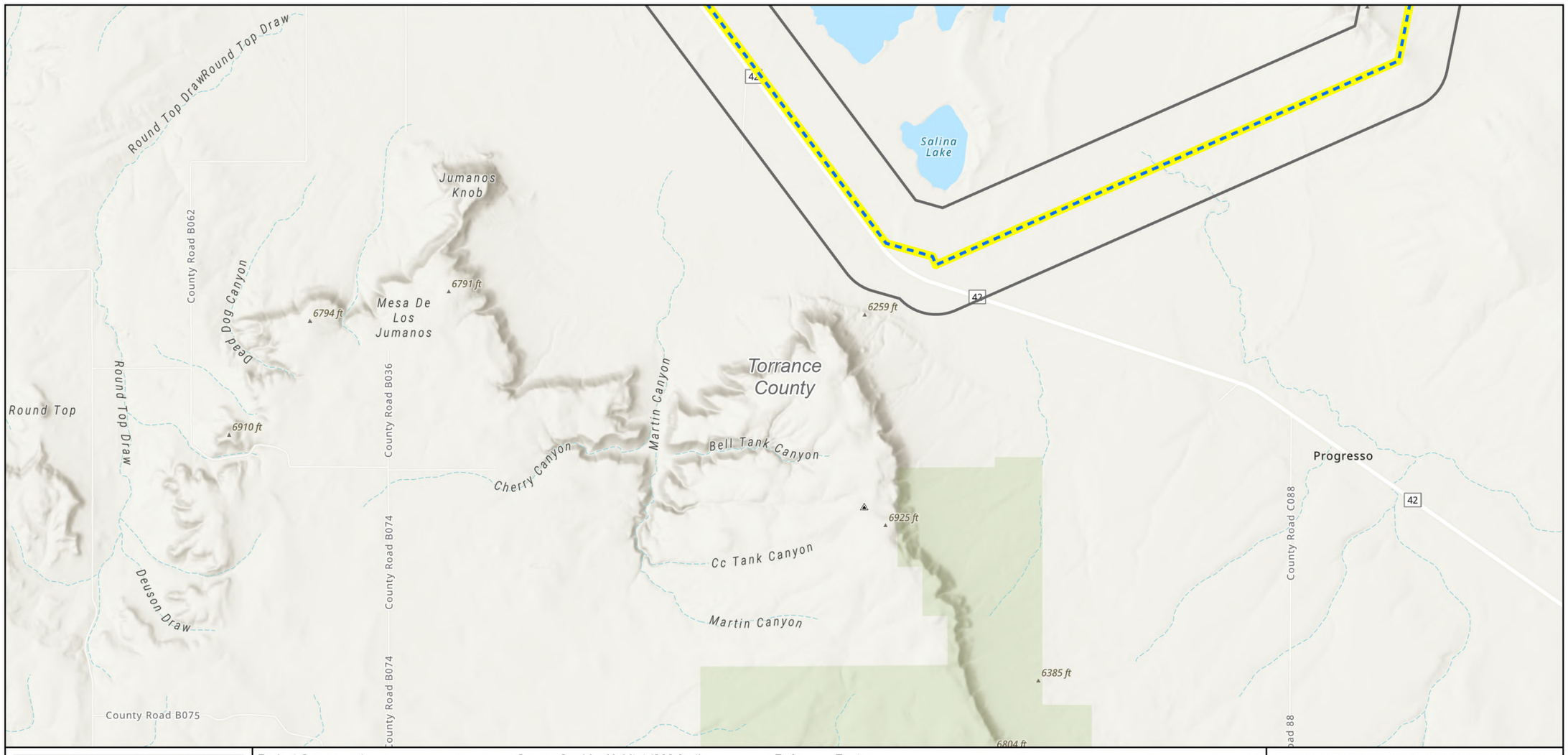
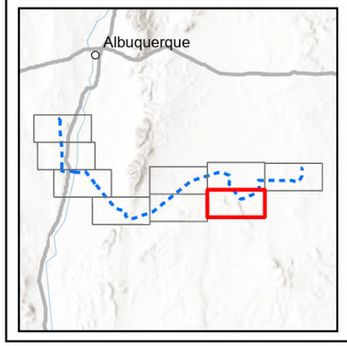




Project Components
- Transmission Centerline
- Transmission Study Corridor (1 Mile)

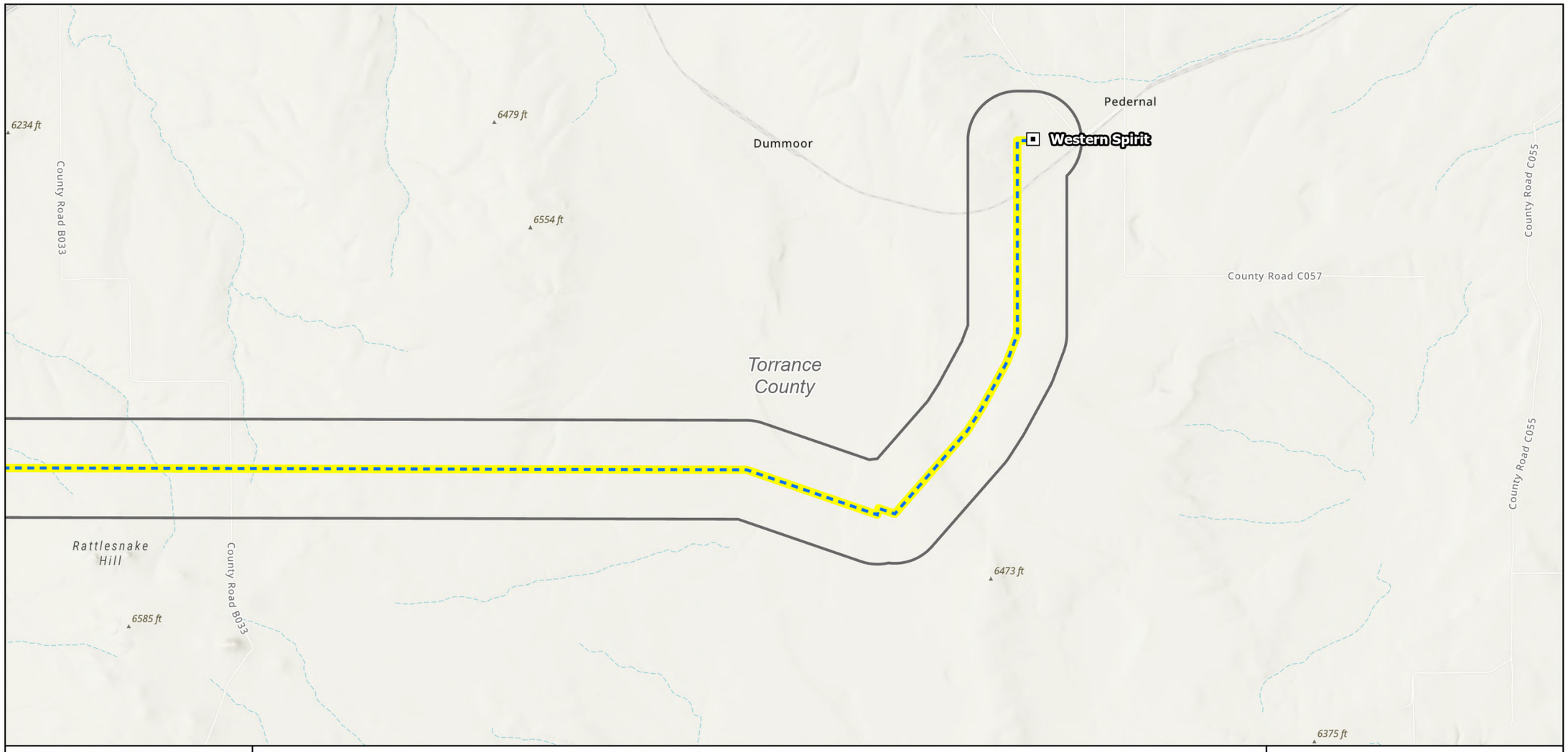
Survey Corridor Habitat (300 feet)
- Agriculture/Developed
- Desert Scrub
- Grassland
- Riparian
- Woodland

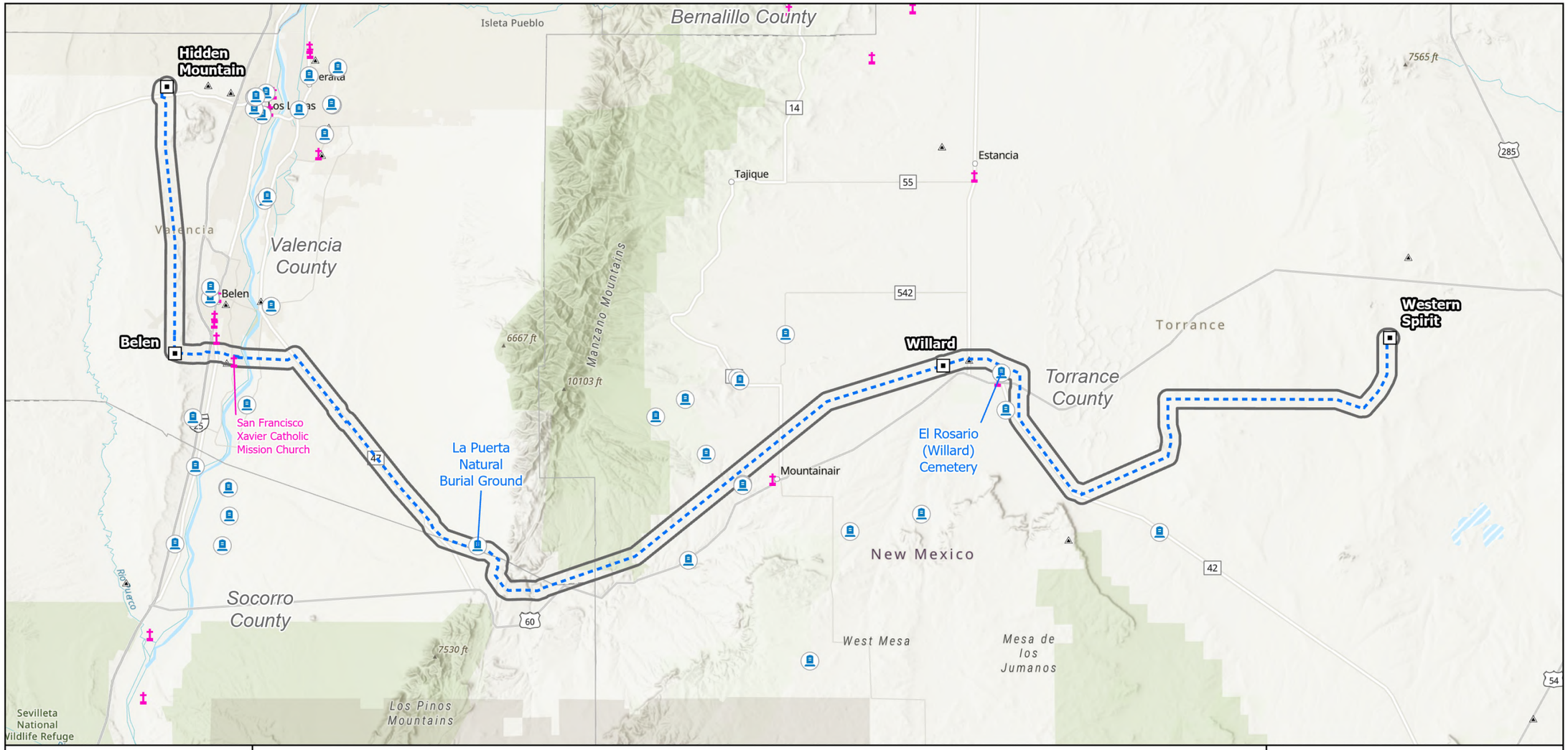
Reference Features
- Existing Substation
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 14
Field Verified Vegetation Map
Page 8 of 9

0 1 2 Miles


6234 ft
County Road B033
6479 ft
6554 ft
Dummoor
Pedernal
Western Spirit
County Road C055
County Road C057
Torrance
County
Rattlesnake
Hill
County Road B033
6585 ft
6473 ft
6375 ft
Albuquerque
Project Components
Project Substation
Transmission Centerline
Transmission Study Corridor (1 Mile)
Survey Corridor Habitat (300 feet)
Agriculture/Developed
Desert Scrub
Grassland
Riparian
Woodland
Reference Features
Existing Substation
County Boundary
MID-STATE TRANSMISSION PROJECT
Exhibit 14
Field Verified Vegetation Map
Page 9 of 9
0
1
2
Miles





Project Components
- Project Substation
- Transmission Centerline
- Transmission Study Corridor (1 Mile)

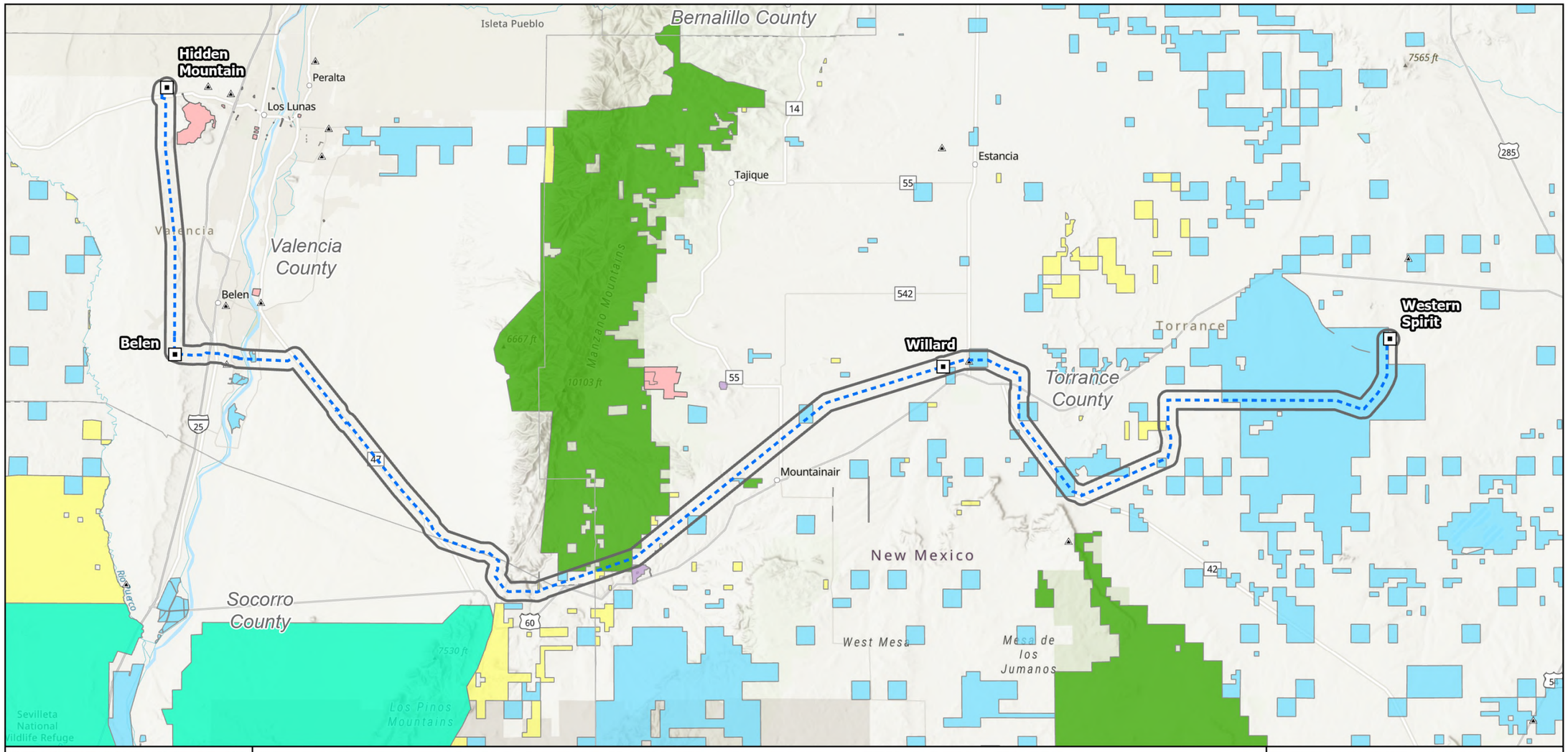
Religious Sites and Cemeteries
- Church
- Cemetery

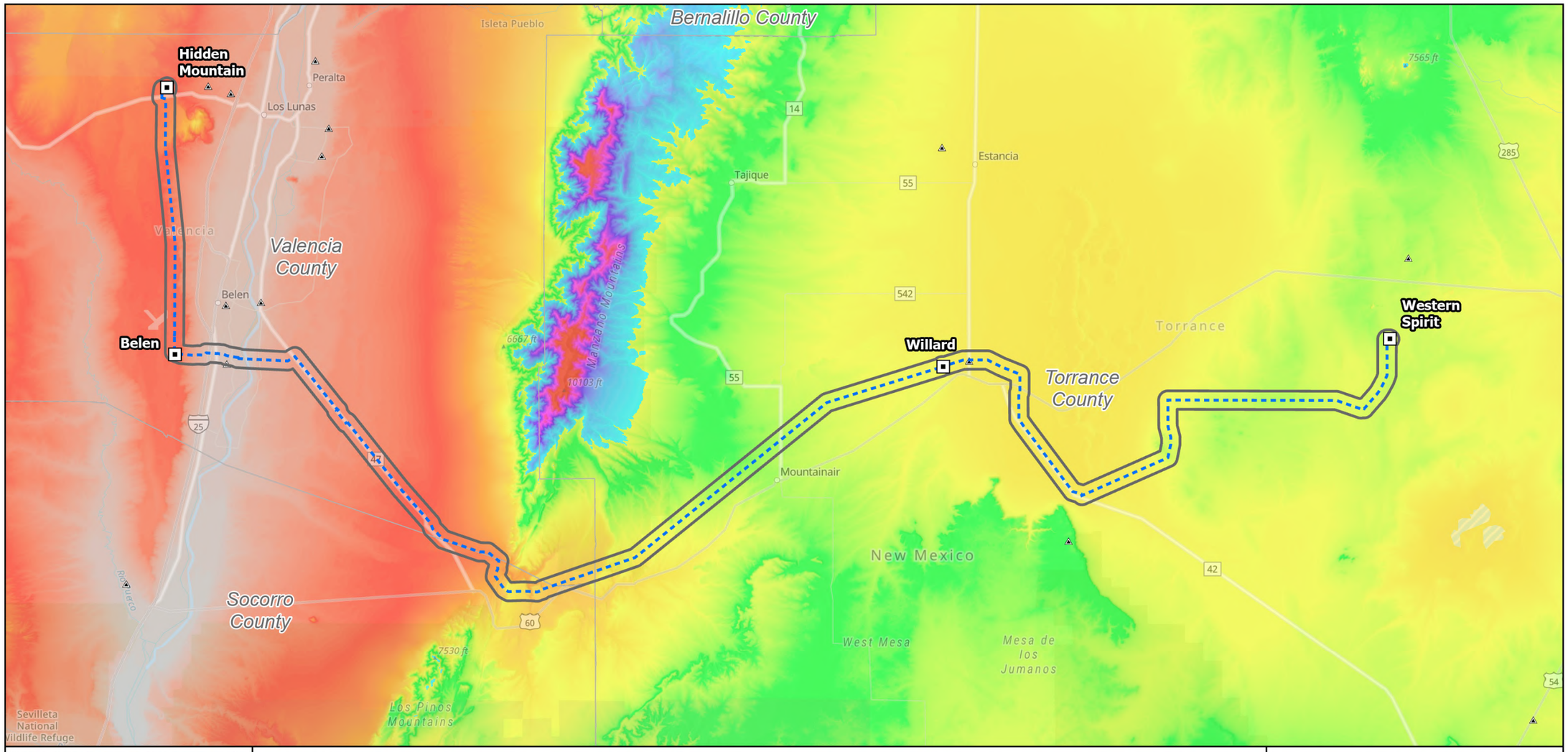
Reference Features
- Existing Substation
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 15
Religious Sites and Cemeteries Map

0 5 10 Miles


Hidden Mountain
Peralta
Los Lunas
Isleta Pueblo
Bernalillo County
Tajique
Estancia
7565 ft
285
14
55
542
Valencia
Valencia County
Belen
Belen
25
47
6667 ft
10103 ft
Manzano Mountains
Willard
Torrance
Torrance County
Western Spirit
Mountainair
New Mexico
42
Socorro County
60
7530 ft
West Mesa
Mesa de los Jumanos
Los Pinos Mountains
Sevilleta National Wildlife Refuge
Rio Puerco
NEW MEXICO
Project Area
Albuquerque
Las Cruces
El Paso
Project Components
Project Substation
Transmission Centerline
Transmission Study Corridor (1 Mile)
Public Lands and Easements
Bureau of Land Management
Fish & Wildlife Service
Forest Service
National Park Service
State
Other Easement
Reference Features
Existing Substation
County Boundary
MID-STATE TRANSMISSION PROJECT
Exhibit 16
Public Lands and Easements Map
0
5
10
Miles
wsp





Project Components
- Project Substation
- Transmission Centerline
- Transmission Study Corridor (1 Mile)

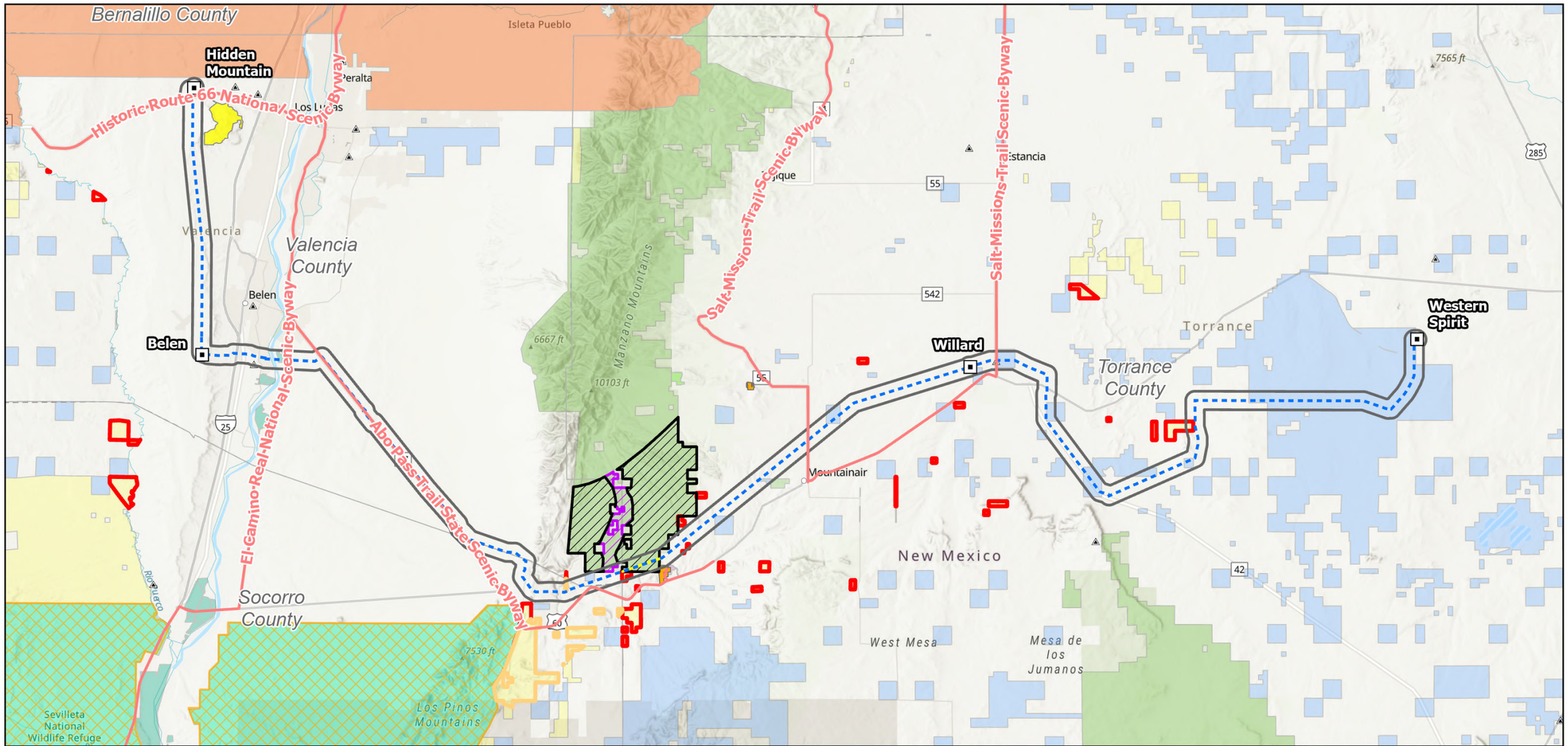
Elevation (Feet)
- High: 11,243
- Low: 1393

Reference Features
- Existing Substation
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 17
Elevation Map

0 5 10 Miles





Project Components
- Project Substation
- Transmission Centerline
- Transmission Study Corridor (1 Mile)

Surface Management
- Bureau of Land Management
- Forest Service
- Fish & Wildlife Service
- National Park Service
- Tribal Land
- State
- State Game & Fish
- State Park
- Private

Visual Resources
- Salinas Pueblo Missions National Monument
- El Cerro de Los Lunas Preserve
- Sevilleta National Wildlife Preserve
- Scenic Byway
- BLM VRM Class III
- BLM VRM Class IV
- High SIO
- Moderate SIO
- Low SIO

Reference Features
- Existing Substation
- County Boundary

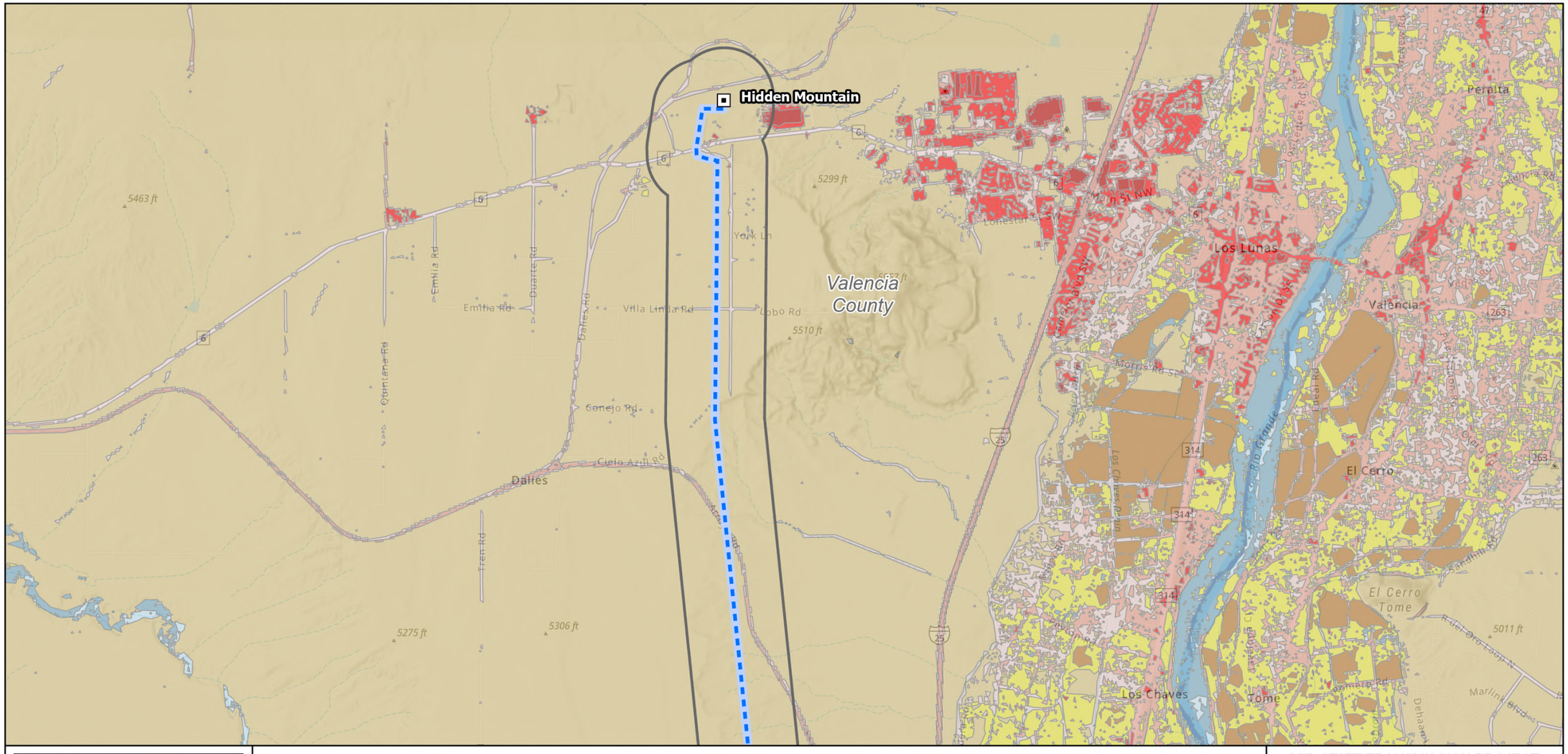
MID-STATE TRANSMISSION PROJECT

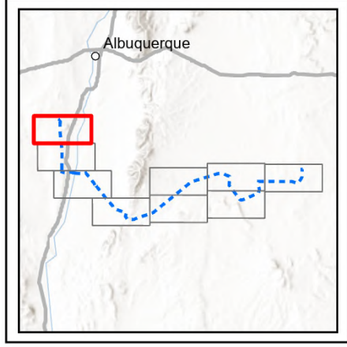
Exhibit 18
Visual Resources Map

N

0 5 10 Miles

wsp





Project Components
- Project Substation
- Transmission Centerline
- Transmission ROW (200 ft)
- Transmission Study Corridor (1 Mile)

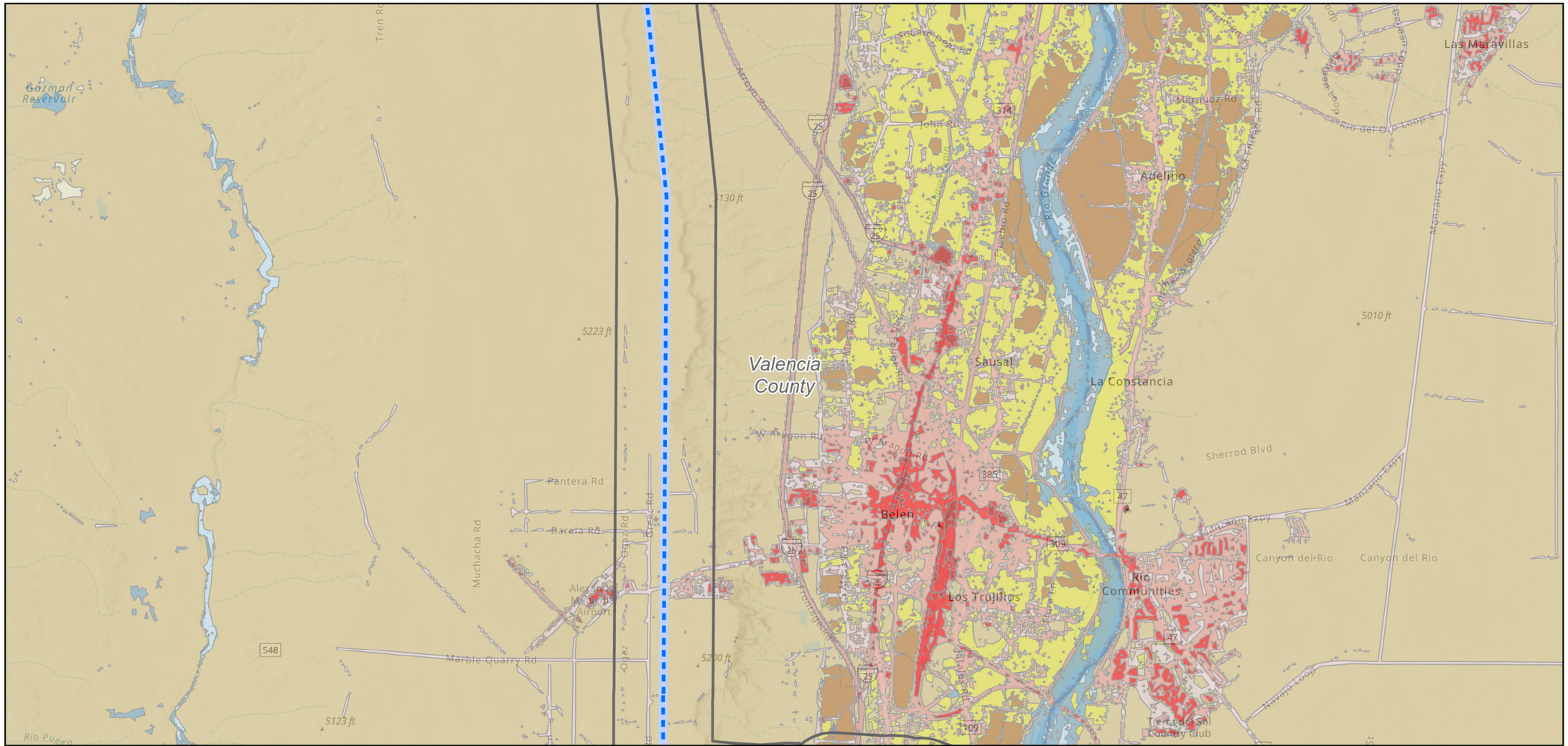
NLCD
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed,High Intensity
- Barren Land (Rock/Sand/Clay)
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

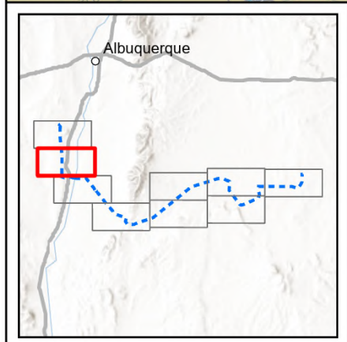
Reference Features
- Existing Substation
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 18
Land Cover Map
Page 1 of 9

0 1 2 Miles





Project Components
- Transmission Centerline
- Transmission ROW (200 ft)
- Transmission Study Corridor (1 Mile)

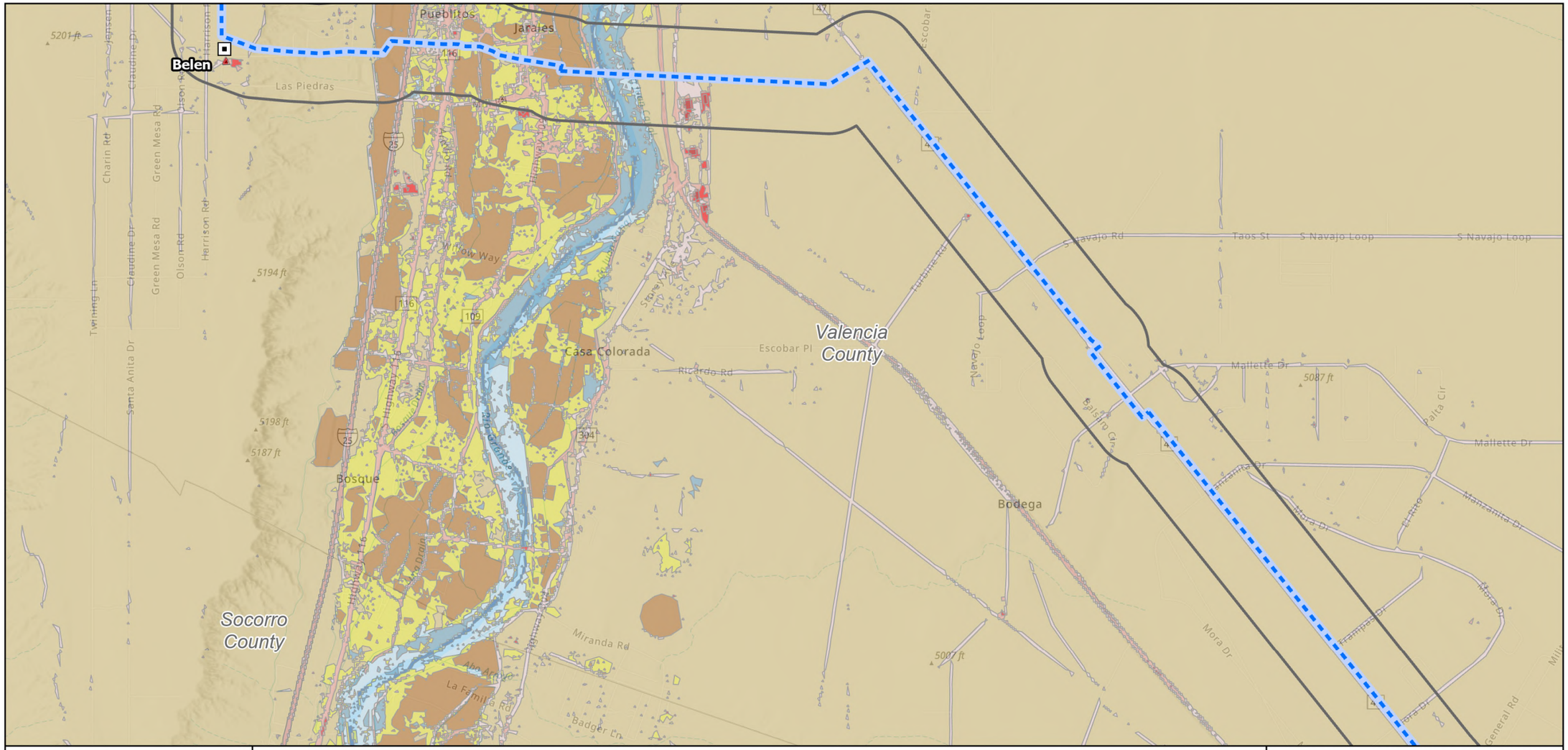
NLCD
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed,High Intensity
- Barren Land (Rock/Sand/Clay)
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

Reference Features
- Existing Substation
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 18
Land Cover Map
Page 2 of 9

0 1 2 Miles



Project Components
- Project Substation
- Transmission Centerline
- Transmission ROW (200 ft)
- Transmission Study Corridor (1 Mile)

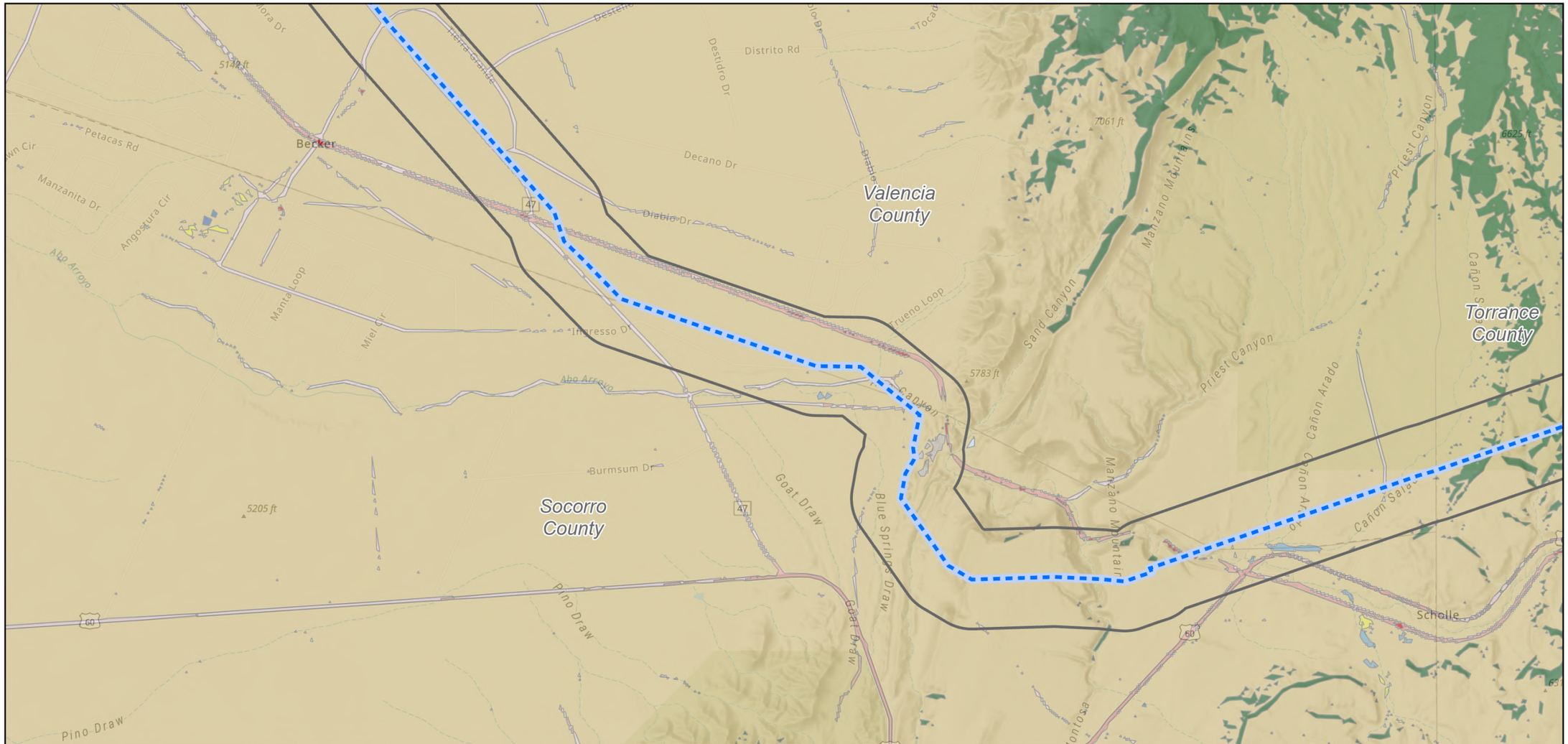
NLCD
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed,High Intensity
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

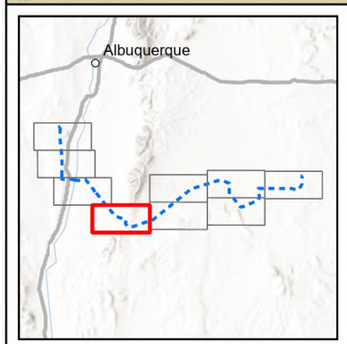
Reference Features
- Existing Substation
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 18
Land Cover Map
Page 3 of 9

0 1 2 Miles





Project Components
- Transmission Centerline
- Transmission ROW (200 ft)
- Transmission Study Corridor (1 Mile)

NLCD
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Barren Land (Rock/Sand/Clay)
- Evergreen Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Woody Wetlands
- Emergent Herbaceous Wetlands

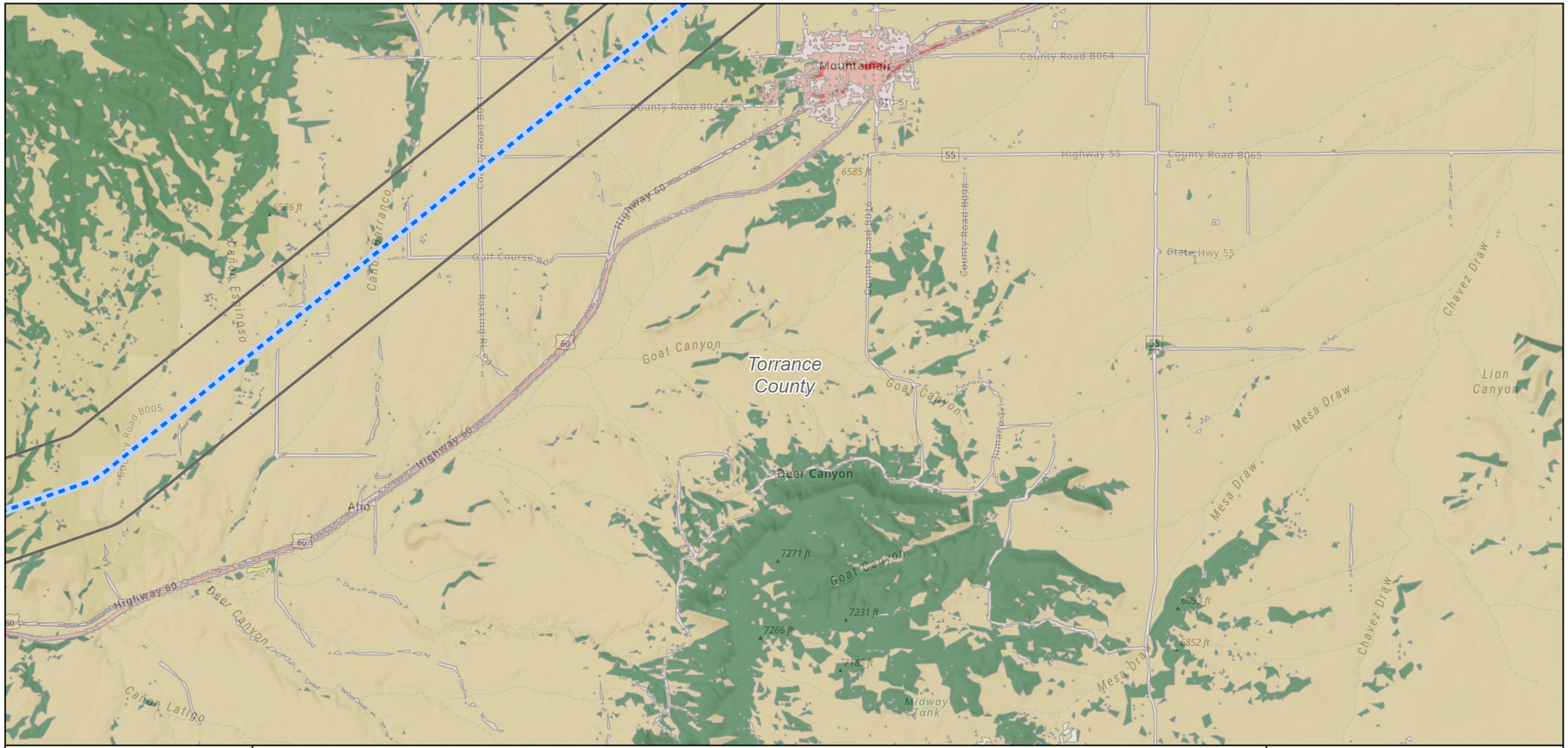
Reference Features
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 18
Land Cover Map
Page 4 of 9

0 1 2 Miles

wsp



Project Components
- Transmission Centerline
- Transmission ROW (200 ft)
- Transmission Study Corridor (1 Mile)

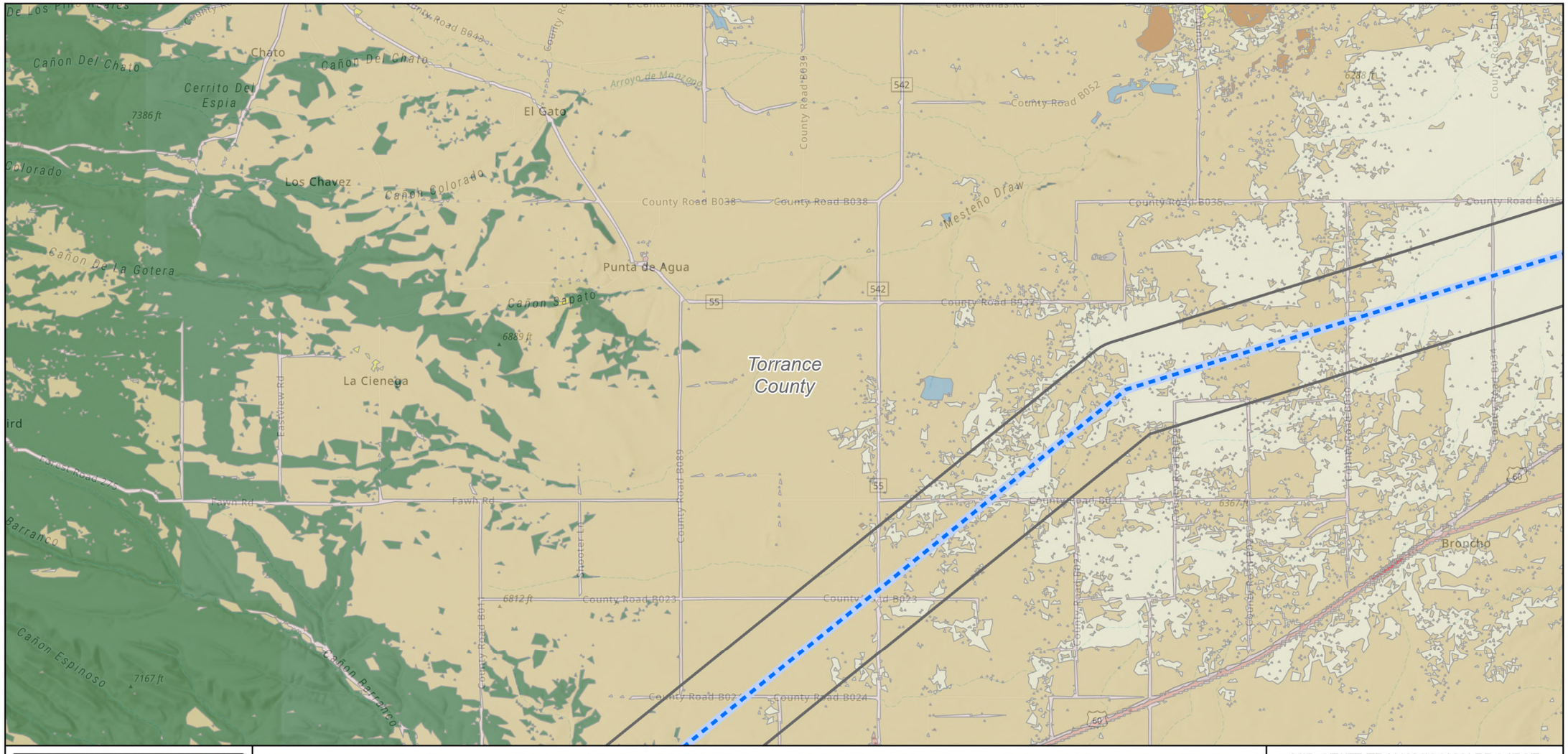
NLCD
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed,High Intensity
- Barren Land (Rock/Sand/Clay)
- Evergreen Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay

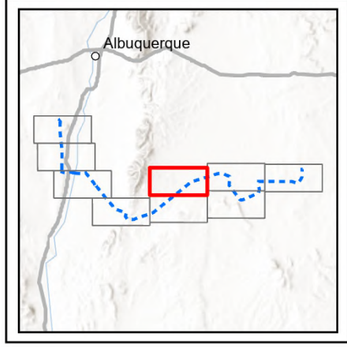
Reference Features
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 18
Land Cover Map
Page 5 of 9

0 1 2 Miles





Project Components
- Transmission Centerline
- Transmission ROW (200 ft)
- Transmission Study Corridor (1 Mile)

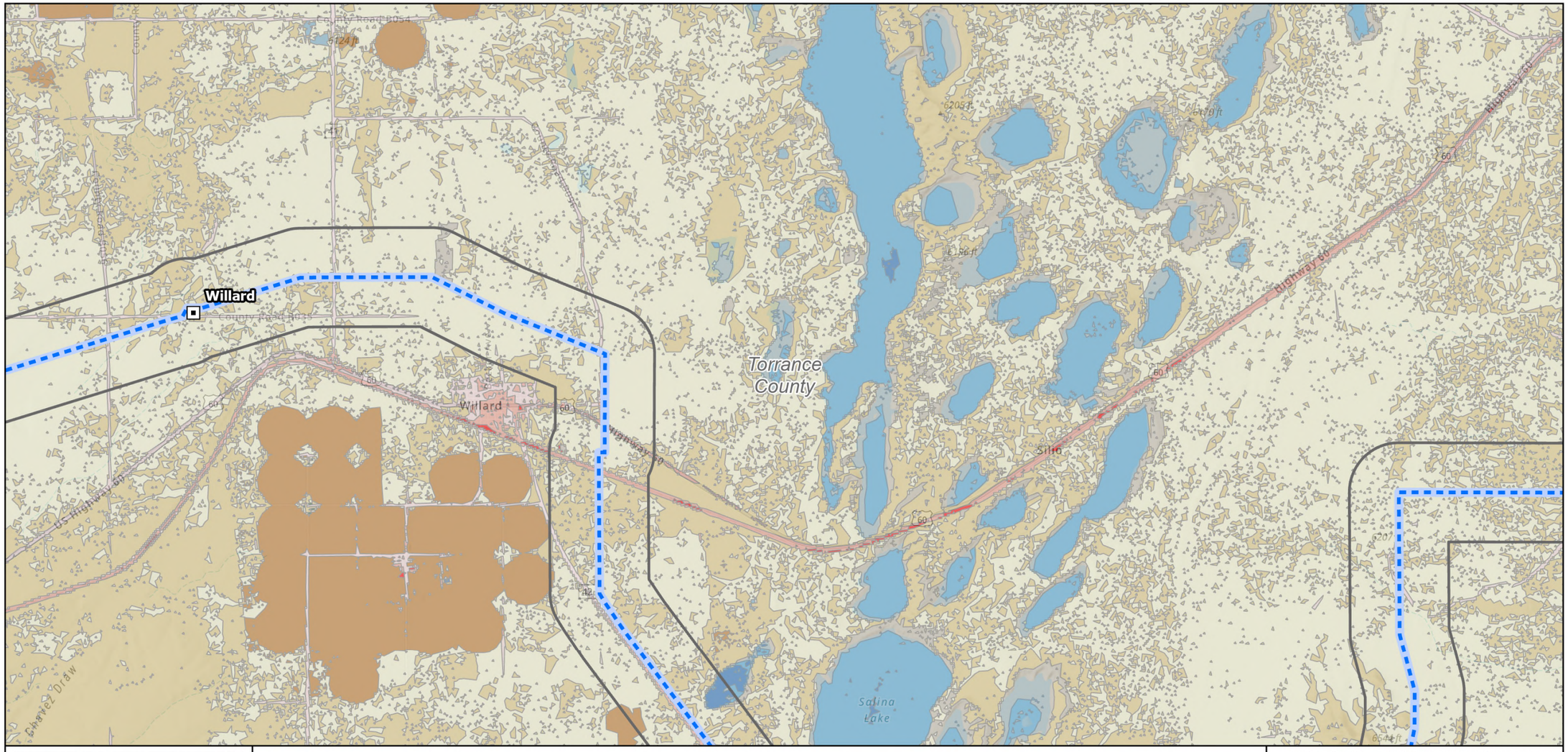
NLCD
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Barren Land (Rock/Sand/Clay)
- Deciduous Forest
- Evergreen Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Emergent Herbaceous Wetlands

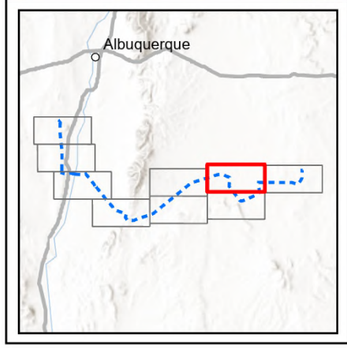
Reference Features
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 18
Land Cover Map
Page 6 of 9

0 1 2 Miles





Project Components
- Project Substation
- Transmission Centerline
- Transmission ROW (200 ft)
- Transmission Study Corridor (1 Mile)

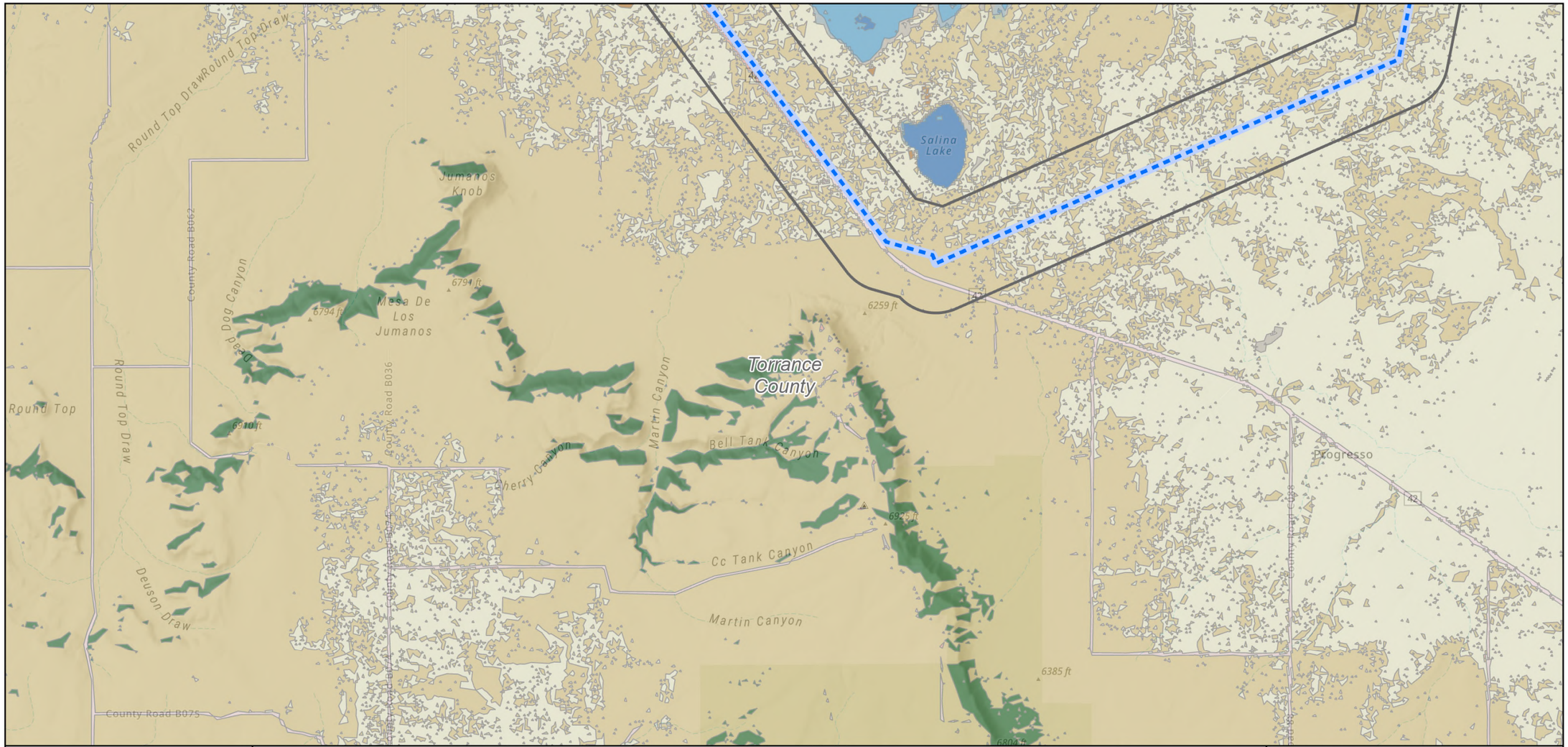
NLCD
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Barren Land (Rock/Sand/Clay)
- Evergreen Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Emergent Herbaceous Wetlands

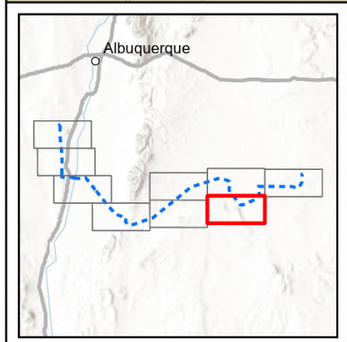
Reference Features
- Existing Substation
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 18
Land Cover Map
Page 7 of 9

0 1 2 Miles





Project Components
- Transmission Centerline
- Transmission ROW (200 ft)
- Transmission Study Corridor (1 Mile)

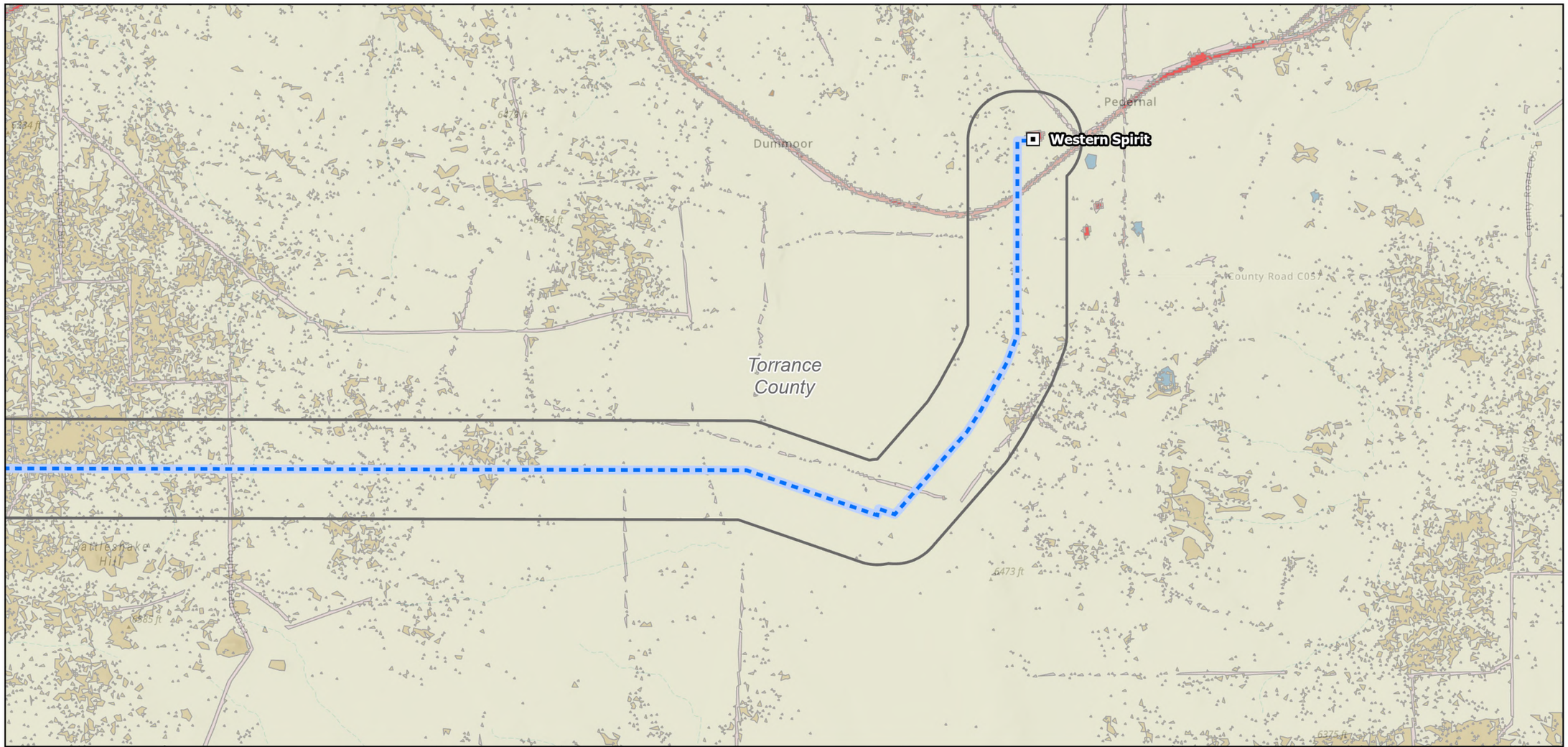
NLCD
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Barren Land (Rock/Sand/Clay)
- Evergreen Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Emergent Herbaceous Wetlands

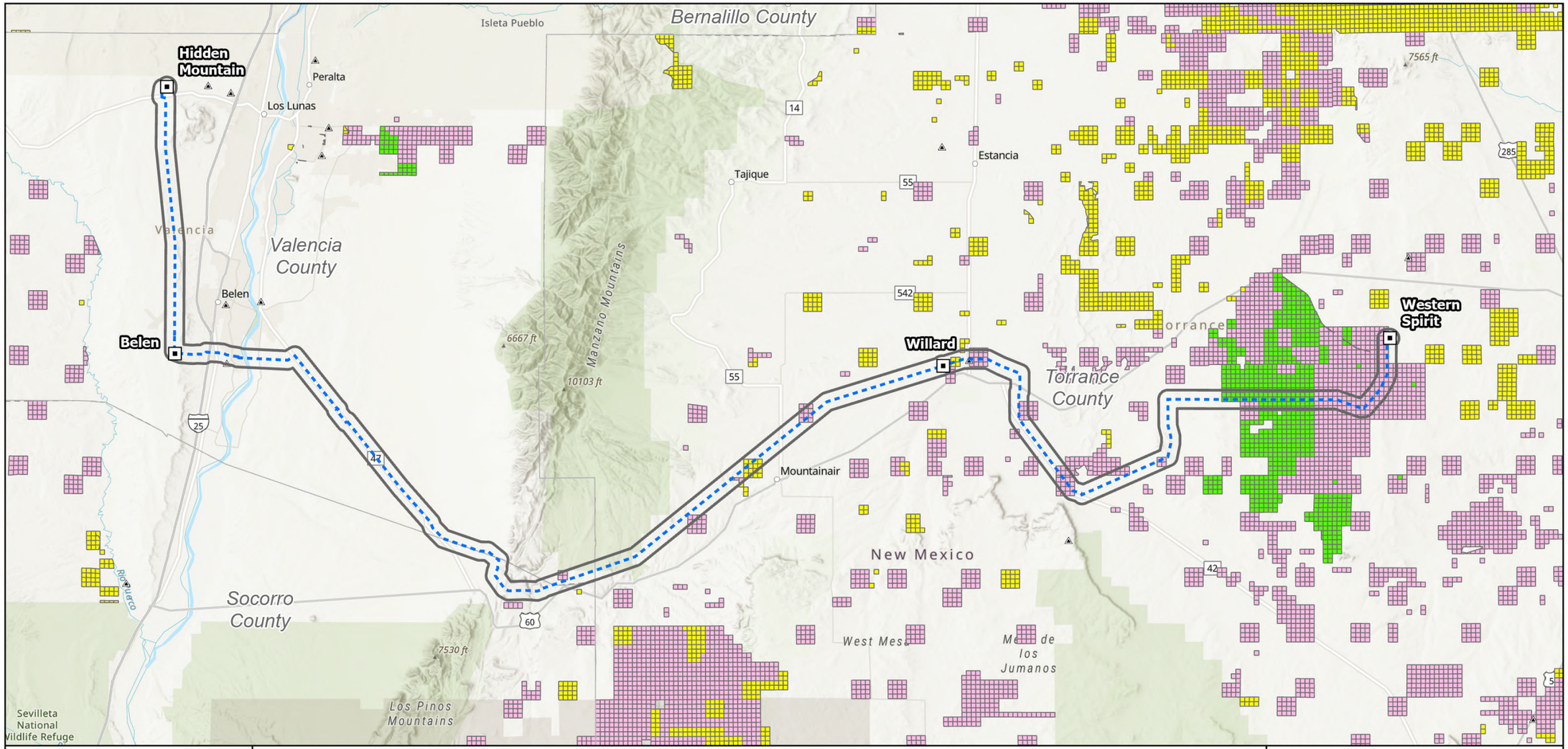
Reference Features
- Existing Substation
- County Boundary

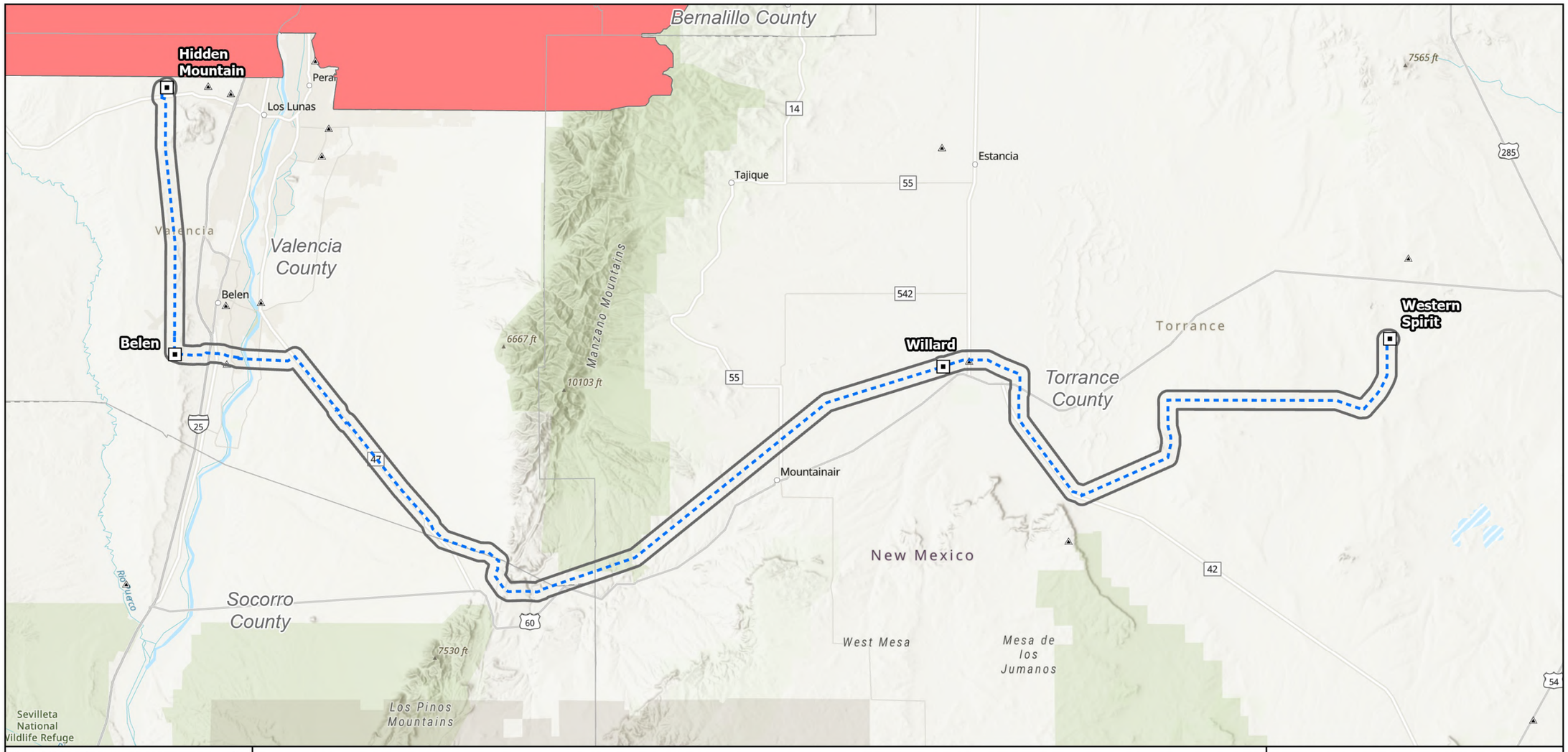
MID-STATE TRANSMISSION PROJECT

Exhibit 18
Land Cover Map
Page 8 of 9

0 1 2 Miles


Western Spirit
Pedernal
Dunmoor
Torrance
County
County Road C057
Rattlesnake
Hill
6473 ft
6885 ft
6374 ft
5234 ft
Albuquerque
Project Components
Project Substation
Transmission Centerline
Transmission ROW (200 ft)
Transmission Study Corridor (1 Mile)
NLCD
Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed,High Intensity
Barren Land (Rock/Sand/Clay)
Shrub/Scrub
Grassland/Herbaceous
Cultivated Crops
Emergent Herbaceous Wetlands
Reference Features
Existing Substation
County Boundary
MID-STATE TRANSMISSION PROJECT
Exhibit 18
Land Cover Map
Page 9 of 9
N
0
1
2
Miles
wsp


Bernalillo County
Isleta Pueblo
Hidden Mountain
Peralta
Los Lunas
Valencia
Valencia County
Belen
Belen
Tajique
Estancia
7565 ft
285
14
55
542
Manzano Mountains
6667 ft
10103 ft
Willard
Torrance
Torrance County
Western Spirit
Mountainair
New Mexico
42
25
60
Socorro County
Rio Puerco
7530 ft
West Mesa
Mesa de los Jumanos
Los Pinos Mountains
Sevilleta National Wildlife Refuge
Project Area
NEW MEXICO
Albuquerque
Las Cruces
El Paso
Project Components
Project Substation
Transmission Centerline
Transmission Study Corridor (1 Mile)
State Trust Land Owner Status
Trust Land Surface Ownership
Trust Land Subsurface Ownership
Trust Land Surface & Subsurface Ownership
Reference Features
Existing Substation
County Boundary
MID-STATE TRANSMISSION PROJECT
Exhibit 20
State Owned Lands Map
0
5
10
Miles
wsp





Project Components
- Project Substation
- Transmission Centerline
- Transmission Study Corridor (1 Mile)

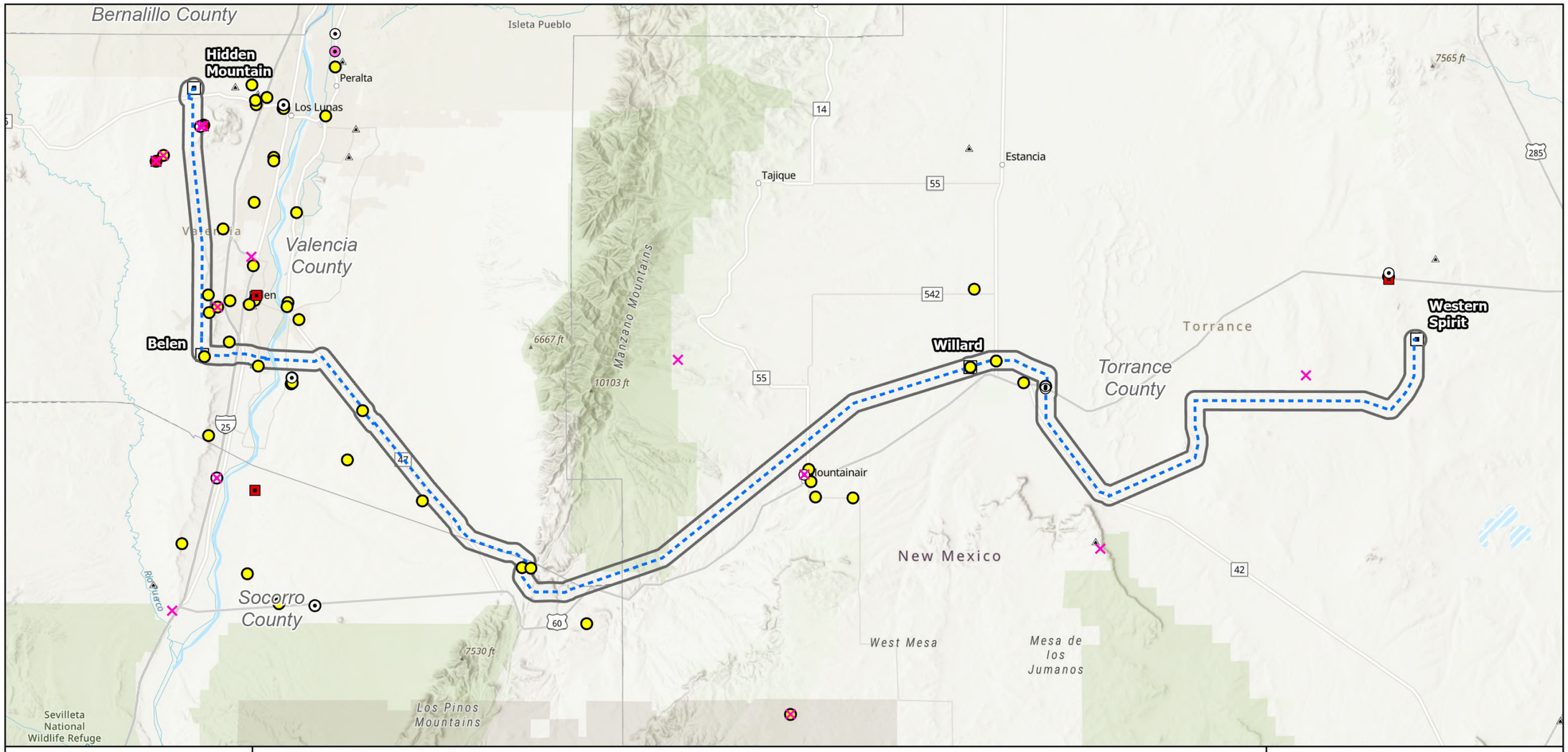
Tribal Boundaries
- Pueblo of Isleta

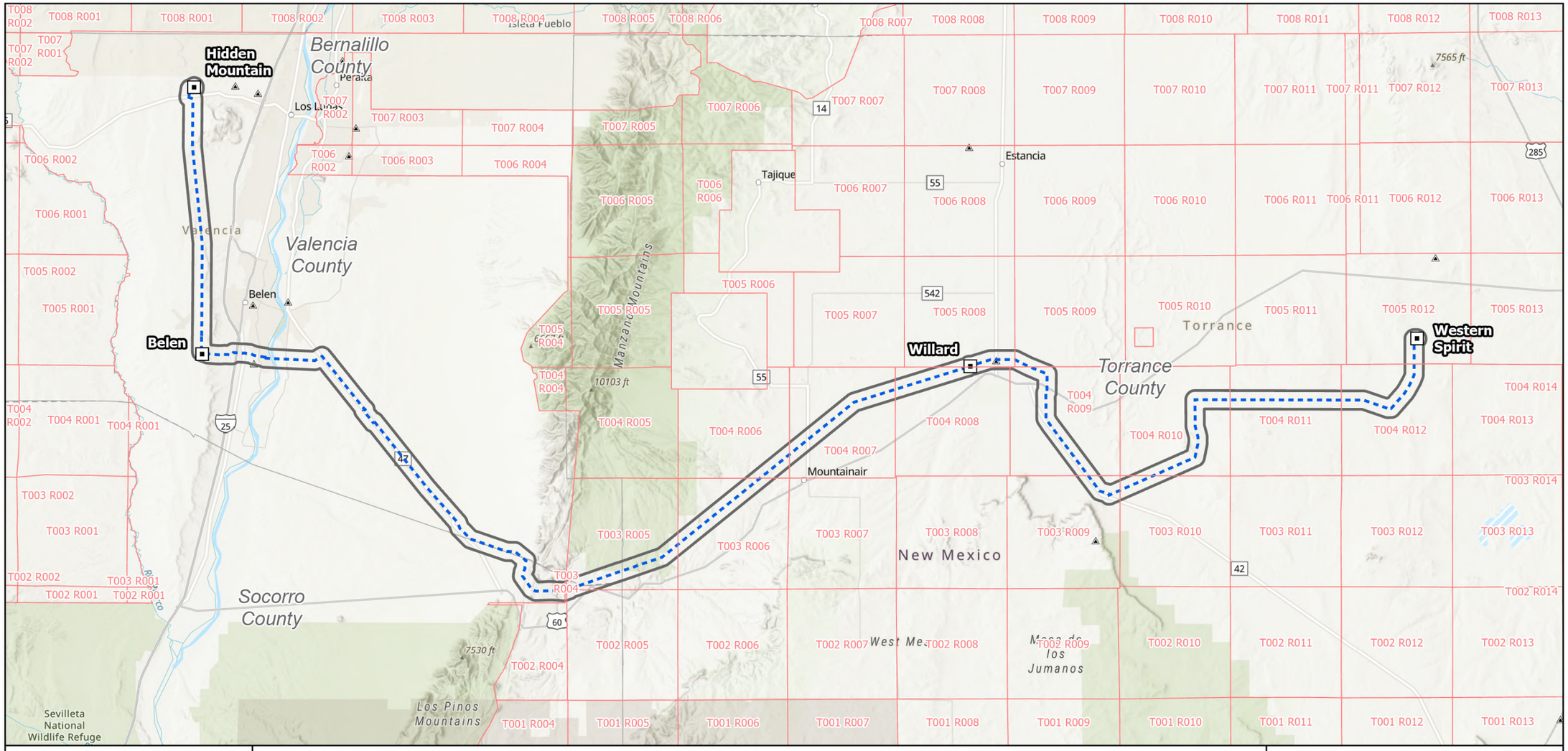
Reference Features
- Existing Substation
- County Boundary

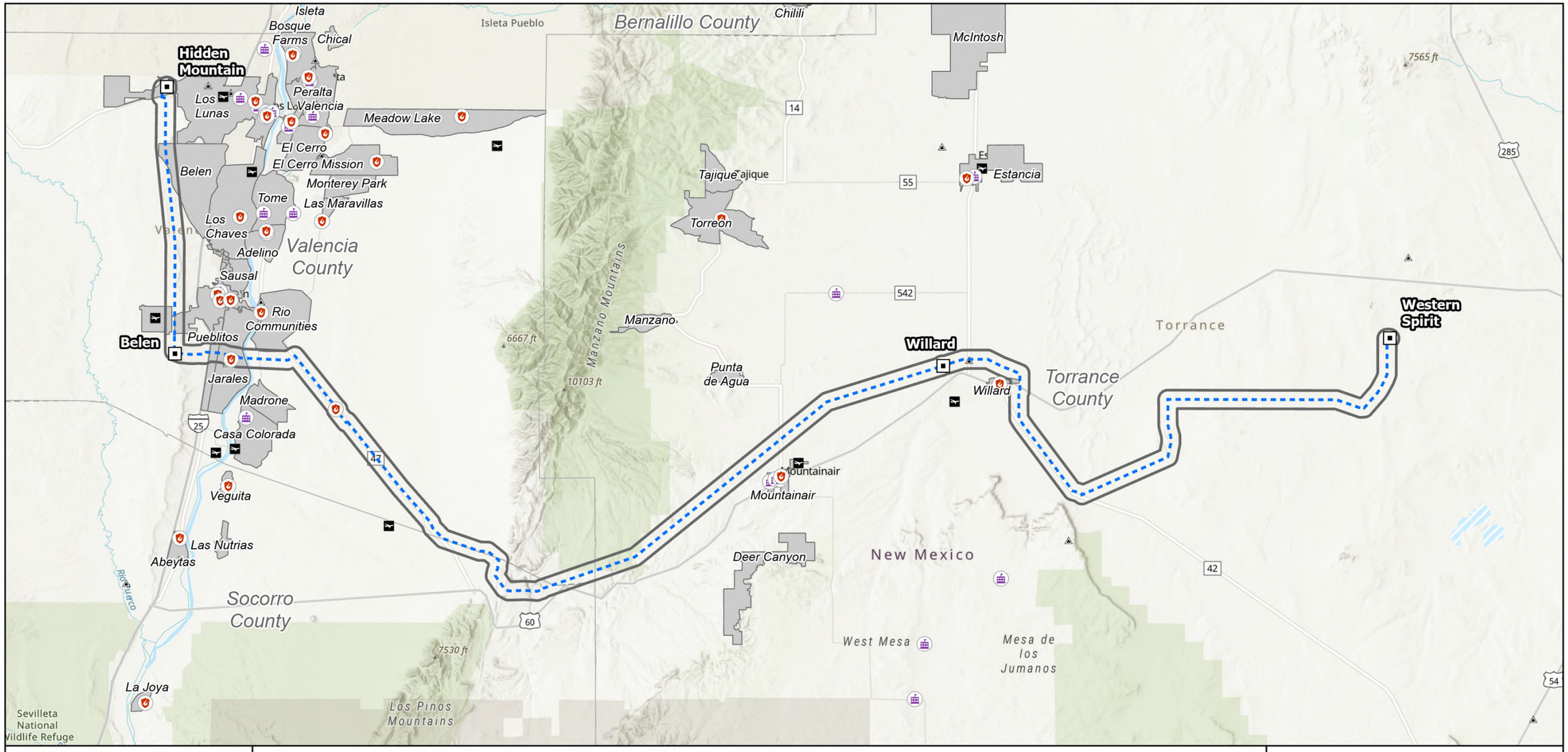
MID-STATE TRANSMISSION PROJECT

Exhibit 21
American Indian Areas Map

0 5 10 Miles


Bernalillo County
Isleta Pueblo
Hidden Mountain
Peralta
Los Lunas
Valencia County
Belen
Tajique
Estancia
14
55
542
6667 ft
Manzano Mountains
10103 ft
Willard
Torrance
Torrance County
Western Spirit
Mountainair
New Mexico
42
285
7565 ft
25
27
60
Socorro County
7530 ft
West Mesa
Mesa de los Jumanos
Los Pinos Mountains
Sevilleta National Wildlife Refuge
Project Area
NEW MEXICO
Albuquerque
Las Cruces
El Paso
Project Components
Project Substation
Transmission Centerline
Transmission Study Corridor (1 Mile)
Communication Towers
AM Tower
ASR Tower
Cellular Tower
FM Tower
Microwave Tower
Reference Features
Existing Substation
County Boundary
MID-STATE TRANSMISSION PROJECT
Exhibit 22
Communications Map
0
5
10
Miles
wsp


Hidden Mountain
Bernalillo County
Valencia County
Belen
Willard
Western Spirit
Torrance County
Tajique
Estancia
Mountainair
Manzano Mountains
Socorro County
Los Pinos Mountains
Sevilleta National Wildlife Refuge
New Mexico
Torrance
10103 ft
7565 ft
7530 ft
Project Area
NEW MEXICO
Albuquerque
Las Cruces
El Paso
Project Components
Project Substation
Transmission Centerline
Transmission Study Corridor (1 Mile)
Pubic Land Survey System
Township Boundary
Reference Features
Existing Substation
County Boundary
MID-STATE TRANSMISSION PROJECT
Exhibit 23
Public Land Survey System (PLSS) Map
0
5
10
Miles





Project Components
- Project Substation
- Transmission Centerline
- Transmission Study Corridor (1 Mile)

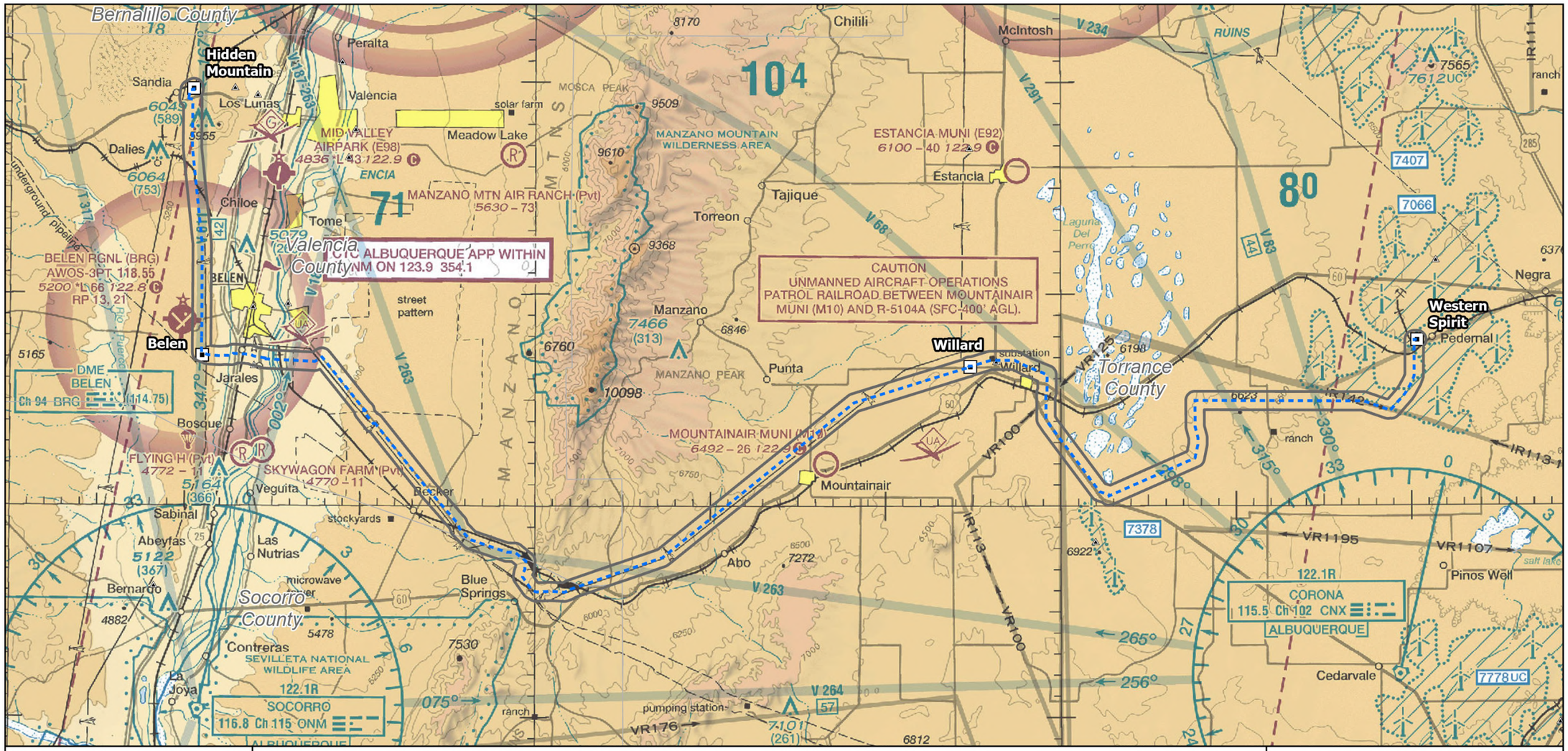
Public Facilities
- Airport
- Hospital
- School
- Fire/EMS
- Municipal Boundary

Reference Features
- Existing Substation
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 24
Public Facilities Map

0 5 10 Miles





Project Components
- Project Substation
- Transmission Centerline
- Transmission Study Corridor (1 Mile)

Reference Features
- Existing Substation
- County Boundary

MID-STATE TRANSMISSION PROJECT

Exhibit 25
Visual Flight Rules Map

0 5 10 Miles

Appendix B - Oversized Tables

Table 3-4 **Soil Coverage Types within the Transmission Study Corridor**

Table 3-13 **USFS-Listed Sensitive Species with the Potential to Occur within the Transmission Study Corridor**

Table 3-14 **BLM-listed Sensitive Species with the Potential to Occur within the Transmission Study Corridor**

Table 3-16 **Archaeological Resources within Transmission Study Corridor**

Table 3-4 Soil Coverage Types within the Transmission Study Corridor

Map Unit Symbol	Soil Map Unit Name	Farmland Class	Estimated Acreage	Percent of Transmission Study Corridor
603	Wink-Dona Ana loamy sands, 1 to 3 percent slopes	Not Prime Farmland	790.5	1.2%
606	Largo loam, 0 to 3 percent slopes	Not Prime Farmland	435.2	0.6%
650	Typic Camborthids-Nolam association, 2 to 50 percent slopes	Not Prime Farmland	3.0	0%
651	Barana loam, 0 to 2 percent slopes	Not Prime Farmland	51.3	0.1%
716	Creel-Musofare-Clovis complex, 1 to 15 percent slopes	Not Prime Farmland	131.6	0.2%
737	Harvey-La Fonda association, 1 to 9 percent slopes	Not Prime Farmland	18.3	0%
738	Harvey-Dean association, 1 to 9 percent slopes	Not Prime Farmland	225.4	0.3%
760	Sedillo-Clovis association, 1 to 6 percent slopes	Not Prime Farmland	874.9	1.3%
765	Puertecito, moist-Rock outcrop complex, 15 to 60 percent slopes	Not Prime Farmland	295.9	0.4%
783	Ponciano very bouldery clay loam, 15 to 60 percent slopes	Not Prime Farmland	0.3	0%
826	Harvey-Ildecarb-Pinon complex, 2 to 10 percent slopes	Not Prime Farmland	102.0	0.2%
834	San Mateo-Glenberg complex, 0 to 2 percent slopes	Not Prime Farmland	115.6	0.2%
840	Deama-Rock outcrop complex, 3 to 40 percent slopes	Not Prime Farmland	669.9	1.0%
845	Winona-Rock outcrop complex, 5 to 45 percent slopes	Not Prime Farmland	1,218.4	1.8%
Al	Alicia loam, 1 to 6 percent slopes	Not Prime Farmland	432.2	0.6%
Bu	Blown-out land	Not Prime Farmland	193.1	0.3%
Cg	Chilton gravelly loam	Not Prime Farmland	269.6	0.4%
Cn	Clovis loam, 0 to 5 percent slopes	Prime Farmland	3,893.1	5.8%
Co	Clovis soils, 0 to 5 percent slopes, eroded	Not Prime Farmland	210.0	0.3%
CP	Caliche pit	Not Prime Farmland	48.6	0.1%
De	Dean loam, 1 to 9 percent slopes	Not Prime Farmland	2,424.1	3.6%
Ec	Encierro channery loam, 1 to 9 percent slopes	Not Prime Farmland	992.6	1.5%

Map Unit Symbol	Soil Map Unit Name	Farmland Class	Estimated Acreage	Percent of Transmission Study Corridor
Hf	Harvey loam, 1 to 9 percent slopes	Farmland of Statewide Importance	1,977.5	2.9%
Hg	Harvey loam, alkali	Farmland of Statewide Importance	99.5	0.1%
Hh	Harvey-Dean loams, 1 to 9 percent slopes	Not Prime Farmland	1,170.6	1.7%
Hm	Harvey and Dean soils, eroded	Not Prime Farmland	1,390.9	2.1%
Hs	Hassell loam, 2 to 5 percent slopes	Not Prime Farmland	63.0	0.1%
Ih	Ildefonso fine sandy loam, 0 to 2 percent slopes	Farmland of Statewide Importance	578.7	0.9%
Ik	Ildefonso fine sandy loam, 0 to 5 percent slopes	Farmland of Statewide Importance	679.2	1.0%
Im	Ildefonso loamy fine sand, 0 to 5 percent slopes	Not Prime Farmland	648.1	1.0%
Ka	Karde loam, saline	Not Prime Farmland	41.4	0.1%
Kd	Karde-Willard loams, saline	Not Prime Farmland	151.7	0.2%
Kg	Kech gravelly loam, 1 to 9 percent slopes	Not Prime Farmland	33.4	0.0%
La	La Fonda loam, 1 to 9 percent slopes	Not Prime Farmland	719.6	1.1%
Lg	La Fonda loam, gravelly substratum, 2 to 8 percent slopes	Not Prime Farmland	54.3	0.1%
Lp	Laporte-Rock outcrop complex	Not Prime Farmland	31.8	0%
Ma	Manzano loam, 0 to 1 percent slopes	Prime Farmland	441.0	0.7%
Mc	Manzano loam, saline substratum, 0 to 1 percent slopes	Prime Farmland	122.9	0.2%
Mm	Moriarty clay loam, 0 to 1 percent slopes	Not Prime Farmland	9.0	0%
Mo	Moriarty clay loam, 2 to 6 percent slopes	Not Prime Farmland	390.8	0.6%
Op	Otero and Palma soils	Not Prime Farmland	1,035.2	1.5%
Or	Otero and Palma soils, hummocky	Not Prime Farmland	50.8	0.1%
Pa	Pastura loam, 1 to 9 percent slopes	Not Prime Farmland	291.7	0.4%
Pb	Pastura loam, 9 to 25 percent slopes	Not Prime Farmland	24.5	0%
Pd	Pedrick loamy fine sand	Farmland of Statewide Importance	2,402.6	3.6%
Pe	Pedrick loamy fine sand, hummocky	Farmland of Statewide Importance	794.2	1.2%

Map Unit Symbol	Soil Map Unit Name	Farmland Class	Estimated Acreage	Percent of Transmission Study Corridor
Pg	Penistaja fine sandy loam, 1 to 6 percent slopes	Not Prime Farmland	316.9	0.5%
Px	Pinon channery loam, 3 to 20 percent slopes	Not Prime Farmland	26.0	0%
PY	Playas	Not Prime Farmland	39.5	0.1%
Rk	Rock land	Not Prime Farmland	412.4	0.6%
Rs	Rock outcrops and Slides	Not Prime Farmland	8.4	0%
Sc	Scholle gravelly loam, 1 to 9 percent slopes	Not Prime Farmland	703.9	1.0%
Sm	Steep rock land	Not Prime Farmland	316.0	0.5%
So	Stony steep land	Not Prime Farmland	5.1	0%
Tc	Tapia loam, 0 to 5 percent slopes	Not Prime Farmland	2,823.2	4.2%
Td	Tapia-Dean loams, 0 to 5 percent slopes	Farmland of Statewide Importance	228.1	0.3%
Te	Tapia and Dean soils, eroded	Not Prime Farmland	1,036.2	1.5%
Wa	Washoe cobbly loam, 9 to 25 percent slopes	Not Prime Farmland	539.0	0.8%
Wb	Washoe gravelly loam, 1 to 9 percent slopes	Not Prime Farmland	279.9	0.4%
Wh	Willard fine sandy loam	Prime Farmland	59.2	0.1%
Wk	Willard loam	Farmland of Statewide Importance	2,250.9	3.4%
Wm	Willard loam, strongly saline	Not Prime Farmland	2,238.7	3.3%
Wn	Witt loam, 0 to 1 percent slopes	Prime Farmland	69.7	0.1%
Wo	Witt clay loam, 0 to 1 percent slopes, eroded	Prime Farmland	136.2	0.2%
Wp	Witt loam, 1 to 6 percent slopes	Farmland of Statewide Importance	3,004.0	4.5%
Wr	Witt clay loam, 1 to 6 percent slopes, eroded	Prime Farmland	1,076.0	1.6%
Ws	Witt-Harvey loams, 0 to 3 percent slopes	Prime Farmland	111.8	0.2%
Ah	Agua loam, slightly saline	Farmland of Statewide Importance	14.6	0%
Au	Armijo loam, moderately alkali	Farmland of Statewide Importance	7.3	0%
Aw	Armijo clay	Farmland of Statewide Importance	59.9	0.1%
BD	Badland	Not Prime Farmland	1,684.2	2.5%
Be	Belen loam	Farmland of Statewide Importance	8.8	0%
Bg	Belen clay loam, moderately alkali	Farmland of Statewide Importance	16.6	0.0%
BK	Bluepoint loamy sand, hilly	Not Prime Farmland	1,012.7	1.5%

Map Unit Symbol	Soil Map Unit Name	Farmland Class	Estimated Acreage	Percent of Transmission Study Corridor
Bm	Bluepoint loamy fine sand, 1 to 3 percent slopes	Farmland of Statewide Importance	247.1	0.4%
BO	Bluepoint loamy fine sand, 1 to 9 percent slopes	Not Prime Farmland	1,377.9	2.1%
BP	Bluepoint loamy fine sand, hummocky	Not Prime Farmland	3,109.1	4.6%
Br	Bluepoint sandy clay loam, 1 to 3 percent slopes	Farmland of Statewide Importance	7.7	0%
Bs	Bluepoint-Wink complex, hummocky	Not Prime Farmland	602.8	0.9%
Bu	Brazito loamy fine sand	Farmland of Statewide Importance	2.4	0%
Bw	Brazito sandy clay loam, thick surface	Farmland of Statewide Importance	0.6	0%
CE	Caliza-Bluepoint complex, 1 to 25 percent slopes	Not Prime Farmland	111.4	0.2%
DP	Dean-Pinon association, gently sloping	Not Prime Farmland	352.7	0.5%
Ga	Gila loamy fine sand	Farmland of Statewide Importance	13.7	0%
Gd	Gila loam, 0 to 1 percent slopes mlra 42-1	Farmland of Statewide Importance	340.8	0.5%
Ge	Gila loam, slightly saline	Farmland of Statewide Importance	120.4	0.2%
Gf	Gila loam, moderately alkali	Farmland of Statewide Importance	25.3	0%
Gg	Gila loam, strongly alkali	Not Prime Farmland	134.1	0.2%
Gh	Gila loam, strongly saline and alkali	Not Prime Farmland	214.7	0.3%
Gk	Gila clay loam	Farmland of Statewide Importance	96.9	0.1%
Gm	Gila clay loam, slightly saline	Farmland of Statewide Importance	67.1	0.1%
Gs	Glendale clay loam, 0 to 1 percent slopes MLRA 42.1	Farmland of Statewide Importance	3.6	0%
HA	Hassell loam, 2 to 5 percent slopes	Not Prime Farmland	117.1	0.2%
LG	Largo loam	Not Prime Farmland	224.0	0.3%
LV	Latene loam	Not Prime Farmland	1,654.4	2.5%
Ma	Madurez loamy sand, hummocky	Not Prime Farmland	73.4	0.1%
Md	Madurez loamy fine sand	Not Prime Farmland	1,094.2	1.6%
ME	Madurez loamy fine sand	Not Prime Farmland	3,373.7	5.0%
MH	Madurez-Bluepoint association, hummocky	Not Prime Farmland	761.8	1.1%

Map Unit Symbol	Soil Map Unit Name	Farmland Class	Estimated Acreage	Percent of Transmission Study Corridor
MK	Madurez-Wink association, undulating	Not Prime Farmland	1,591.1	2.4%
Mn	Mixed alluvial land	Not Prime Farmland	249.7	0.4%
Pa	Pajarito loamy fine sand	Not Prime Farmland	80.9	0.1%
PITS	Gravel and caliche pits	Not Prime Farmland	28.3	0%
Rv	Riverwash	Not Prime Farmland	24.5	0%
RW	Rock land	Not Prime Farmland	149.5	0.2%
RX	Rock outcrop-Akela complex, 10 to 50 percent slopes	Not Prime Farmland	266.5	0.4%
SA	Salas very stony loam, 30 to 70 percent slopes	Not Prime Farmland	60.0	0.1%
SG	Sedillo very gravelly loam, 3 to 9 percent slopes	Not Prime Farmland	538.7	0.8%
TU	Tres Hermanos-Madurez association, gently sloping	Not Prime Farmland	152.3	0.2%
Vd	Vinton loamy fine sand	Farmland of Statewide Importance	30.1	0%
Vf	Vinton loamy fine sand, moderately alkali	Farmland of Statewide Importance	22.3	0%
Vg	Vinton loam	Farmland of Statewide Importance	26.5	0%
Vh	Vinton loam, slightly saline	Farmland of Statewide Importance	27.7	0%
Vo	Vinton loam, loamy subsoil variant MLRA 42	Farmland of Statewide Importance	4.0	0%
Wk	Wink loamy sand	Not Prime Farmland	1,105.0	1.6%
Wm	Wink loamy sand, clayey substratum	Not Prime Farmland	5.7	0%
Wn	Wink loamy sand, hummocky	Not Prime Farmland	193.1	0.3%
WO	Wink fine sandy loam	Not Prime Farmland	588.3	0.9%
Wr	Wink-Caliza complex, 1 to 15 percent slopes	Not Prime Farmland	118.2	0.2%
Ws	Wink complex, 1 to 9 percent slopes, eroded	Not Prime Farmland	6.9	0%
WU	Wink-Madurez association, gently sloping	Not Prime Farmland	2,641.2	3.9%
		Total	**67,128.7***	**99.3%***

* Sum of components may not add up to the actual total due to the overlap of some geographic integration systems (GIS) data received.

Source: USDA NRCS 2026

Prime Farmland = Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses; governed under the Farmland Protection Policy Act (7 U.S.C. § 4201–4209).

Farmland of Statewide Importance = Land that is not classified as Prime Farmland but is nonetheless important for the production of food, feed, fiber, forage, or oilseed crops within a particular state; governed under the Farmland Protection Policy Act (7 U.S.C. § 4201–4209).

Table 3-13 USFS-listed Sensitive Species with the Potential to Occur within the Transmission Study Corridor

Common Name	Scientific Name	USFS Status*	IUCN Status**	Likelihood of Occurrence
Amphibians				
Northern leopard frog	*Lithobates pipiens*	SEN	LC	**None;** USFS lands within the Transmission Study Corridor do not include permanent ponds or streams.
Birds				
Northern goshawk	*Accipiter gentilis*	SEN	LC	**Possible;** USFS lands within the Transmission Study Corridor include suitable forested habitat.
Western burrowing owl	*Athene cunicularia hypugaea*	SEN	LC	**Possible;** prairie dog colonies, which are utilized by burrowing owls for nesting, were observed within the Transmission Study Corridor during field surveys. However, no colonies were observed on USFS lands, and no burrowing owls were observed anywhere within the Transmission Study Corridor.
Mountain plover	*Charadrius montanus*	SEN	NT	**Possible;** the Transmission Study Corridor contains suitable shortgrass prairie habitat.
Yellow-billed Cuckoo	*Coccyzus americanus*	SEN	LC	**Not likely;** USFS lands within the Transmission Study Corridor do not support riparian woodlands dominated by cottonwood, willows, and dense mesquite.
American peregrine falcon	*Falco peregrinus anatum*	SEN	LC	**Possible;** USFS lands within the Transmission Study Corridor supports suitable forested habitat for foraging, but no cliff habitat required for nesting.
Lesser prairie chicken	*Tympanuchus pallidicinctus*	SEN	VU	**None;** the Transmission Study Corridor is outside of the species' known range.

Common Name	Scientific Name	USFS Status*	IUCN Status**	Likelihood of Occurrence
Gray vireo	*Vireo vicinior*	SEN	LC	**Likely;** USFS lands within the Transmission Study Corridor supports shrubland and mid-elevation pinyon-juniper woodlands.
Crustaceans				
Dumont's fairy shrimp	*Streptocephalus henridumontis*	SEN	N/A	**None;** the Transmission Study Corridor is outside the species' known range.
Fish				
Zuni bluehead sucker	*Catostomus discobolus jarrovii*	SEN	LC	**None;** USFS lands within the Transmission Study Corridor do not support permanent ponds or streams; Transmission Study Corridor is outside the species' known range.
Rio Grande sucker	*Catostomus plebeius*	SEN	DD	**None;** USFS lands within the Transmission Study Corridor do not support permanent ponds or streams.
Rio Grande chub	*Gila pandora*	SEN	LC	**None;** USFS lands within the Transmission Study Corridor do not support permanent ponds or streams.
Suckermouth minnow	*Phenacobius mirabilis*	SEN	LC	**None;** the Transmission Study Corridor does not cross the Canadian River, Cimarron, or Vermejo tributaries.
Mammals				
Pale Townsend's big-eared bat	*Corynorhinus townsendii pallescens*	SEN	LC	**Not likely;** potentially suitable foraging habitat occurs within shrubland and mixed woodlands on USFS lands within the Transmission Study Corridor, however caves suitable for roosting are not present.
Gunnison's prairie dog	*Cynomys gunnisoni*	SEN	LC	**Possible;** active prairie dog colonies were observed on private lands in the eastern portion of the Transmission Study Corridor, however habitat on USFS lands for the species is marginal, and

Common Name	Scientific Name	USFS Status*	IUCN Status**	Likelihood of Occurrence
				no active nor inactive colonies were observed during field surveys.
Black-tailed prairie dog	*Cynomys ludovicianus*	SEN	LC	**Possible;** active prairie dog colonies were observed on private lands in the eastern portion of the Transmission Study Corridor, however habitat on USFS lands for the species is marginal, and no active nor inactive colonies were observed.
Spotted bat	*Euderma maculatum*	SEN	LC	**Not likely;** potentially suitable foraging habitat occurs within pinyon-juniper woodland on USFS lands within the Transmission Study Corridor, however steep cliffs suitable for roosting are not present.
Allen's lappet-browned bat	*Idionycteris phyllotis*	SEN	LC	**None;** the Transmission Study Corridor is outside of the species' known range.
Cebolleta southern pocket gopher	*Thomomys bottae paguatae*	SEN	LC	**None;** the Transmission Study Corridor is outside of the species' known range.
Swift fox	*Vulpes velox*	SEN	LC	**Not likely;** USFS lands within the Transmission Study Corridor do not support open shortgrass prairie habitat.
Plants				
Greene milkweed	*Asclepias uncialis ssp. uncialis*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Zuni milkvetch	*Astragalus accumbens*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Villous groundcover milkvetch	*Astragalus humistratus var. crispulus*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Chaco milkvetch	*Astragalus micromerius*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
One-flowered milkvetch	*Astragalus wittmannii*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.

Common Name	Scientific Name	USFS Status*	IUCN Status**	Likelihood of Occurrence
Sivinski's fleabane	*Erigeron sivinskii*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Sandia alum root	*Heuchera pulchella*	SEN	N/A	**None;** the Transmission Study Corridor does not contain limestone cliffs at 8,000 – 10,000 ft elevation.
Tall bitterweed	*Hymenoxys brachyactis*	SEN	N/A	**Likely;** USFS lands within the Transmission Study Corridor supports suitable pinyon-juniper woodlands in the southern Manzano Mountains.
Spellenberg's groundsel	*Packera spellenbergii*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
San Mateo penstemon	*Penstemon pseudoparvus*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Reptiles				
Arid land ribbon snake	*Thamnophis proximus diabolicus*	SEN	LC	**None;** USFS lands within the Transmission Study Corridor do not contain riparian habitat or suitable bodies of water.

*SEN = Sensitive
**LC = Least Concern; NT = Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered; DD = Data Deficient

Table 3-14 BLM-listed Sensitive Species with the Potential to Occur within the Transmission Study Corridor

Common Name	Scientific Name	BLM Status*	IUCN Status**	Likelihood of Occurrence
Amphibians				
Northern leopard frog	*Lithobates pipiens*	SEN	LC	**None;** BLM lands within the Transmission Study Corridor do not include permanent ponds or streams.
Birds				
Mexican whip-poor-will	*Antrostomus arizonae*	SEN	LC	**Likely;** the Transmission Study Corridor contains suitable mid-elevational pine-oak woodland habitat.
Mountain plover	*Charadrius montanus*	SEN	NT	**Possible;** the Transmission Study Corridor contains suitable shortgrass prairie habitat, however, the species is most common in the northeastern part of the state.
Pinyon jay	*Gymnorhinus cyanocephalus*	SEN	VU	**Likely;** the Transmission Study Corridor contains suitable pinyon-juniper woodland habitat.
Loggerhead shrike	*Lanius ludovicianus*	SEN	NT	**Possible;** the Transmission Study Corridor contains suitable open woodland habitat, however, it is outside of the species' usual distribution.
Virginia's warbler	*Leiothylpis virginiae*	SEN	LC	**Not likely;** the Transmission Study Corridor does not contain the ravines and steep, rocky slopes the species prefers.
Black-chinned sparrow	*Spizella atrogularis evura*	SEN	LC	**Possible;** the Transmission Study Corridor contains suitable areas of sparse shrubs and trees with a grassland component, however, there are not recorded observations of the species in Torrance County.

Common Name	Scientific Name	BLM Status*	IUCN Status**	Likelihood of Occurrence
Bendire's thrasher	*Toxostoma bendirei*	SEN	VU	**Not likely;** the Transmission Study Corridor does not contain yucca grassland or Sonoran desert habitat; the species is most common in the southeastern portion of New Mexico.
Fish				
Rio Grande sucker	*Catostomus plebeius*	SEN	DD	**None;** BLM lands within the Transmission Study Corridor do not support permanent ponds or streams.
Rio Grande chub	*Gila pandora*	SEN	LC	**None;** BLM lands within the Transmission Study Corridor do not support permanent ponds or streams.
Roundtail chub	*Gila robusta*	SEN	VU	**None;** BLM lands within the Transmission Study Corridor do not support permanent ponds or streams.
Insects				
Western bumble bee	*Bombus occidentalis*	SEN	VU	**Not likely;** the Transmission Study Corridor does not intersect high elevation, montane meadows.
American bumble bee	*Bombus pensylvanicus*	SEN	VU	**Possible;** the Transmission Study Corridor supports flowering plants utilized by the species.
Monarch butterfly	*Danaus plexippus*	SEN	VU	**Possible;** milkweed (*Asclepias* sp.) individuals, the host plant for monarch butterflies, were observed throughout the Transmission Study Corridor during field surveys.

Common Name	Scientific Name	BLM Status*	IUCN Status**	Likelihood of Occurrence
Mammals				
Townsend's big-eared bat	*Corynorhinus townsendii*	SEN	LC	**Not likely;** marginal foraging habitat occurs on BLM lands within the Transmission Study Corridor, however there are no caves necessary for roosting.
Gunnison's prairie dog	*Cynomys gunnisoni*	SEN	LC	**Possible;** active prairie dog colonies were observed on private lands in the eastern portion of the Transmission Study Corridor, however habitat on USFS lands for the species is marginal, and no active nor inactive colonies were observed.
Black-tailed prairie dog	*Cynomys ludovicianus*	SEN	LC	**Possible;** active prairie dog colonies were observed on private lands in the eastern portion of the Transmission Study Corridor, however habitat on USFS lands for the species is marginal, and no active nor inactive colonies were observed.
Spotted bat	*Euderma maculatum*	SEN	LC	**Not likely;** marginal foraging habitat occurs on BLM lands within the Transmission Study Corridor, however there are no caves necessary for roosting.
Hoary bat	*Lasiurus cinereus*	SEN	LC	**Not likely;** BLM lands within the Transmission Study Corridor do not support open water or riparian corridors necessary for foraging, nor large conifer species for roosting.

Common Name	Scientific Name	BLM Status*	IUCN Status**	Likelihood of Occurrence
Plants				
Galisteo sand verbena	*Abronia bigelovii*	SEN	N/A	**None;** no gypsum outcrops are present on BLM land within the Transmission Study Corridor.
Knight's milkvetch	*Astragalus knightii*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Acoma fleabane	*Erigeron acomanus*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Todilto stickleaf	*Mentzelia todiltoensis*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Cinder scorpionweed	*Phacelia serrata*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Yeso twinpod	*Physaria newberryi var. yesicola*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Mancos saltbush	*Proatriplex pleiantha*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Parish's alkaligrass	*Puccinellia parishii*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.
Gypsum townsend's daisy	*Townsendia gypsophila*	SEN	N/A	**None;** the Transmission Study Corridor is outside of the species' known range.

*SEN = Sensitive

**LC = Least Concern; NT = Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered; DD = Data Deficient

Table 3-16 Archaeological Resources within Transmission Study Corridor

LA Number	Site Type	NRHP Evaluation
97	Both Historic and Prehistoric	Eligible
323	Prehistoric	Unevaluated
956	Unknown	Unevaluated
4974	Prehistoric	Unevaluated
6556	Unknown	Unevaluated
6820	Unknown	Unevaluated
10734	Both Historic and Prehistoric	Eligible
10736	Prehistoric	Unevaluated
13717	Unknown	Unevaluated
27576	Prehistoric	Unevaluated
33127	Both Historic and Prehistoric	Eligible
37482	Prehistoric	Unevaluated
38360	Unknown	Unevaluated
38364	Unknown	Unevaluated
38365	Both Historic and Prehistoric	Unevaluated
38366	Both Historic and Prehistoric	Unevaluated
38368	Prehistoric	Unevaluated
38369	Prehistoric	Unevaluated
38370	Unknown	Unevaluated
38371	Unknown	Unevaluated
38372	Prehistoric	Unevaluated
38373	Unknown	Unevaluated
38374	Prehistoric	Unevaluated
38375	Prehistoric	Unevaluated
38376	Prehistoric	Unevaluated
38377	Prehistoric	Unevaluated
38378	Prehistoric	Unevaluated
38379	Unknown	Unevaluated
38380	Prehistoric	Unevaluated
44066	Prehistoric	Unevaluated
44067	Prehistoric	Unevaluated
44069	Prehistoric	Unevaluated
44070	Prehistoric	Unevaluated
44071	Unknown	Unevaluated
45857	Prehistoric	Unevaluated
50252	Prehistoric	Unevaluated
50253	Prehistoric	Eligible
50254	Prehistoric	Eligible
52003	Prehistoric	Unevaluated
52004	Prehistoric	Unevaluated

LA Number	Site Type	NRHP Evaluation
60960	Prehistoric	Unevaluated
60961	Unknown	Unevaluated
60966	Unknown	Unevaluated
60970	Unknown	Unevaluated
61129	Unknown	Unevaluated
69565	Prehistoric	Unevaluated
69566	Prehistoric	Unevaluated
69567	Prehistoric	Unevaluated
69568	Prehistoric	Unevaluated
69569	Prehistoric	Unevaluated
69570	Unknown	Unevaluated
69571	Prehistoric	Not Eligible
69881	Historic	Not Eligible
69882	Historic	Unevaluated
69883	Prehistoric	Eligible
70128	Unknown	Unevaluated
70605	Historic	Unevaluated
86701	Both Historic and Prehistoric	Not Eligible
88310	Prehistoric	Unevaluated
88311	Prehistoric	Unevaluated
88312	Prehistoric	Unevaluated
88330	Prehistoric	Unevaluated
99188	Prehistoric	Unevaluated
99189	Both Historic and Prehistoric	Eligible
99190	Both Historic and Prehistoric	Eligible
99191	Both Historic and Prehistoric	Unevaluated
99192	Unknown	Eligible
99193	Prehistoric	Unevaluated
99194	Unknown	Unevaluated
99210	Unknown	Unevaluated
99211	Prehistoric	Unevaluated
99212	Prehistoric	Unevaluated
100339	Historic	Unevaluated
100340	Historic	Unevaluated
105019	Unknown	Unevaluated
105020	Prehistoric	Unevaluated
105021	Prehistoric	Unevaluated
105022	Prehistoric	Unevaluated
105023	Prehistoric	Unevaluated
106768	Prehistoric	Unevaluated
116046	Historic	Unevaluated
116047	Historic	Unevaluated

LA Number	Site Type	NRHP Evaluation
128086	Historic	Unevaluated
129131	Prehistoric	Unevaluated
129132	Prehistoric	Unevaluated
129133	Prehistoric	Eligible
129134	Prehistoric	Eligible
129135	Prehistoric	Eligible
129136	Prehistoric	Eligible
130451	Historic	Unevaluated
131422	Historic	Not Eligible
138157	Prehistoric	Eligible
138158	Prehistoric	Not Eligible
141133	Historic	Unevaluated
142520	Both Historic and Prehistoric	Not Eligible
146930	Historic	Unevaluated
146931	Historic	Unevaluated
146932	Prehistoric	Unevaluated
146933	Both Historic and Prehistoric	Unevaluated
146934	Historic	Unevaluated
146935	Historic	Unevaluated
146937	Prehistoric	Unevaluated
146938	Historic	Unevaluated
146939	Historic	Unevaluated
146940	Both Historic and Prehistoric	Unevaluated
146941	Both Historic and Prehistoric	Unevaluated
146942	Historic	Unevaluated
146943	Historic	Unevaluated
146944	Both Historic and Prehistoric	Unevaluated
146945	Prehistoric	Unevaluated
146946	Both Historic and Prehistoric	Unevaluated
146947	Historic	Unevaluated
146948	Historic	Unevaluated
146949	Historic	Unevaluated
146950	Historic	Unevaluated
146951	Historic	Unevaluated
146952	Historic	Unevaluated
146953	Historic	Unevaluated
146954	Historic	Unevaluated
146955	Historic	Unevaluated
146956	Historic	Unevaluated
146957	Historic	Unevaluated
146958	Historic	Unevaluated
146959	Prehistoric	Unevaluated

LA Number	Site Type	NRHP Evaluation
146960	Historic	Unevaluated
146961	Unknown	Unevaluated
146962	Prehistoric	Unevaluated
146963	Both Historic and Prehistoric	Unevaluated
146964	Historic	Unevaluated
146965	Historic	Unevaluated
146966	Historic	Unevaluated
147804	Historic	Not Eligible
148455	Historic	Unevaluated
148456	Historic	Unevaluated
148457	Historic	Unevaluated
148458	Historic	Unevaluated
148459	Prehistoric	Unevaluated
148474	Historic	Unevaluated
148475	Historic	Unevaluated
148480	Historic	Not Eligible
152178	Prehistoric	Unevaluated
152179	Prehistoric	Unevaluated
152180	Both Historic and Prehistoric	Unevaluated
152181	Prehistoric	Unevaluated
152182	Unknown	Unevaluated
152183	Historic	Unevaluated
152184	Historic	Unevaluated
152190	Prehistoric	Unevaluated
152582	Prehistoric	Unevaluated
152583	Unknown	Unevaluated
152584	Prehistoric	Unevaluated
152585	Unknown	Unevaluated
152586	Both Historic and Prehistoric	Unevaluated
152587	Prehistoric	Unevaluated
152588	Prehistoric	Unevaluated
152589	Prehistoric	Unevaluated
152590	Prehistoric	Unevaluated
152591	Unknown	Unevaluated
152592	Both Historic and Prehistoric	Not Eligible
152594	Prehistoric	Eligible
152596	Prehistoric	Unevaluated
153004	Historic	Unevaluated
153406	Historic	Not Eligible
155986	Historic	Unevaluated
156828	Prehistoric	Unevaluated
160288	Historic	Not Eligible

LA Number	Site Type	NRHP Evaluation
160955	Prehistoric	Not Eligible
160956	Historic	Unevaluated
161041	Historic	Not Eligible
161042	Prehistoric	Not Eligible
162678	Prehistoric	Eligible
162679	Prehistoric	Unevaluated
162684	Prehistoric	Unevaluated
162685	Prehistoric	Unevaluated
162686	Prehistoric	Unevaluated
162687	Historic	Unevaluated
162688	Prehistoric	Unevaluated
162689	Prehistoric	Unevaluated
162690	Prehistoric	Unevaluated
162691	Prehistoric	Unevaluated
162692	Both Historic and Prehistoric	Unevaluated
163076	Prehistoric	Unevaluated
163077	Prehistoric	Unevaluated
163697	Historic	Unevaluated
164803	Prehistoric	Eligible
178207	Historic	Unevaluated
178208	Prehistoric	Unevaluated
178209	Historic	Unevaluated
178210	Historic	Unevaluated
184017	Prehistoric	Unevaluated
186893	Historic	Unevaluated
186894	Unknown	Not Eligible
186895	Both Historic and Prehistoric	Unevaluated
186896	Historic	Unevaluated
186905	Historic	Unevaluated
186906	Historic	Unevaluated
186908	Historic	Not Eligible
187523	Historic	Not Eligible
187524	Historic	Not Eligible
187528	Historic	Not Eligible
187529	Historic	Unevaluated
187534	Historic	Eligible
187541	Historic	Unevaluated
187542	Historic	Not Eligible
187548	Historic	Not Eligible
189501	Both Historic and Prehistoric	Unevaluated
191153	Unknown	Not Eligible
193469	Prehistoric	Eligible

LA Number	Site Type	NRHP Evaluation
193470	Historic	Unevaluated
193471	Historic	Unevaluated
195895	Historic	Not Eligible
197316	Prehistoric	Not Eligible
197317	Historic	Unevaluated
198901	Historic	Unevaluated
198903	Prehistoric	Unevaluated
198904	Prehistoric	Unevaluated
198905	Prehistoric	Unevaluated
198906	Prehistoric	Unevaluated
198907	Prehistoric	Unevaluated
198908	Historic	Unevaluated
198909	Prehistoric	Unevaluated
199046	Prehistoric	Unevaluated
199337	Prehistoric	Unevaluated
199469	Prehistoric	Unevaluated
200707	Historic	Unevaluated
201848	Prehistoric	Unevaluated
201849	Prehistoric	Unevaluated
201850	Historic	Unevaluated
201851	Prehistoric	Unevaluated
201852	Prehistoric	Unevaluated
201853	Prehistoric	Unevaluated
201854	Historic	Unevaluated
202404	Both Historic and Prehistoric	Unevaluated
203462	Prehistoric	Unevaluated
203463	Prehistoric	Unevaluated
203464	Both Historic and Prehistoric	Unevaluated
203465	Both Historic and Prehistoric	Unevaluated
203466	Both Historic and Prehistoric	Unevaluated
203467	Prehistoric	Unevaluated
203468	Prehistoric	Unevaluated
203469	Prehistoric	Unevaluated
203470	Prehistoric	Unevaluated
203471	Both Historic and Prehistoric	Unevaluated
203472	Historic	Unevaluated
203474	Prehistoric	Unevaluated
203476	Prehistoric	Unevaluated
203477	Historic	Unevaluated
203478	Prehistoric	Unevaluated
203479	Prehistoric	Unevaluated
203481	Prehistoric	Unevaluated

LA Number	Site Type	NRHP Evaluation
203483	Both Historic and Prehistoric	Unevaluated
203484	Both Historic and Prehistoric	Unevaluated
203485	Prehistoric	Unevaluated
203486	Prehistoric	Unevaluated
203487	Prehistoric	Unevaluated
203488	Both Historic and Prehistoric	Unevaluated
203489	Prehistoric	Unevaluated
203490	Historic	Unevaluated
203491	Both Historic and Prehistoric	Unevaluated
203492	Prehistoric	Not Eligible
203493	Prehistoric	Unevaluated
205930	Historic	Unevaluated
205931	Historic	Unevaluated
205932	Historic	Unevaluated
207623	Prehistoric	Unevaluated
207697	Prehistoric	Not Eligible
207960	Prehistoric	Unevaluated
207961	Both Historic and Prehistoric	Unevaluated

Appendix C - Permit Matrix

Agency	Proposal Requiring Action	Land Use Statute, Administrative Regulation or Environmental Authorization	Relevant Laws and Regulations
Federal			
Bureau of Land Management (BLM)	Pre-construction surveys; construction, operation, and abandonment of transmission line on BLM land	Right-of-way grant	Federal Land Policy and Management Act (FLPMA) (43 U.S.C. § 1761-1771); 43 CFR Part 2800
United States Forest Service (USFS)	Pre-construction surveys; construction, operation, and abandonment of transmission line on National Forest System land	Special Use Permit	FLPMA (43 U.S.C. § 1761-1771)
United States Fish and Wildlife Service (USFWS)	Manage effects on species listed or critical habitat designated under the Endangered Species Act (ESA)	Compliance with Section 7 or Section 10 the ESA	ESA, as amended (16 U.S.C. §1531 et seq.); BLM Manual H-6840 (Special-Status Species)
State Historic Preservation Officer, Advisory Council on Historic Preservation, tribes, other federal, state, and local agencies, and consulting parties	Identification of, and potential disturbance to, historic properties in Project area	Compliance with Section 106 of NHPA	National Historic Preservation Act (16 U.S.C. § 470); 36 CFR Part 800)
United States Environmental Protection Agency (USEPA)	Construction sites with greater than 1 acre of land disturbed	Section 402 National Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Construction Activities	Clean Water Act (33 U.S.C. § 1342)
U.S. Army Corps of Engineers (USACE)	Construction across water resources	Section 10 and/or Section 404 permits (see below)	33 U.S.C. § 403, 1344(a); 33 CFR Parts 320, 322, 323, 325
	Potential discharge into waters of the U.S. (including wetlands and washes)	Section 404 permit for discharge of dredged or fill material to waters of the U.S.	Clean Water Act (33 U.S.C. § 1344)

Agency	Proposal Requiring Action	Land Use Statute, Administrative Regulation or Environmental Authorization	Relevant Laws and Regulations
Federal Highway Administration (also New Mexico Department of Transportation [NMDOT])	Construction, operation, and abandonment of transmission line across or within highway rights-of-way	Permits to cross Federal Aid Highway; 4(f) compliance	Federal-Aid Highway Act (23 U.S.C. § 101 et seq.); 23 CFR Parts 1.23 and 1.27; 23 CFR Part 645; 23 CFR Part 771
State of New Mexico			
New Mexico Public Regulation Commission	Construction of a transmission line with a voltage of 230 kV or greater	Transmission line location approval/ROW width determination	New Mexico Statute Annotated (NMSA) 1978 § 62-9-3 and 62-9-3.2
NMDOT	Upgrading gravel access roads and any additional highway entry/exit points	Access Permit, including stipulations for any safety enhancements necessary to the highway	18.31.6 NMAC
	Installation of transmission line within the ROW of state-managed roadways	New Mexico Public Highway Utility Accommodation Permit	17.4.2 NMAC
New Mexico Environment Department (NMED), Water Quality Bureau	Protect water quality standards during construction and operation activities	National Pollutant Discharge Elimination System Construction Stormwater Permit and Stormwater Pollution Prevention Plan	NMSA 74-6; 20.6 NMAC
NMED/Hazardous Waste Bureau	Management of hazardous waste on-site during construction /operation	Hazardous Waste Permit	NMSA 74-4; 20.4 NMAC
	Storage and use of hazardous chemicals on-site during construction/operation	USEPA Waste Activity USEPA ID Number	NMSA 4-4E-1
New Mexico State Lands Office	Construction of a transmission line on New Mexico State Lands	Right-of-way or easement on state land	NMSA 19-7-57
New Mexico State Historic Preservation Division	Identification of, and potential disturbance to, cultural resources in Project area	Cultural survey permit; coordination with State Historic Preservation Officer	NMSA 18-6; 4.108, 4.10.15 NMAC

Agency	Proposal Requiring Action	Land Use Statute, Administrative Regulation or Environmental Authorization	Relevant Laws and Regulations
Local			
Middle Rio Grande Conservancy District, Department of the Interior	Rio Grande crossing permit	Middle Rio Grande Conservancy District License Agreement	NMSA 1978 § 73-14-1
Socorro County	Encroachment of county right-of-way	Infrastructure Placement Permit	Socorro County Ordinance 2010-003
Torrance County	Work, excavating, boring, crosscuts or other cuts on county roads	Excavation Permit	Torrance County Road Department
Valencia County	Facilities within 100-year floodplain	Floodplain Development Permit and Elevation Certificate	Valencia County Code §154.150 Floodplain Overlay District
	Utilization of county right-of-way	Right-of-way Use Permit	Valencia County Code §94.027 Road Cut and Infrastructure Placement

Appendix D - Sandhill Crane Collision Risk Assessment

TECHNICAL MEMORANDUM

DATE: October 9, 2026

TO: Mid-State Transmission LLC

CC: Ian Evans, Environmental Senior Manager, Pattern Energy
Morgan Martin, Natural Resources Environmental Associate, Pattern Energy

FROM: Quentin Hays, Senior Wildlife Ecologist, GeoSystems Analysis, Inc.
Rachel Vanausdall, Senior Wildlife Ecologist, GeoSystems Analysis, Inc.

RE: Sandhill crane collision risk assessment for the Mid-State Transmission Project

Introduction and Executive Summary

The Mid-State Transmission Project (MST; Project) is an approximately 103-mile (mi; 166-kilometer [km]) electrical transmission line being developed by Mid-State Transmission LLC in Torrance, Socorro, and Valencia counties, New Mexico on behalf of the Public Service Company of New Mexico (PNM). The Project will be constructed in two configurations, including primarily rebuilding an existing 115-kilovolt (kV) PNM transmission line (i.e., the WL 115-kV transmission line that connects the existing Willard and Los Morros substations) to support a new, 345-kV transmission line, and where not practicable, constructing a new, standalone 345-kV transmission line (Figure 1). This memorandum provides the results of an assessment of the exposure rate, used as a proxy for collision risk, of sandhill cranes (Antigone.canadensis; SACR), focusing on the Project's crossing of the Rio Grande in Valencia County, where the existing WL 115-kV transmission line will be rebuilt to support a new, 345-kV transmission line.

Using empirical flight data, the individual passage rate of SACR crossing the existing WL 115-kV transmission at the Rio Grande was estimated to be 0.53 crossings per SACR per day, translating to approximately 24,065 crossings per day, conservatively assuming a wintering SACR population size of 45,000 in the Middle Rio Grande Valley (MRGV; Hays et al. 2021) and a scenario where all wintering SACR would regularly traverse the area. Using the same assumptions, the population exposure rate at the existing WL 115-kV transmission line was predicted to be to 1,131 exposed crossings per day, and the addition of the Project resulted in a predicted exposure rate of 2,856 exposed crossings per day. Assuming a collision rate of 0.00023 collisions per exposed crossing (Brown and Drewien 1995), 0.66 collisions per day, or 53 collisions for an entire season, were predicted at the Project. Utilizing bird flight diverters (BFD) on the Project would reduce the exposure rate and thus potential collisions materially. Brown and Drewien (1995) demonstrated a 91.3% reduction in SACR collisions with power lines with BFD, which would reduce estimated SACR collisions for the Project to 4 per season.

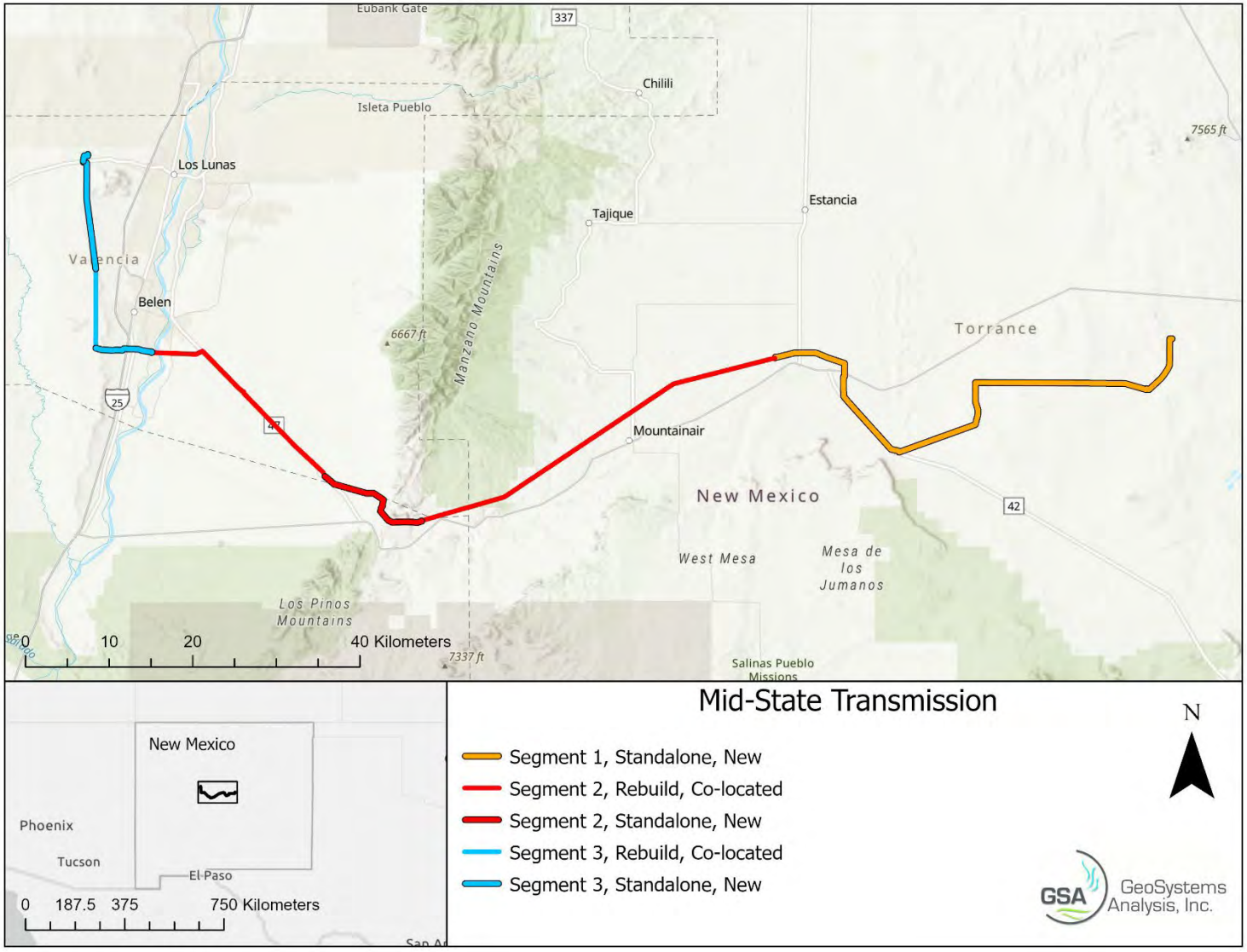


Figure 1. The Mid-State Transmission Project in Torrance, Socorro, and Valencia counties, New Mexico.

Background

Construction of the Project is planned to occur in an area considered to be important for wintering SACR and waterfowl. Each year approximately 80% of the estimated 25,000 Rocky Mountain Population (RMP) greater SACR (A¡.c¡.tabida; Seamans 2026) and thousands of lesser SACR (A¡.c¡. canadensis) from the Midcontinent Population (MCP) overwinter along the Rio Grande in the MRGV (Boggie et al. 2018; Drewien and Bizeau 1974; Seamans 2026). Sandhill cranes roost along the Rio Grande and on public lands managed for waterbirds, and forage in surrounding agricultural lands, including on supplemental cereal grain crops (e.g., corn) grown and provisioned by a multiagency program.

The MRGV is also an important wintering area for various species of waterfowl, including geese and several dabbling duck species. Light geese (i.e., lesser snow geese [Anser.caerulescens] and Ross's geese [A¡.rossii]) overwinter in the thousands and use similar roosting and foraging habitat as sandhill cranes (Boggie et al. 2023). Over 30,000 northern pintail (Anas.acuta) and several thousand mallards (A¡.platyrhynchos) may use the MRGV during fall migration and the wintering period (Lee et al. 2007). These species make localized movements throughout the MRGV, specifically along the Rio Grande and within the public areas managed for waterbirds.

Power lines that bisect flights paths are known to create collision risk to birds (APLIC 2012, 2026). Large-bodied birds, such as SACR and waterfowl, are particularly susceptible to collision with power lines due to longer wingspans, reduced maneuverability in flight relative to smaller-bodied birds, and tendency to flock and travel in large groups (Bevanger 1998). For example, Brown and Drewien (1995) estimated that for every 100,000 crossing events over power lines by SACR in the San Luis Valley, Colorado, up to 23 fatal collisions occurred, translating to a collision rate of up to 0.00023 collisions per crossing. Dwyer et al. (2019) estimated 37 collisions out of a total of 916 crossing events in Nebraska, translating to a collision rate of 0.04 collisions per crossing. The position of power lines relative to foraging or roosting habitat may also put birds at greater risk of collision as they move among feeding, roosting, and loafing sites. Sandhill cranes and waterfowl often move several times in a single day while wintering in the MRGV, and the frequency of movements may vary throughout the wintering season (Hays et al. 2021). Studies have found that SACR and waterfowl may be more at risk to collision with power lines in areas with wetlands adjacent to agricultural fields used for foraging (Brown et al. 1987, Faanes 1987).

In order for a collision to occur, an individual bird must first be exposed to a power line (i.e., near the line); the degree of exposure varies based on several factors, such as behavior, weather, and time of year. Data on direct mortality from power lines are unavailable in many cases, and exposure risk is often estimated in lieu of collision risk (e.g., Hays et al. 2021), with the assumption that exposure risk and collision risk and are linearly related. However, while exposure events may be frequent, collisions depend on various factors, such as morphology of the bird, weather, lighting, and overall visibility, which collectively influence collision avoidance behaviors (i.e., changing flight direction in response to detection of the line) and may result in a non-linear relationship between exposure and collision (D'Amico et al. 2019). Collision avoidance behaviors also vary widely among avian species, with large-bodied, less maneuverable waterbirds (e.g., SACR) showing less ability to avoid collisions when exposed. Exposure risk is still informative, as exposure to a power line must occur before collision occurs, and data on collision rates (i.e., the number of collisions per exposed crossings) from other studies, if available, can be used to predict the number of potential collisions.

The proposed Project is within the wintering distribution of both SACR and multiple waterfowl species. Specifically, the Project is planned to cross the Rio Grande at a point approximately 15 miles north of areas primarily managed for foraging and roosting SACR and waterfowl. An assessment of the collision risk to SACR posed by hypothetical transmission lines across the MRGV was completed previously (Hays et al. 2021). Hays et al. (2021) identified that exposure rates of SACR were highest within the MRGV at Rio Grande crossings immediately adjacent to these wildlife areas south of the proposed Project.

Sandhill cranes are also exposed to a number of anthropogenic pressures in addition to crossing and potentially colliding with power lines. For example, 1,810 RMP SACR were legally harvested by hunters in 2025-26 (Seamans 2026), and SACR are often subject to mortality from disease outbreaks on the wintering grounds within managed areas in the MRGV. Despite this, population estimates of RMP and MCP SACR have increased in recent years (Seamans 2026).

While collision with power lines bisecting flight paths is a risk to SACR and waterfowl, there are commonly employed measures that can reduce this risk. Measures employed to minimize collision risk posed by power lines typically center on improving visibility to birds in flight through the use of various marking devices, or BFD, which have been shown to reduce collision rates (Table 1; Sporer et al. 2013; Bernardino et al. 2019; Ferrer et al. 2020). These reductions in collision rates arise as the visibility of power lines is increased and the exposure zone for birds in flight shrinks, reducing exposure rates. Devices used to mark lines include aviation marker balls, different styles of spiral line markers, and modern dynamic, or "flapper" type devices. Studies have shown that collision rates may decline by 50-98% for SACR and other large-bodied birds through the use of BFD (Barrientos et al. 2011; Bernardino et al. 2019; Dwyer et al. 2019). Of particular relevance to the analysis described herein, a reduction in collision mortality of approximately 62% for SACR and waterfowl, and 91.3% for just SACR, was shown when BFD were installed on a power line in the San Luis Valley in southern Colorado (Brown and Drewien 1995).

Table 1. Efficacy of bird flight diverters commonly used on power lines to reduce avian collisions.

Device	Description	Reduction in Collisions	Species	Source
Aviation Marker Balls				
marker balls	large colored spheres	53%	waterfowl, SACR	Morkill and Anderson 1991; Savereno et al. 1996
Spiral Line Markers				
spiral vibration damper	PVC spiral device	62%	waterfowl, SACR	Brown and Drewien 1995
Bird-Flight Diverter™	PVC spiral device that increases in diameter	57-90%	cranes, waterfowl, herons, rails, storks	Koops 1987; Alonso 1994; Crowder 2000
Swan-Flight Diverter™	PVC spiral with larger diameter in the center	38-95%	cranes, waterfowl, swans, storks	Barrientos et al. 2012; Crowder 2000; Janss and Ferrer 1998; Rasmussen 2001
Suspended/Dynamic Devices (i.e., Flappers)				

Device	Description	Reduction in Collisions	Species	Source
general designs	swinging and fixed devices of various shapes	40-70.9%	waterfowl, SACR	Brown and Drewien 1995; Ferrer et al. 2020
FireFly™	rectangular plates with reflective surfaces	50-98%	SACR, passerines	Yee 2008; Murphy et al. 2009, Dwyer et al. 2019*

*Dwyer et al. (2019) demonstrated a 98% reduction in SACR collisions with power lines in Nebraska by utilizing FireFly™ BFD in conjunction with ultraviolet power line illumination technology, the Avian Collision Avoidance System.

In addition to installing BFD, co-locating power lines has been identified as a way to reduce collision risk to birds (Thompson 1978; APLIC 2012). Co-location of power lines refers to placing new power lines in existing rights-of-way (ROW) or immediately adjacent and parallel to existing power lines. Co-location of new power lines with existing lines combines two independent collision hazards into a single hazard that birds in flight must avoid, reducing the overall combined collision risk for both power lines if constructed and located independently by minimizing risk flight behaviors (Bevanger 1994). Also, additional power line configurations immediately adjacent and parallel to one another may increase overall visibility of the combined hazard, and best practice guidelines suggest that new power lines be sited along existing linear elements (e.g., roads) to help reduce exposure and minimize collisions (Williams 2003, Prinsen et al. 2012, SNH 2016).

Other evidence suggests that rebuilding and combining existing power lines with new configurations on the same towers may also reduce collision risk. Ground or shield wires located above conductors and typically the uppermost portion of a power line configuration are frequently the primary risk for bird collisions (Bevanger 1994; Thompson 1978). These wires are generally single wires, often paired, not bundled, and thinner when compared to conductors; studies suggest that birds collide with these wires as they try to maneuver over the more visible conductors (Bevanger and Brøseth 2001; Prinsen et al. 2011). Thus, rebuilding an existing power line to combine two otherwise independent power lines would reduce the total number of overhead ground wires, reducing the exposure zone and collision risk. Similarly, studies have shown that reducing the total number of horizontal obstacles on power lines lowers collision risk (Bernardino et al. 2018; Bevanger and Brøseth 2001). Further, because exposure in such instances is consolidated into a single hazard and associated collision risk declines with increased avoidance behaviors, it is likely that BFD will reduce collision risk for both existing and new power lines that are rebuilt into a single, new configuration.

Purpose

The purpose of this memorandum is to evaluate contemporary SACR passages and exposure to the existing WL 115-kV transmission line, assess whether exposure rates for SACR would change with the construction of the Project, and translate SACR exposure rates to the potential number of collisions that could occur due to the Project. Exposure rate was calculated in lieu of collision rate, as collision data are unavailable for the existing WL 115-kV transmission line or other power lines in the MRGV. However, exposure rate does not account for avoidance behaviors, and collision rates are typically magnitudes of order lower than exposure rates. Thus, because studies have demonstrated low collision rates for SACR (e.g., Brown and Drewien 1995), we assumed that collision rate relative to exposure rate would be low (i.e., 0.00023 collisions per exposed crossing [Brown and Drewien

1995]). An assessment of exposure rates provides a baseline for understanding potential collisions. Because the impact of co-located/rebuilt power lines on SACR exposure to collisions in the MRGV is not known, we examined the change in exposure rates under two scenarios: 1) if the Project increases exposure rates due to additional transmission line configurations on the landscape, and 2) if the Project decreases exposure rates. We used data collected from SACR marked with GPS devices as part of an unrelated study to measure current exposure rates and estimated changes in exposure rates under these two scenarios. The evaluation described herein also includes proposed mitigation measures intended to minimize collision risk to SACR and other birds posed by construction and operation of the Project.

Study Area

The Study Area includes the portion of the proposed Project that bisects the MRGV in Valencia County, New Mexico and surrounding lands (Figure 2). Sandhill cranes and waterfowl utilize public and private property both north and south of the Project in the MRGV. To examine exposure rates of SACR and capture flights that crossed the existing WL 115-kV transmission line and proposed Project, we defined a Study Area that accounts for movement of SACR among roosting, foraging, and loafing sites. The Study Area was informed by empirical and interpolated flight data from SACR marked with GPS devices.

For the purposes of this memorandum, a maximum ROW of 200 feet (ft; 61 meters [m]) has been assumed, but some segments of the Project may have a smaller permanent ROW depending on the surrounding vegetation/habitat, sensitive areas, land constraints, and engineering considerations.

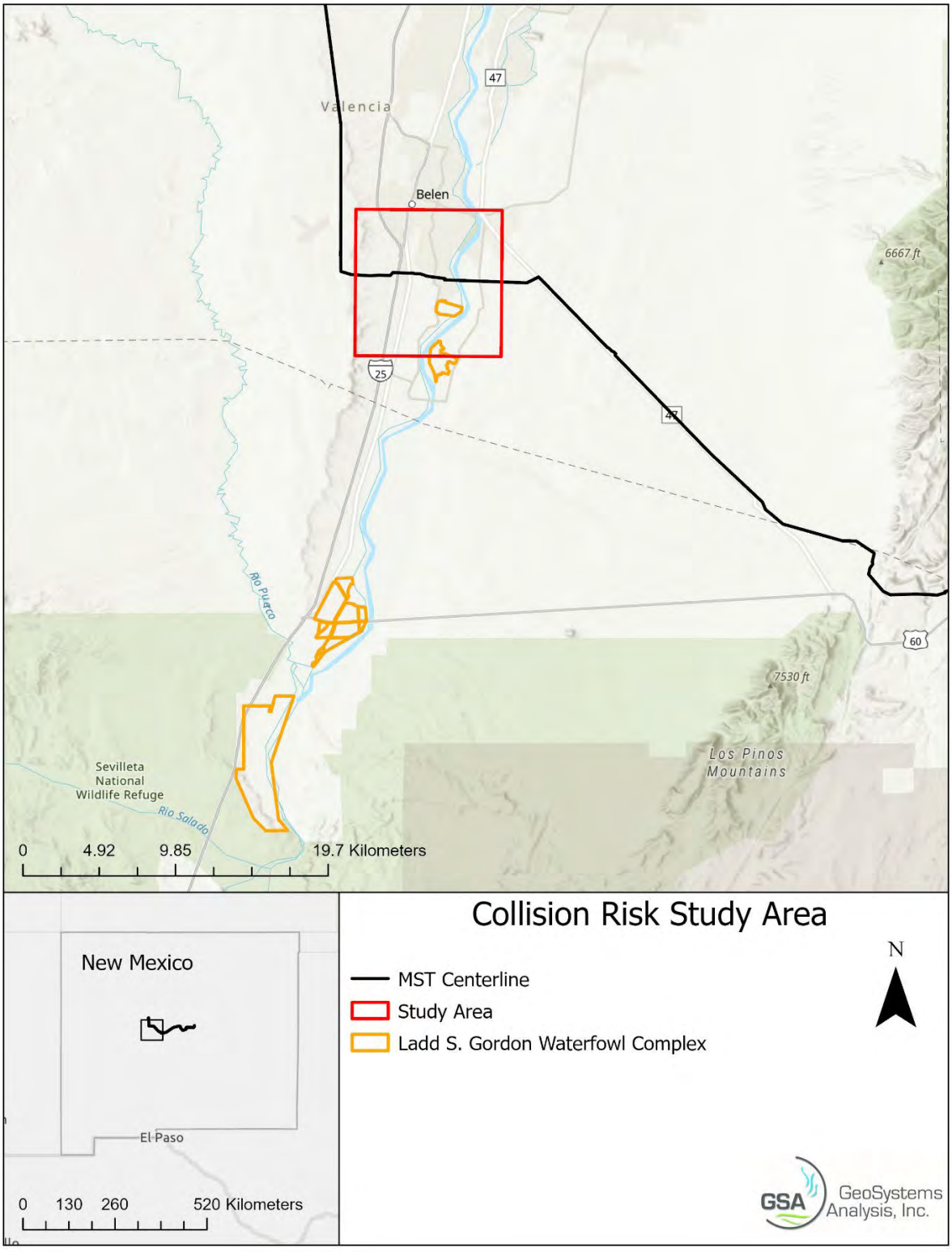


Figure 2. The sandhill crane collision risk Study Area for the Mid-State Transmission Project in Torrance, Socorro, and Valencia counties, New Mexico.

Methods

Data.Formatting

The GPS data were formatted to include only data between December 6, 2025, and February 15, 2026, within the Study Area. While many SACR may still be present in the MRGV at the end of February, some may be starting spring migration and so have longer and higher flights, which can be considered outliers compared to daily winter flights. Including such outliers would reduce estimated exposure rates for SACR wintering in the MRGV.

We assigned locations to be either "in-flight" or "stationary" based on both calculated speed (in meters [m]/second [s]) and accelerometer data. We assigned locations with a speed of >0.6 m/s as "in-flight". For the first half of the study, GPS units acquired fixes every 30 minutes. After January 8, 2026, GPS units were programmed to use flight mode, whereby accelerometer capabilities allowed the units to switch to 15-second fixes when flight was detected. These data provided a finer temporal structure from which flight characteristics could be assessed.

Passage.Rate.and.Exposure.Rate

The exposure zone is an area immediately around a transmission line where a bird could plausibly interact with the transmission line and potentially avoid or collide with the line (Figure 3). To be exposed to a transmission line, a bird must be 1) flying, 2) crossing the transmission line, and 3) near the transmission line. Thus, we determined a SACR to be exposed to a transmission line when it was crossing a transmission line and within the exposure zone.

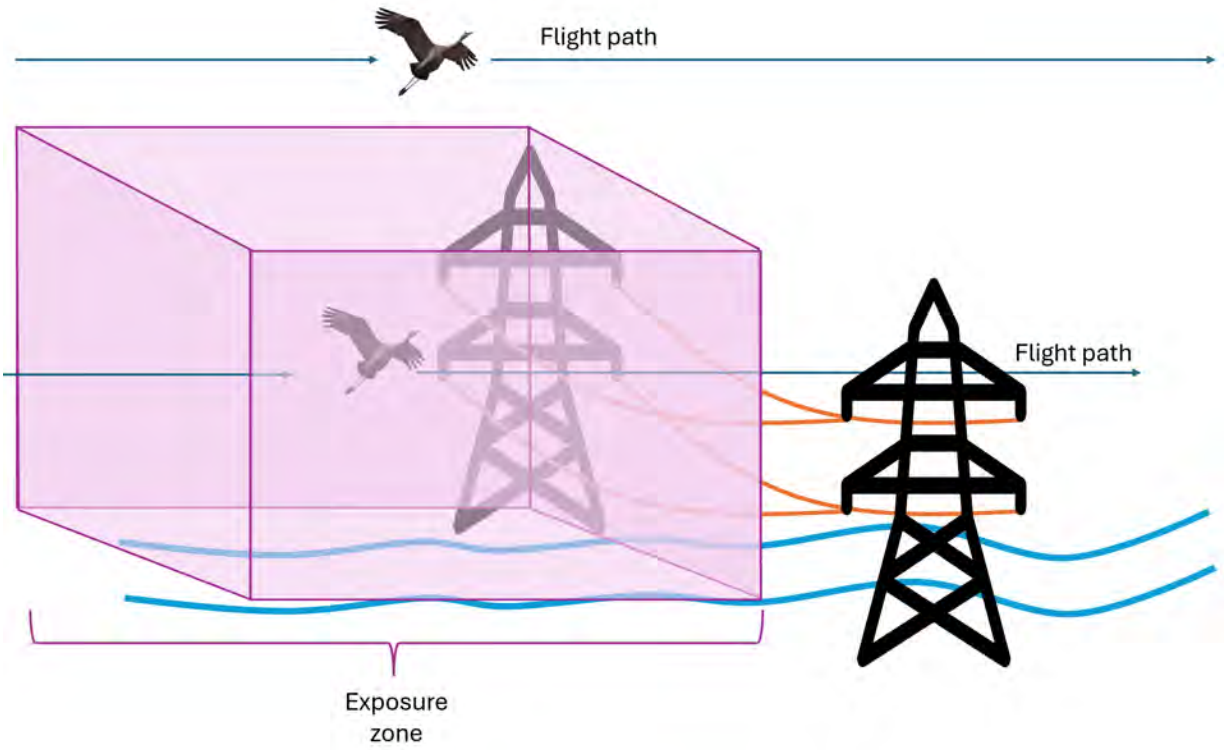


Figure 3. An example schematic of the exposure zone experienced by sandhill cranes near a transmission line.

Exposure to a transmission line is conditional on flight, so we used only flight locations to estimate exposure probability. Collisions occur as SACR approach a power line and when the line is approximately perpendicular to their flight path. Empirical data also confirm that SACR primarily fly over power lines rather than under (Brown et al. 1987, Morkill and Anderson 1991). We defined crossings as those where a marked SACR traveled between two consecutive locations and the flight route crossed the existing WL 115-kV transmission line.

The exposure zone was determined based on the maximum height of the existing WL 115-kV transmission line or the maximum height of the Project, the height of the SACR during flight, and the location of the SACR relative to the existing WL 115-kV transmission line or the Project (see.Figure 3). We assumed that exposure would differ between the existing WL 115-kV transmission line and the Project due to differing maximum heights of the existing WL 115-kV transmission line and the Project at the Rio Grande crossing. The height of the exposure zone (i.e., exposure height) was based on the height of the transmission structures and the height above ground level (AGL) of the uppermost wires on either the existing WL 115-kV transmission line or the Project. The maximum exposure height corresponded to the approximate height of the transmission towers on either side of the Rio Grande, plus an additional 4.9 m (Morkill and Anderson 1991; Hays et al. 2021). Minimum height of the exposure zone was ground level, as SACR typically fly over power lines and flight trajectories below the minimum height of power line configurations could still result in exposure as birds attempt to avoid collisions by flying over the span. For the existing WL 115-kV transmission line, the exposure height ranged between 0 and 29.9 m AGL; for the Project the exposure height ranged between 0 and 64.9 m AGL. The length of the exposure zone (i.e., exposure distance) was based on anecdotal observations and empirical evidence of SACR crossing power lines. Empirical data on the ability of SACR to perceive power lines are limited, and what information is available is primarily based on observations of behaviors of SACR flying near power lines. Morkill and Anderson (1991) observed most SACR reacting (i.e., gaining altitude, flaring, or changing direction in flight) to 345- and 69-kV transmission lines within 25 m from the lines, but 27% of observed flocks reacted at farther distances (i.e., up to 250 m). Because definitive data on the distance at which SACR respond to power lines are limited and show varying results based on location, we used a conservative distance of 250 m from the existing WL 115-kV transmission line as a precautionary measure intended to encompass the space within which SACR have been observed altering flight behavior (i.e., engaging in avoidance behavior) when encountering a power line.

Using the number of crossings and exposed crossings at the existing WL 115-kV transmission line, we calculated: 1) individual passage rate, 2) population passage rate, 3) individual exposure rate, and 4) population exposure rate. Passage rates provide a measure of how frequently SACR interact with the existing WL 115-kV transmission line and the proposed Project, while exposure rate measures how frequently those passages result in an exposure event. We calculated the individual passage rate as the number of crossings per SACR per day over the WL 115-kV transmission line, while the population passage rate was calculated as the individual passage rate multiplied by the population of SACR known to regularly winter in the MRGV from (i.e., 45,000 [Hays et al. 2021]). Similarly, we calculated the individual exposure rate as the number of exposed crossings per SACR per day, while the population exposure rate was calculated as the individual exposure rate multiplied by the population of SACR known to regularly winter in the MRGV. Additionally, exposure rates for the Project were calculated, and the resulting average exposure rate was compared to the exposure rate for the

existing WL 115-kV transmission line. Analyses were completed in Program R (R Core Team 2026). We reported measures of variability and uncertainty using 95% confidence intervals (CI).

We extrapolated passage and exposure rates to the population level assuming that 45,000 SACR use the MRGV during the wintering season (Hays et al. 2021). This number comes from a combination of the recent estimates of the RMP SACR population size (e.g., Seamans 2026) and the number of MCP SACR that also winter in the MRGV. The number 45,000 may be an overestimate of population size in the MRGV during the winter and is certainly a conservative estimate of the number of SACR that regularly interact with the existing WL 115-kV transmission line and would thus interact with the Project, so resulting exposure rates and corresponding collision estimates should be considered highly conservative.

Finally, we estimated the potential the number of SACR collisions with the Project using the exposure rate estimate and available literature on collision rates with and without BFD installed. Brown and Drewien (1995) estimated that at most 0.00023 collisions of SACR occurred per crossing for power lines without BFD. We multiplied this value by the population exposure rate to estimate the number of SACR collision that could occur with the Project without BFD. We repeated this process for the Project with BFD using the estimate of 0.00002 collisions per crossing with BFD installed from Brown and Drewien (1995).

Results

A total of 32 SACR were marked with GPS units and used to examine passage and exposure rates between December 6, 2025, and February 15, 2026.

Existing.WL.77❶_kV.Transmission.Line

The average individual passage rate for the existing WL 115-kV transmission line was 0.53 (95% CI, 0.47-0.60) crossings per SACR per day and increased throughout the season, peaking around mid-February (Figure 4). Conservatively assuming 45,000 SACR were within the Study Area, the average population passage rate was 24,065 (95% CI, 21,282-26,848) crossings per day.

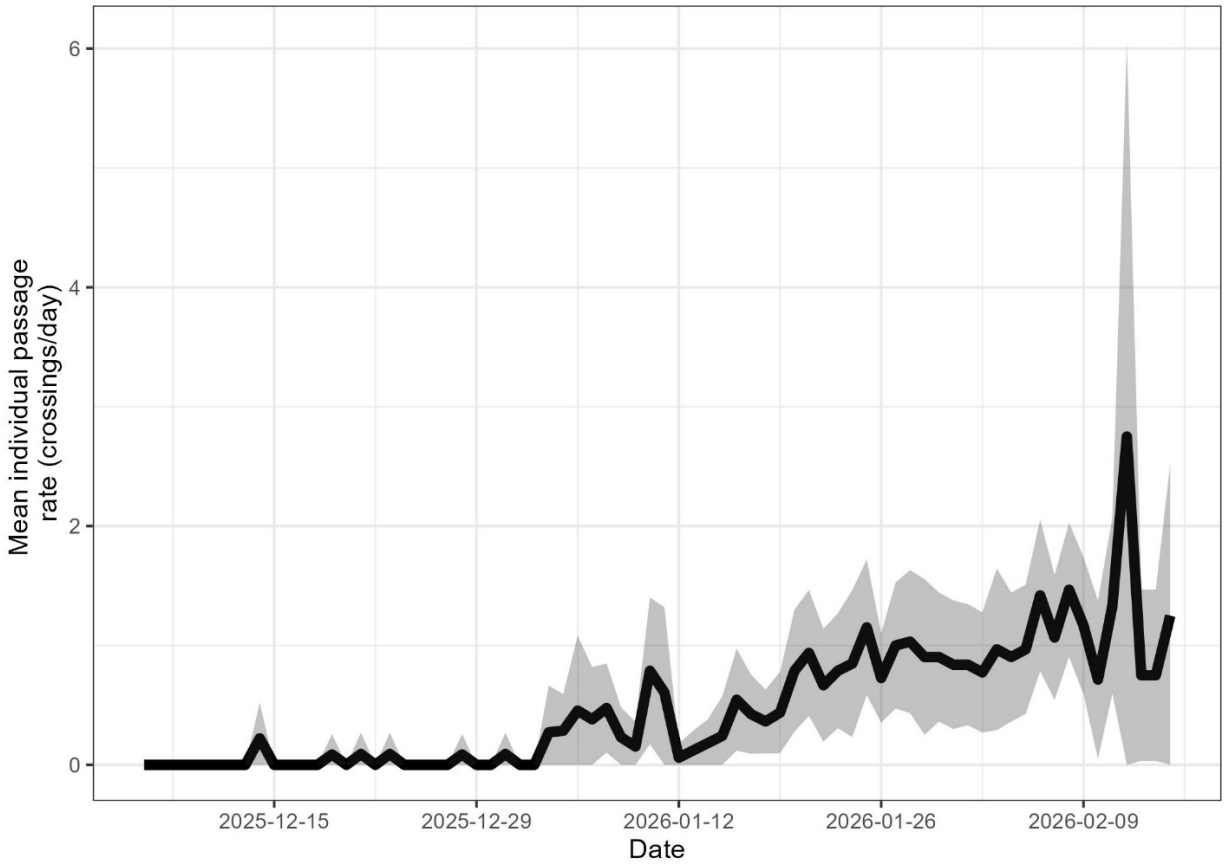


Figure 4. Mean individual passage rates of SACR crossing the existing WL 115-kV transmission line during the 2025-2026 winter season. Shaded regions represent 95% confidence intervals.

The average individual exposure rate for the existing WL 115-kV transmission line was 0.03 (95% CI, 0.002-0.03) exposed crossings per SACR per day Figure 5. Conservatively assuming 45,000 SACR were within the Study Area, the average population exposure rate was 1,131 (95% CI, 779-1,484) exposed crossings per day.

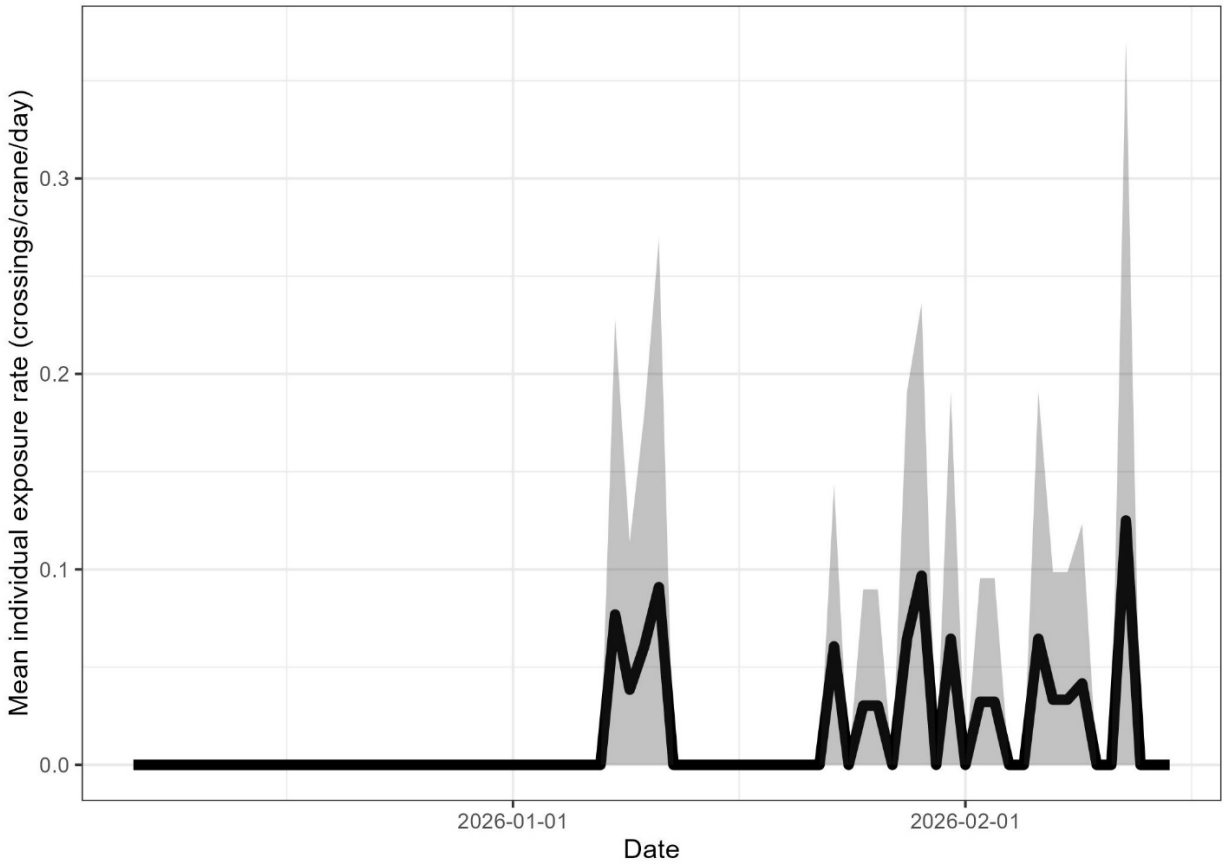


Figure 2. Mean individual exposure rates of SACR crossing the existing WL 115-kV transmission line during the 2025-2026 winter season. Shaded regions represent 95% confidence intervals.

Existing.WL.77❶_kV.Transmission.Line.Combined.with.the.Project

With the addition of the Project, the average individual exposure rate increased to 0.06 (95% CI, 0.05-0.08) exposed crossings per SACR per day (Figure 6), translating to 2,856 (95% CI, 2,140-3,571) exposed crossings per day using the conservative assumption that 45,000 SACR were within the Study Area. Using a value of 0.00023 collisions per crossing of the Project without BFD (Brown and Drewien 1995), we estimated 0.66 collisions per day, resulting in 53 collisions per season (i.e., 81 days per season [Hays et al. 2021]). Using a value of 0.00002 collisions per crossing of the Project with BFD (Brown and Drewien 1995), we estimated 0.06 collisions per day, resulting in 4 collisions per season.

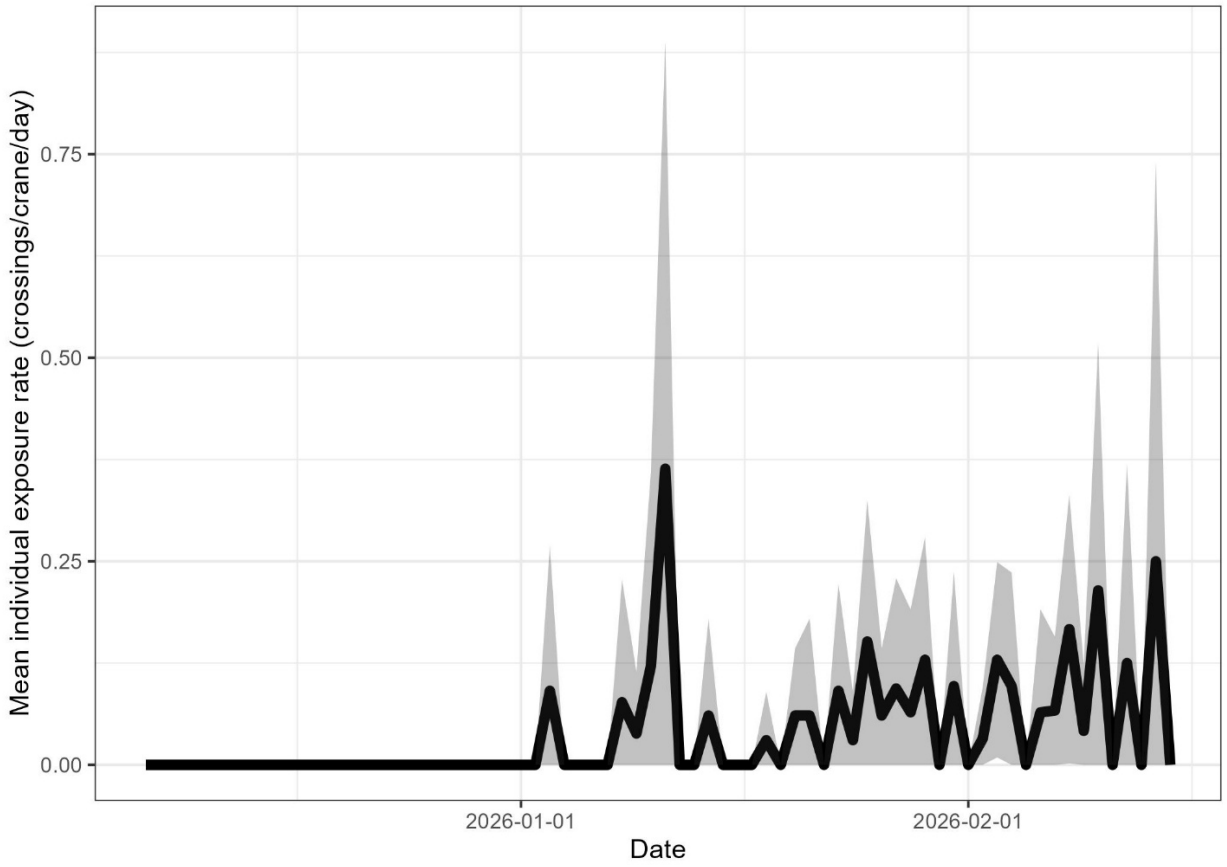


Figure 6. Mean individual exposure rates of SACR crossing the Project (pre-construction) during the 2025-2026 winter season. Shaded regions represent 95% confidence intervals.

Summary and Discussion

The population passage for the existing WL 115-kV transmission line indicated that SACR were regularly crossing this transmission line during the 2025-2026 winter season. Average individual passage rate for the existing WL 115-kV transmission line (i.e., 0.53 crossings per SACR per day) translated to a peak of 24,065 crossings per day, using the conservative assumption of 45,000 wintering SACR in the MRGV and Study Area. Changes in passage rates are likely related to changes in habitat use by SACR throughout the season (Vanausdall et al. 2025). Average individual exposure rate (i.e., 0.03) for the existing WL 115-kV transmission line was relatively low relative to passage rates

and translated to 1,131 exposed crossings per day, using the same conservative population assumptions.

Comparing the estimates described herein to those of other studies, individual exposure rates were within the realm of expectations. For example, the individual exposure rate estimate for the existing WL 115-kV transmission line (i.e., 0.03) was within range of Hays et al. (2021), who provided estimates on exposure rates for SACR along the Rio Grande in the MRGV. Hays et al. (2021) found peak exposure rates (i.e., 0.075) near the Bernardo Wildlife Management Area (WMA), which is part of the Ladd S. Gordon Waterfowl Complex approximately 15 miles south of the proposed Project. Our individual exposure rate estimate (i.e., 0.03) for the existing WL 115-kV transmission line was considerably lower than the peak estimate for a hypothetical line near Bernardo WMA 15 miles south. This difference in exposure rates is likely related to habitat availability and use. Wintering SACR spend a considerable amount of time foraging and roosting in and around Bernardo WMA, which is managed specifically for SACR and waterfowl, whereas there are no sites close to the existing WL 115-kV transmission line managed specifically for SACR.

Exposure rate increased with the addition of the Project to the existing WL 115-kV transmission line, from 0.03 exposed crossings per SACR per day to 0.06 exposed crossings per SACR per day, resulting in an estimated 2,856 exposed crossings per day, again using the conservative assumption of 45,000 SACR within the MRGV and Study Area. While the Project resulted in increased exposure, this combined exposure rate is lower than if the Project were to be built independently of the existing WL 115-kV transmission line, which would create an additional exposure zone beyond the exposure zone of the existing WL 115-kV transmission line. For example, if the Project were to be built independently of the existing 115-kV transmission line it would presumably carry the same or similar exposure rate as that estimated herein (i.e., approximately 0.06 exposed crossings per SACR per day), and the existing WL 115-kV transmission line would carry the same estimated exposure rate (i.e., 0.03 exposed crossings per SACR per day). This would result in a total exposure risk of approximately 0.09 exposed crossings per SACR per day for two independent transmission lines, which is greater than the estimate of 0.06 exposed crossings per SACR per day when the existing WL 115-kV transmission line is combined with the Project.

Finally, we predicted that 53 collisions could occur due to the Project based on our estimates of exposure rate and assumptions related to the wintering SACR population size and use of the Study Area. This is a conservative estimate, as SACR space use and distribution in the MRGV is highly variable both within and among seasons. For example, RMP SACR are known to winter in the MRGV south of the Study Area (e.g., Bosque del Apache National Wildlife Refuge, approximately 60 miles south) and utilize relatively localized wintering home ranges that do not intersect the Study Area (Hays et al 2021).

The addition of BFD to the Project showed a decrease in the number of potential collisions to 4 per season. While these predicted fatalities are still important to consider, it is also important to consider these impacts in context with other anthropogenic pressures, such as the approximately 1,800 RMP SACR that were legally harvested by hunters in 2025-26. Indeed, wintering population estimates of SACR in the MRGV have remained stable or increased in recent years despite increasing hunting pressure and impacts from other anthropogenic sources.

Mitigation Measures

The Project is committed to applying APLIC principles and completing an avian risk review to inform locations for BFD to minimize avian collision risk posed by the Project. This risk review will also utilize stakeholder input. Specific BFD designs will be selected based on site-specific criteria including relative collision risk to SACR, as well as overall efficacy and durability of BFD. Based on best available science and the analyses described herein, implementation of BFD on the Project within the vicinity of the Rio Grande will result in material reductions in SACR collisions with the Project.

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Best Management Practices

PNM Exhibit IE-5

Is contained in the following 6 pages.

	Category	No.	Pattern Energy New Mexico Environmental Best Management Practices (September 16, 2026)
New Mexico State Land Office Required Practices for Surface Users			
New Mexico State Land Office Required Practices for Surface Users	Design	1	New surface disturbance will be minimized within 200 feet of the boundary of riparian areas, wetlands, playas or other water bodies (e.g., the ordinary high water mark) to the extent practicable. Where avoidance is not practicable, impacts will be minimized and comply with the U.S. Army Corps of Engineers Nationwide Permit under Section 404 of the Clean Water Act. Boring under these water features may be utilized where practicable and designs are approved. To minimize new surface disturbance within 200 feet of the boundary of any riparian area, wetland, playa or other water body means: only temporary use will be allowed; no blading, grading, or digging; no permanent structures; no permanent roads (with the exception of the permanent maintenance road where no other route is possible, but never across playas); no introduction of outside material, (i.e. gravel, caliche, base course), no mechanical compaction, and full reclamation requirements for any temporary use: flipping or ripping compacted temporary use areas if necessary; reseeding, weed control, re-contouring to previous condition. For any permanent maintenance road crossing a riparian area, to minimize new surface disturbance means the minimum width that is absolutely necessary, and the road must be designed to allow the natural hydrology of the basin to continue functioning as if the road was not there: built to allow water to move under, through or across the road, without catchments or pooling or channeling, with erosion control structures and flow dispersal structures as necessary, and plantings as necessary to manage hydrologic functioning condition.
		2	All efforts should be made to minimize new surface disturbance: new roads and rights-of-way should make use of pre-existing disturbed areas, including existing roadbeds, pipeline or utility line rights-of-way, or in pre-existing or dedicated corridors when practicable.
		3	No new surface disturbance will be permitted within 200' feet of the centerline of ephemeral drainages, floodways, arroyos or other short duration flow channels, except when crossing these channels and drainages. Where avoidance is not practicable, impacts will be minimized and comply with the U.S. Army Corps of Engineers Nationwide Permit under Section 404 of the Clean Water Act. Drainage crossings will be perpendicular to flow, and will be built to accommodate 25-year flood events and to control erosion. Boring under these water features maybe utilized where practicable and designs are approved.
		4	Establish property boundaries.
		5	Minimize new surface disturbance and design for minimum necessary width/area of impact according to expected purpose and use.
		6	Avoid wetlands, known critical habitat, and protected areas.
		7	Avoid steep slopes (>12%) where practicable; grades from 4-10% are preferred for managing drainage; roads and rights-of-way are best placed at the toe of slopes where cross slope is between 5% and 40%.
		8	Preserve as much natural vegetation and living root structure as possible. If the material is less than three inches in diameter, lopping and scattering is permitted. If greater than three inches, the material can be chipped or masticated then spread to no thicker than four and a half inches.
		9	Provide adequate surface drainage; as grade steepens drainage features, such as water bars, must be closer together; drainage features on fine grained soils should be closer together.
		10	Account for cultural resources at least in accordance with minimum standards as set forth in NMSLO policy ADM-0106.
		11	Account for biological resources at least in accordance with minimum standards as set forth in NMSLO Policy ADM-0105.
		12	Include a spill containment and prevention plan where hazardous materials are involved.
		13	Include a reclamation plan detailing soil stabilization and revegetation process.
		14	Include an access control plan.
		15	All reclamation success criteria shall follow federal NPDES guidelines whereas a minimum of 70% density (of pre-existing conditions) of native flora shall be successfully reestablished prior to release from permit requirements for ongoing inspections and maintenance of temporary ESC BMPs.
		16	Use only native weed-free certified seed for reclamation.
		17	Include a noxious weed prevention plan.
		18	Include a dust abatement plan.
		19	Address crown, inslope, outslope and shoulder design (roads).
		20	Address trenching and boring design, including depth, casing, core sampling, valve location and access management (pipelines).
		21	Define use, location and size of temporary work space, temporary storage and turnouts.
		22	Address logistics of construction.

New Mexico State Land Office Required Practices for Surface Users	Construction Practices	23	Address all pertinent state and federal regulations.
		24	Control access to the construction site.
		25	Control unauthorized use of space adjacent to permitted rights-of-way and use areas.
		26	Maintain temporary erosion control structures, such as silt fencing to prevent sediment flow during construction.
		27	All water utilized for dust abatement shall be suitable for meeting federal NPDES guidelines for water quality standards for revegetation. A minimum of 70% density (of pre-existing conditions) of native flora shall be successfully reestablished prior to release from permit requirements for ongoing inspections and maintenance of temporary ESC BMPs.
		28	When requested by the Commissioner, engage a compliance inspection officer to monitor quality control and compliance with NMSLO best management practices.
		29	Sample, test and monitor to ensure construction materials meet design specifications.
	Operation Practices	30	Dispose of unsuitable or excess excavation material in approved locations to minimize adverse impacts to water quality or other resources.
		31	Grade and shape roadway surfaces to maintain distinct inslope, outslope or crown shape to move water effectively off the road surface.
		32	Compact graded roadway surfaces to preserve hard driving surface; replace surface material when needed; implement dust abatement plans.
		33	Fill ruts and potholes with gravel or compacted fill or remove ruts through rolling dips and water bars; reshape structures to maintain proper function.
		34	Clean ditches and reshape when necessary to allow adequate flow capacity.
		35	Remove debris from the entrance of culverts to prevent plugging and overtopping; check for signs of damage.
		36	Replace or repair rock armor, erosion control structures, or vegetation used for slope protection, scour protection or energy dissipation.
		37	Inspect and repair fencing, gates, cattle-guards and other access control structures.
	Reclamation	38	Inspect reclamation, revegetation and noxious weed treatments and retreat as necessary to maintain proper functioning of erosion control and establishment of native vegetation.
		39	Seek a remediation right-of-entry for any reclamation of state trust land outside the bounds of the permitted right-of-way.
		40	Verify compliance with NMSLO biological and cultural resource policies (ADM-0105 and ADM-0106) for the area to be reclaimed.
		41	Sample, remove and properly dispose of any contaminated soils.
		42	Remove and properly dispose of any caliche or other surface base course.
		43	Contaminated soils and caliche should be disposed of only in state permitted disposal locations, such as land farms or hazardous disposal sites.
		44	Replace caliche, base course or contaminated soils with certified clean top soil comparable to undisturbed clean soils in the near vicinity.
		45	Contour the ground surface to blend in with the surrounding topography and to allow the natural hydrology of the basin to function without impediment or impact.
		46	Install erosion control structures as necessary to repair and control gullies, head-cuts, rills, and other forms of sediment movement.
		47	Erosion control structures should be designed to restore natural hydrologic function and to the extent possible should use local rock or bio-degradable materials and low-energy, minimum necessary designs.
		48	Structures may include, but are not limited to, one rock dams, rock mulch rundowns, zuni bowls, media lunas, swales, berms, terraces, wattles, rock or log mats, hay mulch, gabions, bales or other stabilizing enhancements to control erosion.
		49	Prepare the seedbed to maximize potential for success. This may include, but is not limited to, a combination of watering, mechanical packing to consolidate loose soils, disking to loosen compacted soils, or crimping hay mulch into the soil, (2 tons/acre), adding soil amendments, contouring and/or importing top soil.
		50	Install water bars, or other NMSLO approved flow control, at an angle of 30% to the grade along the contour of the road or right-of-way, up to two feet high and six feet wide; water bars should be placed on any slope greater than level, every ten feet in elevation change or every 300 feet, whichever is less.
		51	Seed the prepared seedbed with a drill seeder or hydraulic seeder. Hydroseeding will be used on 3:1 slopes or greater. The seed mix will be based on NMSLO revegetation guidelines and will be provided or approved by the NMSLO.
		52	In the event of a spill or hazardous materials release, the project SPCC Plan guidelines must be followed and reporting requirements set forth by NMED shall be followed. Provide draft copy of SPCC Plan to SLO for approval.
		53	A noxious weed plan will be developed and noxious weeds will be monitored and treated on an annual basis, or as needed, for three years post construction.

New Mexico State Land Office Minimum Requirements for Surface Reclamation			
New Mexico State Land Office Minimum Requirements for Surface Reclamation	**Objective**	**1**	To reduce and prevent erosion, remove contaminants and contaminated materials, restore clean soils, restore native plant diversity and abundance, restore and maintain hydrological regime, and restore and maintain productive habitat for livestock and wildlife.
	Applicability	**2**	These Minimum Requirements are applicable to all reclamation activities on state trust lands including: hazardous materials spills/releases, site closure for oil and gas, mineral and business leases, plug and abandon site reclamation, mine site reclamation, pit, pad, or pond reclamation, illegal dump reclamation, road and pipeline reclamation, dairy farm or other agricultural impact reclamation, and any other clean up or reclamation activity on state trust land.
	Access	**3**	If the spill/release or reclamation project extends beyond the lease boundary or permitted right of way, contact the NMSLO Rights Of Way Division and obtain a remediation right-of-entry.
	Compliance	**4**	Before commencing any new ground disturbing activity:
		5	(a). Conduct an archaeological survey of the impacted area, or verify that the area has already been surveyed and that no cultural properties will be impacted by ground disturbing activities;
		6	(b). If cultural properties have been impacted by a spill/release or reclamation project, immediately stop all ground disturbing activities and contact NMSLO for further direction;
		7	(c). Verify compliance with NMSLO biological and cultural resource policies (ADM-0105 and ADM-0106) for the area to be reclaimed; conduct surveys where necessary;
		8	(d). Verify compliance with all state and federal regulations, including but not limited to storm water pollution and prevention, air quality control, and hazardous materials disposal;
	Hazard Material Spill / Releases	**9**	Other Spills/Releases: (i). Upon discovery of any non-oil and gas related hazardous material release, including mine waste, either current or historic, immediately notify NMED and NMSLO;
	Delineation	**10**	Upon discovery of contaminated soils, delineate the horizontal and vertical extent of the contamination;
		11	For any spill on State Trust Lands: Written Report for all spills. For spills greater than 25 gallons, immediate notification (email address to be defined) to SLO within 24 hours;
		12	For non-oil and gas related contamination, the NMED may require delineation and monitoring related to surface and ground water impacts;
		13	The NMSLO may require any necessary sampling or reclamation related to the restoration of surface conditions within 60 days post-notification.
	Reclamation Plan	**14**	A project revegetation plan will be designed to meet NPDES requirements and submitted to NMSLO for review and approval.
	Removal/ Containment	**15**	Remove and replace, or stabilize and contain any contaminated soils, including contaminated caliche or base course; remove and replace all caliche or base course; contaminated soils and caliche should be disposed of only in state permitted disposal locations, such as land farms or hazardous disposal sites, and in accordance with state and federal regulations.
	Soil Replacement	**16**	Replace contaminated soils, caliche or base course, and uncontaminated caliche or base course, with certified clean top soil; soils should have comparable structure and chemistry to healthy, native undisturbed soils in the vicinity.
	Trash and Debris	**17**	Unless equipment is to be re-used onsite, any trash, debris, garbage, rubbish, junk, scrap, or broken or contaminated equipment, such as pipelines, plastic lining, surface flowlines, tanks, scrap materials of any kind, or other equipment must be removed and disposed of in accordance with state and federal regulations within 30 days of final use or completion of construction.
		18	No hazardous substances, trash or litter will be buried or placed in pits.
	Surface Preparation	**19**	Contour the ground surface to blend in with the surrounding topography to allow the natural hydrology of the basin to function without impediment or impact.
		20	No major depressions or pits will be left that will trap water or cause ponding except where the project involves a mining pit where there is no possible outlet, such as a caliche pit.
	Erosion Control	**21**	Where active transportation of sediment through gullying, headcutting, slumping or deep or excessive rills (greater than 3 inches deep) occurs within the lease area or within the adjacent area of impact, install erosion control structures to repair and control gullies, head-cuts, rills, and other forms of sediment movement.
		22	(a). Erosion control structures should be designed to restore natural hydrological function and flood regime, and to the extent possible should use local rock or biodegradable materials and low-energy, minimum-necessary designs.
		23	(b). Erosion control structures may include, but are not limited to, one rock dams, rock mulch rundowns, zuni bowls, media lunas, swales, berms, terraces, wattles, rock or log mats, hay mulch, gabions, bales or other stabilizing enhancements to control erosion.

New Mexico State Land Office Minimum Requirements for Surface Reclamation	**Drainage Control**	**24**	Drainage control structures should be designed to mimic natural hydrological function and flood regime as much as possible so as not to increase the erosional impact of hydrologic flows to the structure or to the upstream or downstream landscape; drainage control designs should be engineered and stamped by a PE.
		25	Drainage control structures may include but are not limited to road bars, culverts, water bars, parallel and lateral ditches, drains, and low water crossings.
	Seedbed Preparation	**26**	Revegetation to meet or exceed 70% density of surrounding cover. If straw/hay mulching is used, straw/hay must be certified weed free.
	Revegetation	**27**	On 3:1 slopes or greater additional revegetation BMPs shall be deployed (such as: hydromulching, crimp mulching, or erosion control blanket).
	Access Control * applicable to SLO properties	**28**	a. Gate and Fencing Specifications: Unless otherwise directed by the NMSLO, a locked metal gate with 4-inch H-braces and a permanent fence extending at least 100 feet from either side of the gate, or to the next adjacent gate, will be installed to block public access to all closed reclamation sites; fence will be constructed with steel T-posts on 16-foot spacing, with stays every 8 feet and 4 strands of barbed wire; the top wire should be set at 42 inches above the ground surface; inline braces will be used at intervals not to exceed 660 feet; corners will be braced and set in concrete; fence wire will be attached on the outside of the T-posts with wire ties.
		29	b. Permanent Closure Specifications: Dirt berms, permanent hard barriers or rock barricades will be installed to block unauthorized access points to reclamation sites; berms and barriers will be at least 3 feet high and will extend the width of the access point; berms will be hard packed; barriers and barricades may be constructed of metal pipe rail, concrete, or rock and may be used in combination with berm work to ensure closure of an access point; Keep these areas from being general access routes for the public. Require fencing with requests for other options on a case-by- case basis.
	Monitoring	**30**	The responsible party will monitor the reclamation site annually until relinquished by the NMSLO during restoration sign-off process and completion of action item list.
		31	Prior to relinquishment, the NMSLO will retain the right to inspect and to provide sign-off prior to release and may require supplemental clean up, maintenance of erosion control structures, additional reseeding efforts, or noxious weed treatments to ensure success of reclamation.
		32	The NMSLO may request detailed annual monitoring reports depending on the severity of the situation.
	Reporting	**33**	The NMSLO may require monthly updates during the course of the initial reclamation work; monthly updates will include a brief narrative statement of work completed with photo documentation; upon completion of the initial reclamation work, the responsible party will notify the NMSLO that the site is ready for inspection; rights of way lessees will provide an affidavit of completion (NMAC 19.2.10.21); annual monitoring reports may be required depending on the severity of the situation.
	Relinquishment	**34**	The NMSLO will inspect the initial reclamation work upon completion and will provide the responsible party with a statement indicating that the initial work has been completed as required and detailing any follow up work that may be necessary prior to relinquishment; notice of relinquishment will be provided upon complete satisfaction of all NMSLO reclamation requirements.
New Mexico Forest Practices Guidelines			
New Mexico Forest Practices Guidelines	**Watershed**	**1**	Minimize the number of roads constructed in a watershed through comprehensive road planning, recognizing intermingled ownership, and foreseeable future uses.
		2	All personnel appointed as fire watch under hot work permitting will have immediate access to shovel, fire extinguisher, and backpack water sprayer. In addition, all project work will follow guidelines detailed in the site fire protection and prevention plan.
	Riparian/ Wetland Edge	**3**	No constructed features of the project should be located in a wetland. Linear features which must cross a riparian area will be required to follow U.S. Army Corps of Engineers regulations.
		4	Wetlands and other environmentally sensitive areas will be marked in the field for easy identification by crews. Sensitive features will be defined in a wetland delineation report.
	Streamside Management Areas	**5**	200' minimum for Streamside Management Area (SMA) boundaries.
		6	Leave trees on the bank that will eventually fall across the stream, helping to create a stair step of pools in the stream channel, providing a fish habitat component. Larger trees increase the benefits for the habitat. Hazard trees may be felled and left in place at contractor's discretion.
		7	Do not service vehicles where chemicals, oil, or other toxic substances might contaminate soils, waterways, or waterbodies.

New Mexico Forest Practices Guidelines	Roads	8	Properly design roads and drainage facilities to prevent potential water quality problems before construction starts.
		9	Minimize the number of roads constructed in a watershed through comprehensive planning, recognizing intermingled ownership, and future uses.
		10	Road design specifications should be included in a contract between the landowner and the road builder. The contract should include exact road locations, dimensions, erosion control and drainage features, stream crossing and structure specifications, season(s) of construction and use, and maintenance schedule, road closure and re-vegetation procedures, and penalties for non-compliance. The more specific the road contract, the more protection there is for the resources and landowner.
		11	Fit the road to the landscape. This entails altering natural drainage patterns as little as possible by following contours and minimizing cuts, fill, and stream crossings. Utilize natural road building locations away from streams.
		12	Avoid problem areas such as flood zones, narrow canyon bottoms, wet areas and highly erodible or unstable soils. Do not locate roads on slopes more than 60 percent.
		13	Keep the road grade to a minimum, usually less than 10 percent. This can be exceeded for short distances where necessary. An easy grade prevents runoff from building up erosive force and also provides for safer and more efficient travel.
		14	Prevent the concentration of water on the road by designing adequate drainage features. Some suggested drainage methods are insloping and outsloping the road surface, and installation of grade dips and cross drains. Installation of these features is explained in the civil details.
		15	When a stream crossing is necessary, locate the site on a stable, straight portion of the stream. The approach to the crossing should be at a minimal grade and a right angle to the stream.
		16	Leave 200' buffer of undisturbed soil and vegetation on either side of a stream being impacted.
		17	Schedule construction activities to avoid heavy seasonal rains. Excavation operations may expose mineral soil which is highly susceptible to erosion. Soil stabilization and erosion control measures should be completed before the monsoon (thunderstorm) season of July, August, and September. Clear only that part of the route that can be completed in the current season.
		18	Minimize disturbance during construction activities by restricting machinery to the designated road. Clear vegetation to the width required for cut and fill slopes. Excessive removal of vegetation further increases erosion and is more costly. Keep machinery out of streams except when absolutely necessary for culvert installation and bridge construction. Round the top of cut slopes only when this will provide more stability than a vertical cut.
		19	During clearing operations, do not mix organic debris with fill materials. Trees and brush will eventually decay in the fill material causing the road surface to become unstable. Dispose of organic debris properly by utilization, piling and burning, chipping, or lopping and scattering. A good use for slash is to place it along fill slopes to slow runoff and trap sediment.
	Culverts	20	Remove debris from stream channels that was added during construction. It is a good practice to remove all debris from channels for at least 100 feet upstream from culverts to reduce the chance of the culvert becoming plugged. However, never remove well established logs from a stream, as this will likely cause accelerated channel erosion.
		21	Deposit surplus soil and rock in designated areas where sediment from this material will not threaten streams. Do not simply cast surplus material downslope from the road. This material is highly susceptible to erosion and may have future value as fill.
		22	Compact all fill material. This can be done simply by running a bulldozer up and down the fill slope where it is safe to do so. Large fills should be constructed and compacted in layers of approximately 18 inches. The slots made perpendicular to the slope in the soil by the bulldozer's tracks retard runoff and moisture, thus inhibiting erosion and encouraging re-vegetation. In addition, the chance of fill slumping and requiring expensive repair will be reduced.
		23	Servicing and refueling machinery must be conducted well away from wetlands, lakes or watercourses. Fluids such as oil, diesel fuel, and antifreeze are easily washed or leached into streams and present a significant threat to water quality and aquatic life.
		24	Make certain the road surface is adequately drained. This can be accomplished in a number of ways depending on the site factors, the type and level of use, and the standard to which the road is built.
		25	A shallow gravel fill on either side of the culvert will lessen maintenance requirements. As with any cross drain, rocks and slash should be placed at the outlet to slow runoff and spread sediment. Size of the culverts, of any type, should follow recommendations. Care must be taken to disperse the discharge from these cross drains through vegetation.
		26	The culvert must be long enough to extend at least one foot beyond the fill.
		27	Align the culvert exactly with the stream, on the existing grade, and at the depth of the streambed.
		28	Culverts on fish-bearing streams must be installed to allow fish passage so as not to isolate populations.

New Mexico Forest Practices Guidelines	Recommendations	29	Fill should be well compacted to half the diameter of the culvert, and fill over the culvert should be to a depth of half the diameter but not less than one foot. Compaction will prevent water from seeping around the culvert and washing away the fill material. Fill over the culvert must be deep enough to prevent damage from heavy vehicles. If more than one culvert must be installed side by side, they should spread half their diameter so that the fill may be compacted between them.
		30	Protect the fill material around the culvert inlets and outlets with riprap. Deep fills or culverts on large streams may require more elaborate protection such as wingwalls constructed of concrete or gabions.
		31	Inspect newly constructed roads after the first good rain to insure all drainage structures and erosion control features are functioning properly. Gullies forming on cut and fill slopes should be filled in and the drainage formed.
		32	Grade the road surface as needed to correct washboarding and rutting. Maintain the proper inslope, outslope, or crown, and reshape grade dips. Ditches should be disturbed only if they are becoming clogged with sediment. Apply gravel to spots on the road that are persistently wet.
		33	Inspect drainage structures frequently. Culverts and ditches should be cleared of sediment and debris.
		34	Application of chemicals to roads to reduce dust should be limited to those road sections where dust will cause major discomfort. Applications should be avoided where road runoff discharges into or near a stream.
		35	Inspect all tracked equipment for excessive soil prior to entering the site.

Notes:
These BMPs were developed in coordination with the NM State Land Office for the portions of Western Spirit Wind and SunZia Wind South located on New Mexico State Trust Lands (2022).

Practicability of these BMPs means capable of being done or feasible without significant or unreasonable costs or delay. Any such costs or delays must take into account the overall activity (e.g., a minor route adjustment of a road may increase cost in a non-significant degree but could result in a significant delay in construction schedule depending on the circumstance).

Any BMP that references coordination with or reporting to NM State Land Office or other agencies will be followed as applicable (e.g., on State Trust Lands for NM State Land Office).

Consulted Agencies

PNM Exhibit IE-6

Is contained in the following 1 page.

Agencies Consulted to Date for the Mid-State Transmission Project
Federal
United States Fish and Wildlife Service
United States Forest Service
Bureau of Land Management
State
New Mexico Department of Wildlife (formerly New Mexico Department of Game and Fish)
New Mexico Public Regulation Commission
New Mexico State Lands Office
Local
Middle Rio Grande Conservancy District
Valencia County
Torrance County
Socorro County

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF PUBLIC SERVICE COMPANY OF NEW MEXICO'S APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT, OWN, AND OPERATE, LOCATION APPROVAL, AND RIGHT-OF-WAY DETERMINATION FOR THE MID-STATE 345 KV TRANSMISSION PROJECT	)	**Docket No. 26-0000XXX**
PUBLIC SERVICE COMPANY OF NEW MEXICO,	)	
Applicant.	)	

AFFIDAVIT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

IAN EVANS, Environmental Senior Manager for Pattern Energy Group LP, upon being duly sworn according to law, under oath, deposes and states: I have read the foregoing **Direct Testimony of Ian Evans,** and it is true and accurate based on my own personal knowledge and belief.

Dated this 30th day of October, 2026.

/s/ Ian Evans
IAN EVANS

GCG # 535976