adjacent properties.

## 1.3 CONSTRUCTION COST ESTIMATE

Construction Cost Estimate is \$3.6M. This estimate includes major items for roadway and pedestrian path, drainage, and landscaping. It also includes 30% Contingency and 8.4375% GRT. See page 18 for detailed breakdown of costs.

Including Design, Construction Management & Inspection, Independent Assurance Testing, and ROW acquisition, the total estimated project construction cost is \$4.5 M. See pages 17 and 18 for detailed breakdown of these quantities and costs. ROW costs are estimated at \$50,000/acre. This is based on land values provided by Santa Fe County of \$65,000/acre for developed lots and \$35,000/acre for undeveloped lands.

## 1.4 ROW IMPACTS

The additional ROW that will be required is about 5 acres. This is primarily due to vertical profile curve flattening and tangent lengthening that is required to meet sight distance and k-value requirements for the design speed of 35 mph.

The majority of the ROW impacts for the two alternatives analyzed are cut areas, north side, between sta 130+00 and sta 167+50. That is, between Brown Castle Ranch Road (Santa Fe Skies RV) and the end of existing Vista del Monte road.

The total number of properties that may have ROW impacts, depending on final alignment selected, is about 4 owners on the north side and about 18 owners on the south side.

### 1.5 CONCLUSION

Each Alternative has similar impacts. The final decision on roadway alignment is recommended to be left until the Preliminary Design Phase, when community outreach and input can be included in the decisionmaking process.

The final alignment selected could, based on public input, be an alignment that minimizes ROW impacts to one side or the other.



## 2 Avenida Del Sur West Extension

### 2.1 EXISTING CONDITIONS

The Avenida del Sur West Extension project begins at the junction of NM 14 and extends east for 1.85 miles to the intersection of Avenida del Sur and A Van Nu Po.

Roadway and site conditions beginning at the BOP are:

- BOP Sta 100+00 to sta 105+00 ft (0.09 mi) of built-out intersection with landscaped median that appears can be left in place.
- Sta 105+00 to sta 127+85 (0.43 mi) of existing paved roadway, which may need shoulder widening or reconstruction.
- Sta 127+85 to sta 167+50 (0.75 mi) of unpaved roadway, which will need full reconstruction.
- Sta 167+50 to EOP sta 197+14 (0.56 mi) of non-existing roadway, which will need new roadway construction.

Along the route there are 7 intersections:

- Scenic Mesa Road, Lt.
- Vista del Arroyo, Lt.
- Vista del Monte, Rt.
- Brown Castle Ranch, Lt.
- Calle de los Cerros, Rt.
- Serena Road, Rt.
- And Lewis Lane, Rt.

At this time, turn bays or lanes at these locations are not anticipated.

There are 11 driveways, all Rt., which will be impacted. These are located between Vista del Monte and the end of roadway at sta 167+50. Temporary Construction Permits may be required to construct these.

Many of the residences at these driveways have mailboxes and fences that encroach into a 10-foot additional roadway easement south the of the 50-foot roadway easement.

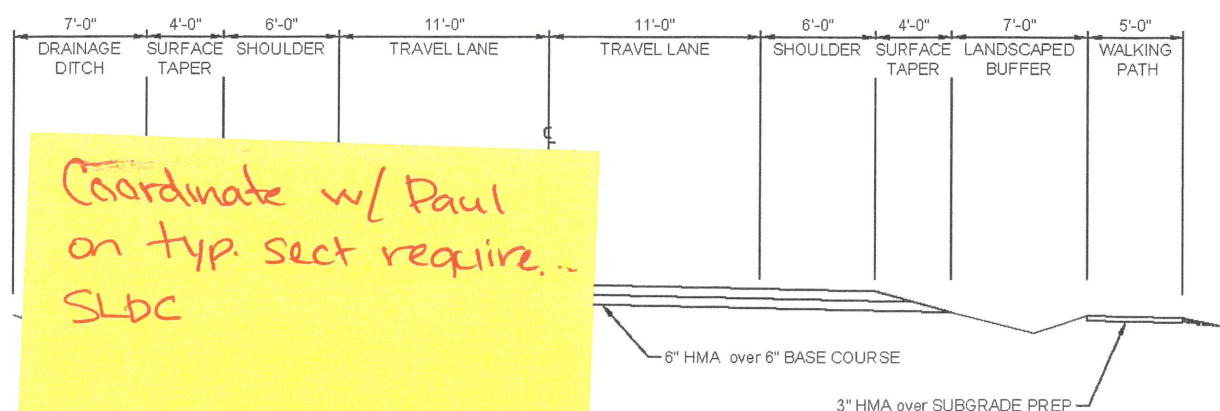
In order to provide an estimate of project costs, an alignment was created within existing ROW. There are three different ROW widths within the project. From the intersection of Avenida del Sur and NM-14 to the end of the existing roadway (Station 167+50.00), there is a 50-foot ROW with a 10-foot additional roadway easement on the south side. From the end of the existing roadway to approximately Station 190+00.00, there is a 66-foot ROW, which then transitions into a 120-foot ROW until the intersection of Avenida del Sur and A Van Nu Po. Two different alternatives were studied as part of this report: Holding the south ROW line, and a centerline alignment. (See plan sheets in Section 2.3 and Section 2.4 for each alternative.)



End of project

## 2.2 TYPICAL SECTION

The typical cross-section used in this study included two 11-foot lanes, a 6-foot paved shoulder on both sides, a 7-foot drainage ditch on the north side, a 7-foot landscaped buffer and drainage ditch on the south side, and a 5-foot walking path on the south side. An alternative cross-section using a 12-foot multiuse trail was also considered, but was determined to have ROW impacts that were too large. This study also found that encroachment by property owners of fences and other landscaping on the 10-foot easement on the south side of the 50-foot ROW has occurred, with the effect that all cross-sections studied will have some impact on current property owners. A utility easement is recommended to either lie within the 7-foot landscape buffer or under the 6-foot shoulder on the north side of the cross-section. (See Figure 2-1.)



section, Avenida del Sur

### 2.3 ALTERNATIVE 1: HOLD SOUTH ROW LINE

The alignment considered in Alternative 1 places the outside edge of the walking path 1 foot from the south ROW line, building the rest of the cross-section to the north. This alternative, along with ROW impacts of cut and fill areas, is shown in Figure 2-2. Figure 2-3, Figure 2-4, Figure 2-5, and Figure 2-6, also show zoomed-in areas where current property owners are impacted. Cut areas are shown in red, while fill is shown in teal. Alternative 1 has a total ROW impact of approximately 5 acres throughout the entire project area.



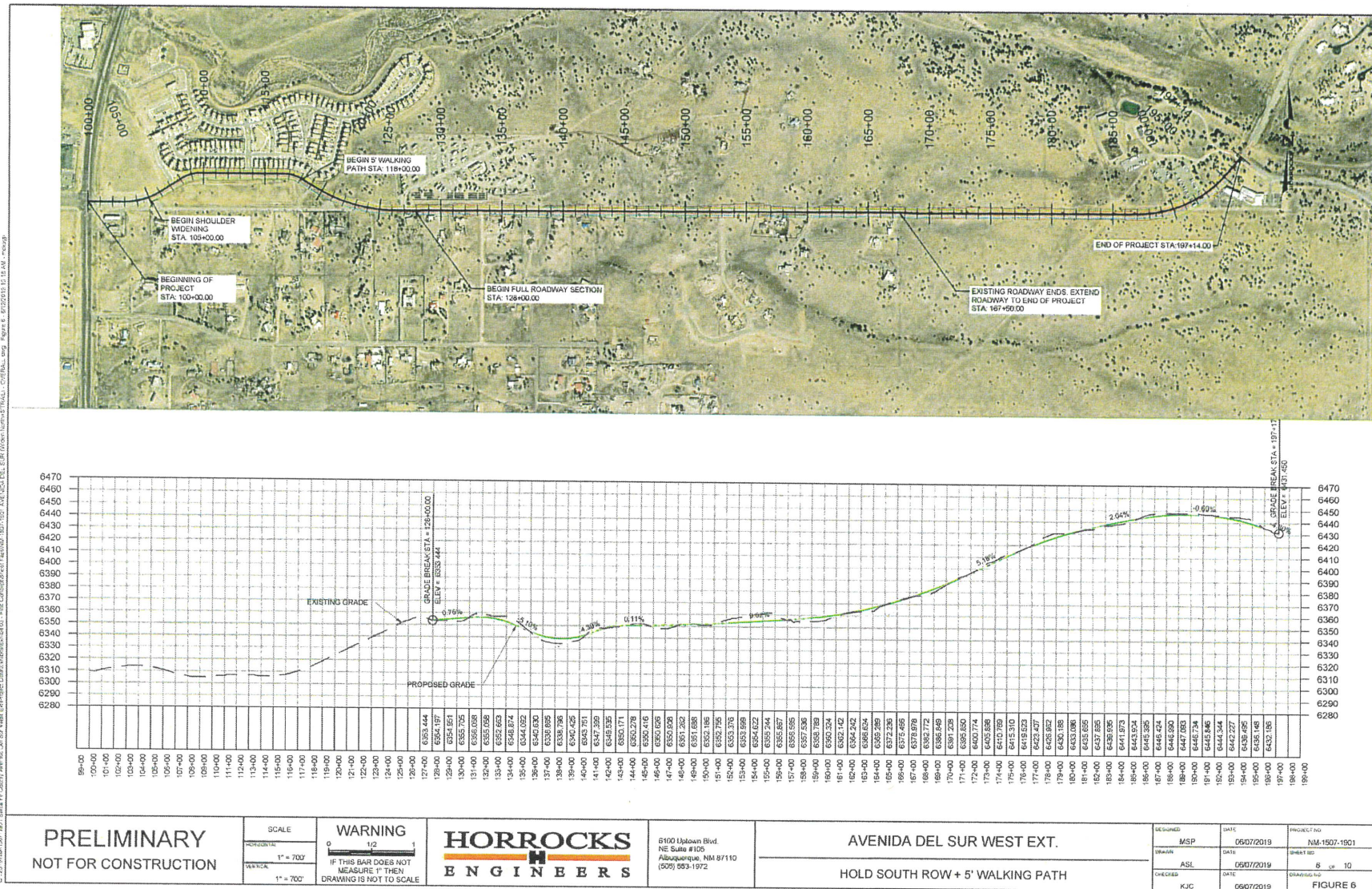


Figure 2-2. Alternative 1 – Project plan and profile



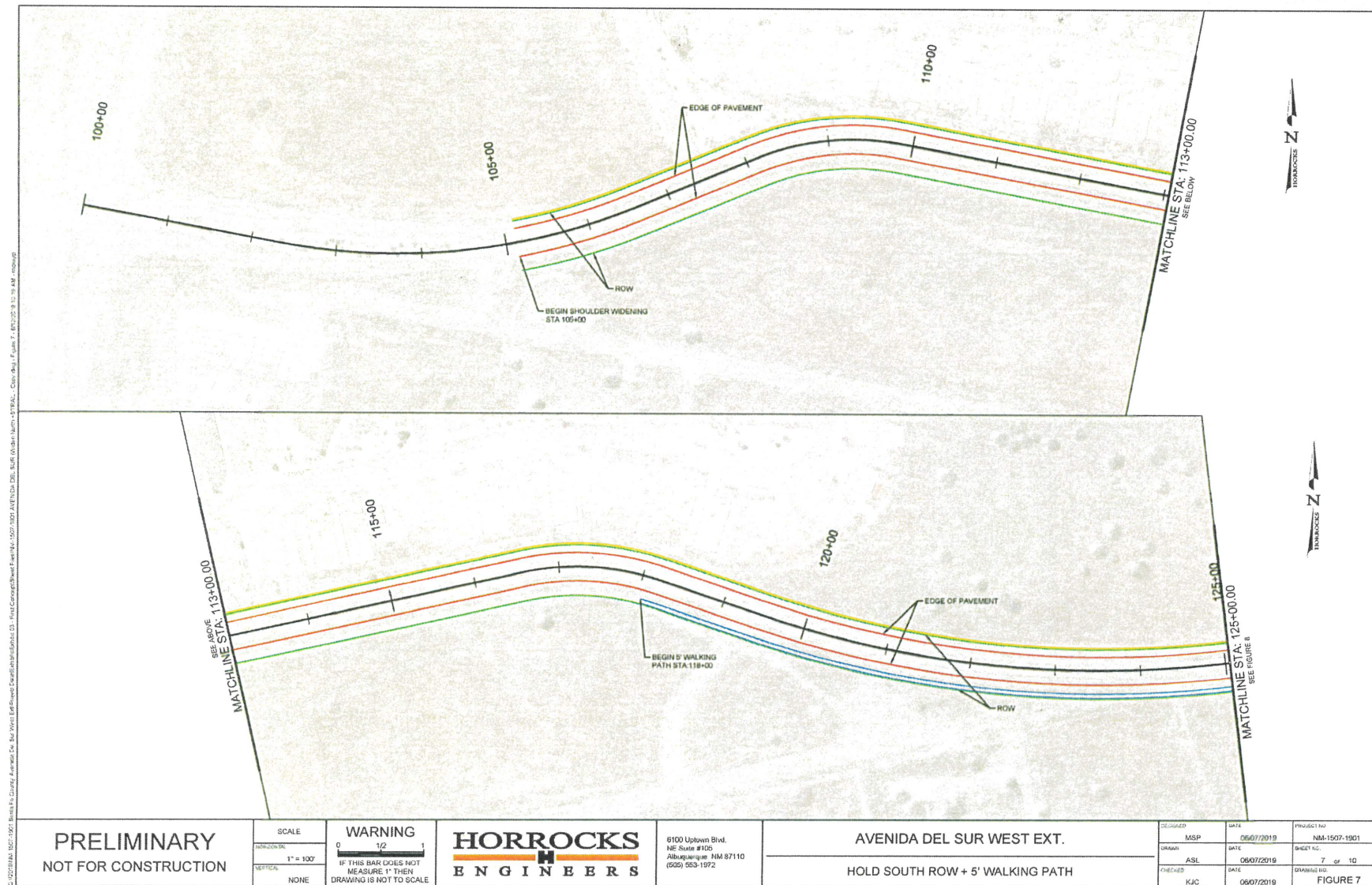


Figure 2-3. Alternative 1 – ROW impacts



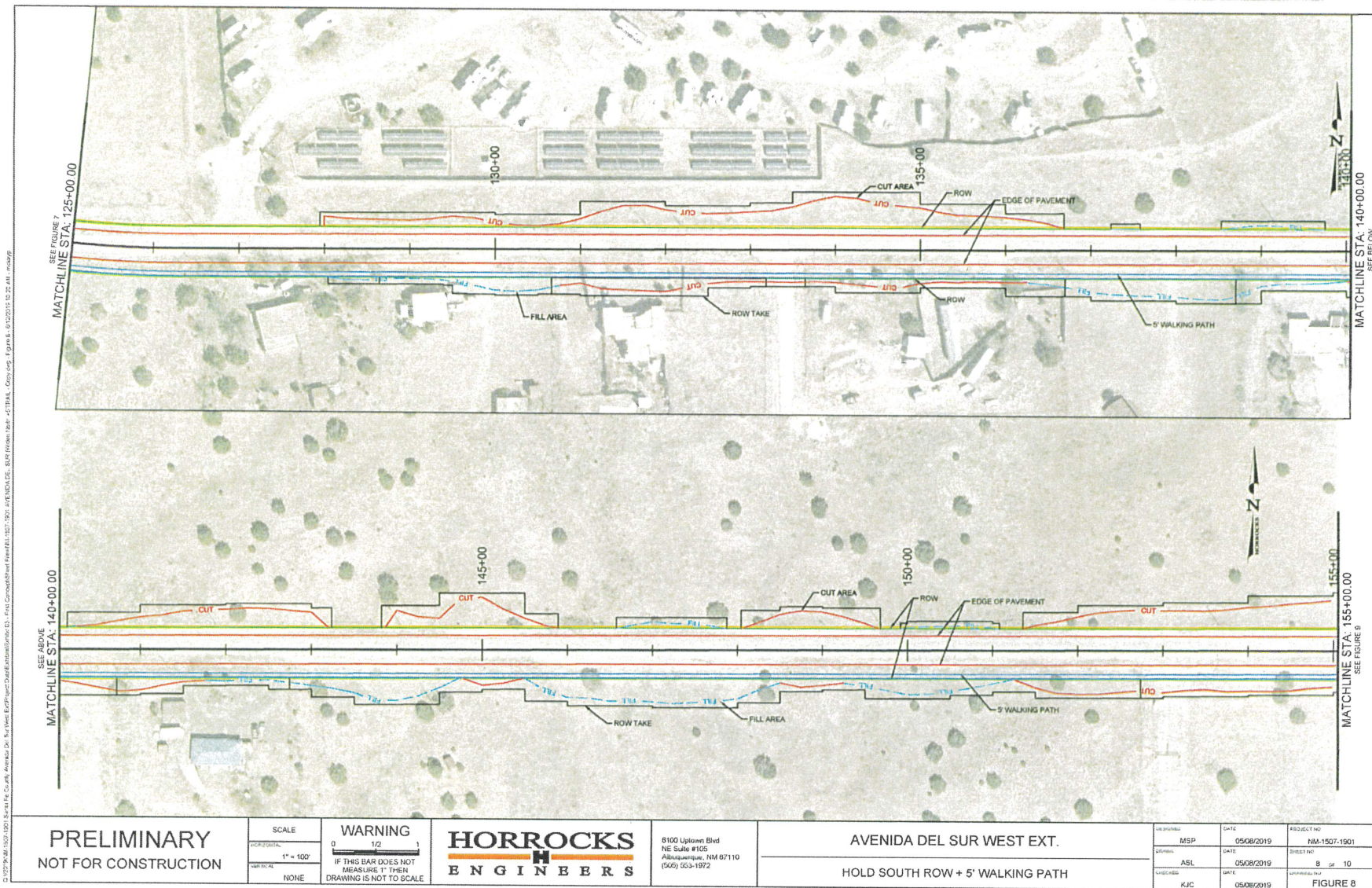


Figure 2-4. Alternative 1 – ROW impacts



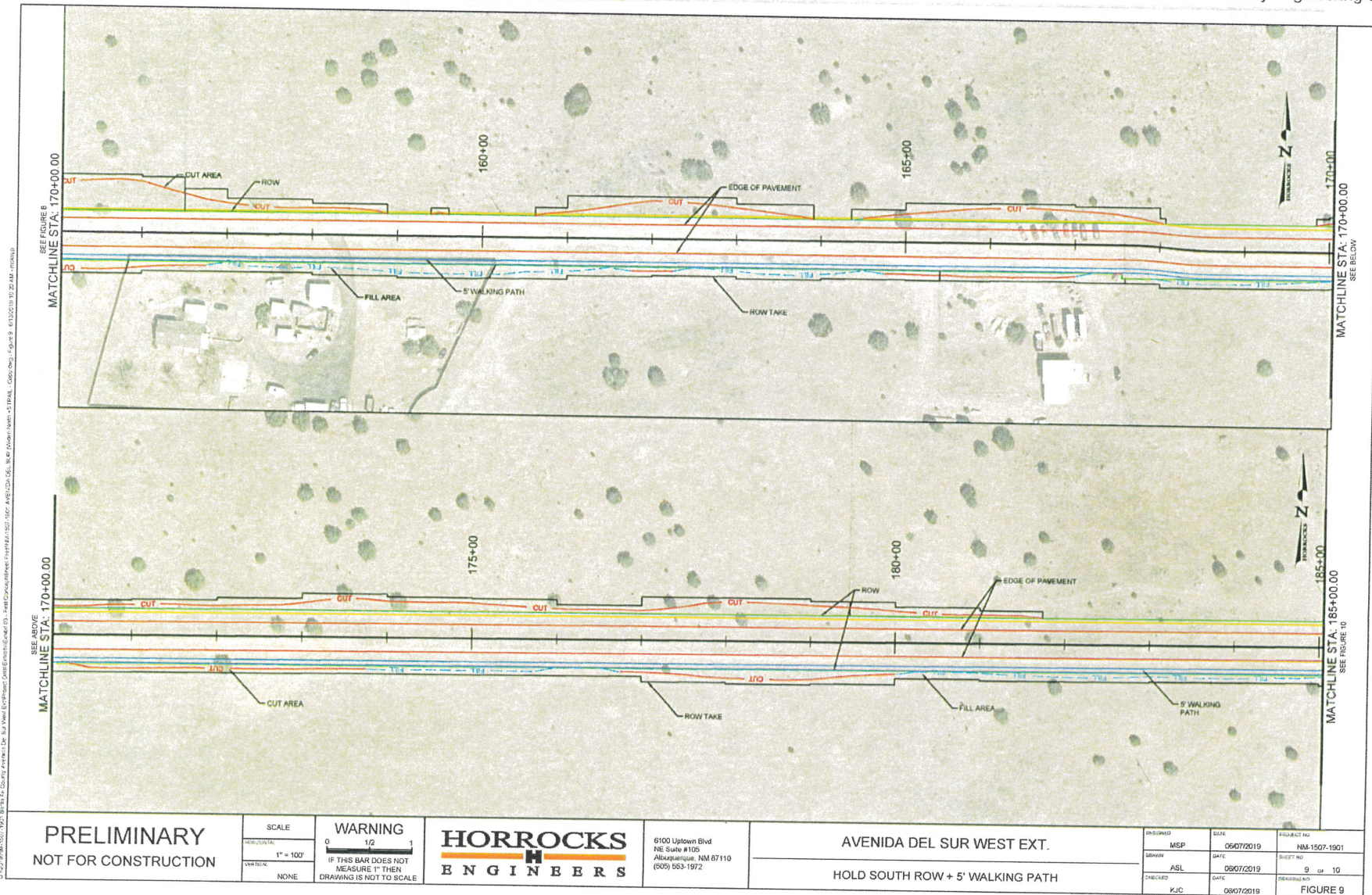
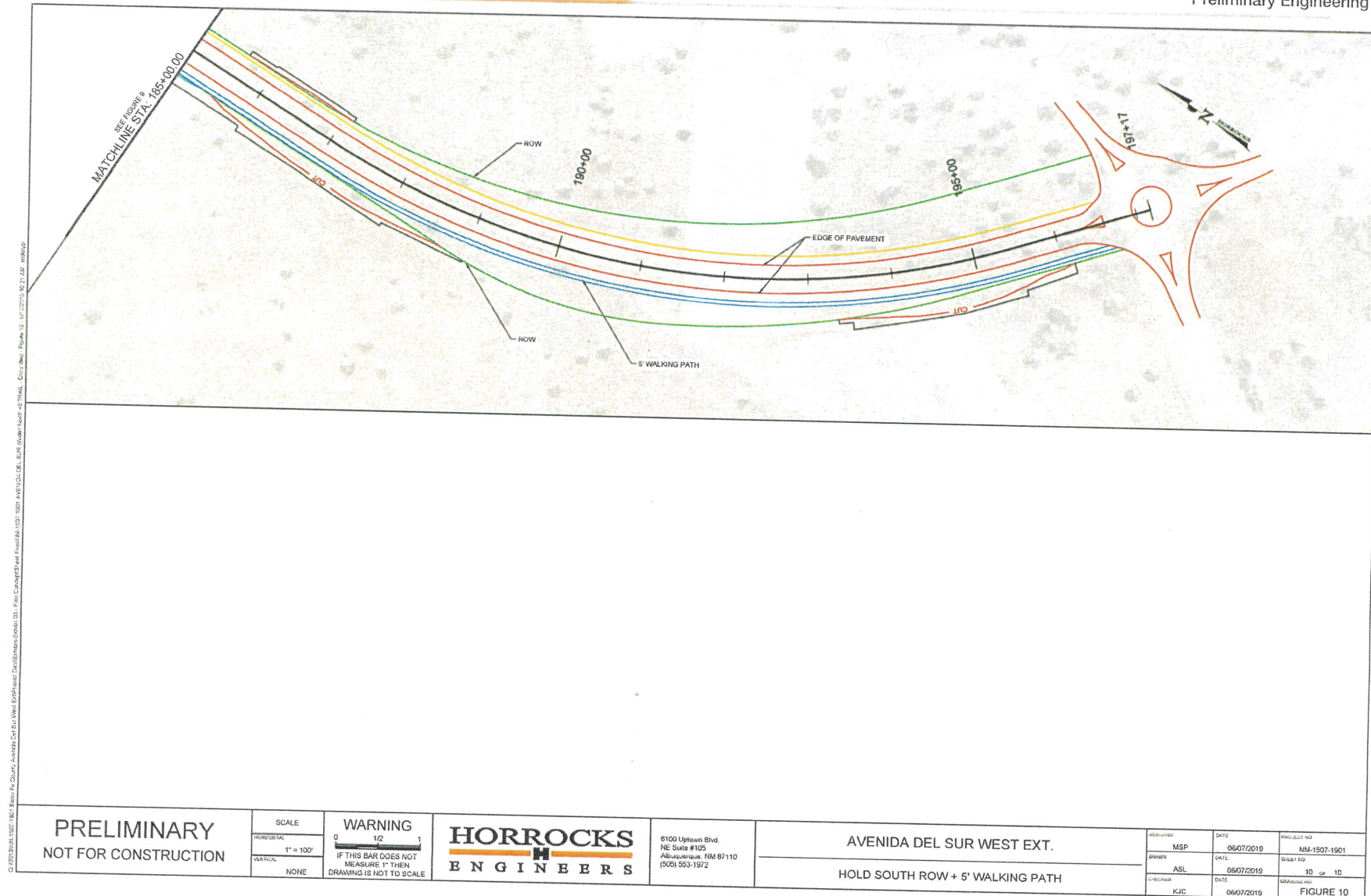


Figure 2-5. Alternative 1 – ROW impacts





## 2.4 ALTERNATIVE 2: HOLD CENTERLINE

The alignment considered in Alternative 2 places the centerline of the roadway in the center of the existing ROW. This alternative, along with ROW impacts of cut and fill areas, is shown in Figure 2-7. Figure 2-8, Figure 2-9, Figure 2-10, and Figure 2-11 also show zoomed-in areas where current property owners are impacted. Cut areas are shown in red, while fill is shown in teal. Alternative 2 has a total ROW impact of approximately 5 acres throughout the entire project area.



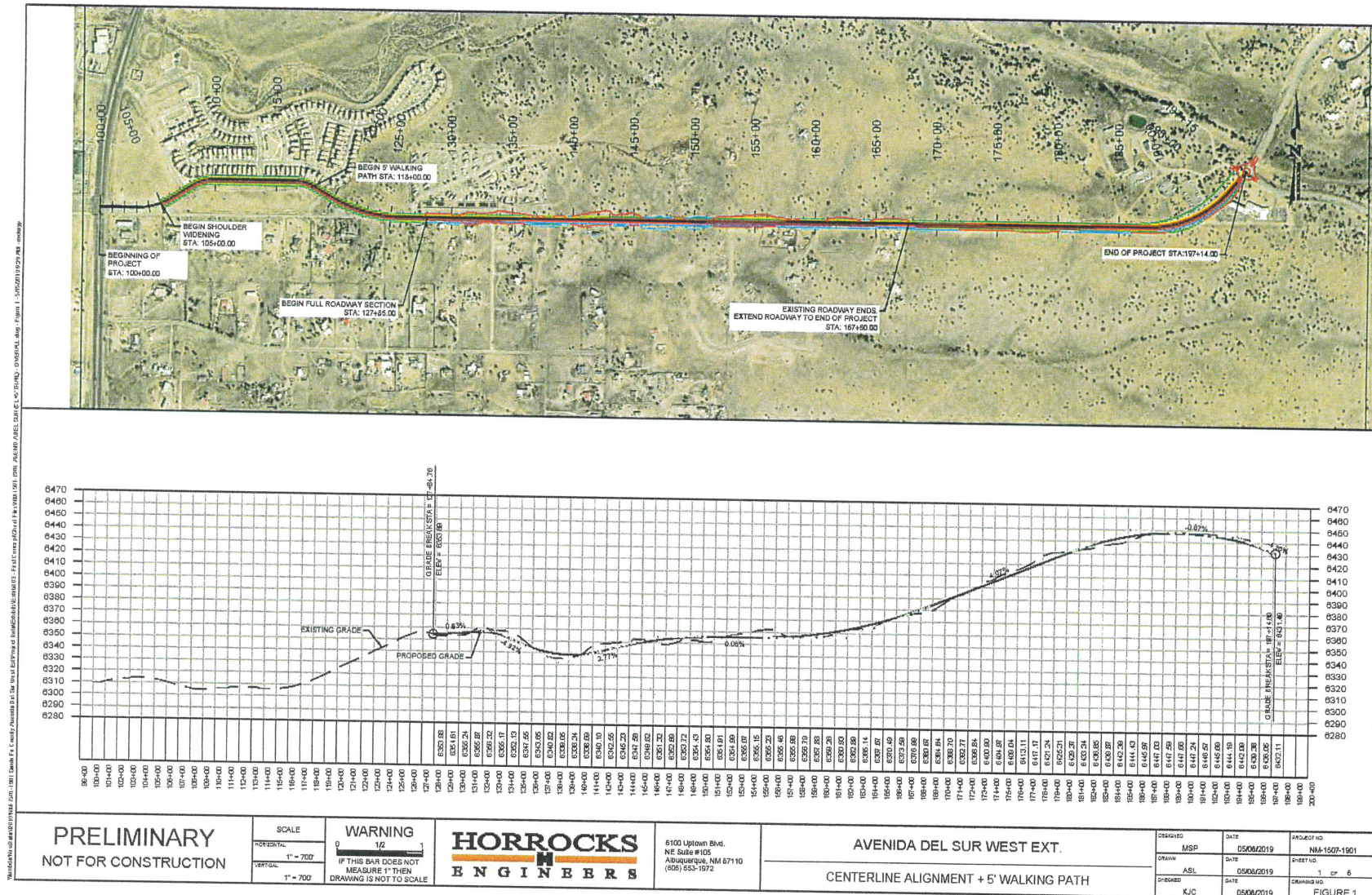


Figure 2-7. Alternative 2 – Project plan and profile



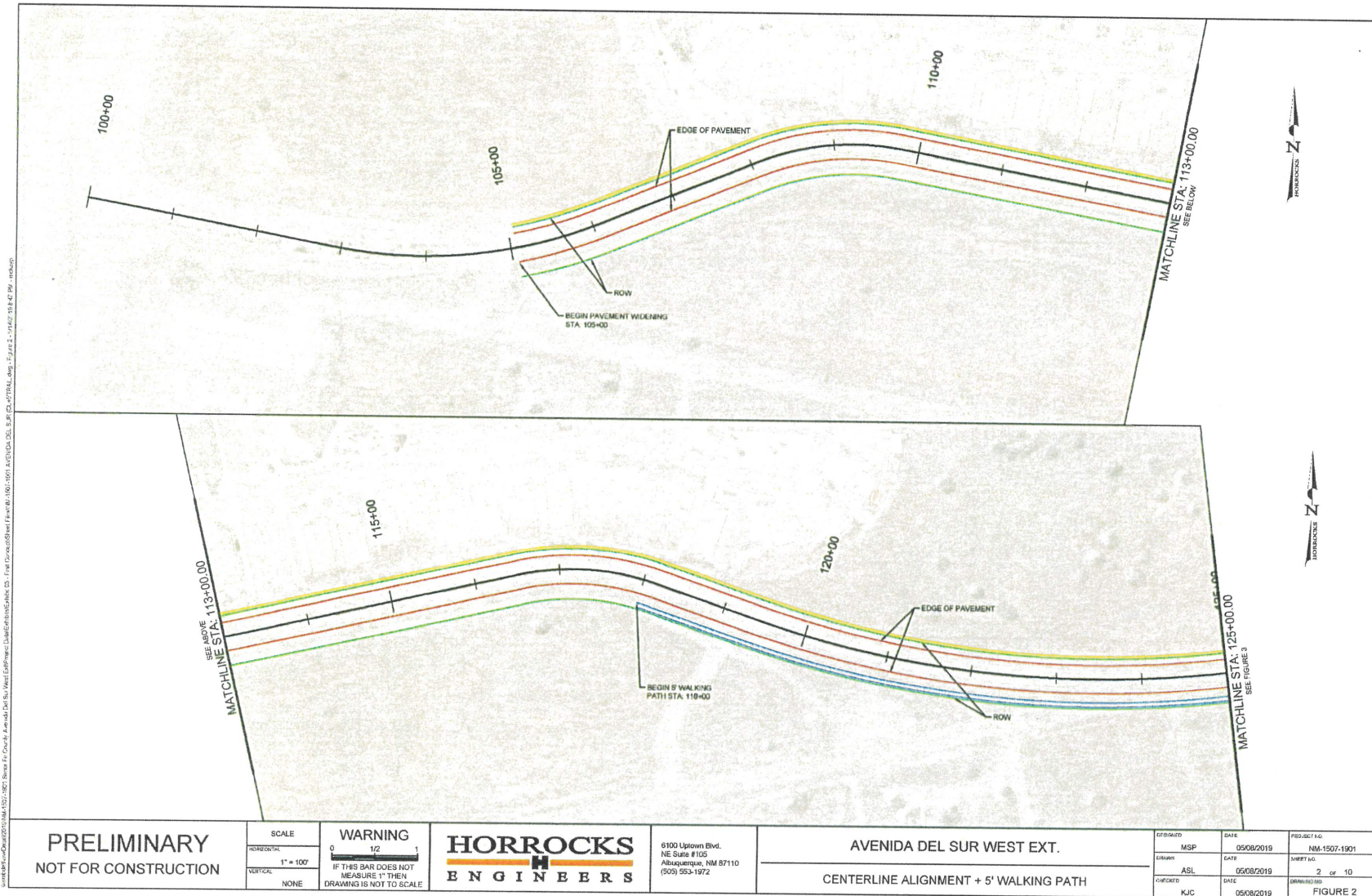


Figure 2-8. Alternative 2 – ROW impacts



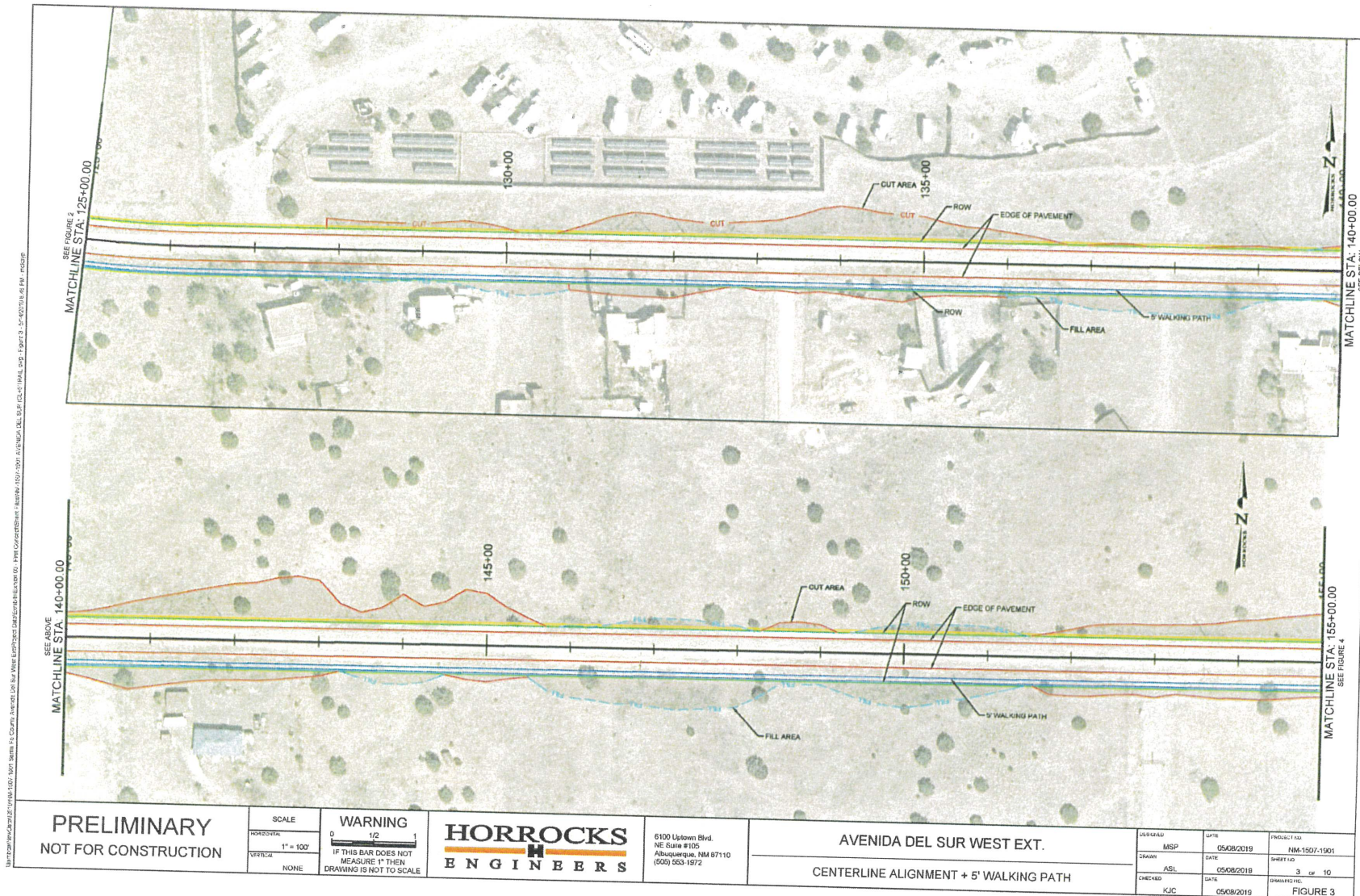


Figure 2-9. Alternative 2 – ROW impacts



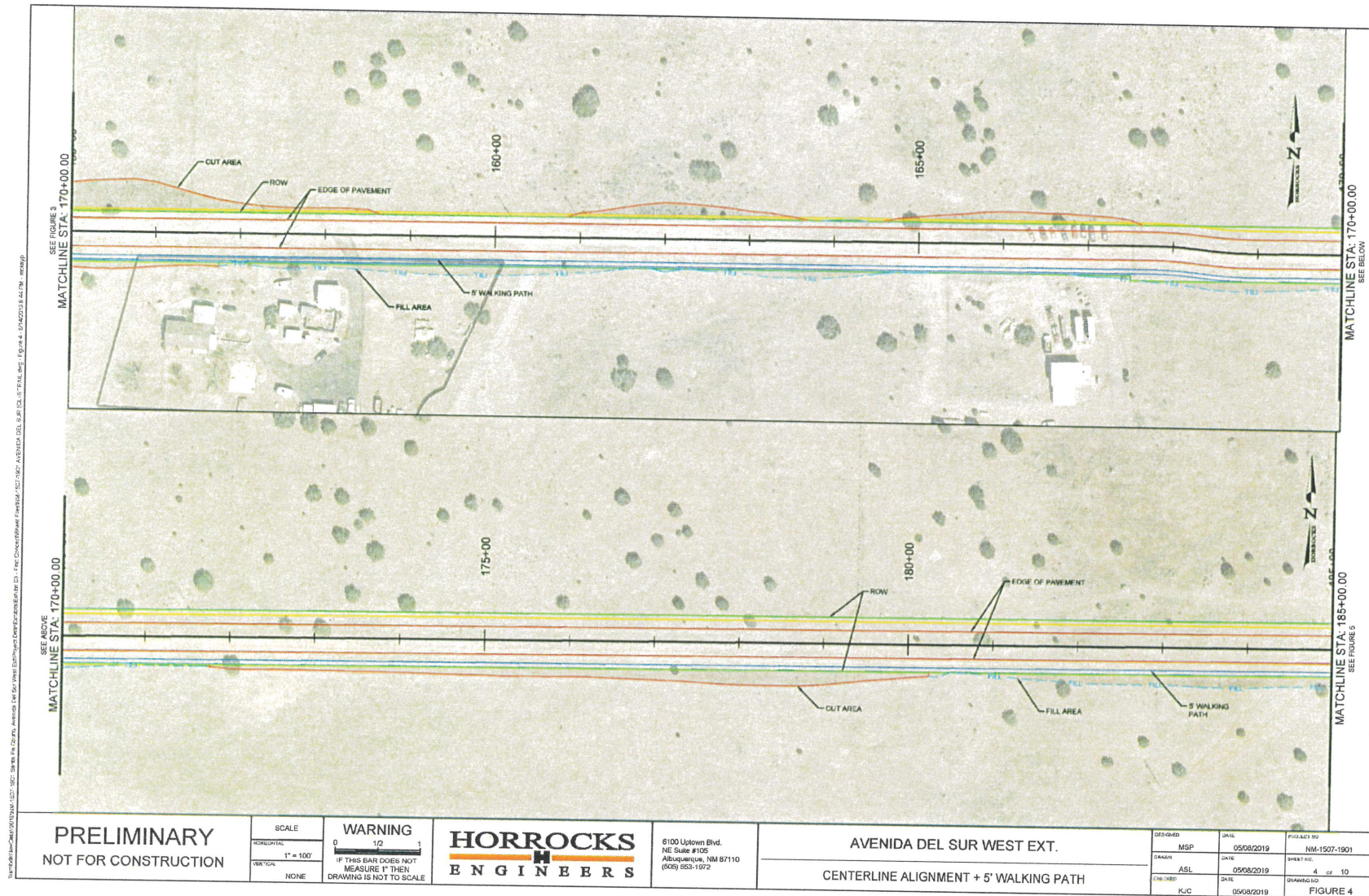


Figure 2-10. Alternative 2 – ROW impacts



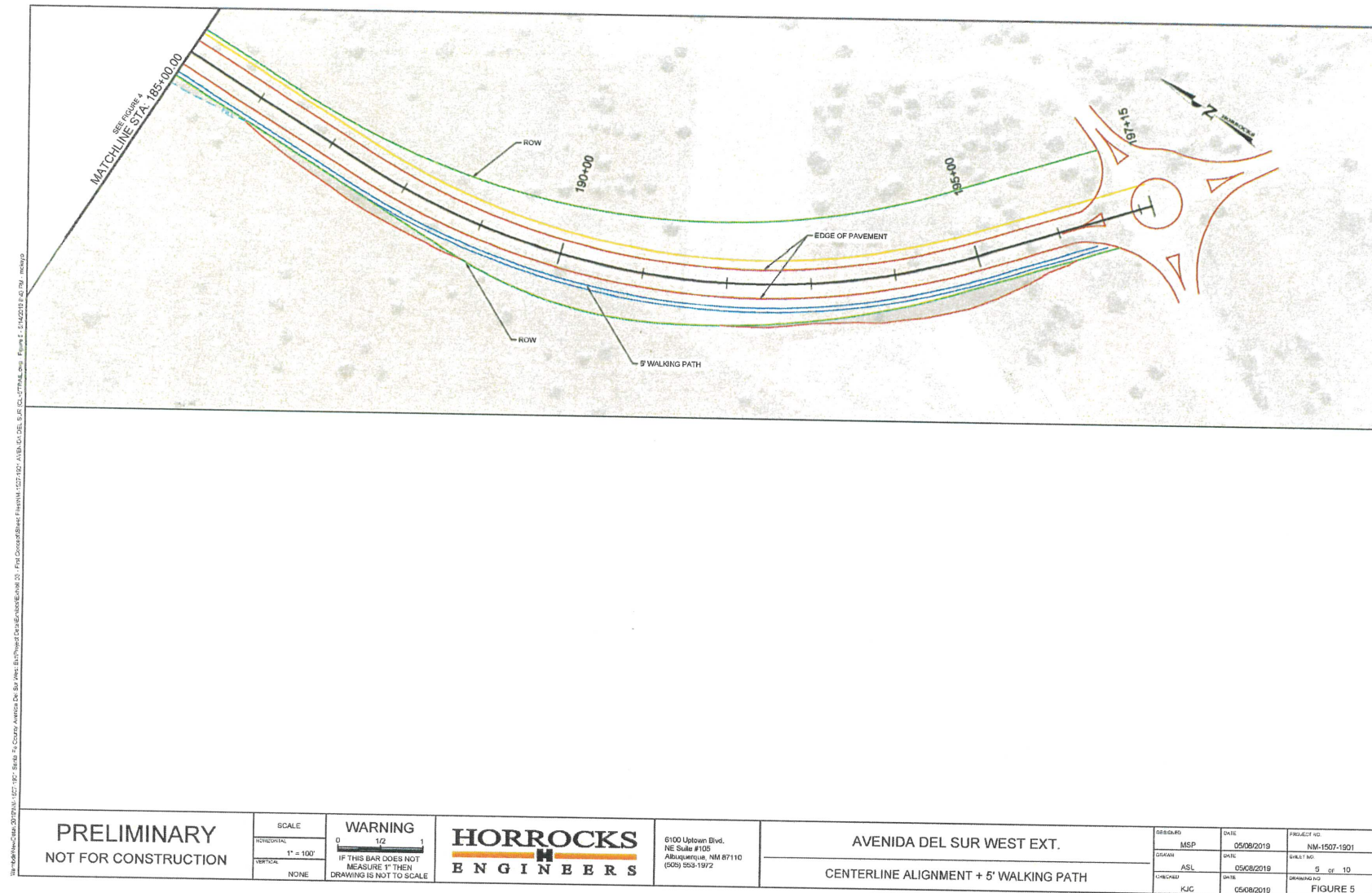


Figure 2-11. Alternative 2 – ROW impacts



### 3 Project Construction Cost Estimate

#### 3.1 PROJECT DESIGN AND CONSTRUCTION COST ESTIMATE

Santa Fe County Avenida del Sur West Extension Preliminary Estimate of Construction Cost 5-15-19					
BID ITEM #	ITEM DESCRIPTION	UNIT	ESTIMATED QTY	UNIT PRICE	ESTIMATE
201000	CLEARING AND GRUBBING	LS	1	\$30,000.00	\$30,000.00
203000	UNCLASSIFIED EXCAVATION	CY	27,000	\$10.00	\$270,000.00
203100	BORROW	CY	100	\$15.00	\$1,500.00
207000	SUBGRADE PREPARATION	SY	45,000	\$2.50	\$112,500.00
303140	BASE COURSE	TON	13,000	\$15.00	\$195,000.00
416000	MINOR PAVING FOR PED PATH + SUBGRADE PREP	SY	4,500	\$45.00	\$202,500.00
423282	HMA SP-III COMPLETE	TON	13,000	\$80.00	\$1,040,000.00
570024	24" CULVERT PIPE	LF	700	\$85.00	\$59,500.00
570025	24" CULVERT PIPE END SECTION	EA	24	\$800.00	\$19,200.00
601000	REMOVAL OF STRUCTURES & OBSTRUCTIONS	LS	1	\$20,000.00	\$20,000.00
603100	TEMPORARY SOIL STABILANT	AC	4	\$275.00	\$1,100.00
603XXX	TESCM (assume 0.5% constr cost)	LS	1	\$11,896.00	\$11,896.00
606001	SINGLE FACE W-BEAM GUARDRAIL	LF	500	\$35.00	\$17,500.00
606051	END TREATMENT TL-3 END TERMINAL	EA	2	\$3,000.00	\$6,000.00
606053	END TREATMENT W-BEAM END ANCHOR	EA	2	\$1,200.00	\$2,400.00
606598	TCWB RETAINED BY THE CONTRACTOR	LF	500	\$80.00	\$40,000.00
618000	TRAFFIC CONTROL MANAGEMENT	LS	1	\$50,000.00	\$50,000.00
621000	MOBILIZATION (assume 10% of constr cost)	LS	1	\$237,920.00	\$237,920.00
632000	CLASS A SEEDING	AC	4	\$5,500.00	\$22,000.00
662xxx	MISC. UTILITY VALVES, MH ADJUSTMENTS	EA	1	\$25,000.00	\$25,000.00
664000	LANDSCAPING COMPLETE	LS	1	\$200,000.00	\$200,000.00
667110	MAILBOX INSTALLATION SINGLE	EA	15	\$1,000.00	\$15,000.00
701xxx	PERMANENT SIGNING & STRIPING (assume 1% constr cost)	SF	1	\$23,792.00	\$23,792.00
702000	CONSTRUCTION SIGNING & TC DEVICES (assume 2% of constr cost)	SF	1	\$47,584.00	\$47,584.00
801000	CONSTRUCTION STAKING BY THE CONTRACTOR	LS	1	\$50,000.00	\$50,000.00
	<b>SUBTOTAL</b>				<b>\$2,700,392.00</b>
	CONTINGENCY (30%)				\$810,117.60
	GRT (8.4375%)				\$227,845.58
	<b>PROJECT SUBTOTAL</b>				<b>\$3,510,509.60</b>
	PROJECT PRELIMINARY & FINAL DESIGN				\$350,000.00
	CONSTRUCTION MANAGEMENT & INSPECTION				\$351,050.96
	INDEPENDENT ASSURANCE TESTING				\$24,000.00
	<b>PROJECT SUBTOTAL</b>				<b>\$4,235,560.56</b>
	ADDITIONAL RIGHT OF WAY REQUIRED	AC	5	\$50,000.00	\$250,000.00
	<b>PROJECT TOTAL</b>				<b>\$4,485,560.56</b>

### 3.2 PROJECT ESTIMATED ROW IMPACTS AND ENCROACHMENTS BY PROPERTY

#### Avenida del Sur West Extension

##### Estimated ROW Impacts by Property

Property	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Total (sq. ft.)	Total (acres)
RV Storage	1047.7	2587.9					3635.6	0.08
Rancho Viejo	14574.7	7076.4	6826	156.7	3978.1		32611.9	0.75
Church property	17427.2	966.7	3935.7	1635.7	6595.4	7609.6	38170.3	0.88
RV Camping Park	1140.0	197.4	22929.6				24267	0.56
South 1	510.6						510.6	0.01
South 2	3101.7						3101.7	0.07
South 3	4692.1						4692.1	0.11
South 4	4631.6						4631.6	0.11
South 5	5296.5						5296.5	0.12
South 6	3740.9						3740.9	0.09
South 7	2775.1						2775.1	0.06
South 8	24225.8						24225.8	0.56
South 9	5895.2						5895.2	0.14
South 10	5976.6						5976.6	0.14
South 11	6367.5						6367.5	0.15
South 12	2490.4						2490.4	0.06
South 13 (66' ROW to Bend)	25992.6						25992.6	0.60
Easter Seals El Mirador	5178.5						5178.5	0.12
							total:	199559.9
								4.58

\*note: Side streets not included in property count

##### Estimated Project Encroachments

RV Storage ROW Encroachment	13911	13911	0.32
Minor Encroachments South Properties 1-12	These are mailboxes, driveways & fences within the 10 add'l proposed ROW. These may not impact the Project footprint depending on Preferred Alignment Selected.		

**Note:** ROW and Encroachment impacts listed herein are an estimate only and will increase or decrease depending on Preferred Alignment selected.



## 4 Utility Investigation

On April 4, 2019, Horrocks Engineers' utilities group conducted a utilities site investigation to identify the type and quantity of utilities along the route.

Starting at the BOP East to the EOP, the following utilities were encountered:

**Century Link Fiber Optic** – Buried main on north side of Avenida del Sur/Vista del Monte at NM-14, which is presumably also feeding the Vista del Arroyo subdivision.

**Century Link Telephone** – Buried main on north side of Avenida del Sur/Vista del Monte along the pole line. Expect service crossings to south properties.

**NM Gas Company** – Buried main on south side of Avenida del Sur/Vista del Monte crossing to north side of ROW in the area of old Vista del Monte. Expect service crossings to properties on either side. Indications that gas main ends at Lewis Lane. Residences east of Lewis Lane have propane tanks on property.

**Santa Fe Water** – Buried main on south ROW of Avenida del Sur/Vista del Monte. Indications that water main ends at Lewis Lane.



Waterline, south side

**Comcast Cable** – Aerial on north pole line along Avenida del Sur. Fiber optic at intersection of Avenida del Sur and A Van Nu Po.

### **PNM –**

- Aerial on north pole line along Avenida del Sur.
- One single-phase primary drop at Browncastle Ranch heading north.
- One single-phase primary dropping at Calle De Los Cerros, presumably crossing ROW and heading south.

- Two single-phase primaries dropping off pole at Serena crossing ROW, presumably heading south along west side of Serena Road. Two single-phase primaries dropping off north pole line at Lewis Lane, presumably crossing ROW and heading south to feed Lewis Lane.
- One three-phase primary at intersection of Avenida del Sur and A Van Nu Po. Three phase drops off of pole west of intersection, runs west to J-box, then crosses A Van Nu Po heading north then east along A Van Nu Po

**Reclaimed Water** – Markers for reclaimed water along west side of Avenida del Sur at A Van Nu Po.

**Drainage** – Storm crossings along Avenida del Sur/Vista del Monte at various road markers. Drainage runs north to south with depths between 10 inches' to top of pipe to 36 inches' to top of pipe. Most are 24-inch corrugated metal pipe.



Possible fence encroachment, south side between Serena Road and Lewis Lane

### 4.1 CONCLUSIONS

Each of these utilities appear to be inside the fence lines and, therefore, presumably within the roadway easement. A location survey and further investigations of easement documents would be necessary to verify this, but if so, private utilities within the roadway easement would need to relocate, if impacted, at their cost.

City/County of Santa Fe utilities, such as water and reclaimed water, if impacted and obliged to relocate, would be a net cost to some government entity, not necessarily the Public Works Department. However, for overall net benefit to the county, the final roadway alignment and grades should consider these impacts.



## 5 Traffic Modeling

### 5.1 MODELING METHODOLOGY

The traffic volume forecasts for the proposed connection of Avenida del Sur between NM 14 and Avenida del Sur at A Van Nu Po was evaluated using the Santa Fe Metropolitan Planning Organization (SFMPO) VISUM Travel Demand Model (TDM). This model is primarily a peak hour model, which also includes mode choice and transit assignments. The model was calibrated to a base year of 2015 and was last updated in December 2017. It has been used for forecasting AM and PM peaks and will compute daily volumes based upon the peak hour forecasts. During the 2017 update, this model was used in the study for NM 599 improvement priority evaluation and other studies. Previous iterations of the model have been used for evaluation of the NE-SE corridor, the interchange improvements at I-25 and Cerrillos Road, and other important studies in the SFMPO area.

This TDM is a representation of the Santa Fe metropolitan area transportation facilities and the travel patterns using these facilities. This computerized transportation model is used to analyze street and intersection congestion and forecast the need for future roadway improvements. The model contains inventories of the existing roadway facilities and of housing, shopping, schools, and employment in the area.

The transportation modeling procedures were developed to produce representative travel flows for the base year of 2015. Model calibration involved examining multiple factors to adjust model parameters, producing a strong comparison between observed data and model-produced information. Once calibrated, the model can be used to test forecasted changes in growth patterns or changes to the transportation system. This can include changes in number of housing units, employment centers, travel behavior patterns, or roadway improvements. The SFMPO TDM includes the entire MPO area. The model development process including input data and validation parameters are described in the report titled "Santa Fe Travel Demand Model Documentation, 2017 Update" (SFMPO 2017).

### 5.2 FORECAST INPUTS

During the 2017 update of the SFMPO model, MPO staff had provided input and review of the land use input variables that are expected to be in place in 2040. The 2017 model also included a set of planned 2040 transportation improvement projects. These other transportation improvement projects can have significant impact on the volumes on the proposed corridor.

Before proceeding with the review of updated input information, the proposed corridor was coded into the model and the origins and destinations of trips using the corridor were examined. The projected model traffic volumes are driven by the levels of land use including housing, employment, and schools, particularly in areas that would be served by the corridor.

As a part of providing the traffic volume projections, Santa Fe County had supplied additional projected growth data. This data included reports and GIS files of projected growth locations. The report titled "Santa Fe County Infrastructure Buildout Analysis" (Santa Fe County 2017) was cited for updated growth projections in the Community College District (CCD). This report on page 31 projected that by 2040 an additional 2051 housing units would be in existing subdivisions, 743 housing units located outside of subdivisions, and 752 additional employees would be added. The CCD area is represented by the model zones as shown in Figure 5-1.

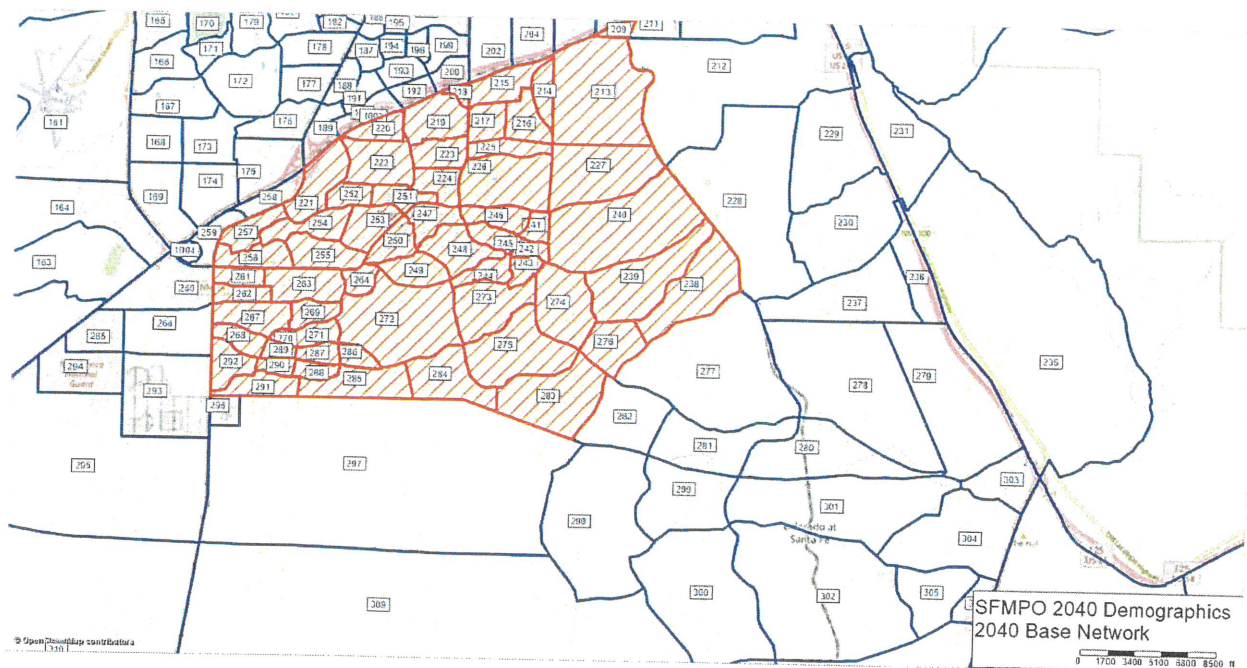


Figure 5-1. CCD area

The 2051 units of housing growth would be allocated to the subdivisions identified in Table 17 on page 35 of this report (Santa Fe County 2017), which is shown here in Figure 5-2:

Table 17 - Residential Activity

Subdivision	Land Use	Existing Units	Proposed Units	Development Ratio	Total New Units	2040 Units	Acres	Status
Arroyo Hondo	Mixed, mostly SF	0	256	75%	192	192	110.8	Proposed
Elevations	MF residential	0	214	100%	214	214	22.7	Vacant
Fireplace Apartments	MF residential	0	200	100%	200	200	8.1	Proposed
La Entrada	SF Residential	131	456	50%	163	294	244.5	Partial
La Entrada Mixed Use	Mixed Use	0	26	50%	13	13	7.4	Proposed
La Pradera	Mixed Use	101	238	100%	137	238	165.4	Partial
Oshara Village	Mixed Use	60	735	50%	338	398	361.7	Partial
Rancho Viejo Windmill Ridge	SF Residential	0	66	50%	33	33	123.8	Vacant only
Saleh	Mixed Use	0	229	75%	172	172	65.5	No data
San Cristobal	Mixed Use	0	2,781	0%	0	0	0.0	Vacant - SLO land
Sonterra	Mixed Use	0	520	50%	260	260	236.8	Vacant
St. Francis South Business Park	Mixed Use	0	250	50%	125	125	63.4	Vacant
Turquoise Trail Estates	SF Residential	0	20	100%	20	20	5.8	Vacant
Turquoise Trail North Residential	SF Residential	0	354	25%	89	89	101.2	Vacant w/ arroyos
Turquoise Trail South Residential	SF Residential +23 MF	184	313	75%	97	281	74.4	Vacant
<b>Total</b>		<b>476</b>	<b>6,402</b>		<b>2,051</b>	<b>2,527</b>	<b>1,591.4</b>	

Figure 5-2. CCD area, housing growth by subdivision

Source: Santa Fe County. 2017. "Santa Fe County Infrastructure Buildout Analysis." Prepared by Bohannon Huston, March 2017.

Using the GIS files supplied by Santa Fe County, these growth units were compared with the previous projections from SFMPO staff and the forecast data for the model was updated. The additional 743 housing units were placed in surrounding zones in the area to reflect the additional growth.



Similarly, employment growth from Table 18 on page 37 of the same report (Santa Fe County 2017) was compared with the employment projections and the model was updated to include this growth. The model land use categories are not the same, so approximations were made to reflect this growth. Table 18 is shown here in Figure 5-3:

Table 18 - Employment Growth and Land Needs in CCD Unit

Industry	CCD Unit Jobs - 2015	CCD Unit Jobs - 2040	Employees per Acre	Numeric Change Jobs	Acres Required
Mining & Agriculture	2	2	5	0	0.0
Construction	257	304	10	47	4.7
Manufacturing	131	131	10	0	0.0
Wholesale Trade	57	72	10	15	1.5
Retail Trade	31	87	15	56	3.7
Transportation	0	0	0	0	0.0
Information	0	0	0	0	0.0
Finance & Insurance	6	6	15	0	0.0
Real Estate	0	17	15	17	1.1
Prof. & Tech. Services	469	512	15	43	2.9
Management	0	0	0	0	0.0
Admin & Waste	0	65	10	65	6.5
Education	766	816	10	50	5.0
Healthcare	11	275	10	264	26.4
Arts & Entertainment	0	8	15	8	0.5
Accommodation & Food	54	129	15	75	5.0
Other	0	8	10	8	0.8
Government	175	279	10	104	10.4
<b>Total</b>	<b>557</b>	<b>2,711</b>		<b>752</b>	<b>68.6</b>

Figure 5-3. Model land use by category

Source: Santa Fe County. 2017. "Santa Fe County Infrastructure Buildout Analysis." Prepared by Bohannon Huston, March 2017.

### 5.3 FORECAST VOLUMES

As discussed above, the TDM is also responsive to transportation improvements. Of key importance were planned improvements in the CCD area, including the proposed NE-SE connector. These proposed facilities were included in the model. Although the exact future alignment and design is not finalized, the approximate location, traffic control, and speed were used.

The proposed Avenida del Sur corridor was coded using the draft alignments between NM 14 and A Van Nu Po as a collector, with one travel lane per direction and a speed of 35 mph. The current traffic signal channelization was retained at the intersection of Avenida del Sur, NM 14, and NM 599. A roundabout was assumed at Avenida del Sur and A Van Nu Po.



The model was run for both 2040 AM and 2040 PM peak hours, and the model procedures were used to estimate future 2040 weekday average daily traffic. These projected volumes are shown in two graphics: Figure 5-4 and Figure 5-5. Both show the same information, but Figure 5-5 is overlaid over a recent Bing Maps background to show the approximate location.

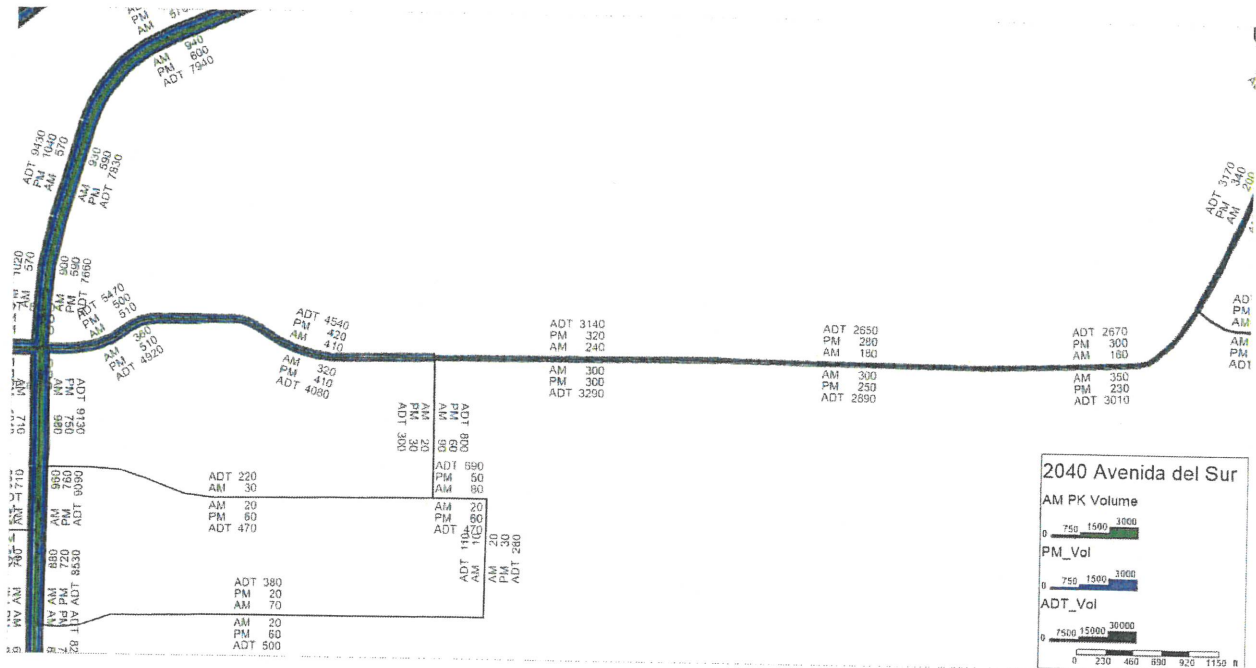


Figure 5-4: Projected 2040 Avenida del Sur volumes

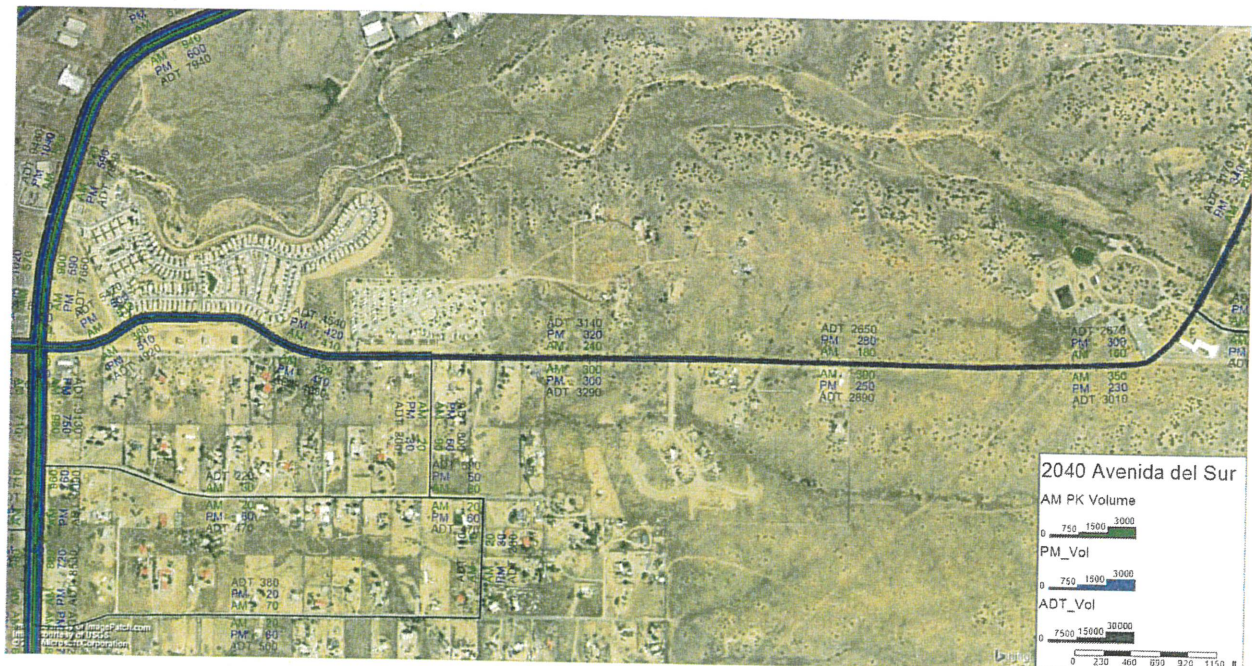


Figure 5-5. Projected 2040 Avenida del Sur volumes with aerial

These volumes vary between a two-way weekday average daily traffic (ADT) of 10,390 at the west end of the corridor near NM 14 to 5,680 at the east end of the corridor near A Van Nu Po.

Peak directional volumes in the AM and PM peak are projected to be 350-510 vehicles per hour near NM 14 to 160-350 vehicles per hour near A Van Nu Po, depending upon the peak hour and the direction. Capacity analysis was not included in the scope of this study; however, the model capacity of a collector street is 800 vehicles per hour per lane, and these projected volumes are less than this capacity. Given the projected land use growth in this area, the proposed design of the roadway as a collector with one lane per direction should not exceed capacity.



## 6 Existing Environmental Conditions Report

### 6.1 INTRODUCTION

This report consists of a review of existing environmental conditions and is intended to identify sensitive resources that may influence the Avenida del Sur West Extension project design. Information was developed from existing data, physical surveys, and other research. Although the analysis considers a full range of social, economic, and environmental conditions, it focuses primarily on those topics with the most relevance to the two alignments proposed for the Project.

#### 6.1.1 ENVIRONMENTAL SETTING SUMMARY

The project area is located within the Rio Grande Rift physiographic province in the southern part of the Española Basin, one of a series of basins between Colorado and Texas that arose during the formation of the Rio Grande Rift. The geology of the project area is characterized by piedmont alluvial deposits that were formed during episodic cut-and-fill development of the river system along the western slope of the Sangre de Cristo Mountains (Shroba et. al 2005).

The proposed project is situated on largely even terrain surrounded by small hills and basins. Elevation ranges between 6,325 feet above mean sea level (amsl) at the BOP and 6,425 feet amsl at the EOP and slopes gently down toward the southwest. The proposed alignments span a residential community in the west and an RV storage area and outpatient medical care facility to the east. Approximately 0.45 mile of the proposed project is located on undeveloped land along an existing two-track road. The plant community within the undeveloped portion of the project area is characteristic of Juniper Savannah with significant graminoid elements of Plains Mesa Grassland (Dick-Peddie 1993).

### 6.2 NATURAL RESOURCES

#### 6.2.1 SOILS

Soils within the project area are primarily composed of upland Khapo sandy loam (42%), Zozobra-Jaconita complex (29%), and Panky loam (24%). The parent material of all soils in the project area consists of alluvium derived from granite, gneiss, schist, loess, and volcanic ash and is well drained, with a moderately low to high capacity to transmit water (NRCS 2019). The project area is not designated as Prime or Important Farmland by the USDA Natural Resources Conservation Service (NRCS). Neither of the proposed project alignments would cause Prime or Unique Farmlands or hydric soils to be converted to non-agricultural uses, nor would they disturb hydric soils.

#### 6.2.2 FLOODPLAINS

The proposed project area is contained in the Federal Environmental Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panel Identification Number 35049C0508E (FEMA 2012) and 35049C0509D (FEMA 2008). According to the FIRMs, both project alignments are in an area of minimal flood hazard.

#### 6.2.3 WETLANDS

Wetlands include those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. To be jurisdictional and protected from unauthorized dredge and fill activities under Section 404 of the Clean Water Act (CWA), a wetland must have a significant connection to a known jurisdictional, navigable waterway. Executive Order 11990 requires the



avoidance, to the greatest extent possible, of both long- and short-term impacts associated with the destruction, modification, or other disturbance of wetland habitats. The proposed project would result in no potential wetland impacts.

## 6.2.4 WATER RESOURCES

### 6.2.4.1 Surface Water

Waters of the United States (WUS) are defined by 33 Code of Federal Regulations (CFR) Part 328.3 (b) and are protected by Section 404 of the CWA (33 USC 1344), which is administered and enforced by the U.S. Army Corps of Engineers (USACE). Section 404 of the CWA provides for the protection of WUS through regulation of the discharge of dredged or fill material. Water quality within the project area is regulated through Sections 401 and 402 of the CWA and enforced by the NMED Surface Water Quality Bureau. A National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) for stormwater discharges would be required as a condition of the project to prevent soil erosion and sedimentation of waterways from construction of the proposed project.

Designated WUS in the vicinity of the proposed project alignments are limited to the Cañada del Rancho to the north and Cienega Creek to the south. Both are ephemeral streams that drain into the Santa Fe River and would not be directly impacted by the proposed project.

An NPDES CGP for stormwater discharges would be required as a condition of the project to prevent soil erosion and sedimentation of waterways from construction of the proposed project. This requirement is necessary since more than 1 acre of total land area would be disturbed.

The following measures are required under this permit:

- Erosion control measures for all portions of the project area that drain to or would have runoff toward surface water must be properly selected, installed, inspected, repaired, and maintained. Erosion and sediment control structures must be inspected after significant storm events and repaired as necessary.
- Disturbed areas not otherwise physically protected from erosion must be reseeded or planted with native vegetation.
- A Storm Water Pollution Prevention Plan (SWPPP) would be prepared and maintained on-site during construction.

During project construction, excavated areas would be backfilled and compacted to match the bulk density and elevation of the adjacent undisturbed soils. Furthermore, these areas would be replanted with native vegetation if not located beneath pavement, gravel, or other roadway surfaces. Fuel, oil, hydraulic fluid, lubricants, and other petrochemicals would not be stored within the 100-year floodplain and would have a secondary containment system to prevent spills. Appropriate spill clean-up materials would be available on-site at all times during construction.

### 6.2.4.2 Groundwater

The project is located within the Southern Española Basin in the La Cienega groundwater unit (Johnson 2009). Groundwater levels within this unit depend largely on sources of recharge and topography of the paleosurface at the base of the groundwater unit (Johnson et. al 2008). Recharge enters groundwater from precipitation in the Sangre de Cristo Mountains, seepage of

tributary flow, and local precipitation. Groundwater generally flows from the mountain front west-southwest to La Cienega (Johnson 2009).

Based on a review of well data on the New Mexico Office of the State Engineer (NMOSE) well website (NMOSE 2019) and estimated hydrologic surfaces (Johnson 2009), the depth to groundwater in the floodplain portion of the project area is approximately 250 feet below ground surface (bgs). Groundwater flow is west-southwest towards the Rio Grande. Construction of the proposed project would not impact groundwater resources.

### 6.2.5 AIR QUALITY

The Clean Air Act (CAA) (Section 176(c)(4)) General Conformity Rule is intended to prevent air quality impacts that cause or contribute to violations of the National Ambient Air Quality Standards (NAAQS). Air Quality Control Regions (AQCRs) are interstate or intrastate areas designated by the Environmental Protection Agency (EPA) for the attainment and maintenance of NAAQS. The Project area falls within the Upper Rio Grande Valley AQCR 157. There are no areas such as National Parks or Wilderness Areas near the project that have been established as mandatory Class I areas under the CAA. Santa Fe County is in attainment of all current air quality standards.

Some temporary impacts on air quality may be expected from dust during construction. Standard air quality best management practices (BMPs) would be implemented, including using a water truck to wet exposed soils to minimize generation of dust. Construction equipment would be in good mechanical condition with proper exhaust controls to limit the effects of emissions to local air quality.

The proposed project would constitute a short-term minor increase in the use of fossil fuel and associated greenhouse gas (GHG) emissions during construction. The GHG emissions associated with the proposed project would be limited to short-term use of construction equipment. In the longer term, implementation of either alignment alternative would result in a local increase of GHG emissions as traffic along the proposed project alignments would increase. However, it is likely that the project would reduce out-of-direction travel and total vehicle mile of travel in the region and would thus reduce regional GHG emissions. The project is not expected to contribute appreciably to GHG emissions or to climate change and global warming.

### 6.2.6 BIOLOGICAL RESOURCES

A biological survey of the project area was conducted to evaluate potential impacts to threatened or endangered species, migratory birds, and other biological resources. The investigations included a survey for noxious weeds as designated by the New Mexico Department of Agriculture (NMDA) and an evaluation of potential effects to nesting birds protected under the Migratory Bird Treaty Act (MBTA) of 1918. The project area was evaluated and potential impacts to biological resources were assessed.

#### 6.2.6.1 Vegetation

The Juniper Savannah/Plains Mesa Grassland plant communities within the western portion of the proposed alignments are highly affected by residential development. Toward the east, vegetation is affected by a two-track, unpaved dirt road that parallels the proposed alignment options, but native shrubs and grasses persist in undisturbed areas. Dominant species in the project area include blue grama (*Bouteloua gracilis*), side-oats grama (*B. curtipendula*), galleta



grass (*Pleuraphis jamesii*), snakeweed (*Gutierrezia sarothrae*), and one-seed juniper (*Juniperus monosperma*).

The State of New Mexico, under the administration of the NMDA, lists certain weed species as noxious weeds. "Noxious" in this context means plants not native to New Mexico, which are targeted for management and control, and have a negative impact on the economy or environment. Class C listed weeds are common, widespread species that are fairly well established within the state. Class B weeds are considered common, but not widespread within certain regions of the state. Class A weeds have limited distributions within the state.

Siberian elm (*Ulmus pumila*), a Class C weed species, is scattered throughout the western end of the project area. Class C state-listed noxious weeds in the project area may be treated according to local guidelines. It is recommended that Siberian elm be removed between September 16 and February 28, outside of the nesting season for migratory birds. To minimize the potential introduction of state-listed noxious weeds into the area, all construction equipment would be thoroughly washed prior to arrival at the site.

A revegetation plan consisting of native plant species common to the local area would be implemented following construction activities on all unpaved or ungraveled, disturbed areas.



Sta 150+00+ - looking north

#### 6.2.6.2 Wildlife

Juniper Savannah/Plains Mesa Grassland plant communities provide good wildlife habitat in the project area. Residential development, especially along the western end of the proposed alignment options, has disturbed some habitat. Fauna associated with the region includes species such as coyote (*Canis latrans*), American crow (*Corvus brachyrhynchos*), sparrows, and a variety of other mammals, birds, and reptiles.

The MBTA protects more than 1,500 migratory bird species in the United States and its territories. This Act and Executive Order 13186 provide protection to migratory bird species, which includes protection of their nests and eggs. If any trees need to be removed to accommodate construction, it is recommended that they be removed between September 16 and February 28, outside of the nesting season. This would eliminate the potential for take of



any migratory birds. The proposed alignment options would not adversely affect songbirds, migratory birds, or raptors in the area as long as this recommendation is followed.

### 6.2.6.3 Threatened and Endangered Species

The U.S. Fish and Wildlife Service (USFWS) has responsibility for implementing the Endangered Species Act, including listing species as threatened or endangered, and protecting these species. The State of New Mexico lists wildlife species as endangered, threatened, or sensitive (BISON-M). The New Mexico Energy, Minerals, and Natural Resources Department (EMNRD) Forestry Division has statutory responsibility for the State Endangered Plant Species List.

A list of protected plant and animal species was compiled from the USFWS (USFWS 2019), NMDGF Biota Information System of New Mexico (BISON-M 2019), and the New Mexico Natural Heritage Program (NMNH 2019) websites (see Table 6-1). This list was developed by identifying species listed for Santa Fe County. No designated or proposed critical habitat for federally protected species occurs within the proposed Project area (USFWS 2019).

Table 6-1. Federal and state protected wildlife species for Santa Fe County  
(species in bold text have potential to occur within the Project area)

Species	Status <sup>1</sup>	Habitat Association	Potential to Occur within the Project Area
<b>Mammals</b>			
Spotted Bat ( <i>Euderma maculatum</i> )	ST	This species forages in forest openings, piñon-juniper woodlands, riparian habitats, meadows, and agricultural fields. Rocky cliffs with suitable roosting substrate (e.g., crevices, cracks) are critical to this species. Perennial water sources also are important for this species.	There is no suitable roosting substrate or perennial water sources within the project area.
Pacific marten ( <i>Martes caurina</i> )	ST	Inhabit mature forests of spruce ( <i>Picea</i> spp.), fir ( <i>Abies</i> spp.), Douglas-fir ( <i>Pseudotsuga menziesii</i> ), and associated trees in northern New Mexico.	There are no mature, old-growth forests within the project area.
New Mexico Meadow Jumping Mouse ( <i>Zapus hudsonius luteus</i> )	FE, FCH, SE	Found along permanent water in areas with sedges, forbs, alder, and/or willows; large wet meadows on river floodplains; and along irrigation ditches.	The project area does not contain dense riparian streamside wetland vegetation with the structure required for this species.
<b>Birds</b>			
White-tailed Ptarmigan ( <i>Lagopus leucura</i> )	SE	Inhabit alpine tundra and timberline habitats, which in New Mexico are mainly above 10,500 ft. Nests on the ground.	The project area does not occur in the alpine tundra.
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	ST	Nests in tall trees and commonly near bodies of water where fish and waterfowl prey are available; use conifer forests and cottonwood riparian areas.	There is no suitable perching or foraging habitat within the project area.



Species	Status <sup>1</sup>	Habitat Association	Potential to Occur within the Project Area
Peregrine Falcon ( <i>Falco peregrinus</i> )	ST	The breeding territories of peregrine falcons in New Mexico center on cliffs (30 to 1000+ feet high) in wooded/forested habitats, with large "gulfs" of air nearby in which these predators can forage. Often found adjacent to rivers, lakes, or streams. Have also been known to nest in urban areas.	The project area does not contain any rocky cliffs or canyons.
Least Tern ( <i>Sternula antillarum</i> )	FE, SE	Breeds on broad, level expanses of open sandy or gravelly beach, dredge spoil and other open shoreline areas, and more rarely inland on broad river valley sandbars. Known in New Mexico from Bitter Lake NWR and Brantley Reservoir in Eddy County.	The project area does not contain open shoreline with perennial water and is far from known populations.
Yellow-billed Cuckoo (western population) ( <i>Coccyzus americanus occidentalis</i> )	FT, FCH	Breeds in riparian woodlands with developed canopies and dense understory vegetation greater than 12.3 acres in size.	The project area does not contain suitable cottonwood gallery forests with dense understory vegetation.
Boreal Owl ( <i>Aegolius funereus</i> )	ST	Utilize mature, old growth forests including Douglas fir, lodgepole pine, fir-spruce, and aspen forest types, mainly above 9,000 feet in elevation.	The project area does not contain mature to old Engelmann spruce or subalpine fir and is below 9,000 feet in elevation.
Mexican Spotted Owl ( <i>Strix occidentalis lucida</i> )	FT, FCH	In New Mexico and nests in caves, cliffs, or trees in steep-walled canyons of mixed conifer forests. Habitat consists of remote areas with high canopy closure and high stand diversity that is multilayered with large mature trees, downed logs, snags, and stand decadence, as indicated by the presence of mistletoe.	The project does not occur in a mixed conifer forest.
Violet-crowned Hummingbird ( <i>Amazilia violiceps</i> )	ST	Found in riparian cottonwood woodlands at low to moderate elevations. Known from Guadalupe Canyon.	The project does not occur in a cottonwood woodland and is far from known populations.
Southwestern Willow Flycatcher ( <i>Empidonax traillii extimus</i> )	FE, FCH, SE	Occurs in dense riparian habitats along streams, rivers, and other wetlands. Habitat types for this species include native broadleaf riparian, monotypic exotic, and mixed exotic/native broadleaf. Habitat occurs at elevations below 8,500 feet.	The project area does not contain dense, shrubby riparian vegetation required by this species.
Gray Vireo ( <i>Vireo vicinior</i> )	ST	Occurs in mixed piñon-juniper, juniper sagebrush associations, and dry brushland with oak scrub woodlands.	The project area does contain suitable juniper habitat.
Baird's Sparrow ( <i>Ammodramus bairdii</i> )	ST	Winter migrant of New Mexico only; variety of habitats including desert grasslands in the south to prairies in the northeast. Prefers tall grasses for hiding. Otero Mesa grasslands as especially important to migration.	The project area does not contain extensive desert grasslands, prairies, or mountain meadows.
Mollusks			



Species	Status <sup>1</sup>	Habitat Association	Potential to Occur within the Project Area
Lilljeborg's Peaclam ( <i>Pisidium lilljeborgi</i> )	ST	Known only from Nambe Lake, Sangre de Cristo Mts. (Santa Fe Co.).	The project does not occur in Nambe Lake.
<b>Plants</b>			
Goodding's Onion ( <i>Allium gooddingii</i> )	SE	Moist, shaded canyon bottoms in climax conifer forests at the very bottom of low gradient (low erosion) perennial, intermittent and ephemeral stream courses with well-developed organic soils. Rocky mountain montane conifer and subalpine conifer forest at elevations from 7,500 to 12,000 feet.	There are no mature, old-growth forests or perennial, intermittent and ephemeral stream courses with well-developed organic soils within the project area.
Santa Fe cholla ( <i>Cylindropuntia viridiflora</i> )	SE	Gravelly rolling hills in piñon juniper woodland between elevations of 5,800 to 7,200 feet. Known from only three areas between Santa Fe and Chimayo.	The project is located within a juniper savannah between 6,325 and 6,425 feet amsl.
Wood Lily ( <i>Lilium philadelphicum</i> )	SE	Occurs in a variety of habitats, including wetland and mesic to xeric non-wetland habitats but commonly occurs in standing water or saturated soils. The typical habitat for these plants is the low grassy vegetation found in tall- and midgrass prairies and mountain meadows in montane coniferous forest and subalpine coniferous forest communities at 3,675 to 9,843 feet.	There is no standing water or saturated soil within the project area, and the project does not occur in prairie or mountain meadows.
Lady Tresses Orchid ( <i>Spiranthes magnicamporum</i> )	SE	Often associated with calcareous soils: dry or wet prairie, riverbanks, and floodplains. Favors dry grasslands with limestone bedrock near the surface.	The project does not occur in dry grasslands with limestone bedrock near the surface.

<sup>1</sup>FE = Federal Endangered, SE = State Endangered, FCH = Has Designated Critical Habitat

There is no proposed or designated critical habitat for any federally protected species, nor do any state or federally protected species occur within the project limits; no suitable habitat was observed within or near the proposed alignment options. Therefore, there would be no effects to any federally or state listed species. No further consultation with the USFWS, NMDGF, or New Mexico EMNRD regarding protected or sensitive species is anticipated.

Potential habitat is present in the vicinity of the proposed alignments for two state-listed species: gray vireo (*Vireo vicinior*) and Santa Fe cholla (*Opuntia viridiflora*). Neither species was observed near the proposed alignment options. The vireo is a summer migrant and would be affected, along with other migratory birds, by construction activities occurring during the breeding/nesting season and habitat removal. If construction activities must take place during the breeding season, it will be necessary to have a qualified biologist conduct a nest survey of the parcel, no more than 7-10 days prior to project work. If no nests are found, work may proceed. If active nests are found, further consultation will be needed for guidance on avoiding or minimizing impacts. It is recommended that a followup survey be conducted for the Santa Fe cholla. The vegetative portions of this species are very similar in appearance to Whipple cholla (*Cylindropuntia whipplei*), but the plant can be readily identified by its flower and flowering



typically occurs in July. Should individuals be located, guidance for mitigation and avoidance can be obtained from the USFWS.

### 6.3 SOCIAL AND ECONOMIC RESOURCES

#### 6.3.1 ARCHAEOLOGICAL, CULTURAL, AND HISTORIC RESOURCES

A record search of the New Mexico Cultural Resource Information System (NMCRIIS) database was completed to obtain information on all previously conducted surveys and previously documented archaeological sites and historic resources located within the study area. The literature review of the project area was defined as extending for 1,640 feet in all directions from the roadway corridor. Shape files were obtained for all previous investigations and documented cultural resources in the Project area. Current listings of the National Register of Historic Places (NRHP) and New Mexico State Register of Cultural Properties were also consulted to determine the presence of any registered properties or districts within the project area.

A total of 24 previous cultural resource investigations have been conducted within the literature review. These surveys have been completed for a variety of undertakings, including private development (n=10), wastewater/water lines (n=5), Railrunner station development (n=2), NM 14 improvements (n=2), other utilities (n=2), and various other small-scale projects. Most private development projects have been block surveys for residential subdivisions. More than half of these projects have involved the County of Santa Fe or NMDOT review processes.

Thirteen previous investigations have been completed within 50 feet of the estimated centerline for the Avenida del Sur West Extension. However, because they have been completed for housing development projects adjacent to the corridor, it is difficult to determine what percentage of a potential ROW acquisition has been previously surveyed. In addition, most of these surveys were completed prior to 2008 and would likely no longer be accepted by the New Mexico Historic Preservation Division. There are also some portions of the corridor that do not have adjacent surveys and have clearly not been inventoried for cultural resources in the past.

Only two previously documented archaeological sites are located within the literature review study area. LA 145656 is a Classic Period prehistoric site containing a lithic/ceramic artifact scatter and several features. It is located approximately 1,500 feet north of the project corridor and has been previously determined eligible for listing on the NRHP. LA 146428 is located 400 feet west of the western end of the project corridor. It is a twentieth century historic artifact scatter that has been previously determined not eligible for listing on the NRHP. These sites indicate low archaeological site density in the surrounding area, although they also demonstrate that archaeological sites could be discovered during survey of the project corridor. Based on analysis of aerial imagery and street views, the project area is not likely to contain historic buildings or other historic built environment resources. No register-listed properties are located in the study area.

The purpose of this background document is to identify the location of known cultural resources within the project vicinity, determine the portion of the current project corridor that has been previously inventoried for the presence of cultural resources, derive expectations regarding the nature and frequency of resources that might be encountered during Class III cultural resource survey (if required), and identify the likely level of effort and agency consultation that would be required for cultural resource permitting. Based on this record searches, some of the project corridor has been previously inventoried for the presence of cultural resources, but few of the previous surveys are recent and some segments lack previous surveys. Prior to construction,



consultation would need to occur with the NMDOT, Federal Highway Administration (FHWA), New Mexico State Historic Preservation Officer, and Santa Fe County to define an area of potential effects and determine a level of effort for cultural resource compliance. Although this would be determined through consultation, Class III survey of the ROW will likely be required with either alignment option for this Project.

### 6.3.2 COMMUNITY RESOURCES

Potential community impacts include project-related effects on local and regional institutions, community facilities, and neighborhoods. The project would provide a linkage from the regional interstate system at the I-25/NM 599 interchange and to NM 14, a major rural arterial that extends south to the Santa Fe CCD, a rapidly growing area with residential, institutional, and some commercial land uses. Community resources in this area include the Santa Fe Community College, Institute of American Indian Arts, Amy Biehl Community School, the Academy for Technology and Classics, La Cienega Volunteer Fire Department, Santo Nino Regional Catholic School, several parks and churches, and a significant residential population. The west extension of Avenida del Sur would enhance access to this area and reduce out-of-direction travel for police, fire, and emergency services from throughout the region.

The proposed project would also likely induce changes in what is now a rural residential neighborhood along Avenida del Sur and Vista del Monte. The project would result in additional traffic, greater noise, and changes to the character of the adjacent residential neighborhoods. Modifications or removal of some mailboxes, fences, driveways, or other appurtenant features could also result from the proposed project.

- Alternative 1 (holding the south ROW line and widening to the north) would have the greatest impact on the townhouse development just east of NM 14 from increased traffic in closer proximity to the backyards of these residences. The vehicle storage yard at the west end of the corridor would also be impacted by this alternative by loss of storage spaces. Properties in remainder of the corridor on the south side of the existing roadway would also experience impacts to mailboxes, fences, and other features, as some of these are within the existing ROW.
- Alternative 2 (widening equal distances from the centerline of the existing roadway) would impact the townhouse development to a lesser degree but would have greater effects to properties on the south side of the existing roadway. Impacts would include potential removal of mailboxes, fences, and other features and modifications to existing driveways. Traffic would also be closer to these residences, some of which are already very near to the roadway lanes.

### 6.3.3 ENVIRONMENTAL JUSTICE

The community context includes civil rights and environmental justice considerations, which relate to potential disproportionate adverse impacts on minority, low-income, or other special status populations. Data from the U.S. Census Bureau (2017) were reviewed to characterize economic and demographic information about the project area. Table 6-2 provides an overview of these characteristics for the State of New Mexico, Santa Fe County, City of Santa Fe, and Census Tract 106.01, which includes the project and surrounding area. Compared to the statewide average, the county, city, and Project area within Census Tract 106.01 have slightly lower percentages of non-White people and slightly higher percentages of Hispanic ethnicity people. The age distribution in Census Tract 106.01 is generally similar to the state, county, and



city; however, the value for the age group between 25 and 34 years is slightly higher, which indicates a lower median age in the project area. Median household and per capita income are higher in Santa Fe County and the City of Santa Fe relative to the State of New Mexico, while average income in Census Tract 106.01 is higher than the county and city. Likewise, poverty levels are lower in the county and city compared to the state, and lower still in Census Tract 106.01. Based on these characteristics, environmental justice considerations would likely not be an issue for either option.

Table 6-2. Comparison of project area demographic characteristics

	New Mexico		Santa Fe County		City of Santa Fe		Census Tract 106.01	
	Value	Percent	Value	Percent	Value	Percent	Value	Percent
Total Population	2,084,828	100.0%	147,514	100.0%	82,980	100.0%	5,848	100.0%
<b>Race and Ethnicity</b>								
White	1,547,843	74.2%	122,270	82.9%	70,388	84.8%	4,677	80.0%
African American	42,187	2.0%	1,118	0.8%	728	0.9%	43	0.7%
Native American	197,191	9.5%	5,163	3.5%	1,703	2.1%	216	3.7%
Asian	29,991	1.4%	1,855	1.3%	1,083	1.3%	442	7.6%
Pacific Islander	1,390	0.1%	142	0.1%	118	0.1%	0	0.0%
Some other race	197,944	9.5%	12,923	8.8%	6,464	7.8%	396	6.8%
Two or more races	68,282	3.3%	4,043	2.7%	2,496	3.0%	74	1.3%
Hispanic Ethnicity	1,004,103	48.2%	75,514	51.2%	45,351	54.7%	3,116	53.2%
<b>Age (years)</b>								
Under 5	131,062	6.3%	6,904	4.7%	4,012	4.8%	271	4.6%
5-9	140,361	6.7%	8,231	5.6%	4,955	6.0%	340	5.8%
10-14	142,616	6.8%	8,164	5.5%	4,580	5.5%	367	6.3%
15-19	139,735	6.7%	8,115	5.5%	4,747	5.7%	393	6.7%
20-24	149,424	7.2%	7,841	5.3%	4,594	5.5%	263	4.5%
25-34	278,395	13.4%	16,773	11.4%	10,700	12.9%	1,033	17.7%
35-44	244,717	11.7%	16,995	11.5%	10,094	12.2%	665	11.4%
45-54	258,110	12.4%	19,703	13.4%	10,722	12.9%	685	11.7%
55-59	140,633	6.7%	12,107	8.2%	5,957	7.2%	385	6.6%
60-64	131,093	6.3%	11,978	8.1%	5,933	7.1%	484	8.3%
65-74	194,658	9.3%	20,012	13.6%	10,176	12.3%	602	10.3%
75-84	97,707	4.7%	7,755	5.3%	4,573	5.5%	252	4.3%
85 and over	36,317	1.7%	2,936	2.0%	1,937	2.3%	108	1.8%
<b>Income</b>								
Median Household Income	\$46,718	X	\$57,945	X	\$53,922	X	\$74,095	X
Per Capita Income	\$25,257	X	\$35,801	X	\$34,371	X	\$34,765	X
Families Below Poverty	X	15.6%	X	10.0%	X	10.6%	X	6.8%
All People Below Poverty	X	20.6%	X	14.4%	X	15.1%	X	7.2%

Source: U.S. Census Bureau 2017



#### 6.3.4 LAND USE AND ECONOMIC RESOURCES

Santa Fe's economy is based largely on tourism and state government. As capitol of New Mexico, Santa Fe's government sector is the largest employer in the area. Santa Fe receives 1 to 2 million visitors annually and tourism boosts the city's retail industry, which brings in more than \$1 billion annually. Because of the city's proximity to Los Alamos National Laboratory 45 miles away, scientific research has also become a factor. Health care and light manufacturing are other significant economic sectors. Santa Fe has emerged as a regional medical center: CHRISTUS St. Vincent Regional Medical Center is one of the city's largest employers and serves seven counties. Educational institutions such as Santa Fe Community College also generate a substantial local economic impact through employment, operational expenses, spending by students, and the contributions of alumni in the workforce.

Land use in the immediate project area is primarily residential with commercial/institutional nodes at the east and west termini. The Easterseals El Mirador main office and a storage yard for RVs, boats, and other equipment are located in the vicinity of the east project terminus, at the Avenida del Sur/A Van Nu Po intersection. A convenience store/gas station and the Santa Fe National Forest headquarters are in the immediate area of the west terminus, at the NM 599/NM 14 intersection. Other businesses and institutional uses are located along NM 14 to the north and south. Residential land uses along the north side of the project corridor include a dense townhouse development just east of the NM 14 intersection, including approximately 25 units with backyards adjacent to Avenida del Sur; the Santa Fe Skies RV Park, which includes a first tier of RV spaces set back about 100 feet north of Avenida del Sur/Vista del Monte; and several low-density single family residences situated 400 feet or more north of the project corridor. Residential land uses on the south side of Avenida del Sur/Vista del Monte include about 15 single-family residences with either direct access to Avenida del Sur/Vista del Monte or to perpendicular streets. Many of these residences have mailboxes, fences, driveways, landscaping, or other appurtenant features directly adjacent to the existing roadway.

The proposed Avenida del Sur West Extension Project is identified in the primary land use and transportation planning documents that guide development in the area. These include the Santa Fe Metropolitan Transportation Plan (MTP) 2015-2040 (SFMPO 2015), the Santa Fe County Sustainable Growth Management Plan (Santa Fe County 2015), and the Santa Fe CCD Plan (Santa Fe County 2000). These plans reflect Santa Fe's progressive approach to planning, including expectations about the future transportation network and emphasis on multi modal travel and the "Complete Streets" concept.

- The MTP (SFMPO 2015) is a framework to address the transportation needs of the Santa Fe SFMPO over a 25-year horizon. It provides an approach to transportation planning that includes multiple modes of travel: walking, biking, public transit, and driving. The vision of the MTP is for Santa Fe residents and visitors to enjoy safe and convenient access along a comprehensive network of multiuse trails and Complete Streets, connecting residential neighborhoods with employment centers, parks, open space, schools, retail centers, and other public and private services throughout the metropolitan area. The MTP identifies the Avenida del Sur West Extension Project on its Future Roadway Network map as "Public Agency Lead Road for Improvement" and as a "Priority 10" in its list of Fiscally Constrained Regional Roadway Projects.

- The Santa Fe County Sustainable Growth Management Plan (Santa Fe County 2015) is a comprehensive revision and update of the Santa Fe County Growth Management Plan (General Plan) adopted in 1999 and is the adopted, statutorily authorized General Plan for the unincorporated portion of the County. This plan considers Land Use; Open Space, Trails, Parks, and Recreation Areas; Green Design and Development; and Transportation. The 2015 plan's Preliminary Official Map of Transportation Facilities shows the Avenida del Sur West Extension Project as a Minor Arterial in the future road network.
- The Santa Fe CCD Plan (Santa Fe County 2000) was conceived during the original Santa Fe County Growth Management Plan process as a compact village development outside the designated urban area. It envisioned mixed-use development with street connections that provide a balanced internal road network and access to the regional transportation system. The District Plan's Circulation Map shows the Avenida del Sur West Extension corridor as a "Proposed Primary Road" with future transit service.

The Avenida del Sur West Extension has been included in local and regional transportation planning documents for almost 20 years as a means of providing improved access and mobility to the Santa Fe CCD. Either alignment option would implement the planning documents' emphasis on multi modal travel and a "Complete Streets" concept.

### **6.3.5 VISUAL RESOURCES**

The visual landscape of the project area consists of low-density residential development with some retail and institutional land uses at the east and west ends of the corridor and a higher-density residential area at the west end of the project. Several mountain ranges are visible on the horizons, including the Sangre de Cristo Mountains to the north and east, the Ortiz and Sandia Mountains to the south, and Tetilla Peak and the Jemez Mountains to the southwest and west. The vacant land surrounding the corridor contains mature native trees, shrubs, and grasses. There are currently no aesthetic themes or landscaping treatments that unify the visual character of the corridor. Either of the alignment options would add a more developed, urban element to the roadway corridor, but would not significantly alter the surrounding landscape or any sensitive visual features.

### **6.3.6 TRAFFIC NOISE**

Traffic noise is likely to increase as a result of the project due to additional traffic and the wider cross section of the proposed roadway. Noise-sensitive land uses in the Project area include single-family and townhouse residences in the neighborhoods north and south of the existing road. The commercial and institutional land uses in the area are typically not considered noise-sensitive. The proposed project is expected to result in additional traffic on Avenida del Sur, ranging from PM peak hour volumes of approximately 1,000 vehicles per hour (vph) at the west end of the corridor to about 500 vph at the east end. Existing peak hour traffic volumes are estimated to be about 100 vph.

To estimate future noise levels, a simplified application of the FHWA's Traffic Noise Model (TNM) was used to predict noise levels with the above traffic volumes. The TNM model uses site-specific information on traffic volumes and speeds, vehicle classifications, roadway geometry, and site acoustical properties to predict hourly noise levels at selected locations. The model shows that noise levels would be a maximum of approximately 66 decibels (dBA) at a distance of about 40 feet from the roadway centerline with the highest future traffic volumes. Noise levels with existing traffic volumes would be in the 56-dBA range in the same location.



Noise levels would diminish with greater distances from the road centerline and where traffic volumes are lower.

Santa Fe County's noise regulations (Ordinance No. 2009-11) do not specifically regulate highway traffic noise. Under state (NMDOT 2011) and federal (FHWA 2011) policies, a noise analysis is typically required for the construction of a highway on a new location or the significant physical alteration of an existing highway. According to FHWA and NMDOT guidelines, noise impacts occur when predicted traffic noise levels approach or exceed specified noise abatement criteria, defined as 67 dBA for residential land-uses, or when predicted future noise levels exceed existing levels by 10 dBA or more. Where impacts occur, noise abatement is considered and may include measures such as construction of noise barriers, modification of horizontal or vertical geometric design features, or traffic management techniques such as limitations on speed or truck traffic.

Both alignment options would result in noise impacts in the project area. The north widening option would likely result in less impact because most of the residences to the north would be located at greater distances from the proposed roadway centerline. Conversely, the split widening option would likely have more noise impacts on those residences to the south of the ROW, which are typical closer to the road.

#### **6.3.7 HAZARDOUS MATERIALS**

Environmental databases, aerial photography, and data provided by the New Mexico Environment Department (NMED) and other regulatory agencies were reviewed to identify the presence of any recognized environmental conditions or other conditions related to hazardous substances or petroleum product releases in the project area. Historical and existing facilities were reviewed for violations and releases. A release of petroleum products occurred at Allsup's 346, a gas station located at the western end of both proposed alignments in 2018. A status of "No Further Action Required" was issued by NMED on September 14, 2018 (GeoSearch 2019). It is highly unlikely that soil or groundwater in the project area is contaminated by hazardous materials. BMPs should be implemented during construction to protect any stormwater generated on site from discharging and releasing sediment into the Cañada del Rancho and Cienega Creek.

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**Legend:**

- Project Area
- State
- County
- Interstate Highway
- State Highway
- Major Road
- Streets/Roads
- Lake/Pond
- Wash
- Intermittent Stream
- Perennial Stream/River

**Scale:** 1:7,500  
0 500 1,000 1,500 2,000 Feet

**Coordinate System:** NAD 1983 UTM Zone 13N

**Santa Fe County**  
**Avenida Del Sur West Extension**  
**Preliminary Engineering Study**

**Project Area Map**  
Santa Fe County, New Mexico  
Date: 5/6/2019

Figure A-1. Map of project area