

# Draft Environmental Impact Statement for the Mona to Oquirrh Transmission Corridor Project and Draft Pony Express Resource Management Plan Amendment

DES 09-24

UT-020-2008-009



West Desert District

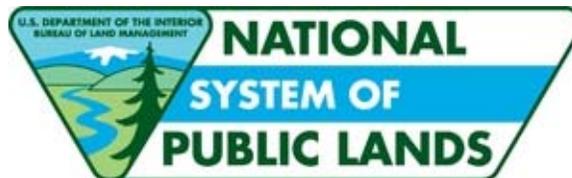
April 2009

Volume II of II -  
Appendices, Maps, and Simulations



# **BLM Mission**

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.



Bureau of Land Management

DES 09-24

UT-020-2008-009



# **U.S. Department of the Interior Bureau of Land Management**

## **Draft Environmental Impact Statement for the Mona to Oquirrh Transmission Corridor Project and Draft Pony Express Resource Management Plan Amendment**

DES 09-24  
UT-020-2008-009

### **Volume II of II**

#### **West Desert District**

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April 2009

# **VOLUME II – APPENDICES, MAPS, AND SIMULATIONS**

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Volume II accompanies the Draft Environmental Impact Statement (DEIS) for the Mona to Oquirrh Transmission Corridor Project and Draft Pony Express Resource Management Plan Amendment.

This volume contains appendices and maps in order to facilitate the review of the DEIS. The appendices include the following:

- Appendix A – Proponent’s Purpose and Need
- Appendix B – Agency and Stakeholder Meetings
- Appendix C – Resource Inventory Maps
- Appendix D – Interdisciplinary Team Review Matrix
- Appendix E – Biological Resources Supporting Data
- Appendix F – Visual Resources Supporting Data
- Appendix G – Visual Simulations

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## **Appendix A – Proponent’s Purpose and Need**

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## **APPENDIX A – PROPONENT’S PURPOSE AND NEED**

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### **A.1 Introduction**

Rocky Mountain Power’s purpose and need for the Mona to Oquirrh Transmission Corridor Project (herein referred to as the Project) is based on its obligations as a publicly regulated electric utility to provide safe, reliable, and cost-effective electric transmission service to its retail customers and other users of the transmission system. In order to meet this need, Rocky Mountain Power is obligated per the Federal Energy and Regulatory Commission requirements (Orders 888 and 889) to expand or upgrade its transmission system pursuant to the Open Access Transmission Tariff to accommodate requests (internal and external) for transmission services.

Through the course of meeting its business and regulatory obligations, Rocky Mountain Power has substantiated the need for the Project based on (1) population growth and current and projected electrical demands in northern Utah, (2) existing generation resources and the capacity of existing transmission infrastructure to meet these demands, (3) projected generation and the capacity of the existing transmission system to accommodate the increased capacity for facilities planned or under construction, and (4) reliability issues associated with the operation of the existing transmission system.

#### **A.1.1 Population Growth, Current and Projected Electrical Demand**

Northern Utah represents one of the fastest growing areas within the state of Utah and constitutes one of the major growth areas within the region. The population in this area, served by Rocky Mountain Power, is currently estimated at 2,095,403 in Utah, Salt Lake, Summit, Tooele, Wasatch, Davis, Morgan, and Weber Counties. By the year 2010, this population is estimated to increase to approximately 2,337,609; and by 2020 it is estimated to reach 2,855,894 (Utah Governor’s Office of Planning and Budget 2008). The historical average growth rate for electrical load in Utah was 3.0 percent from 1995 to 2005, and the forecasted average growth rate for load, illustrated in Figure A-1, is expected to be 2.7 percent for the years 2007 to 2016 (PacifiCorp's Integrated Resource Plan [IRP] 2007).

Approximately 75 to 80 percent of all of the electricity use in the state of Utah, referred to as the Wasatch Front load, is within a 10-county area of northern Utah. This area includes portions of Juab and Sanpete Counties and all of Utah, Salt Lake, Summit, Tooele, Wasatch, Davis, Morgan, and Weber Counties.

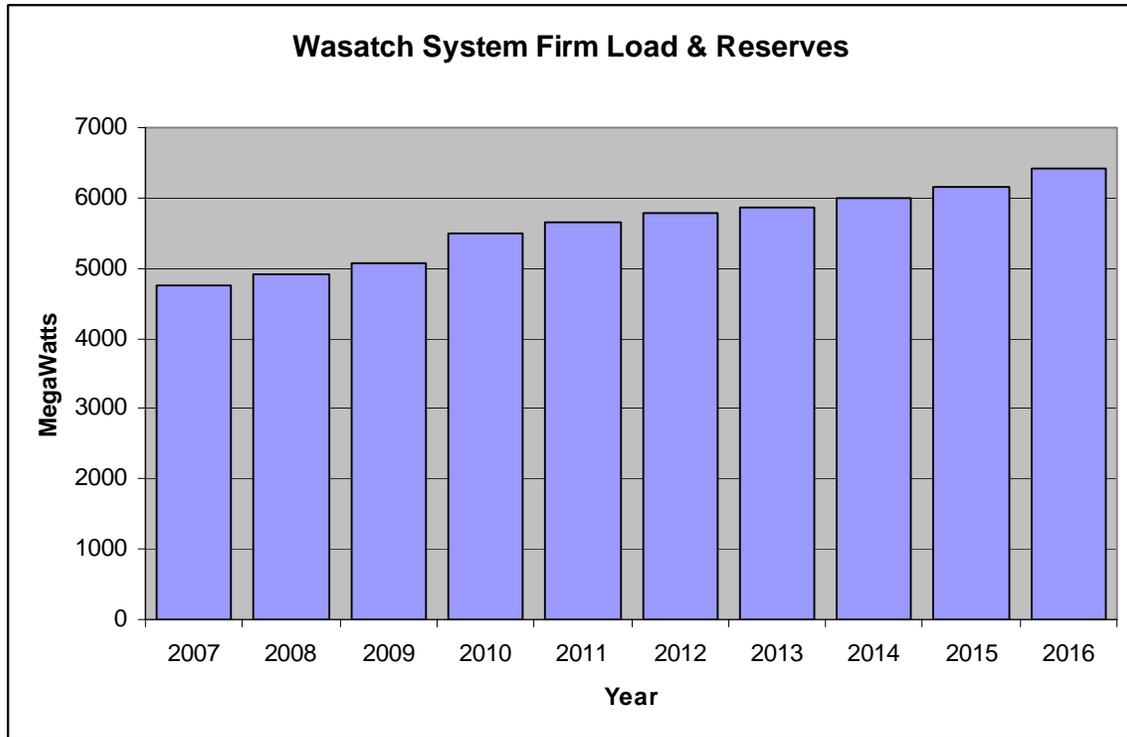


Figure A-1. Forecasted Growth for the Wasatch Load

### A.1.2 Existing Generation Resources and Transmission Capacity

Currently, a majority of the electricity serving the northern Utah area is generated at Rocky Mountain Power facilities in Carbon, Juab, and Emery Counties and is delivered on existing transmission lines from the south. These southern Utah generating facilities include the Carbon, Hunter, Huntington, and Currant Creek power plants. The Rocky Mountain Power transmission system that provides electrical service to this area from southern Utah presently consists of (1) two 345 kilovolt (kV) lines from the Huntington and Castle Dale (Emery Substation) areas to the Spanish Fork and Camp Williams substations, (2) four 345kV lines from the Mona area to the Camp Williams Substation, and (3) two smaller 138kV lines from the Helper area (Carbon Substation) to the Spanish Fork Substation. These transmission lines are also used to meet other Rocky Mountain Power transmission commitments required between Arizona or Nevada and northern Utah. As northern Utah’s electrical usage continues to grow, existing transmission lines will not have sufficient capacity to serve this projected load and ensure an adequate and reliable electric supply to northern Utah.

While the addition of new generation facilities in northern Utah (such as the Lake Side generating plant) will help to relieve potential stress on transmission lines between northern and southern Utah, the addition of such a generating plant in a highly populated area may ultimately have operating restrictions, due to air quality or other environmental restrictions.

### **A.1.3 Projected Generation Resources and Transmission Capacity**

As currently projected, the load for this area is expected to grow at a rate that may require approximately 200 to 250 megawatts (MW) of additional power each year to support growth throughout northern Utah (IRP 2007). This substantial increase may require additional resources equivalent to adding a new 500 MW generation plant every 2 years.

It is critical that additional transmission lines be built, in order to prepare for new generation resources or market purchases of energy from the desert Southwest that will need to be delivered to northern Utah. It is currently anticipated that a new 500/345kV transmission line interconnection between the existing Mona, Oquirrh, and Terminal substations will be required by 2012 to meet the expected shortfall at that time. The transmission line would be constructed as a double-circuit 500kV line and initially energized at 345kV, with the capability to be converted to 500kV in the future. When energized at 345kV, this line would provide 1,500 MW capacity to meet the projected need by 2012, and would support an additional 1,500 MW for a total of 3,000 MW when converted to 500kV. Additional future capacity provided by a second 500kV transmission line may also be necessary in the future.

Present plans show that a substantial portion of the new resources needed to serve this new load would have to be delivered from new transmission lines constructed from either the north or south. According to the PacifiCorp IRP 2007, a new power plant may be needed in 2012. This is in addition to marketplace imports (resources delivered from non-PacifiCorp facilities), such as renewable energy projects throughout the Rocky Mountain region, into existing or new substations, which will continue to remain an important future resource. While a specific generation proposal is not currently in place, alternative generation sources to the south may include a new Currant Creek II Plant, Lake Side Plant Expansion, or additional power imports into Utah. Northern generation resources or marketplace import sources could include wind or thermal resources in Wyoming. With the abundance of Wyoming wind resources, analysis efforts are currently underway to determine the most effective method of integrating this variable energy source with more predictable resources.

### **A.1.4 Reliability**

Reliability and operational flexibility is obtained through alternative transmission paths. These alternative paths allow for the shifting of load sources during planned or unplanned outages (generation or transmission). During times when one transmission line must be taken out-of-service for maintenance needs, the loss of an additional line would create a double-line outage condition. Over the next few years as power imports into northern Utah increase and the capacities of the existing lines are maximized, such issues will pose greater risk to the transmission system.

The northern Utah load (serving areas north of Mona) continues to increase, and additional resources are required. The loss of two or more lines could result in the loss of electrical service to the load. This would create a severe outage with substantial impacts on northern Utah and throughout the state. In particular, electrical power flow studies have shown that the loss of the four existing 345kV transmission lines that are within the same right-of-way between Mona and Camp Williams would likely cause the loss of service to the entire Wasatch Front load. If these lines cannot be immediately put back in service, large rotating blackouts would likely continue until the lines can be repaired.

The Western Electricity Coordinating Council (WECC), in conjunction with the National Electric Reliability Council (NERC), has established System Planning and Operating Criteria that all Transmission Providers with the Western Interconnection must follow when planning and operating their

transmission systems (NERC/WECC 2005, WECC 2008). These criteria require that Transmission Providers must evaluate potential normal and abnormal operating conditions and plan for these same conditions when performing transmission planning studies for future system conditions. These criteria define both the expected level of event severity (single and multiple lines out) and acceptable event severity. In part, the criteria require Transmission Providers to evaluate multiple line outages (N-2) and when applicable, the outage of all lines on a right-of-way to assure that the outage does not result in a cascading (uncontrolled separation) event.

### **A.1.5 Improve and Enhance Reliability and Operational Flexibility**

In evaluating the siting of new transmission lines, Rocky Mountain Power must comply with the WECC Reliability Criteria that requires transmission grids to withstand the loss of two lines in the same right-of-way without the uncontrolled or unplanned loss of electrical load. These criteria include numerous risk factors such as fire, lightning, flashover to vegetation, natural risk factors (e.g., ice, high winds, snow, and landslides), potential conflicts with aircraft, and other considerations that are weighed when developing transmission ratings. The WECC Reliability Criteria also requires consideration of the loss of all lines on the same right-of-way, although no performance criteria are specified. Therefore, utilities need to be aware of consequences from severe outages and consider limiting the number of critical transmission lines in the same right-of-way.

In order to meet the Project objectives and the WECC Reliability Criteria, Rocky Mountain Power has requested to establish a corridor within the Salt Lake Field Office (SLFO) large enough to allow for a minimum separation of 1 mile between the new double-circuit 500/345kV line and a future double-circuit 500kV line. In addition, the minimum separation from existing high voltage transmission lines that meets the Project objectives and reliability criteria would only be 1,500 feet for very limited distances between the new line and existing transmission lines.

### **A.1.6 Allow Economical Power Sales, Transfers, and Purchases**

The development of new transmission lines from the existing Mona Substation to the existing Oquirrh and Terminal Substations includes two new 500/345kV substation sites (approximately 370 acres each); one site in the Tooele Valley and one site in the vicinity of the existing Mona Substation. In order to position Rocky Mountain Power to optimize future system opportunities and improvements, the location of these new facilities should allow for interconnection with other future transmission projects. Currently, projects are being initiated by Rocky Mountain Power and external entities, with planned interconnections into northern Utah and the Wasatch Front, including the Energy Gateway South and the TransWest Express 500kV Transmission Projects.

The existing Mona Substation is an important interconnection point with Deseret Generation and Transmission’s Bonanza Plant and the Intermountain Power Plant. Additionally, Mona has been and will continue to be a hub through which electricity is imported from Rocky Mountain Power’s southern intertie lines, and it is anticipated as an interconnection point for the Energy Gateway South Project. Strengthening the electrical path between Mona and the Wasatch Front allows utilities greater opportunity to take advantage of economical power transfers, sales, and purchases into and through Utah.

Various new transmission lines would enable Rocky Mountain Power to access potential new generation resources, providing the flexibility to serve northern Utah from different generation resource areas or import locations within the state or throughout the region. This includes providing access to renewable

energy projects proposed throughout the Rocky Mountain region. During times when northern or southern resources are not available due to plant outages or maintenance periods, additional resources may be necessary to meet the load demand. The proposed Mona Annex Substation near Mona would serve as a regional energy hub where purchased, non-firm energy can be distributed. Increased import capability with the proposed Mona to Oquirrh and Terminal transmission lines would provide the flexibility to use these available resources.

### **A.1.7 Integration with Short-term and Long Range Planning**

As northern Utah continues to grow and rural areas become urbanized, the ability to locate high-voltage transmission lines and substations will become increasingly difficult on private, state, and federal lands. In particular, the southwestern portion of Salt Lake County (South Jordan, West Jordan, and Herriman) and areas of eastern Tooele County are rapidly developing. The Project provides an opportunity for these municipalities to incorporate both short- and long-term infrastructure needs into the planning process and designate adequate utility corridors for transmission lines and substations that may be fully integrated into current and future plans.

On public lands, federal agencies including the Department of Energy (DOE), the Bureau of Land Management (BLM), and the Forest Service recently completed the process of evaluating potential energy corridors, as evidenced in the West-wide Energy Corridor Programmatic Environmental Impact Statement (PEIS) (DOE 2009). Studies conducted for the Mona to Oquirrh Transmission Corridor Project and PEIS will result in recommendations that allow the BLM to integrate proposed and future utility projects into both the Salt Lake and Fillmore Field Offices’ Resource Management Plans, or amend them as appropriate.

## **A.2 Project Benefits and Costs**

### **A.2.1 Project Cost Estimate**

The 2009-2018 Ten-Year Capital Plan outlined the estimates for the Project transmission segments (Table A-1). Estimates were derived from standard company cost models used for transmission facilities, which incorporate standard construction assemblies and recent actual costs. Project scope was a result of engineering analysis utilizing one-line system diagrams.

Transmission line costs recognize urban versus rural construction costs and specific tower sizes, depending on the segments. Likewise, urban and rural right-of-way costs were factored into the estimates, depending on the population density. Costs for communication facilities assume a standard cost per mile for all segments. Estimates are stated in 2008/2009 dollars, with allowance for funds used during construction and corporate overheads.

Construction cash flows assumed engineering, permitting, environmental, and right-of-way acquisition costs on the front-end of the Project for line segments. On-site estimated construction costs were spread over the remaining periods, based on June 2012 in-service dates (Table A-1). The Project’s proposed in-service date is targeted for June 2012.

<b>TABLE A-1 ESTIMATED ON-SITE CONSTRUCTION COSTS</b>					
<b>Project Component</b>	<b>Annual Costs (millions)</b>				
	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
Mona - Limber 500kV line	\$10.0	\$20.0	\$33.9	\$105.4	\$176.5
Limber - Oquirrh 345kV line	\$5.9	\$10.0	\$31.0	\$11.0	\$57.9
Oquirrh - Terminal 345kV line	\$4.0	\$10.0	\$24.1	\$9.8	\$47.9
Mona Annex Substation		\$10.0	\$38.3	\$30.4	\$78.7
Limber Substation			\$15.0	\$27.1	\$42.1
Oquirrh Substation Line Position			\$8.0	\$17.4	\$25.4
Terminal Substation Line Position			\$13.7	\$21.6	\$35.3
<b>Total</b>	<b>\$19.9</b>	<b>\$50.0</b>	<b>\$164.0</b>	<b>\$222.7</b>	<b>\$463.8</b>

### A.2.2 Operation and Maintenance Costs

Annual operation and maintenance costs are assumed to be 82 percent of original installed cost, with an inflation factor for future years. Administrative and general expenses are assumed to be 49 percent of original installed cost, with inflation for future years.

Asset life is assumed to be 58 years for book purposes, and 15 years for tax purposes. Transmission right-of-way is not depreciated or amortized for tax purposes. Transmission right-of-way is amortized over 70 years for book purposes.

### A.2.3 Economic Project Benefits

Economic benefits resulting from the Project are outlined below.

The Project would add much needed import capacity into the Wasatch Front and beyond, from the desert Southwest or new generation resources in central/southern Utah. It is one of the transmission segments in the PacifiCorp Energy Gateway program designed to leverage net power cost savings by optimizing market purchase or cheaper energy resources outside of the Wasatch Front. Savings are derived from the difference between constructing new generation resources locally and importing energy.

The design path ratings of the Gateway West (originating in eastern Wyoming and terminating near Boise, Idaho) and Gateway South (originating in eastern Wyoming and terminating near Las Vegas, Nevada) would be supported by the Project. Both Gateway West and Gateway South segments rely on the Project transmission line to link the two segments, thus providing redundancy and supporting designed path ratings. Without the link between Gateway West and Gateway South, stranded transmission capacity would result.

Reliability benefits would be provided by utilizing a different corridor than the Mona – Camp Williams corridor, in case of unscheduled or planned outages. Combined with back-up transmission capacity from the north, the Project transmission line can mitigate the loss of load service should outages occur in the Mona – Camp Williams corridor or north of the Wasatch Front.

The Project transmission line would use Athabaska aluminum conductor steel reinforced (ACSR)/TW trapezoidal strand conductor, which compresses more conductor strands in the same diameter than traditional Lapwing ACSR conductor. The trapezoidal strand conductor offers more robust performance

and less line losses than Lapwing ACSR, which uses cylindrical strands. An economic study was performed which determined that installing trapezoidal strand conductor resulted in net benefits for customers.

## **Appendix B – Agency and Stakeholder Meetings**

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## APPENDIX B – AGENCY AND STAKEHOLDER MEETINGS

<b>TABLE B-1 AGENCY AND STAKEHOLDER MEETINGS</b>		
<b>Date</b>	<b>Agency/Organization</b>	<b>Meeting Topic</b>
<b>Cooperating Agencies</b>		
2/7/2007	Cooperating Agency Invitation Letter was mailed to: Utah Governor’s Public Lands Policy Coordination Office (PLPCO), Salt Lake County, Tooele County, Juab County, Utah County, Camp Williams Military Reservation, and Tooele Army Depot	Invite federal, state, and local agencies to become cooperating agencies on the Project
1/30/2008	Bureau of Land Management (BLM) Salt Lake Field Office (SLFO) BLM Fillmore Field Office (FFO) Utah PLPCO/RDCC Utah Governor’s Office of Energy Advisor Utah Department of Environmental Quality (DEQ) Utah Division of Water Resources (DWR) Utah School and Institutional Trust Lands Administration (SITLA)	Introduce the Project and identify potential issues
<b>Tribes</b>		
10/25/2007	Notification letters were mailed to: Northwestern Band of Shoshone Nation, Eastern Shoshone of Wind River Reservation, Te-Moak Tribe and affiliated Bands, Confederated Tribes of the Goshute Nation, Paiute Indian Tribe of Utah, Uintah Ouray Ute Indian Tribe, Skull Valley Band of Goshute Indians, Art Caamasee, and Elwood Mose.	Notification of the Project
11/21/2007	Letters requesting participation in the preparation of the final draft Programmatic Agreement (PA) were mailed to: Paiute Indian Tribe of Utah, Skull Valley Band of Goshute Indians, Confederated Tribes of Goshute Reservation, and Uintah-Ouray Ute Indian Tribe	Request participation in the preparation of the PA
<b>Interagency</b>		
6/15/2007	BLM U.S. Fish and Wildlife Service (USFWS)	Introduce the Project to the USFWS
6/19/2007	BLM SLFO BLM FFO Utah Department of Transportation (UDOT) Uinta National Forest Department of Defense (DOD) Hill Air Force Base-UTTR DOD US Army Dugway Proving Grounds Utah PLPCO SHPO	(1) Introduce agency staff (2) Define the process of corridor selection (3) Discuss definitions for Class I, II, and III inventories (4) Discuss the definition of the area of potential effect (APE) (5) Discuss visual resources (6) Discuss the inventory of historical sites (7) Define the level of effort for investigation (8) Discuss the development of a PA (9) Determine the lead agency

**TABLE B-1  
AGENCY AND STAKEHOLDER MEETINGS**

<b>Date</b>	<b>Agency/Organization</b>	<b>Meeting Topic</b>
7/6/2007	BLM SLFO USFWS (Utah Field Office) Utah DWR (Central Region)	(1) Introduce agency staff, (2) Discuss biology issues applicable to the Project
2/5/2008	Tooele Army Depot BLM	Introduce the Project and identify potential issues
2/28/2008	Deseret Chemical Depot BLM	Introduce the Project and identify potential issues
3/6/2008	Uinta National Forest	Introduce the Project and discuss the potential for a route to cross the forest
10/15/2008	Tooele Army Depot	Review alternative routes and identify potential issues
12/3/2008	US Army Corps of Engineers	Introduce the Project and review alternative routes and Project schedule
<b>State Agencies</b>		
1/31/2008	BLM SLFO UDOT	Introduce the Project and identify how the Mona to Oquirrh project may coordinate with the Mid-valley Highway project
<b>Local Governments</b>		
8/3/2007	Tooele City	Introduce the Project
8/7/2007	Tooele County Stockton City	Introduce the Project
8/7/2007	West Jordan City	Introduce the Project
8/17/2007	Mona City	Introduce the Project
8/17/2007	Eureka City	Introduce the Project
8/17/2007	Goshen City	Introduce the Project
8/17/2007	Juab County	Introduce the Project
8/24/2007	Utah County	Introduce the Project
8/28/2007	Salt Lake City	Introduce the Project
9/10/2007	Salt Lake County	Introduce the Project
9/11/2007	Cedar Fort	Introduce the Project
10/3/2007	South Jordan City	Introduce the Project
12/6/2007	Utah County	Identify potential issues and collect land use data
12/6/2007	Juab County	Identify potential issues and collect land use data
12/7/2007	Tooele City	Identify potential issues and collect land use data
12/10/2007	Salt Lake County	Identify potential issues and collect land use data
12/10/2007	West Valley City	Identify potential issues and collect land use data
12/12/2007	Tooele County	Identify potential issues and collect land use data
12/12/2007	Salt Lake City	Identify potential issues and collect land use data
12/13/2007	South Jordan City	Identify potential issues and collect land use data
12/13/2007	West Jordan City	Identify potential issues and collect land use data

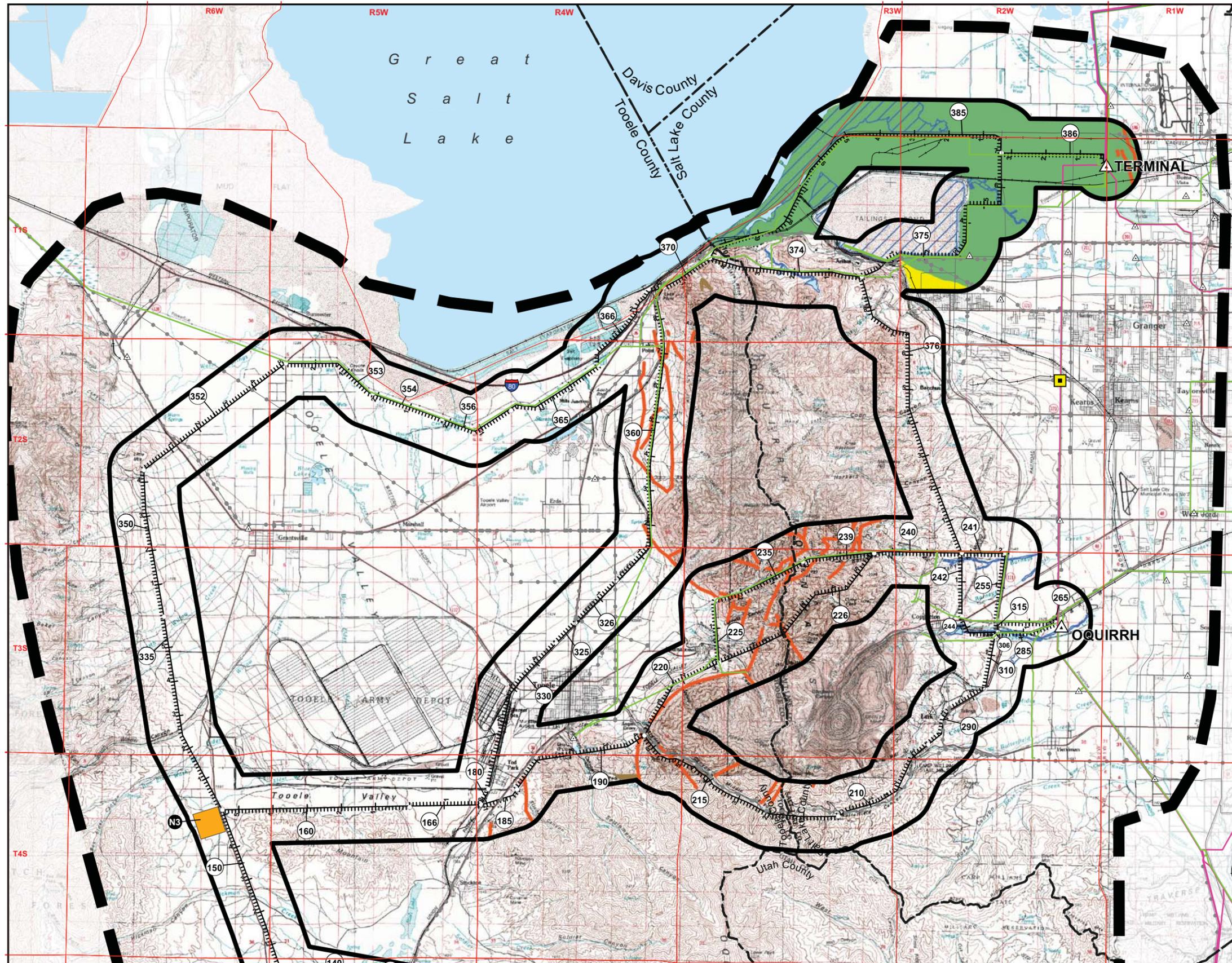
<b>TABLE B-1 AGENCY AND STAKEHOLDER MEETINGS</b>		
<b>Date</b>	<b>Agency/Organization</b>	<b>Meeting Topic</b>
8/20/2008	Goshen City	Review Project alternatives and gather feedback
8/20/2008	Mona City	Review Project alternatives and gather feedback
8/20/2008	Juab County	Review Project alternatives and gather feedback
8/24/2008	Utah County	Review Project alternatives and gather feedback
8/25/2008	Tooele City	Review Project alternatives and gather feedback
8/25/2008	Tooele County Grantsville City	Review Project alternatives and gather feedback
8/27/2008	Salt Lake City	Review Project alternatives and gather feedback
8/27/2008	South Jordan City	Review Project alternatives and gather feedback
8/27/2008	West Jordan City	Review Project alternatives and gather feedback
8/29/2008	Salt Lake County	Review Project alternatives and gather feedback
9/15/2008	Eureka City	Review Project alternatives and gather feedback
1/16/2009	Mona City Juab County	Discussion of alternative routes and substation sites
1/27/2009	Salt Lake County	Discussion of alternative routes and substation sites
<b>Community Working Group</b>		
11/9/2007	BLM SLFO – Attended as observers BLM FFO – Attended as observers Rocky Mountain Power Tooele County Salt Lake County Tooele City Stockton South Jordan City West Jordan City Salt Lake City Kennecott Land Kennecott Copper	(1) Introduce the Project (2) Discuss the roles and responsibilities of the Community Working Group (CWG) (3) Identify potential issues
2/15/2008	BLM SLFO – Attended as observers BLM FFO – Attended as observers Rocky Mountain Power Tooele County Salt Lake County Tooele City Stockton South Jordan City West Jordan City Salt Lake City Kennecott Land Kennecott Copper	(1) Review the results of the agency and public scoping (2) Review the preliminary alternative corridors and substation sites (3) Review the resource inventory data and results (4) Discuss the approach to impact assessment and mitigation planning (5) Discuss the screening of alternatives and alternative comparison process

<b>TABLE B-1 AGENCY AND STAKEHOLDER MEETINGS</b>		
<b>Date</b>	<b>Agency/Organization</b>	<b>Meeting Topic</b>
7/11/2008	BLM SLFO – Attended as observers BLM FFO – Attended as observers Rocky Mountain Power Tooele County Salt Lake County Tooele City Stockton South Jordan City West Jordan City Salt Lake City Kennecott Land Kennecott Copper	(1) Review approach to impact assessment and mitigation planning (2) Review of preliminary impact assessment and mitigation planning results (3) Review screening of alternatives and alternative comparison approach (4) Review preliminary results of local area comparison results for northern portion of the project (private lands only)
<b>Organizations</b>		
6/19/2007	BLM Raptor Inventory Nest Survey	Introduce the Project
7/12/2007	Kennecott Land	Introduce the Project
9/18/2007	Kennecott Copper	Introduce the Project
2/4/2008	ISSR	Introduce the Project and identify potential issues
2/3/2008	Larry Miller Group	Introduce the Project and identify potential issues
2/14/2008	The Ensign Group	Introduce the Project and identify potential issues
9/16/2008	Kennecott Copper	Review Project potential alternatives and gather feedback
9/23/2008	Kennecott Land	Review Project potential alternatives and gather feedback
10/31/2008	Kennecott Copper and Land	Discussion of potential alternative routes
12/10/2008	Kennecott Copper and Land	Field visit to discuss potential alternative routes
1/26/2009	Kennecott Copper and Land	Discussion of potential alternative routes identified during field visit
1/26/2009	The Ensign Group	Discussion of potential alternative routes and development plans

## **Appendix C – Resource Inventory Maps**

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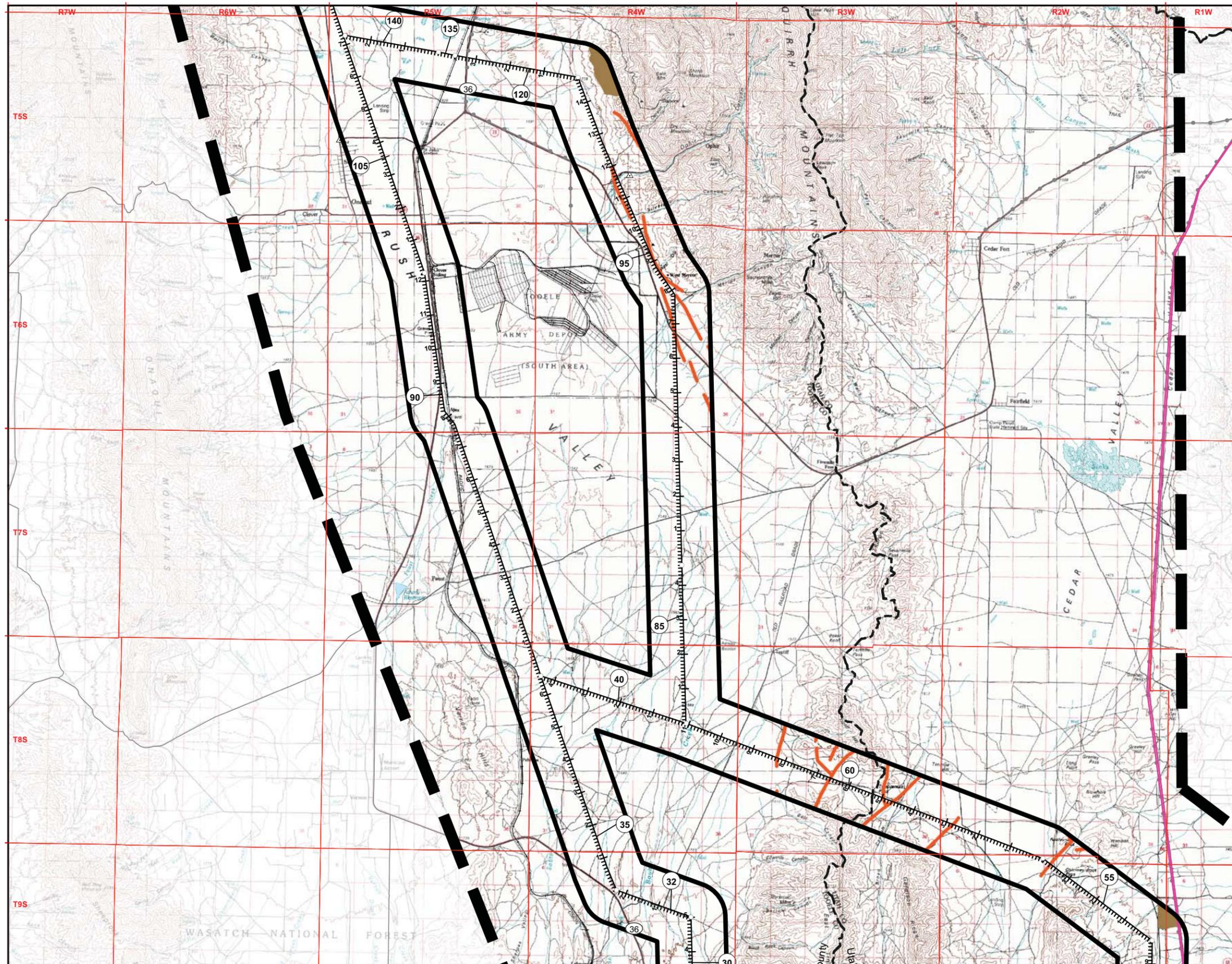
- Legend**
- Fault Line
  - 100-year Floodplain
  - Moderate Liquefaction Potential
  - High Liquefaction Potential
  - Landslide Area
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line



SOURCES: Fault Lines, AGRC and USGS 1990;  
 Landslide Areas, USGS 1987;  
 Liquefaction Potential, UGS and USU 1994;  
 Floodplains, FEMA 1995;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-1**  
 1 of 3  
 April 2009

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**Legend**

- Fault Line
- 100-year Floodplain
- Moderate Liquefaction Potential
- High Liquefaction Potential
- Landslide Area

**General Reference Features**

- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- Alternative Routes
- Substation Site
- 2 Mile Wide Inventory Corridor
- Township and Range Line



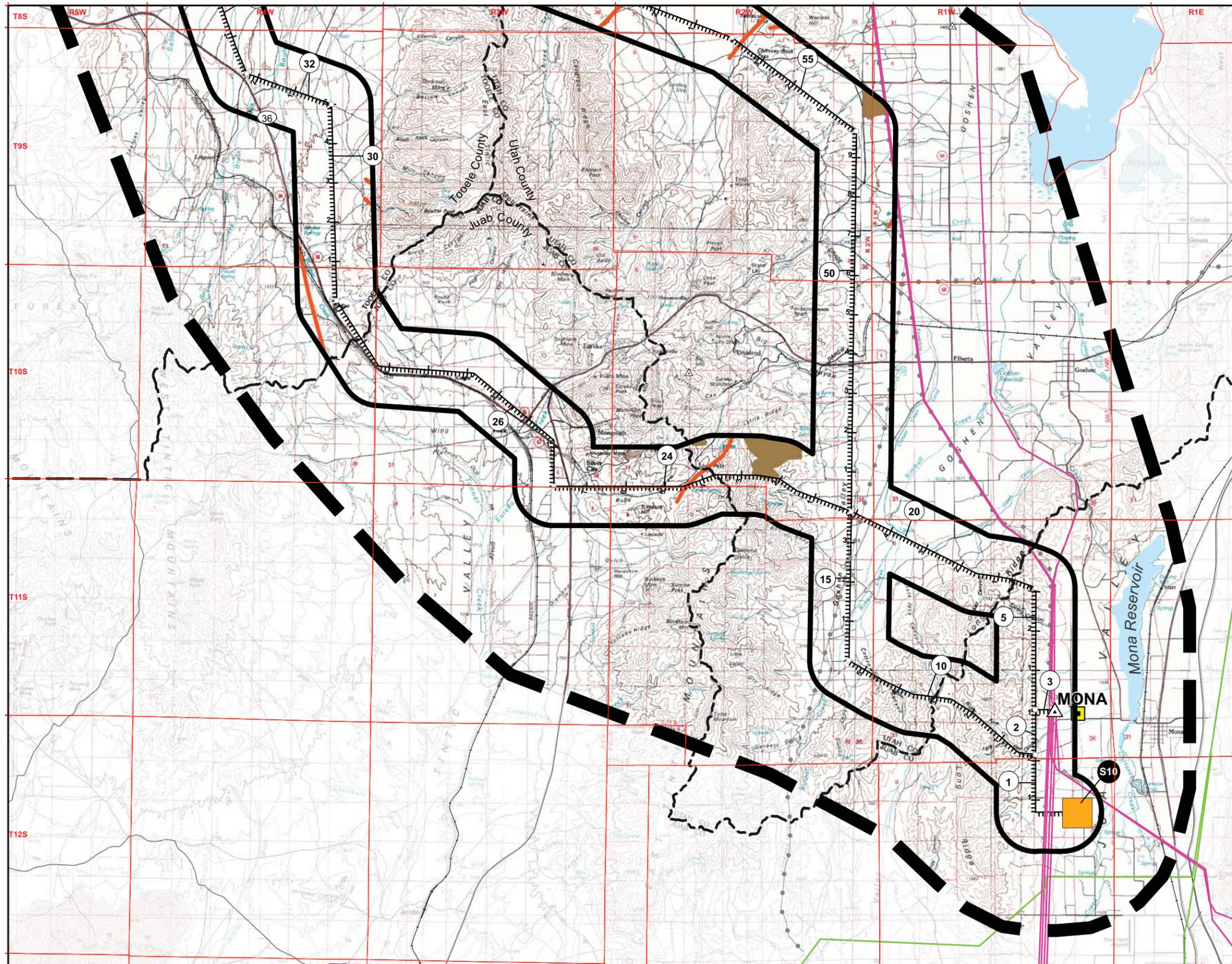
SOURCES: Fault Lines, AGRC and USGS 1990;  
 Landslide Areas, USGS 1987;  
 Liquefaction Potential, USGS and USU 1994;  
 Floodplains, FEMA 1995;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

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**Map C-1**

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- Legend**
- Fault Line
  - 100-year Floodplain
  - Moderate Liquefaction Potential
  - High Liquefaction Potential
  - Landslide Area
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line

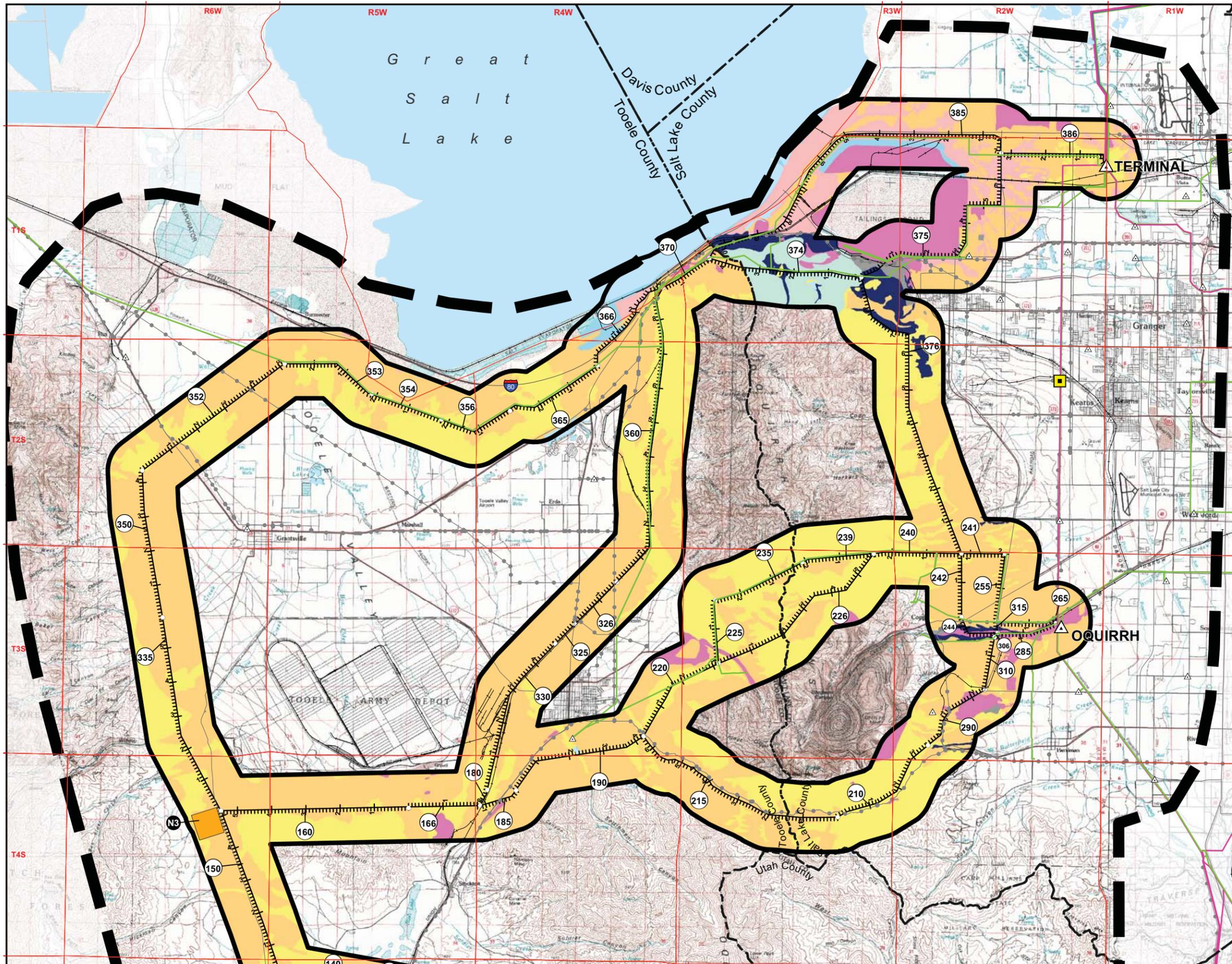


SOURCES: Fault Lines, AGRC and USGS 1990;  
 Landslide Areas, USGS 1987;  
 Liquefaction Potential, UGS and USU 1994;  
 Floodplains, FEMA 1995;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-1**

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 April 2009

Hazards\_landscape.mxd



- ### Legend
- Loam / Coarse Stony Loam / Cobbly Loam
  - Sandy / Gravelly Sand
  - Clay / Silty Clay / Stratified Clay
  - Mines / Mine Wash / Pits / Dumps
  - Gullied Land
  - Rock Outcrop
  - Slightly Decomposed Plant Material
  - Cumulic Haploxerolls
  - Stony Terrace Escarpment / Stony Alluvial Land
  - Xeretic / Xeric Torriorthents
  - Water
- ### General Reference Features
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - 95 Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line

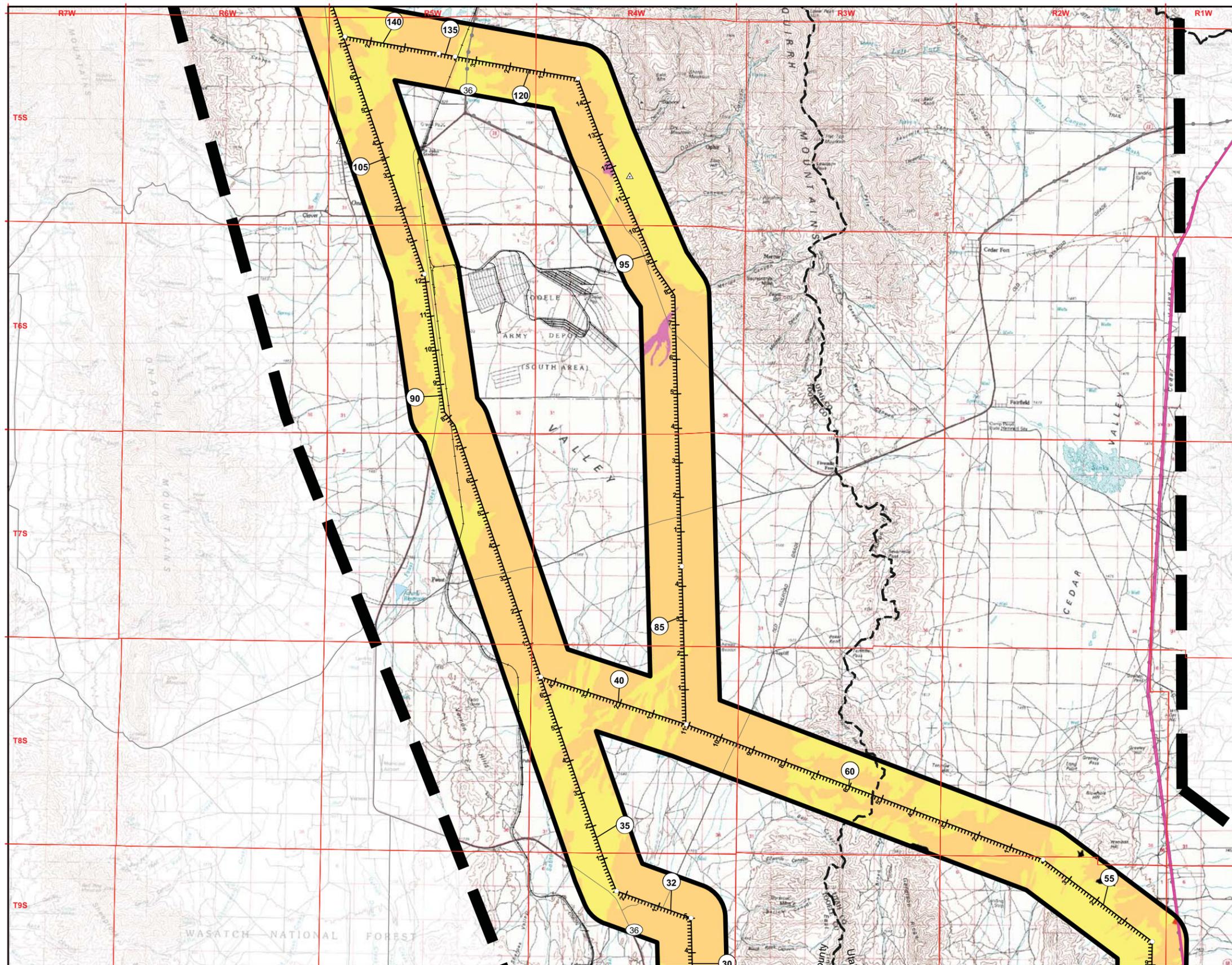


SOURCES: Soils, USGS SSURGO 2006;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-2**

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 April 2009

Soils\_landscape.mxd



- ### Legend
- Loam / Coarse Stony Loam / Cobbly Loam
  - Sandy / Gravelly Sand
  - Clay / Silty Clay / Stratified Clay
  - Mines / Mine Wash / Pits / Dumps
  - Gullied Land
  - Rock Outcrop
  - Slightly Decomposed Plant Material
  - Cumulic Haploxerolls
  - Stony Terrace Escarpment / Stony Alluvial Land
  - Xeretic / Xeric Torriorthents
  - Water

- ### General Reference Features
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - 95 Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line

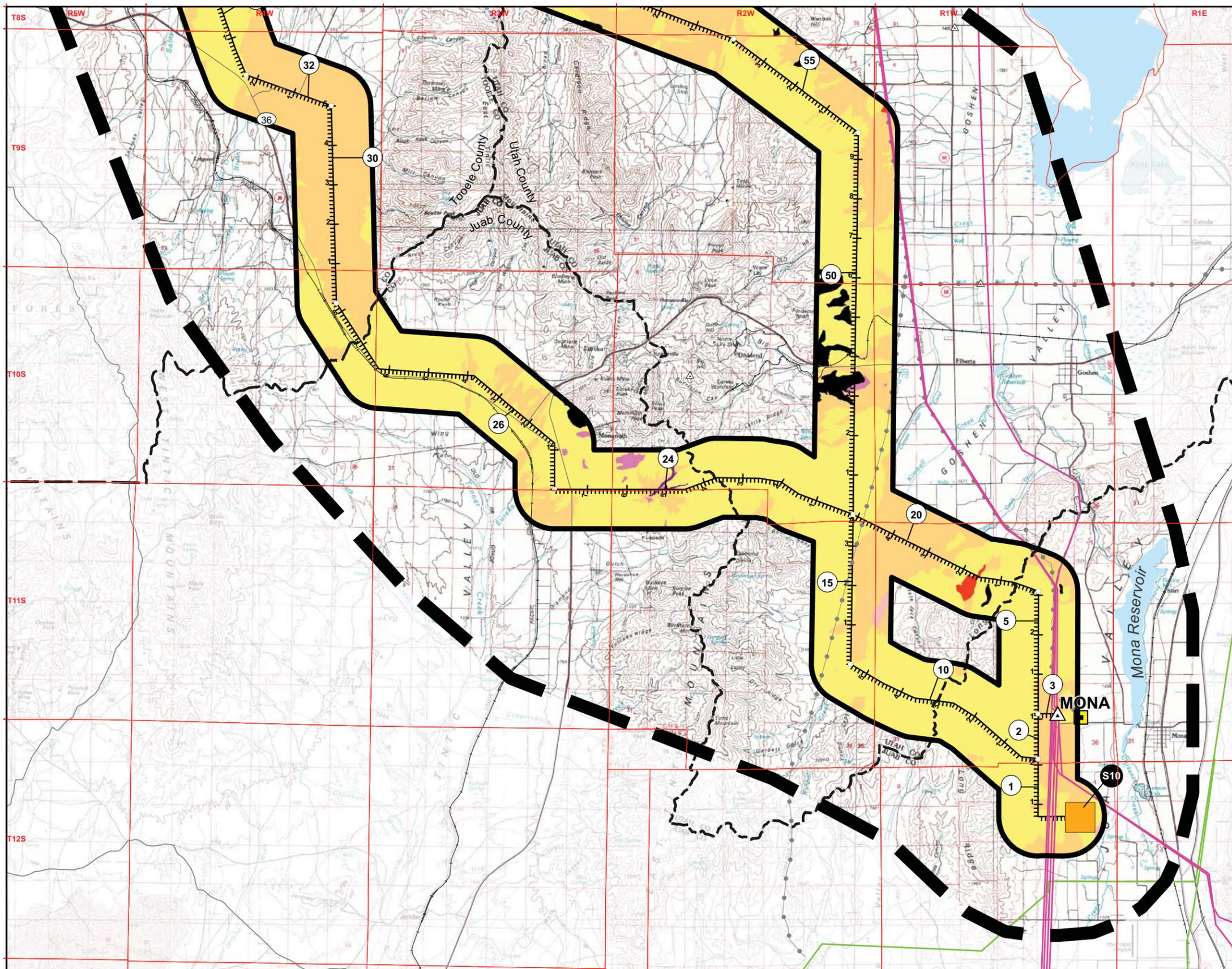


SOURCES: Soils, USGS SSURGO 2006;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-2**

2 of 3  
 April 2009

Soils\_landscape.mxd



- ### Legend
- Loam / Coarse Stony Loam / Cobbly Loam
  - Sandy / Gravelly Sand
  - Clay / Silty Clay / Stratified Clay
  - Mines / Mine Wash / Pits / Dumps
  - Gullied Land
  - Rock Outcrop
  - Slightly Decomposed Plant Material
  - Cumulic Haploxerolls
  - Stony Terrace Escarpment / Stony Alluvial Land
  - Xeretic / Xeric Torriorthents
  - Water

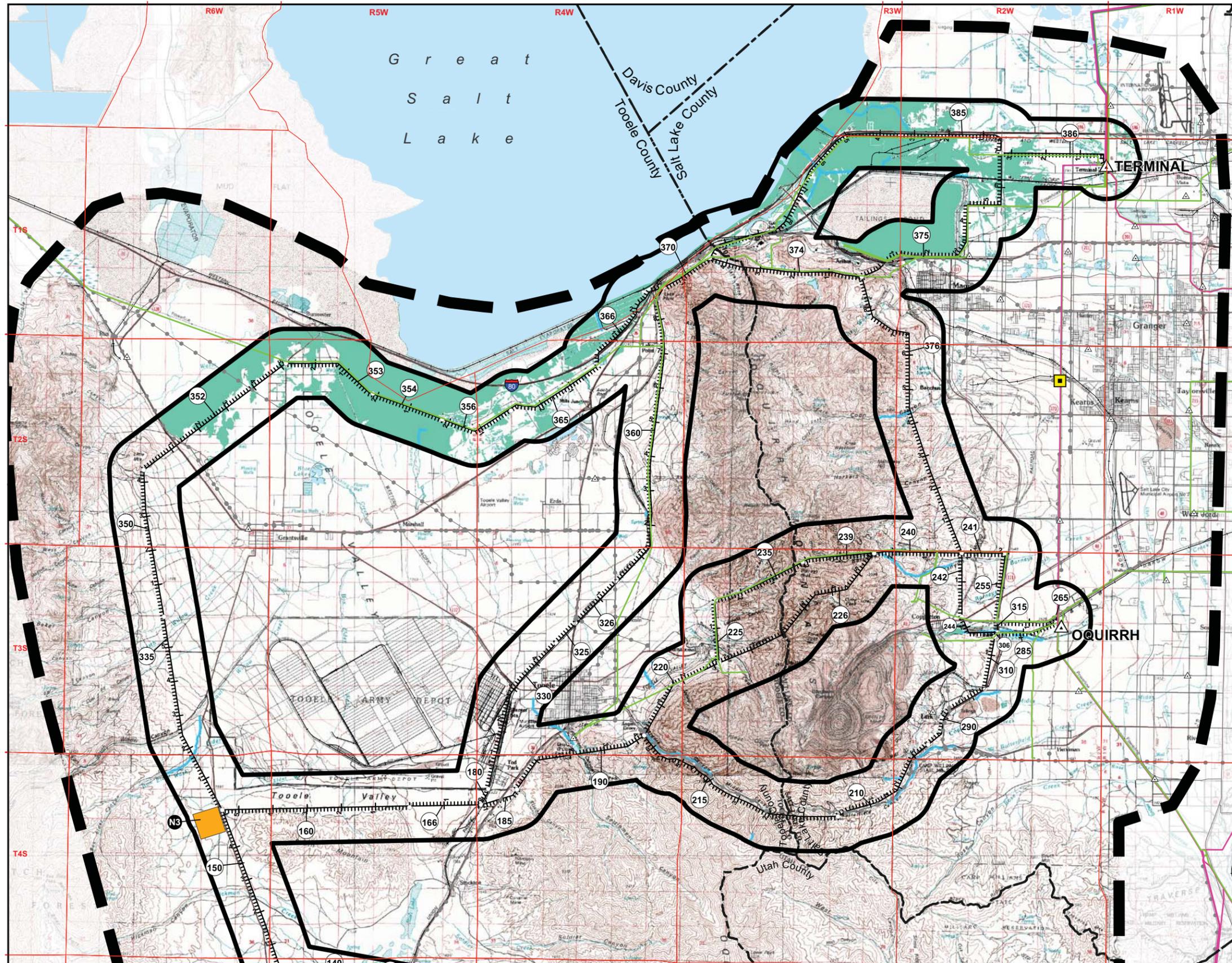
- ### General Reference Features
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - 95 Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line



SOURCES: Soils, USGS SSURGO 2006;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-2**  
 3 of 3  
 April 2009

Soils\_landscape.mxd



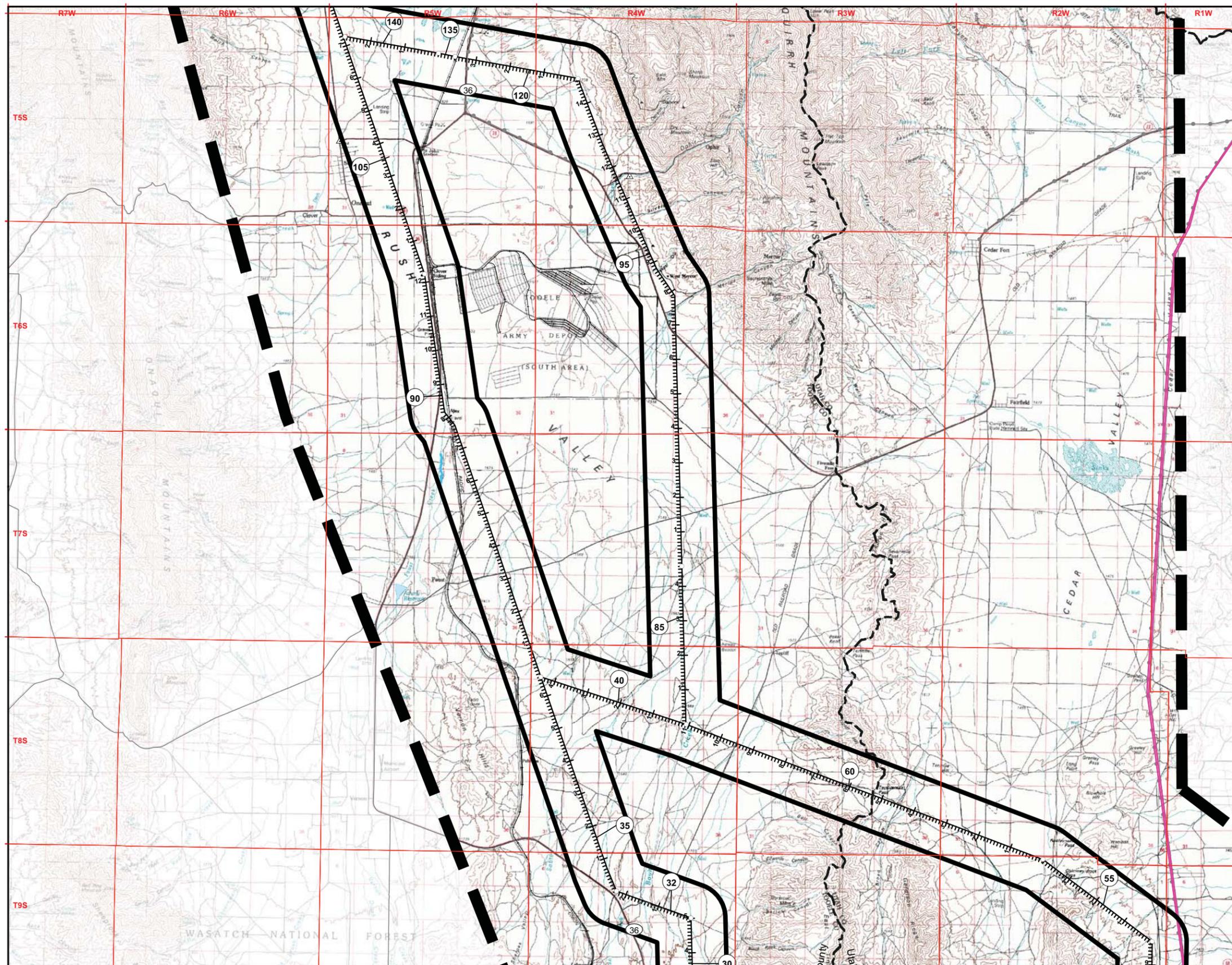
- Legend**
- Perennial Streams
  - Wetlands
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line



SOURCES: Streams, USGS 1990;  
 Wetlands, NWI FWS 2001;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-3**  
 1 of 3  
 April 2009

Streams\_landscape.mxd



- Legend**
- Perennial Streams
  - Wetlands
- 
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line

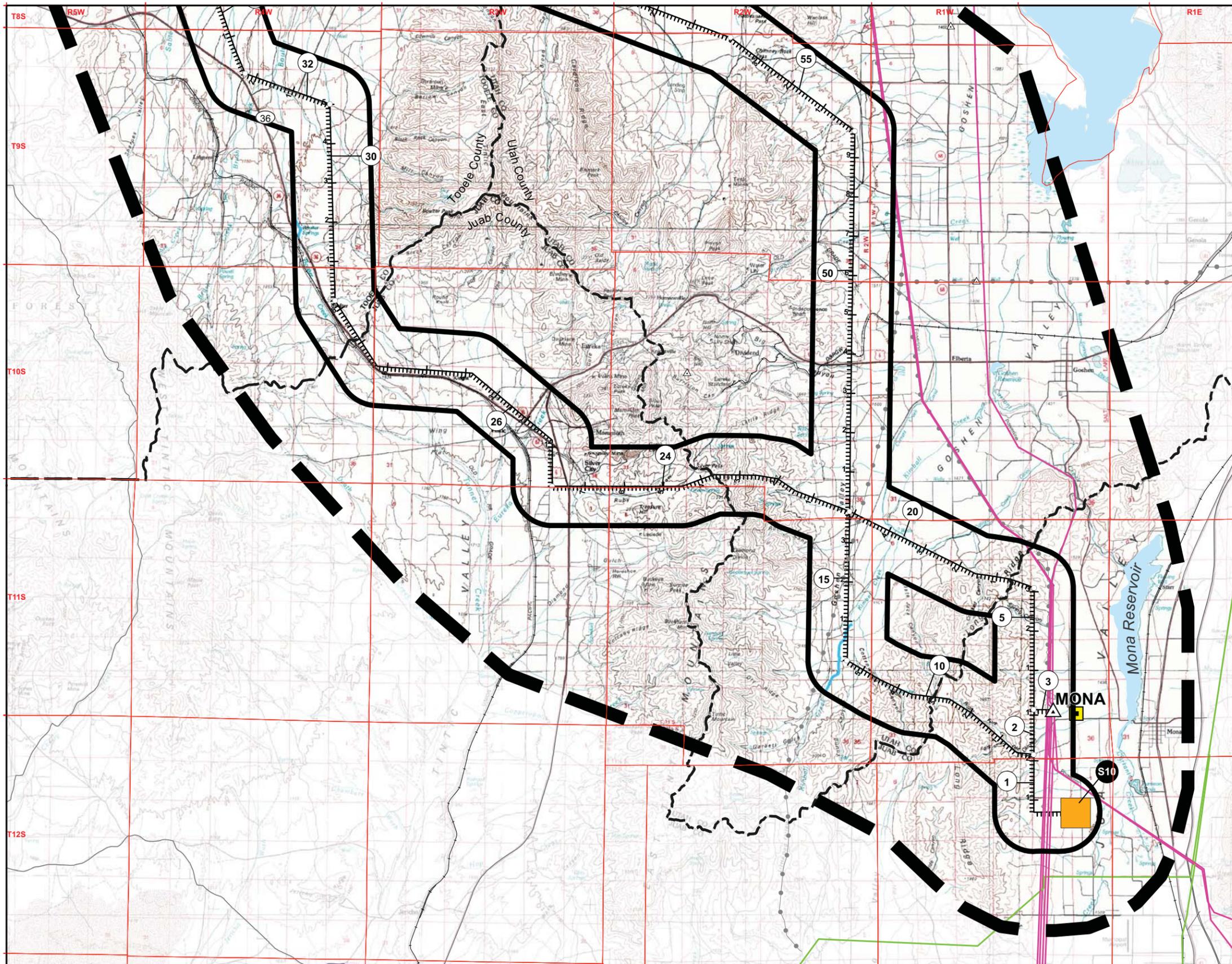


SOURCES: Streams, USGS 1990;  
 Wetlands, NWI FWS 2001;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-3**

2 of 3  
 April 2009

Streams\_landscape.mxd



**Legend**

- Perennial Streams
- Wetlands

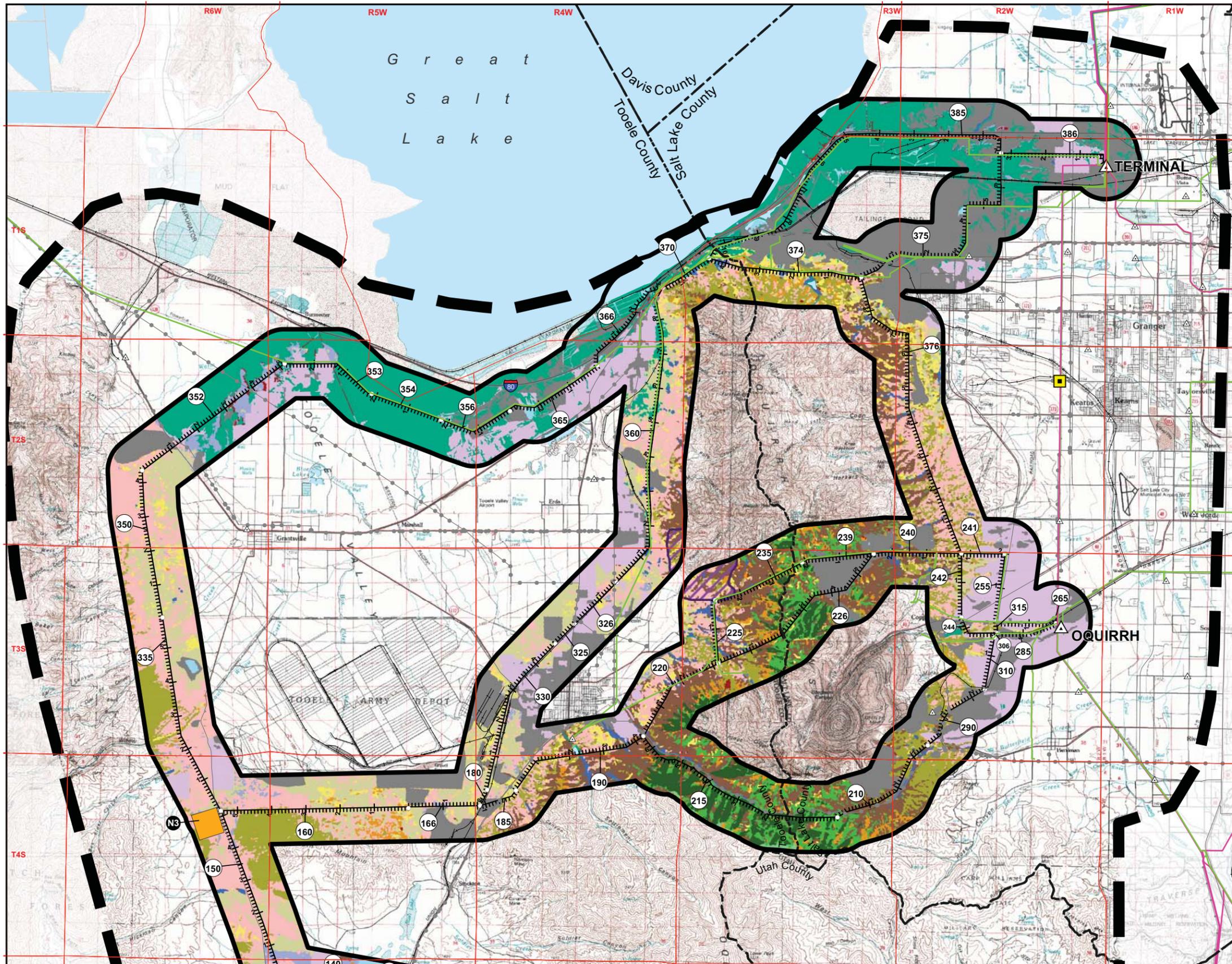
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**General Reference Features**

- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- Alternative Routes
- Substation Site
- 2 Mile Wide Inventory Corridor
- Township and Range Line



SOURCES: Streams, USGS 1990;  
 Wetlands, NWI FWS 2001;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp



- ### Legend
- |                      |                   |
|----------------------|-------------------|
| Agriculture          | Pinyon-Juniper    |
| Barren               | Spruce-Fir Forest |
| Disturbed            | Riparian          |
| Invasive Grassland   | Wetlands          |
| Salt Desert Shrub    | Water             |
| Grassland            | Hybrid Oak Stand  |
| Greasewood           |                   |
| Big Sagebrush        |                   |
| Mixed Sagebrush      |                   |
| Mountain Shrub       |                   |
| Deciduous Forest     |                   |
| Mixed Conifer Forest |                   |

- ### General Reference Features
- |                                |
|--------------------------------|
| Project Study Area             |
| 345kV Transmission Line        |
| 138kV Transmission Line        |
| Power Plant                    |
| Substation                     |
| Railroad                       |
| Major Road                     |
| Natural Gas Pipeline           |
| County Boundary                |
| Link Node                      |
| Link Tag / Substation Tag      |
| Alternative Routes             |
| Substation Site                |
| 2 Mile Wide Inventory Corridor |
| Township and Range Line        |



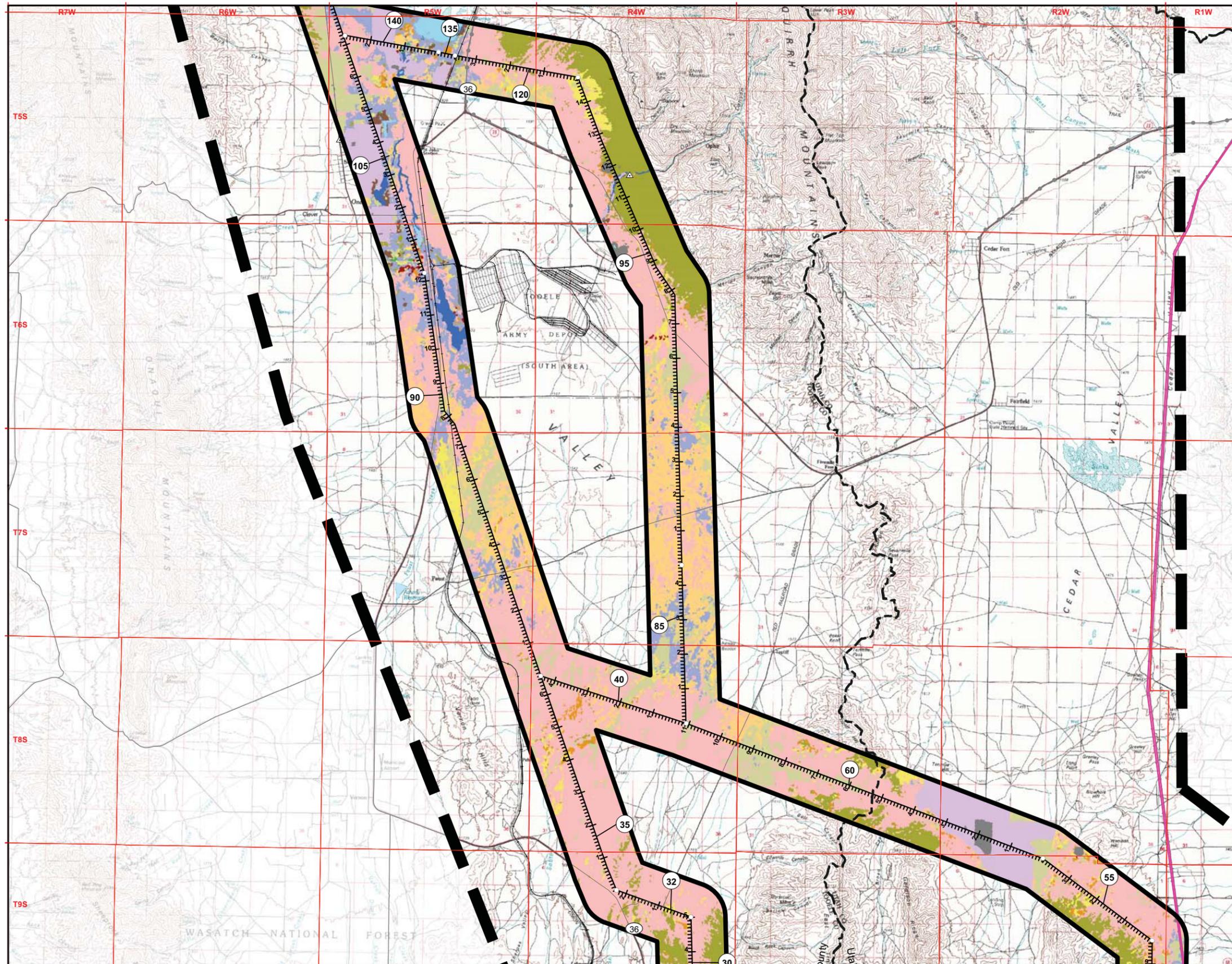
SOURCES: Vegetation, SWREGAP 2004, BLM 1997; Wetlands, NWI 2004; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

**Map C-4**  
1 of 3  
April 2009

**Primary Vegetation Communities**

**MONA TO OQUIRRH TRANSMISSION CORRIDOR PROJECT EIS**

Vegetation\_landscape.mxd



- ### Legend
- |                      |                   |
|----------------------|-------------------|
| Agriculture          | Pinyon-Juniper    |
| Barren               | Spruce-Fir Forest |
| Disturbed            | Riparian          |
| Invasive Grassland   | Wetlands          |
| Salt Desert Shrub    | Water             |
| Grassland            | Hybrid Oak Stand  |
| Greasewood           |                   |
| Big Sagebrush        |                   |
| Mixed Sagebrush      |                   |
| Mountain Shrub       |                   |
| Deciduous Forest     |                   |
| Mixed Conifer Forest |                   |

- ### General Reference Features
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line

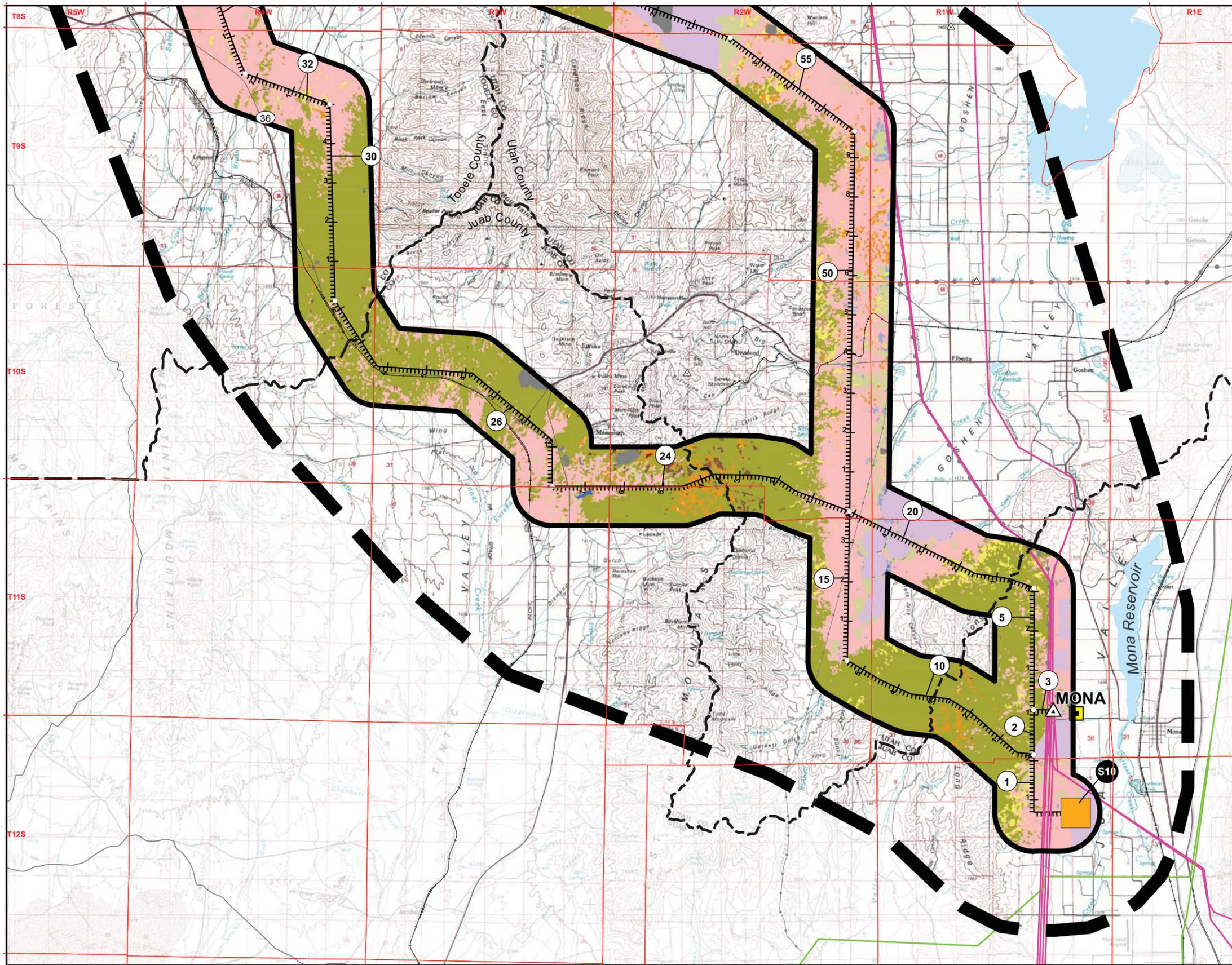


SOURCES: Vegetation, SWREGAP 2004, BLM 1997; Wetlands, NWI 2004; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

**Map C-4**

2 of 3  
April 2009

Vegetation\_landscape.mxd



**Legend**

- |                      |                   |
|----------------------|-------------------|
| Agriculture          | Pinyon-Juniper    |
| Barren               | Spruce-Fir Forest |
| Disturbed            | Riparian          |
| Invasive Grassland   | Wetlands          |
| Salt Desert Shrub    | Water             |
| Grassland            | Hybrid Oak Stand  |
| Greasewood           |                   |
| Big Sagebrush        |                   |
| Mixed Sagebrush      |                   |
| Mountain Shrub       |                   |
| Deciduous Forest     |                   |
| Mixed Conifer Forest |                   |

**General Reference Features**

- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- Alternative Routes
- Substation Site
- 2 Mile Wide Inventory Corridor
- Township and Range Line



SOURCES: Vegetation, SWREGAP 2004, BLM 1997; Wetlands, NWI 2004; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

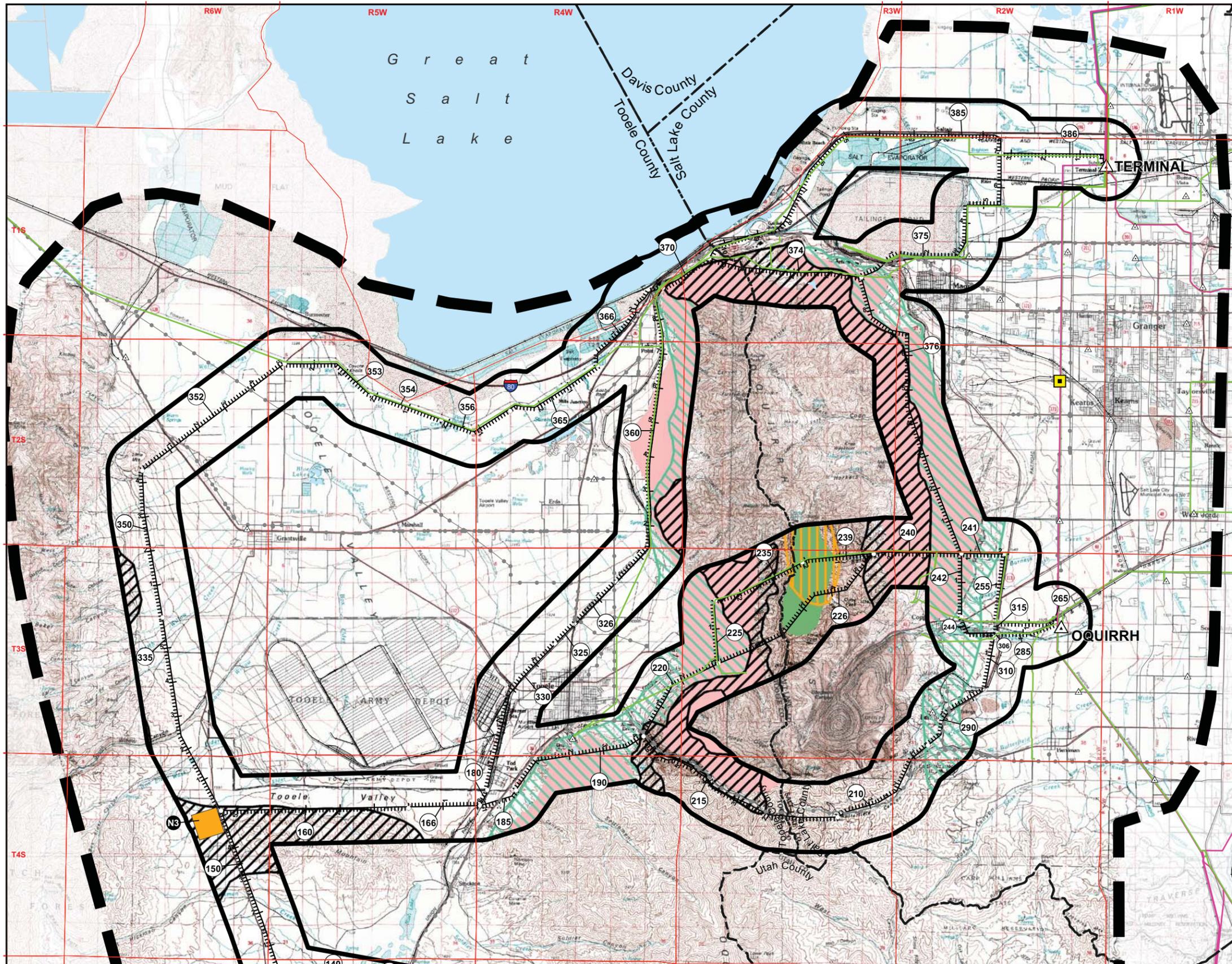
Vegetation\_landscape.mxd

**Map C-4**

3 of 3

April 2009

**Primary Vegetation Communities**  
**MONA TO OQUIRRH TRANSMISSION CORRIDOR PROJECT EIS**



### Legend

- Mule Deer Spring/Fall Habitat
- Mule Deer Summer/Fall Habitat
- Mule Deer Winter/Spring Habitat
- Mule Deer Winter Habitat
- Elk Summer/Fall Habitat
- Elk Winter/Spring Habitat
- Elk Winter Habitat
- Pronghorn Year-Long Habitat

### General Reference Features

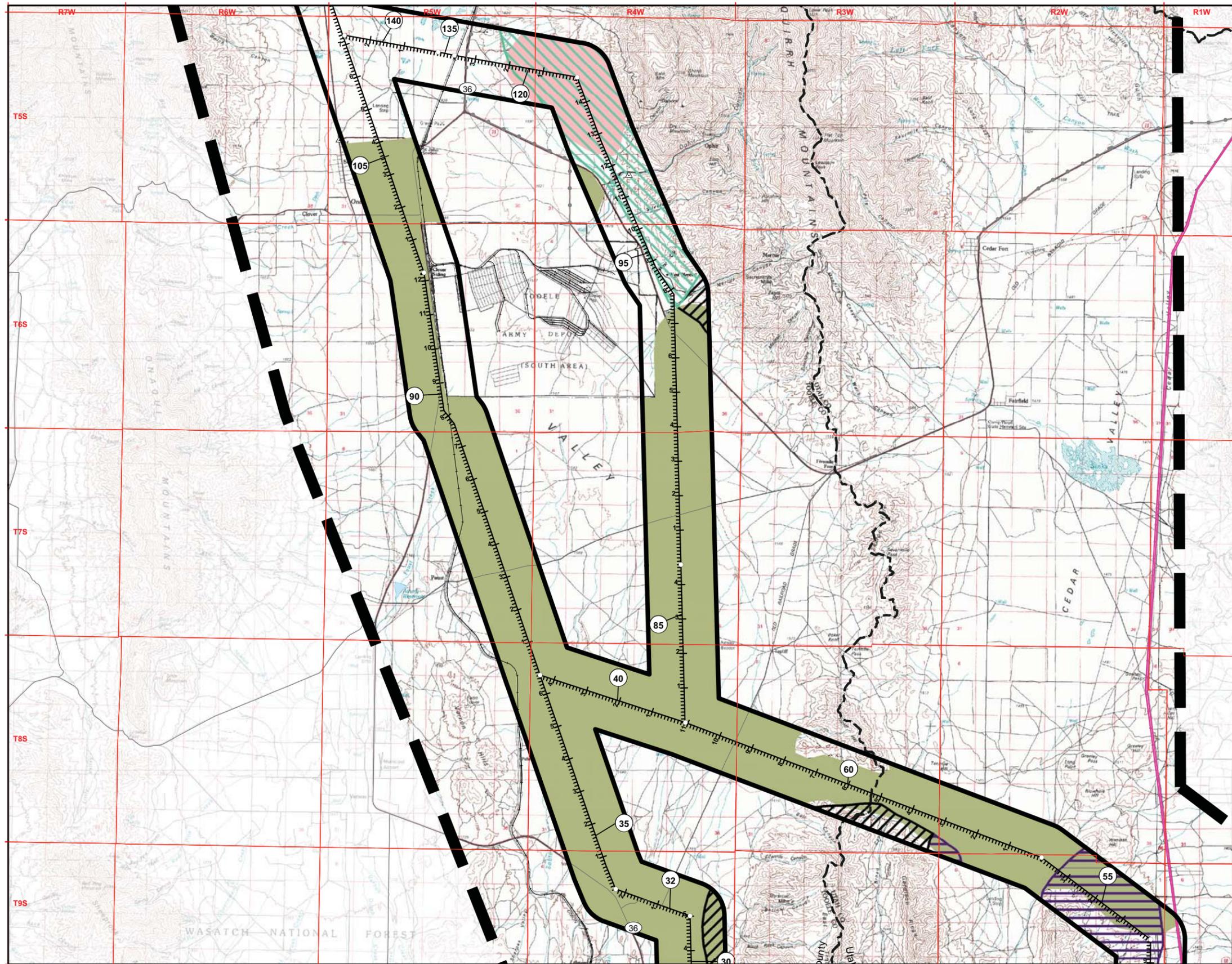
- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- Alternative Routes
- Substation Site
- 2 Mile Wide Inventory Corridor
- Township and Range Line



SOURCES: Mule Deer, Elk and Pronghorn Habitat, UDWR 2006;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-5**  
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 April 2009

Crucial\_BigGame\_Landscape.mxd



**Legend**

- Mule Deer Spring/Fall Habitat
- Mule Deer Summer/Fall Habitat
- Mule Deer Winter/Spring Habitat
- Mule Deer Winter Habitat
- Elk Summer/Fall Habitat
- Elk Winter/Spring Habitat
- Elk Winter Habitat
- Pronghorn Year-Long Habitat

**General Reference Features**

- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- Alternative Routes
- Substation Site
- 2 Mile Wide Inventory Corridor
- Township and Range Line



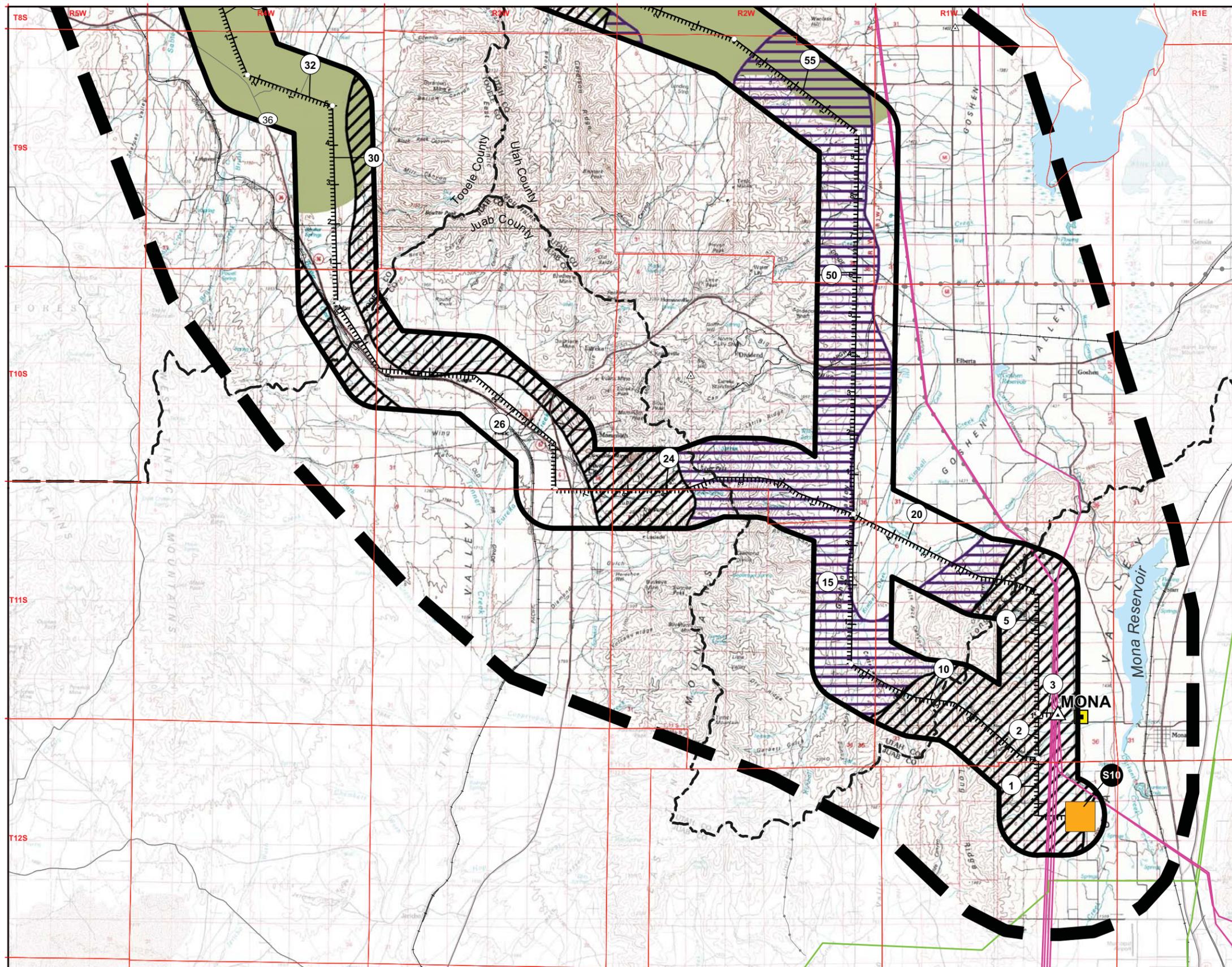
SOURCES: Mule Deer, Elk and Pronghorn Habitat, UDWR 2006;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

Crucial\_BigGame\_Landscape.mxd

**Map C-5**

2 of 3

April 2009



### Legend

- Mule Deer Spring/Fall Habitat
- Mule Deer Summer/Fall Habitat
- Mule Deer Winter/Spring Habitat
- Mule Deer Winter Habitat
- Elk Summer/Fall Habitat
- Elk Winter/Spring Habitat
- Elk Winter Habitat
- Pronghorn Year-Long Habitat

### General Reference Features

- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- Alternative Routes
- Substation Site
- 2 Mile Wide Inventory Corridor
- Township and Range Line



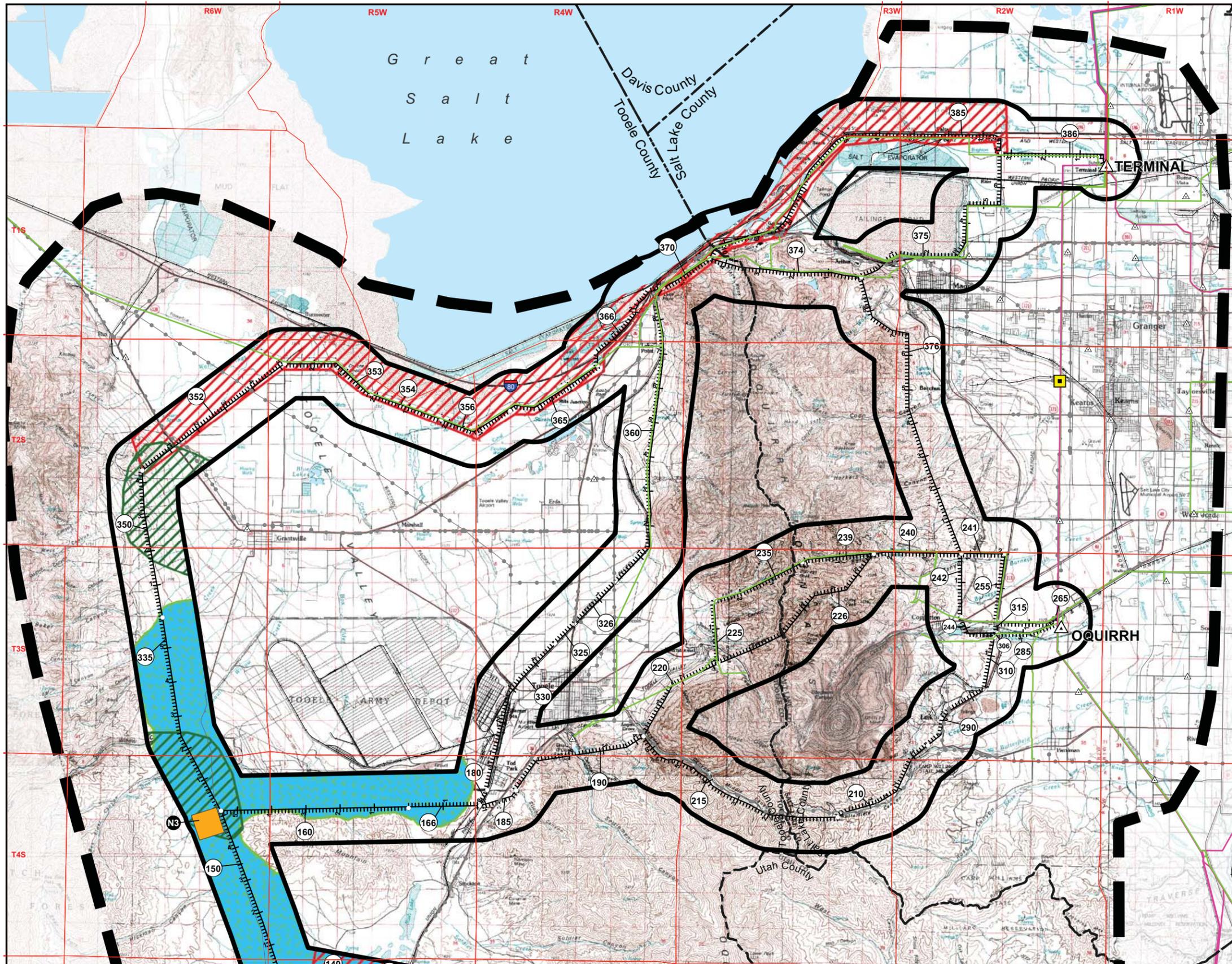
SOURCES: Mule Deer, Elk and Pronghorn Habitat, UDWR 2006;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

Crucial\_BigGame\_Landscape.mxd

**Map C-5**

3 of 3

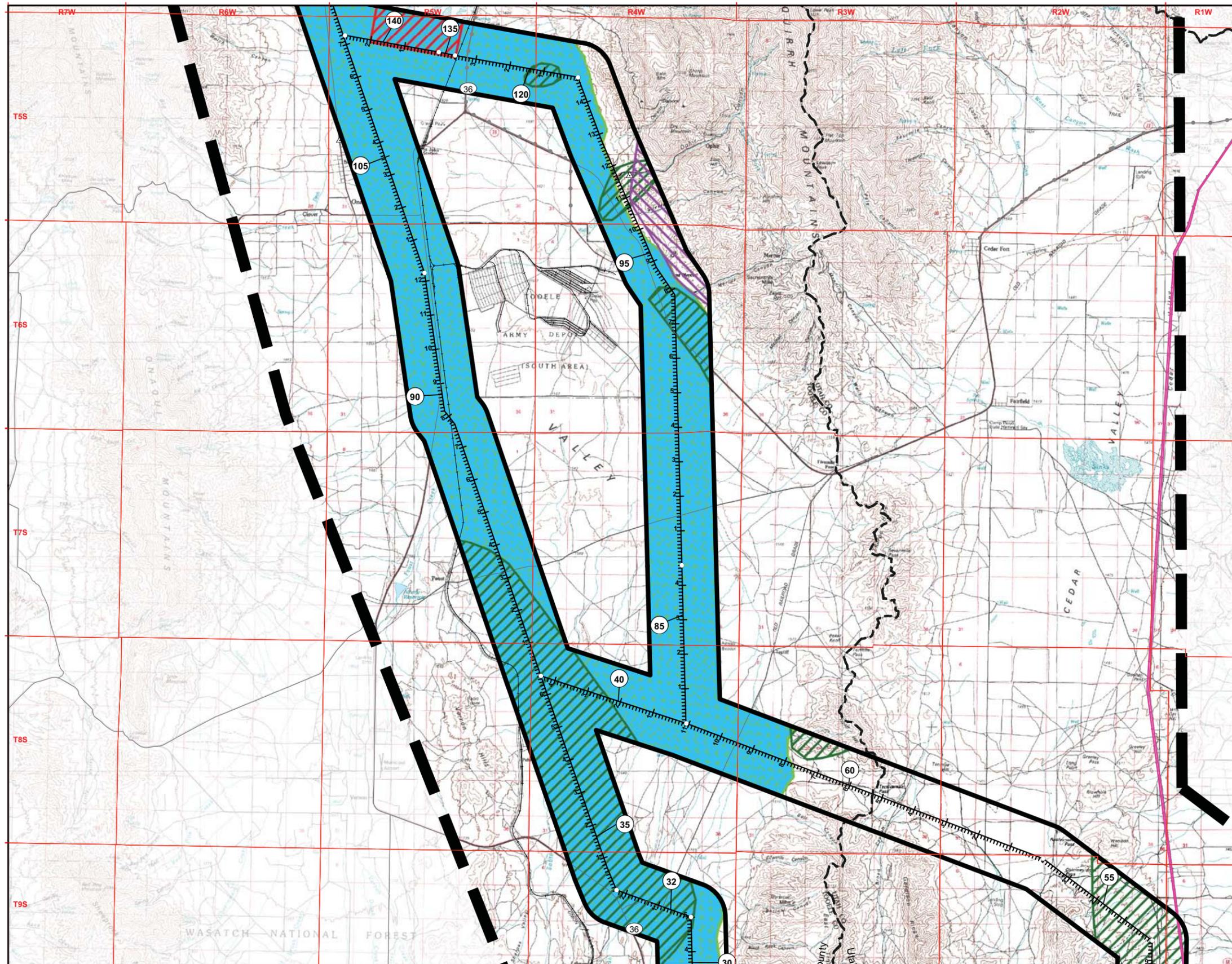
April 2009



- Legend**
- Waterfowl Habitat and Movement Pathways
  - Core Raptor Nesting Area
  - Crucial Bat Area
  - Crucial Sage Grouse Brood and Winter Habitat
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line



SOURCES: Crucial Sage Grouse Brood and Winter Habitat, UDWR 7/06; Other sensitive wildlife habitats were delineated based on existing data, as described in EIS section 3.2.3; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp



- Legend**
- Waterfowl Habitat and Movement Pathways
  - Core Raptor Nesting Area
  - Crucial Bat Area
  - Crucial Sage Grouse Brood and Winter Habitat
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line

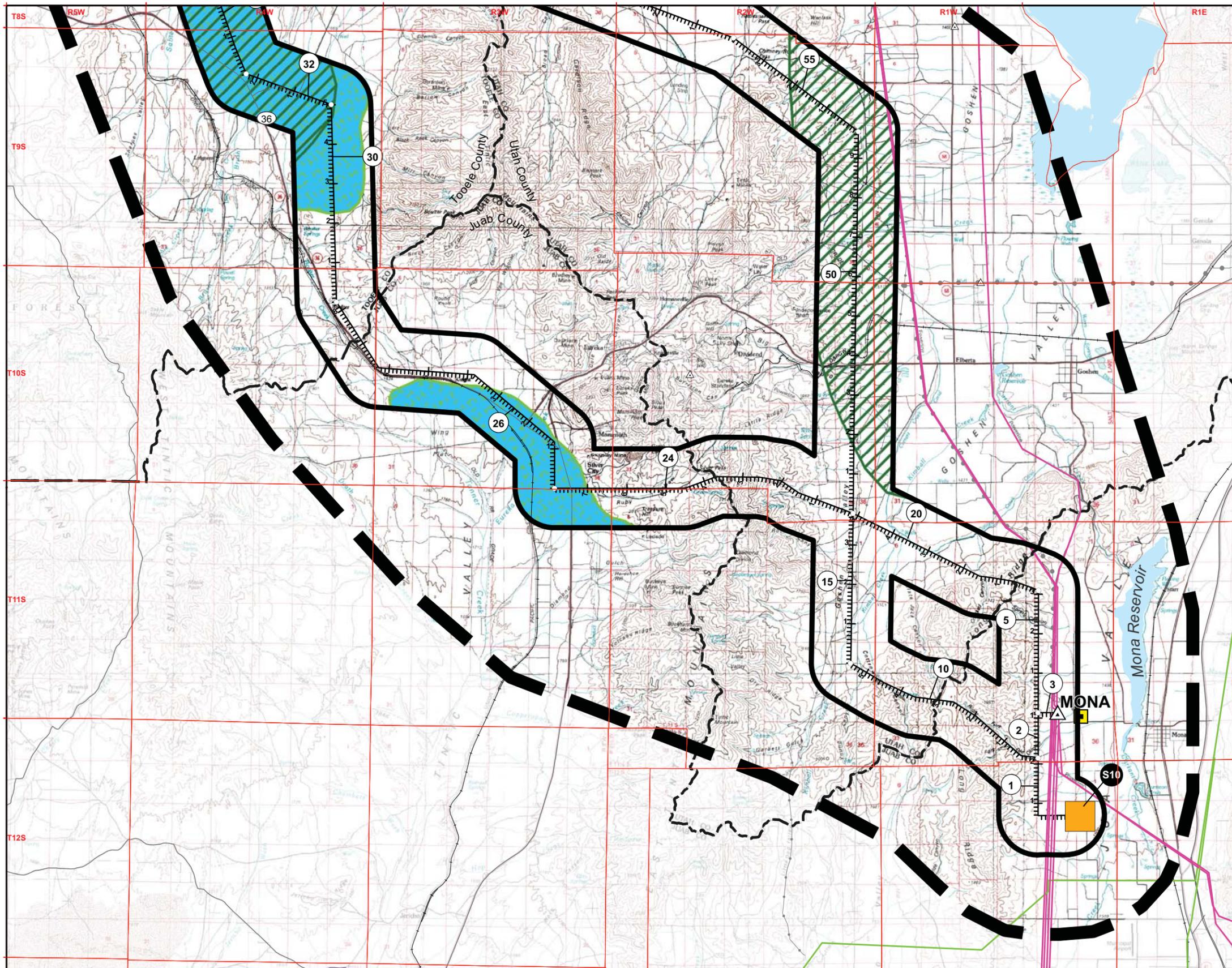


SOURCES: Crucial Sage Grouse Brood and Winter Habitat, UDWR 7/06; Other sensitive wildlife habitats were delineated based on existing data, as described in EIS section 3.2.3; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

**Map C-6**

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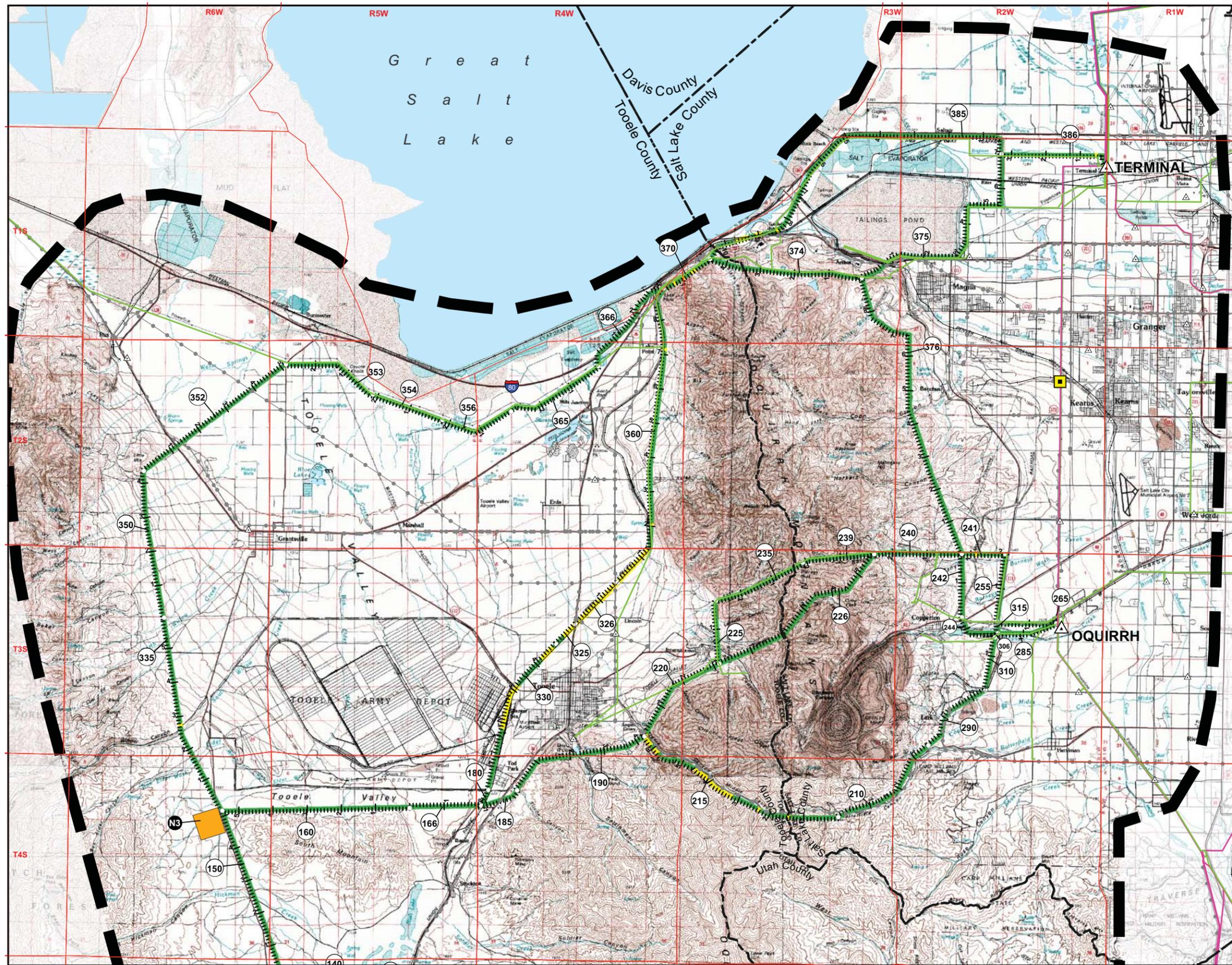
- Legend**
- Waterfowl Habitat and Movement Pathways
  - Core Raptor Nesting Area
  - Crucial Bat Area
  - Crucial Sage Grouse Brood and Winter Habitat
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - 2 Mile Wide Inventory Corridor
  - Township and Range Line



SOURCES: Crucial Sage Grouse Brood and Winter Habitat, UDWR 7/06; Other sensitive wildlife habitats were delineated based on existing data, as described in EIS section 3.2.3; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

**Map C-6**  
3 of 3  
April 2009

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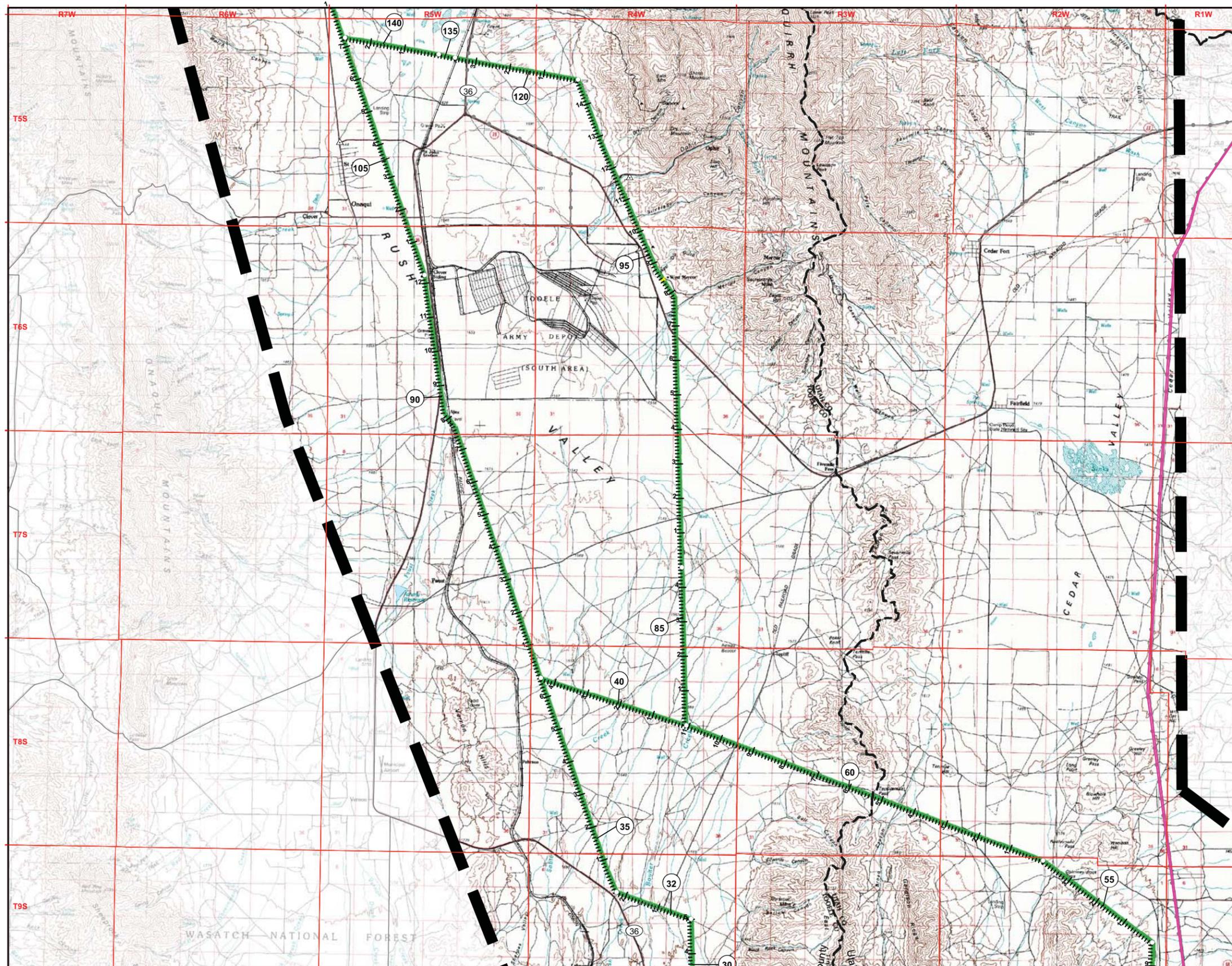


- Legend**
- Low Sensitivity
  - Moderate Sensitivity
- 
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - Township and Range Line



**Map C-7**  
 1 of 3  
 April 2009

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**Legend**

- Low Sensitivity
- Moderate Sensitivity

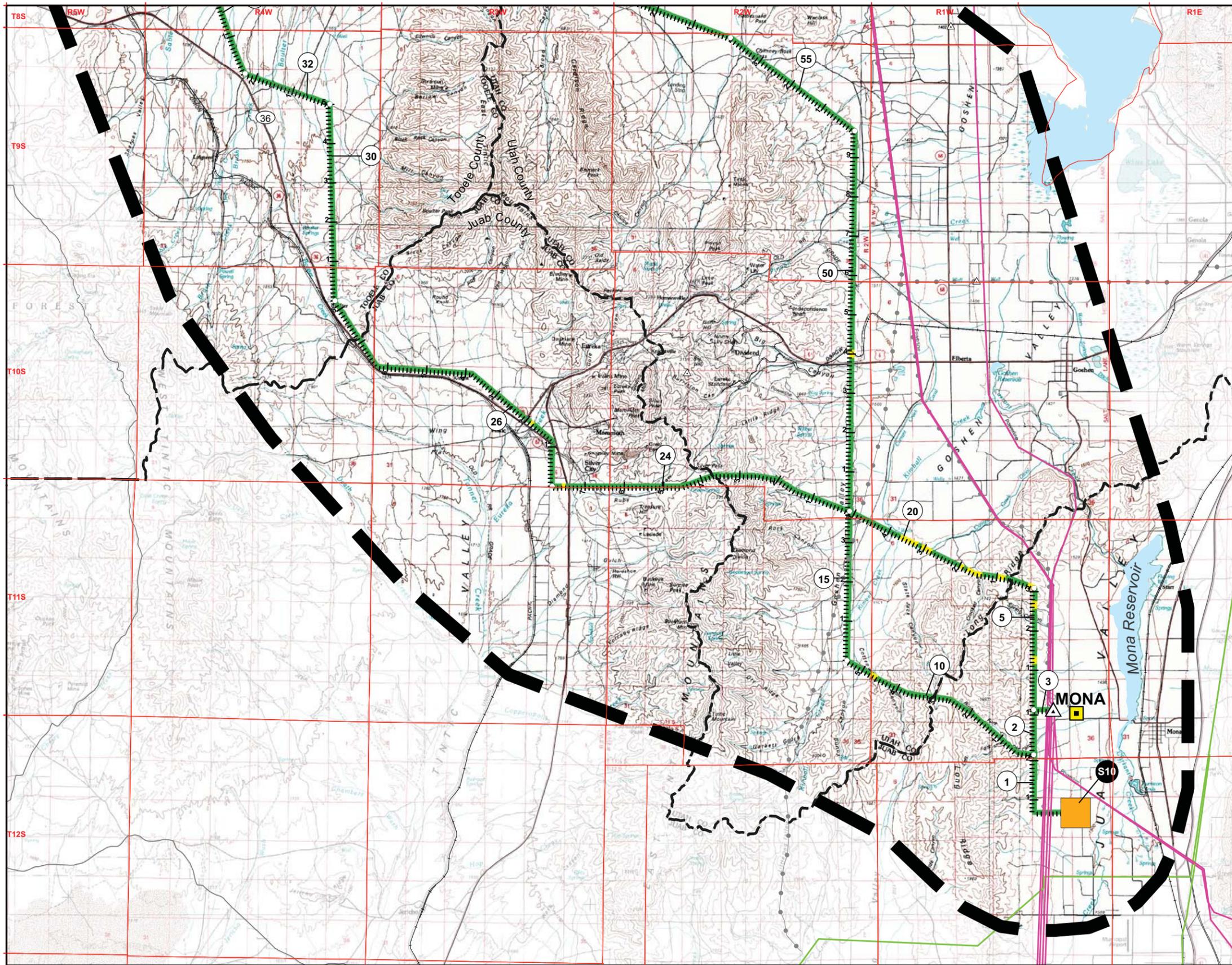
**General Reference Features**

- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- Alternative Routes
- Substation Site
- Township and Range Line



**Map C-7**  
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 April 2009

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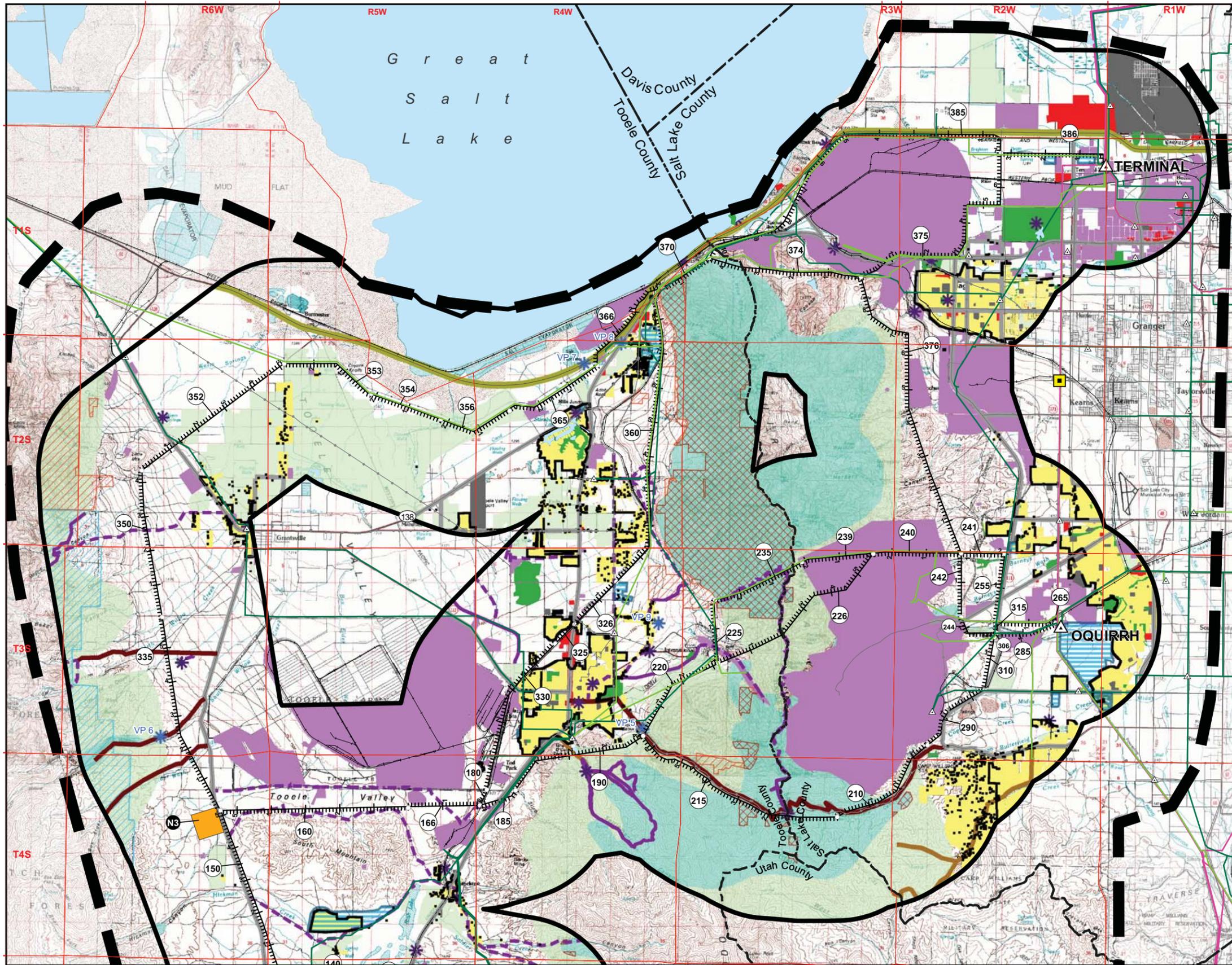


- Legend**
- Low Sensitivity
  - Moderate Sensitivity
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - Township and Range Line



**Map C-7**  
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### Legend

- VP # Simulation Viewpoint
- Residences
- Recreation Area / Park / Overlook / Historic Site
- Existing Recreation Trail
- Future Recreation Trail
- California National Historic Trail (I-80)
- Pony Express National Historic Trail
- Designated Scenic Byway / Backway
- Recreation Destination Route
- Travel Routes
- Approved Future Developments

#### Image Types

- Residential
- Golf Course / Developed Parks
- Commercial
- Industrial / Military
- Institutional

#### Scenic Quality Classes

- Class A
- Class B
- Class C

#### Agency Management Objectives

Bureau of Land Management

- VRM Class II
- VRM Class III

USFS Visual Quality Objectives

- Modification
- Partial Retention

USFS Scenic Integrity Objectives

- High

#### General Reference Features

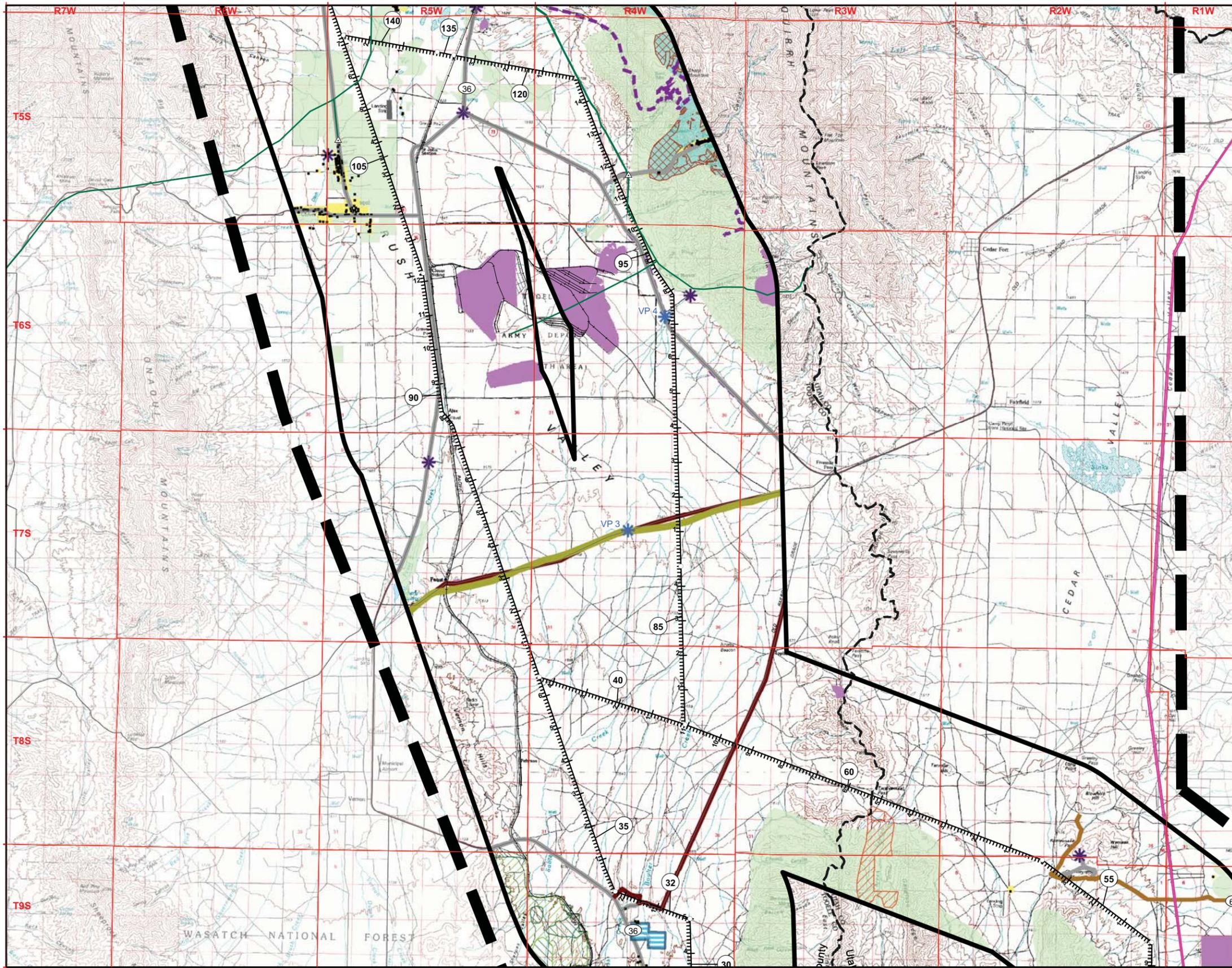
- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- 6 Mile Wide Inventory Corridor
- Alternative Routes
- Substation Site
- Township and Range Line

0 1 2 4 Miles

SOURCES: Land Use, Associated Municipalities and Digitized from NAIP 2006; VRM, UTBLM 1990; SQO & SIO, USFS 2003; Sensitive Viewers, Digitized from NAIP 2006, UTBLM, USFS, NRHP; Associated Counties and Municipalities; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

PacifiCorp\_Mona\_Oquirrh\_EIS LANDSCAPE\_Visual.mxd

**Visual Resource Management, Sensitive Viewers, and Scenic Quality  
MONA TO OQUIRRH TRANSMISSION CORRIDOR PROJECT EIS**



### Legend

- VP # Simulation Viewpoint
- Residences
- Recreation Area / Park / Overlook / Historic Site
- Existing Recreation Trail
- Future Recreation Trail
- California National Historic Trail (I-80)
- Pony Express National Historic Trail
- Designated Scenic Byway / Backway
- Recreation Destination Route
- Travel Routes
- Approved Future Developments

#### Image Types

- Residential
- Golf Course / Developed Parks
- Commercial
- Industrial / Military
- Institutional

#### Scenic Quality Classes

- Class A
- Class B
- Class C

#### Agency Management Objectives

##### Bureau of Land Management

- VRM Class II
- VRM Class III

##### USFS Visual Quality Objectives

- Modification
- Partial Retention

##### USFS Scenic Integrity Objectives

- High

### General Reference Features

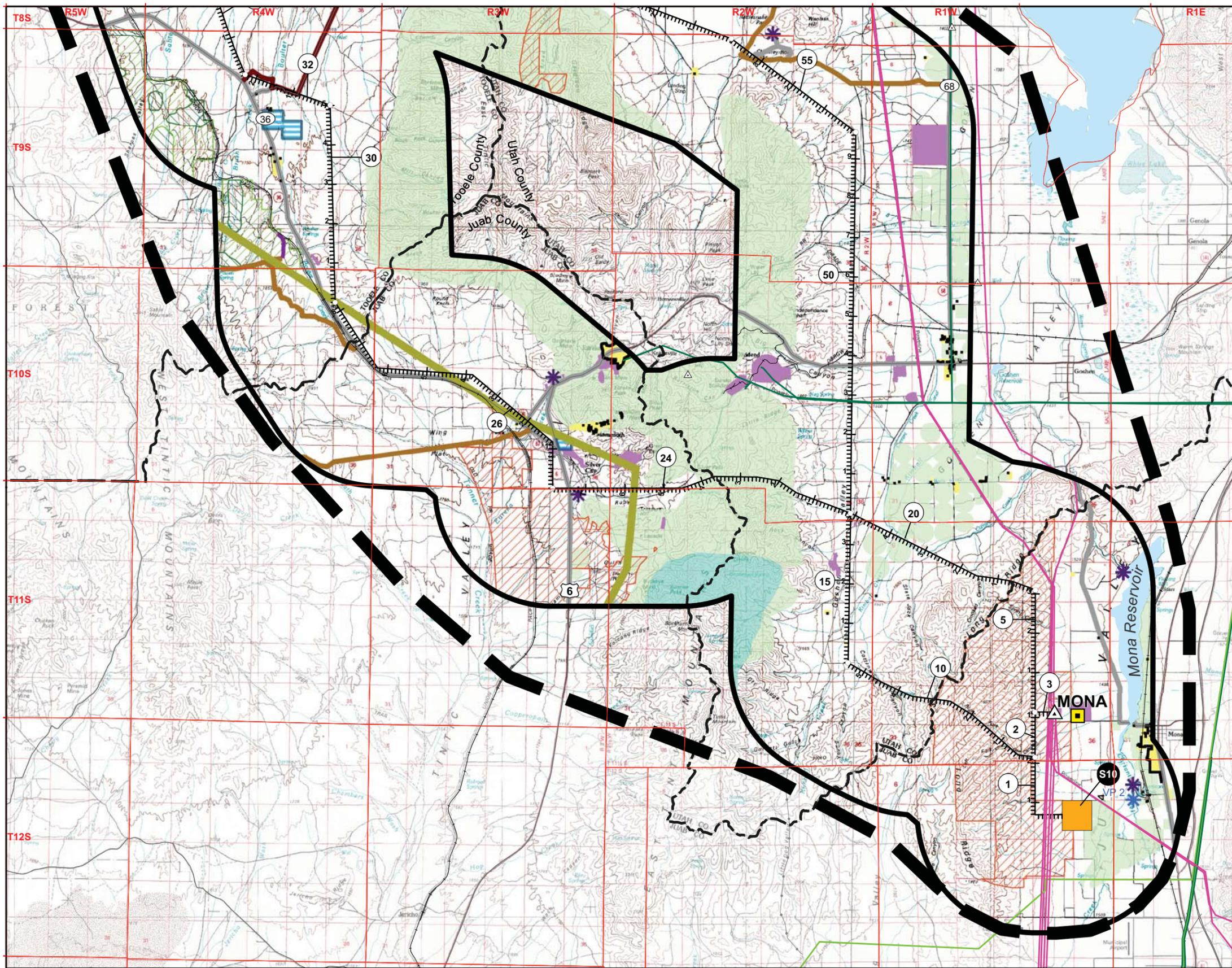
- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- 6 Mile Wide Inventory Corridor
- Alternative Routes
- Substation Site
- Township and Range Line

0 1 2 4 Miles

SOURCES: Land Use, Associated Municipalities and Digitized from NAIP 2006; VRM, UTBLM 1990; SQO & SIO, USFS 2003; Sensitive Viewers, Digitized from NAIP 2006, UTBLM, USFS, NRHP; Associated Counties and Municipalities; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp  
PacifiCorp\_Mona\_Oquirrh\_EIS LANDSCAPE\_Visual.mxd

**Map C-8**

**Visual Resource Management, Sensitive Viewers, and Scenic Quality  
MONA TO OQUIRRH TRANSMISSION CORRIDOR PROJECT EIS**



### Legend

- VP # Simulation Viewpoint
- Residences
- Recreation Area / Park / Overlook / Historic Site
- Existing Recreation Trail
- Future Recreation Trail
- California National Historic Trail (I-80)
- Pony Express National Historic Trail
- Designated Scenic Byway / Backway
- Recreation Destination Route
- Travel Routes
- Approved Future Developments

#### Image Types

- Residential
- Golf Course / Developed Parks
- Commercial
- Industrial / Military
- Institutional

#### Scenic Quality Classes

- Class A
- Class B
- Class C

#### Agency Management Objectives

Bureau of Land Management

- VRM Class II
- VRM Class III

USFS Visual Quality Objectives

- Modification
- Partial Retention

USFS Scenic Integrity Objectives

- High

#### General Reference Features

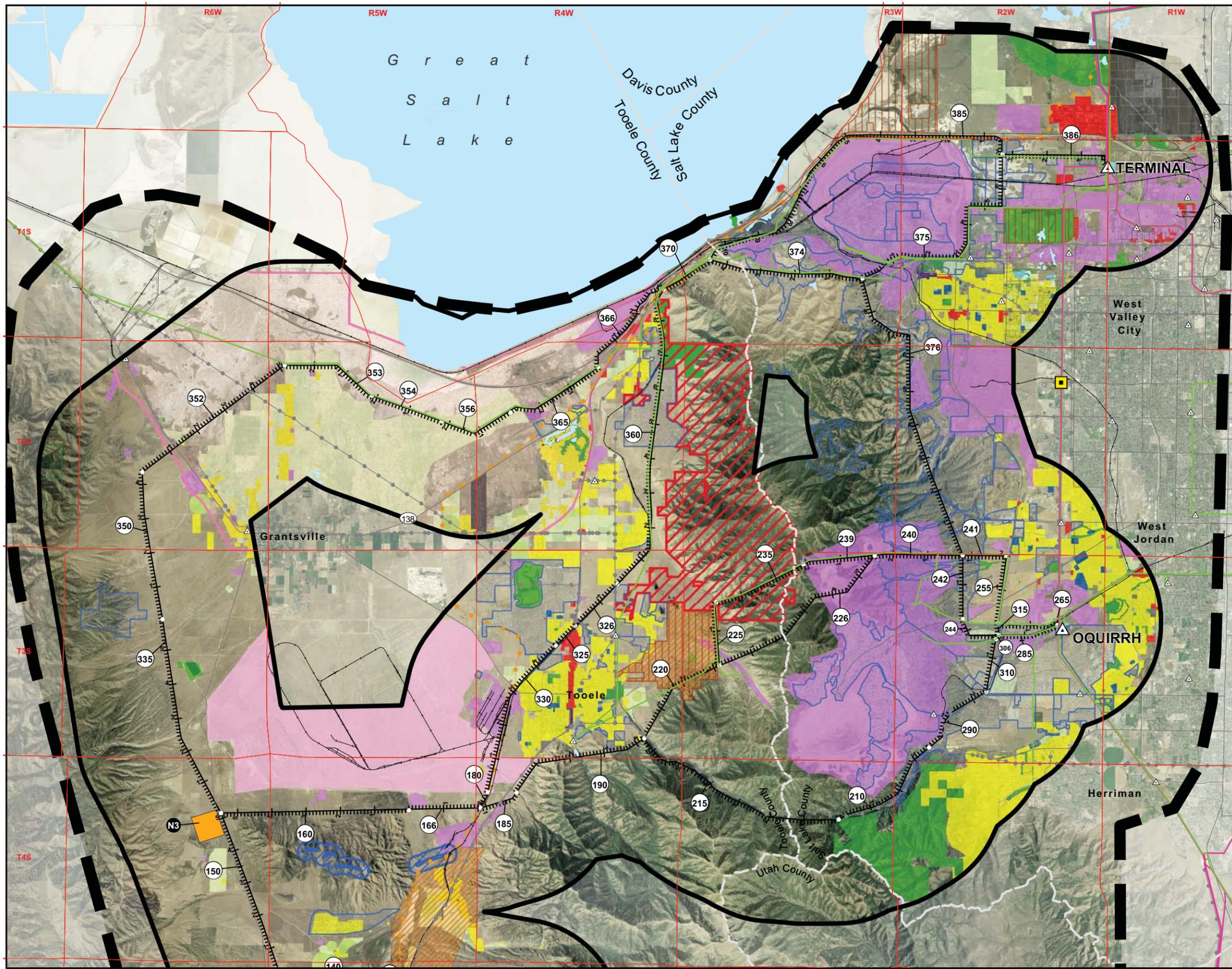
- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- 6 Mile Wide Inventory Corridor
- Alternative Routes
- Substation Site
- Township and Range Line

0 1 2 4 Miles

SOURCES: Land Use, Associated Municipalities and Digitized from NAIP 2006; VRM, UTBLM 1990; SQO & SIO, USFS 2003; Sensitive Viewers, Digitized from NAIP 2006, UTBLM, USFS, NRHP; Associated Counties and Municipalities; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

PacifiCorp\_Mona\_Oquirrh\_EIS LANDSCAPE\_Visual.mxd

**Visual Resource Management, Sensitive Viewers, and Scenic Quality  
MONA TO OQUIRRH TRANSMISSION CORRIDOR PROJECT EIS**



- ### Legend
- |                                   |                                  |
|-----------------------------------|----------------------------------|
| Residential                       | Education Facility               |
| Commercial                        | Airport / Airstrip               |
| Mixed Use                         | Military                         |
| Industrial                        | Public Facility                  |
| Church and Cemetery               | Utilities                        |
| Agriculture                       | Wildlife Mgmt Area               |
| Center Pivot Agriculture          | Tooele SAMP                      |
| Communication Facility            | Proposed UNEV Pipeline Alignment |
| Recreation / Parks / Preservation |                                  |
| Vacant / Undeveloped / Grazing    |                                  |
| Wilderness Study Area             |                                  |
| North Oquirrh Mgmt Area           |                                  |
| Proposed Development              |                                  |
| Superfund / Hazardous Waste Site  |                                  |
| Proposed Wind Farm                |                                  |

- ### General Reference Features
- |                                |  |
|--------------------------------|--|
| Project Study Area             |  |
| 345kV Transmission Line        |  |
| 138kV Transmission Line        |  |
| Power Plant                    |  |
| Substation                     |  |
| Railroad                       |  |
| Major Road                     |  |
| Natural Gas Pipeline           |  |
| County Boundary                |  |
| Link Node                      |  |
| Link Tag / Substation Tag      |  |
| 6 Mile Wide Inventory Corridor |  |
| Alternative Routes             |  |
| Substation Site                |  |
| Township and Range Line        |  |

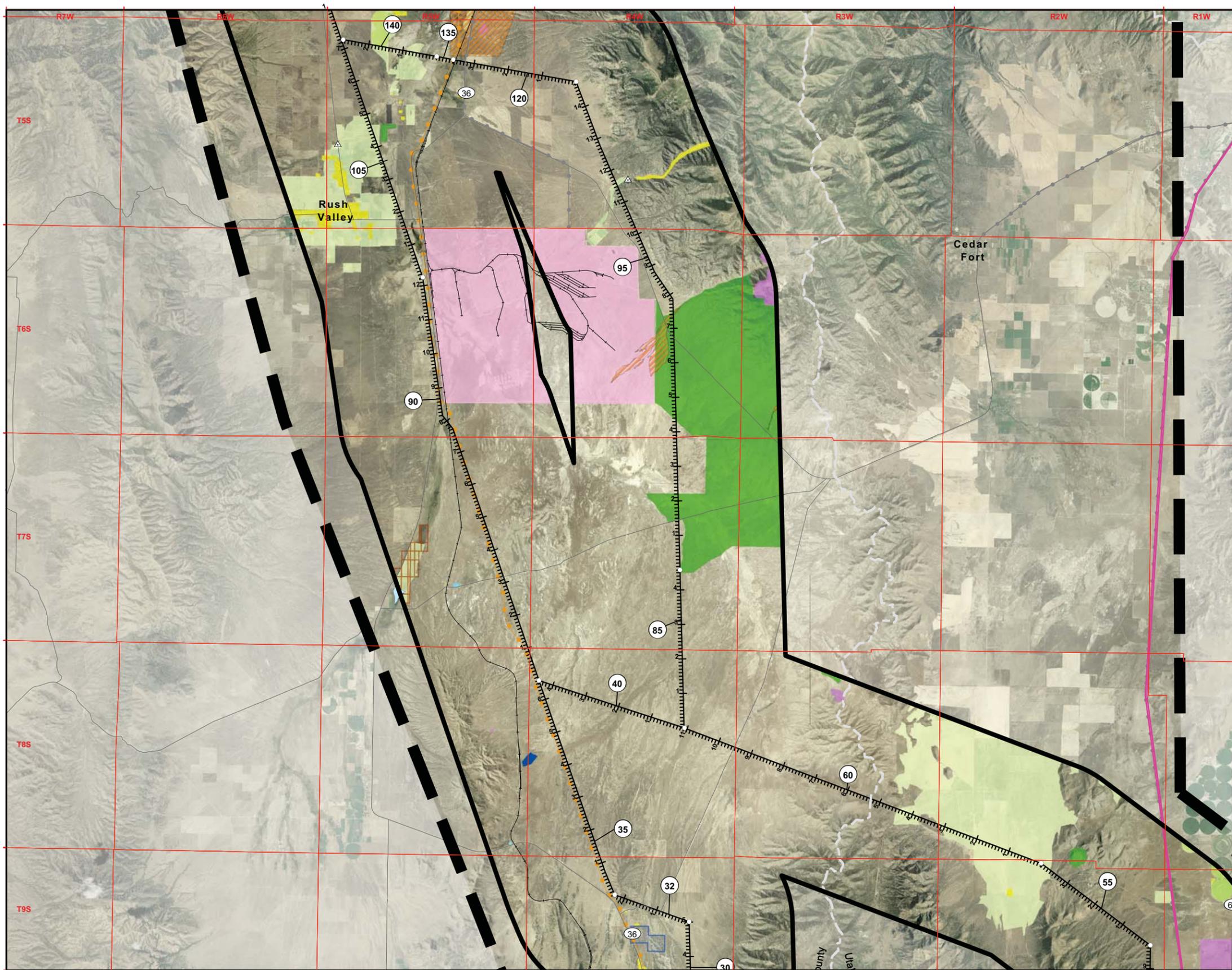


SOURCES: Land Use, Associated Municipalities and Digitized from NAIP 2006 Aerials; Aerial Imagery, NAIP 2006; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

## Map C-9

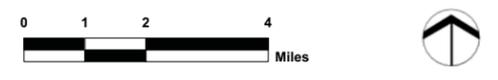
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April 2009

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- ### Legend
- |  |   |
|--|---|
| <span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> Residential                      | <span style="display:inline-block; width:15px; height:15px; background-color:blue; border:1px solid black;"></span> Education Facility            |
| <span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span> Commercial                          | <span style="display:inline-block; width:15px; height:15px; background-color:black; border:1px solid black;"></span> Airport / Airstrip           |
| <span style="display:inline-block; width:15px; height:15px; background-color:darkred; border:1px solid black;"></span> Mixed Use                       | <span style="display:inline-block; width:15px; height:15px; background-color:lightpink; border:1px solid black;"></span> Military                 |
| <span style="display:inline-block; width:15px; height:15px; background-color:purple; border:1px solid black;"></span> Industrial                       | <span style="display:inline-block; width:15px; height:15px; background-color:gray; border:1px solid black;"></span> Public Facility               |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightgray; border:1px solid black;"></span> Church and Cemetery           | <span style="display:inline-block; width:15px; height:15px; background-color:lightblue; border:1px solid black;"></span> Utilities                |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightgreen; border:1px solid black;"></span> Agriculture                  | <span style="display:inline-block; width:15px; height:15px; border:1px solid red; border-style:dashed;"></span> Wildlife Mgmt Area                |
| <span style="display:inline-block; width:15px; height:15px; background-color:yellowgreen; border:1px solid black;"></span> Center Pivot Agriculture    | <span style="display:inline-block; width:15px; height:15px; background-color:lightpink; border:1px solid black;"></span> Tooele SAMP              |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightblue; border:1px solid black;"></span> Communication Facility        | <span style="display:inline-block; width:15px; height:15px; border-bottom:1px dashed orange;"></span> Proposed UNEV Pipeline Alignment            |
| <span style="display:inline-block; width:15px; height:15px; background-color:green; border:1px solid black;"></span> Recreation / Parks / Preservation | <span style="display:inline-block; width:15px; height:15px; background-color:tan; border:1px solid black;"></span> Vacant / Undeveloped / Grazing |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightgray; border:1px solid black;"></span> Wilderness Study Area         | <span style="display:inline-block; width:15px; height:15px; border:1px solid red; border-style:dashed;"></span> North Oquirrh Mgmt Area           |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid red; border-style:dashed;"></span> Proposed Development                   | <span style="display:inline-block; width:15px; height:15px; border:1px solid blue; border-style:dashed;"></span> Proposed Wind Farm               |
| <span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> Superfund / Hazardous Waste Site |   |

- ### General Reference Features
- |  |   |
|--|---|
| <span style="display:inline-block; width:15px; height:15px; border:2px dashed black;"></span> Project Study Area                                   | <span style="display:inline-block; width:15px; height:15px; border-bottom:2px solid magenta;"></span> 345kV Transmission Line                           |
| <span style="display:inline-block; width:15px; height:15px; border-bottom:2px solid green;"></span> 138kV Transmission Line                        | <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:yellow;"></span> Power Plant                       |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:lightgray;"></span> Substation                | <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:lightgray;"></span> Railroad                       |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:lightgray;"></span> Major Road                | <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:lightgray;"></span> Natural Gas Pipeline           |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:lightgray;"></span> County Boundary           | <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:lightgray;"></span> Link Node                      |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:lightgray;"></span> Link Tag / Substation Tag | <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:lightgray;"></span> 6 Mile Wide Inventory Corridor |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black; background-color:lightgray;"></span> Alternative Routes        | <span style="display:inline-block; width:15px; height:15px; background-color:orange;"></span> Substation Site   |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid red;"></span> Township and Range Line                                 |   |

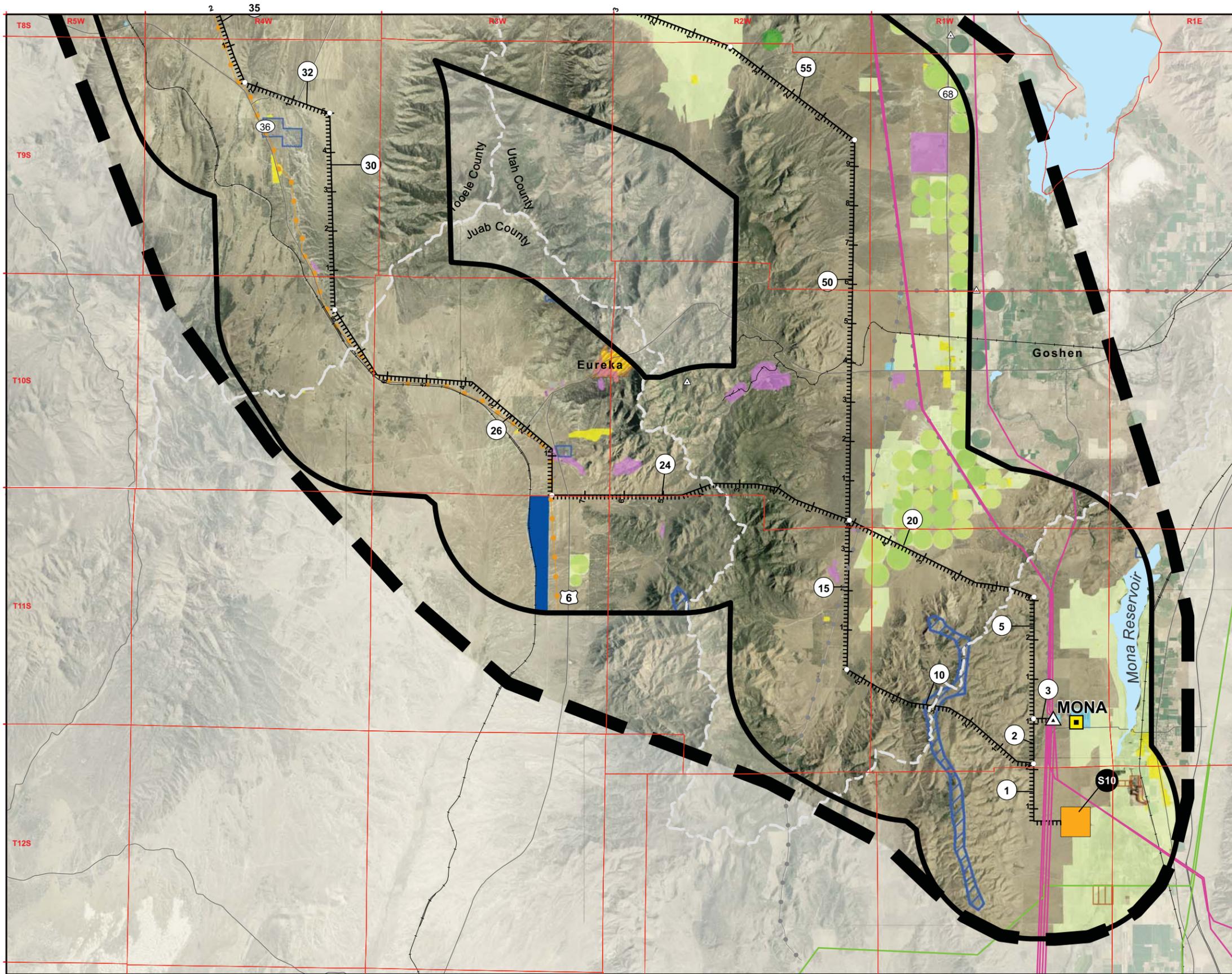


SOURCES: Land Use, Associated Municipalities and Digitized from NAIP 2006 Aerials; Aerial Imagery, NAIP 2006; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

## Map C-9

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April 2009

Mona\_Oquirrh\_EIS LANDSCAPE\_Land\_Use.mxd



- ### Legend
- |  |  |
|--|--|
| <span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> Residential                      | <span style="display:inline-block; width:15px; height:15px; background-color:blue; border:1px solid black;"></span> Education Facility                 |
| <span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span> Commercial                          | <span style="display:inline-block; width:15px; height:15px; background-color:black; border:1px solid black;"></span> Airport / Airstrip                |
| <span style="display:inline-block; width:15px; height:15px; background-color:darkred; border:1px solid black;"></span> Mixed Use                       | <span style="display:inline-block; width:15px; height:15px; background-color:lightpink; border:1px solid black;"></span> Military                      |
| <span style="display:inline-block; width:15px; height:15px; background-color:purple; border:1px solid black;"></span> Industrial                       | <span style="display:inline-block; width:15px; height:15px; background-color:gray; border:1px solid black;"></span> Public Facility                    |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightgray; border:1px solid black;"></span> Church and Cemetery           | <span style="display:inline-block; width:15px; height:15px; background-color:lightblue; border:1px solid black;"></span> Utilities                     |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightgreen; border:1px solid black;"></span> Agriculture                  | <span style="display:inline-block; width:15px; height:15px; border:1px solid red;"></span> Wildlife Mgmt Area  |
| <span style="display:inline-block; width:15px; height:15px; background-color:yellowgreen; border:1px solid black;"></span> Center Pivot Agriculture    | <span style="display:inline-block; width:15px; height:15px; border:1px dashed pink;"></span> Tooele SAMP   |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightblue; border:1px solid black;"></span> Communication Facility        | <span style="display:inline-block; width:15px; height:15px; border-bottom:1px dashed orange;"></span> Proposed UNEV Pipeline Alignment                 |
| <span style="display:inline-block; width:15px; height:15px; background-color:green; border:1px solid black;"></span> Recreation / Parks / Preservation | <span style="display:inline-block; width:15px; height:15px; background-color:tan; border:1px solid black;"></span> Vacant / Undeveloped / Grazing      |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightgray; border:1px solid black;"></span> Wilderness Study Area         | <span style="display:inline-block; width:15px; height:15px; border:1px solid red;"></span> North Oquirrh Mgmt Area                                     |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid red;"></span> Proposed Development  | <span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> Superfund / Hazardous Waste Site |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid blue;"></span> Proposed Wind Farm   |  |

- ### General Reference Features
- |   |   |
|---|---|
| <span style="display:inline-block; width:15px; height:15px; border:2px dashed black;"></span> Project Study Area            | <span style="display:inline-block; width:15px; height:15px; border-bottom:2px solid magenta;"></span> 345kV Transmission Line         |
| <span style="display:inline-block; width:15px; height:15px; border-bottom:2px solid green;"></span> 138kV Transmission Line | <span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> Power Plant     |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span> Substation                     | <span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span> Railroad                                 |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span> Major Road                     | <span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span> Natural Gas Pipeline                     |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span> County Boundary                | <span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span> Link Node                                |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span> Link Tag / Substation Tag      | <span style="display:inline-block; width:15px; height:15px; border:2px solid black;"></span> 6 Mile Wide Inventory Corridor           |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span> Alternative Routes             | <span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> Substation Site |
| <span style="display:inline-block; width:15px; height:15px; border:1px solid red;"></span> Township and Range Line          |   |

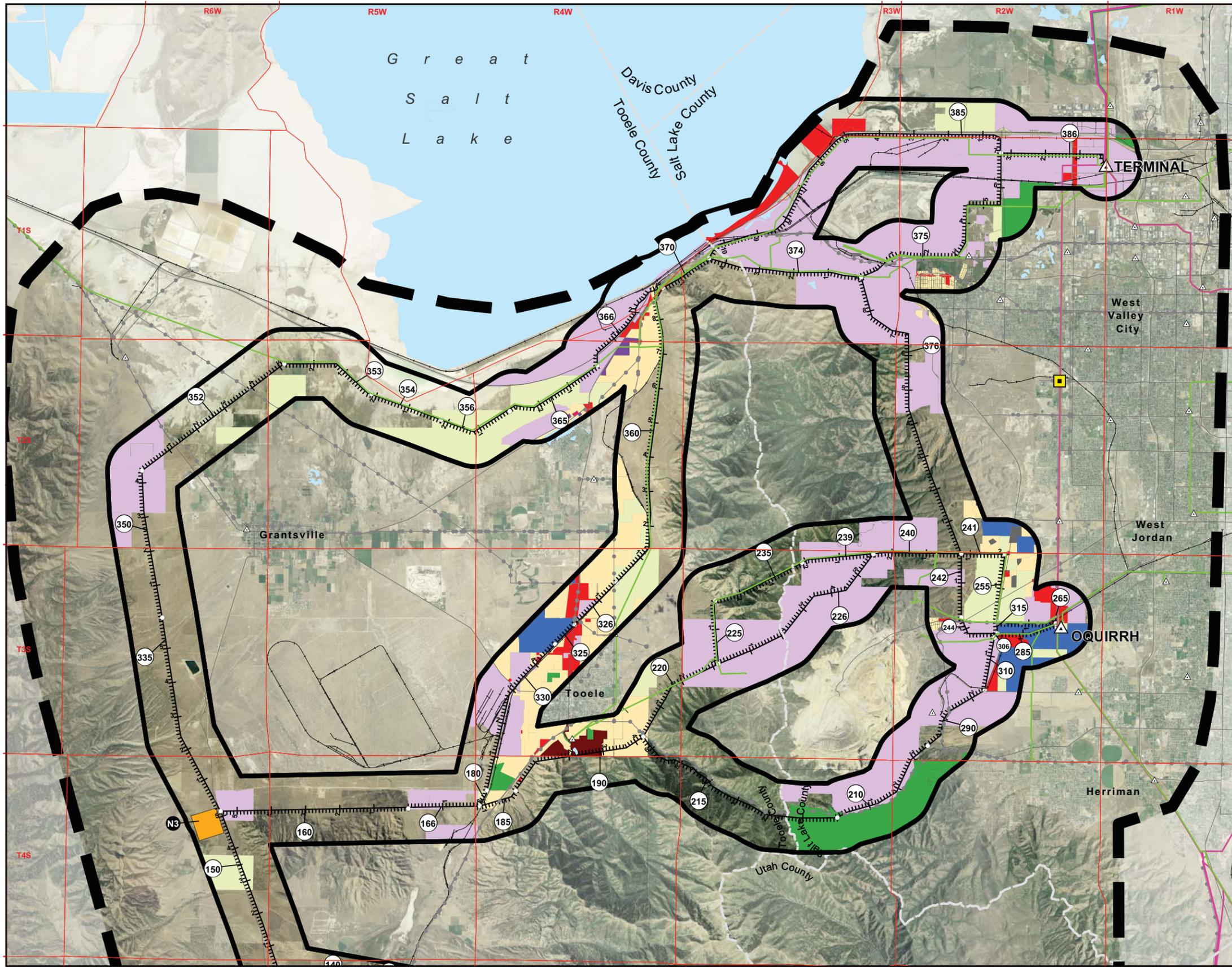


SOURCES: Land Use, Associated Municipalities and Digitized from NAIP 2006 Aerials; Aerial Imagery, NAIP 2006; County Boundaries, Utah AGRC 2004; Transmission Lines & Substation Locations, PacifiCorp

## Map C-9

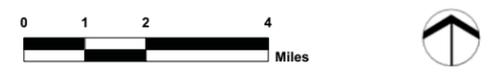
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Mona\_Oquirrh\_EIS LANDSCAPE\_Land\_Use.mxd



- Legend**
- Agriculture
  - Residential
  - Commercial
  - Industrial
  - Mixed Use
  - Public Facilities
  - Planned Community
  - Parks / Preservation / Recreation
  - Multiple Use

- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - 2 Mile Wide Inventory Corridor
  - Alternative Routes
  - Substation Site
  - Township and Range Line

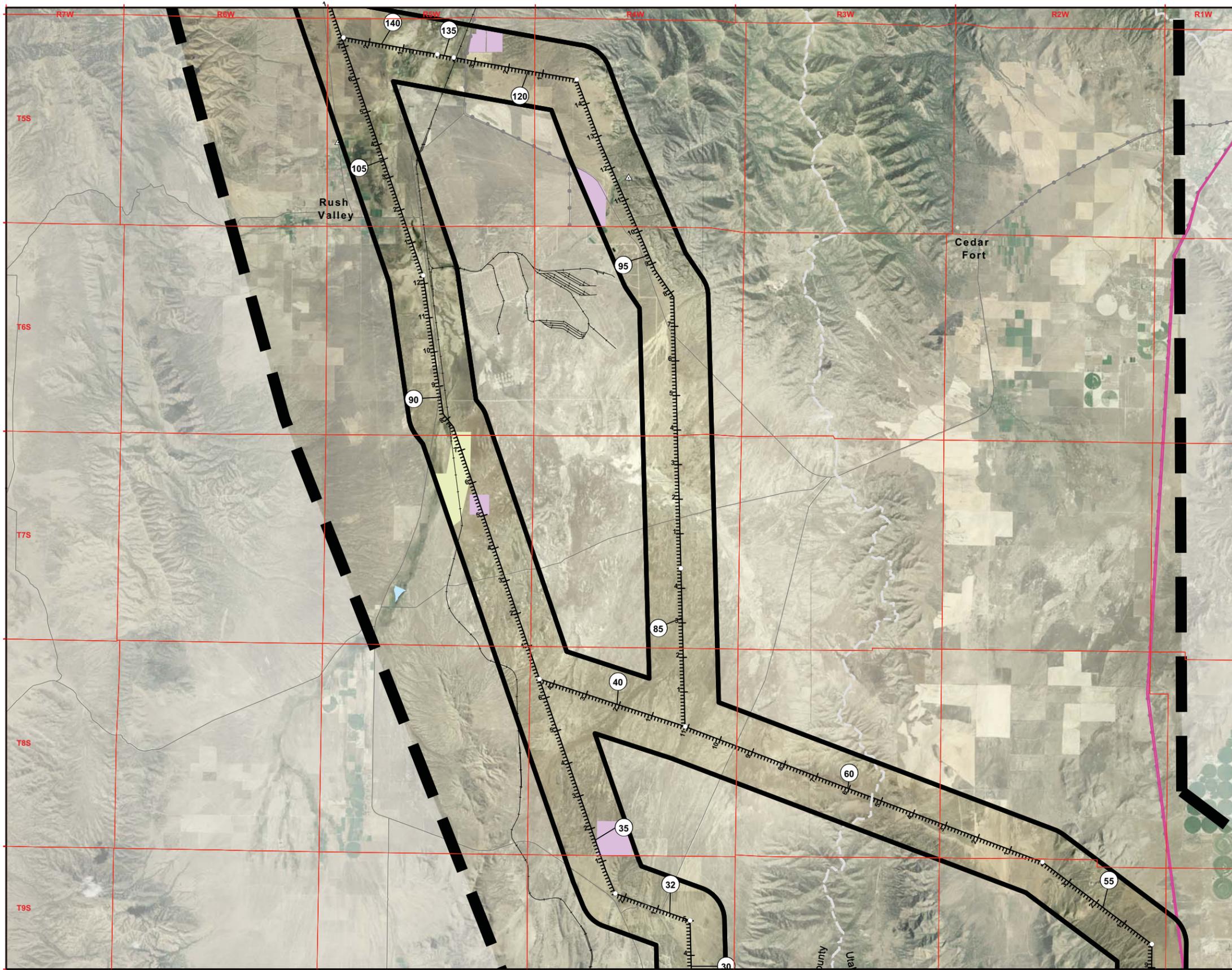


SOURCES: Zoning, Associated Municipalities;  
 Associated Counties and Municipalities;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-10**

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Mona\_Oquirrh\_EIS LANDSCAPE\_Zoning.mxd



**Legend**

- Agriculture
- Residential
- Commercial
- Industrial
- Mixed Use
- Public Facilities
- Planned Community
- Parks / Preservation / Recreation
- Multiple Use

**General Reference Features**

- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- Link Tag / Substation Tag
- 2 Mile Wide Inventory Corridor
- Alternative Routes
- Substation Site
- Township and Range Line

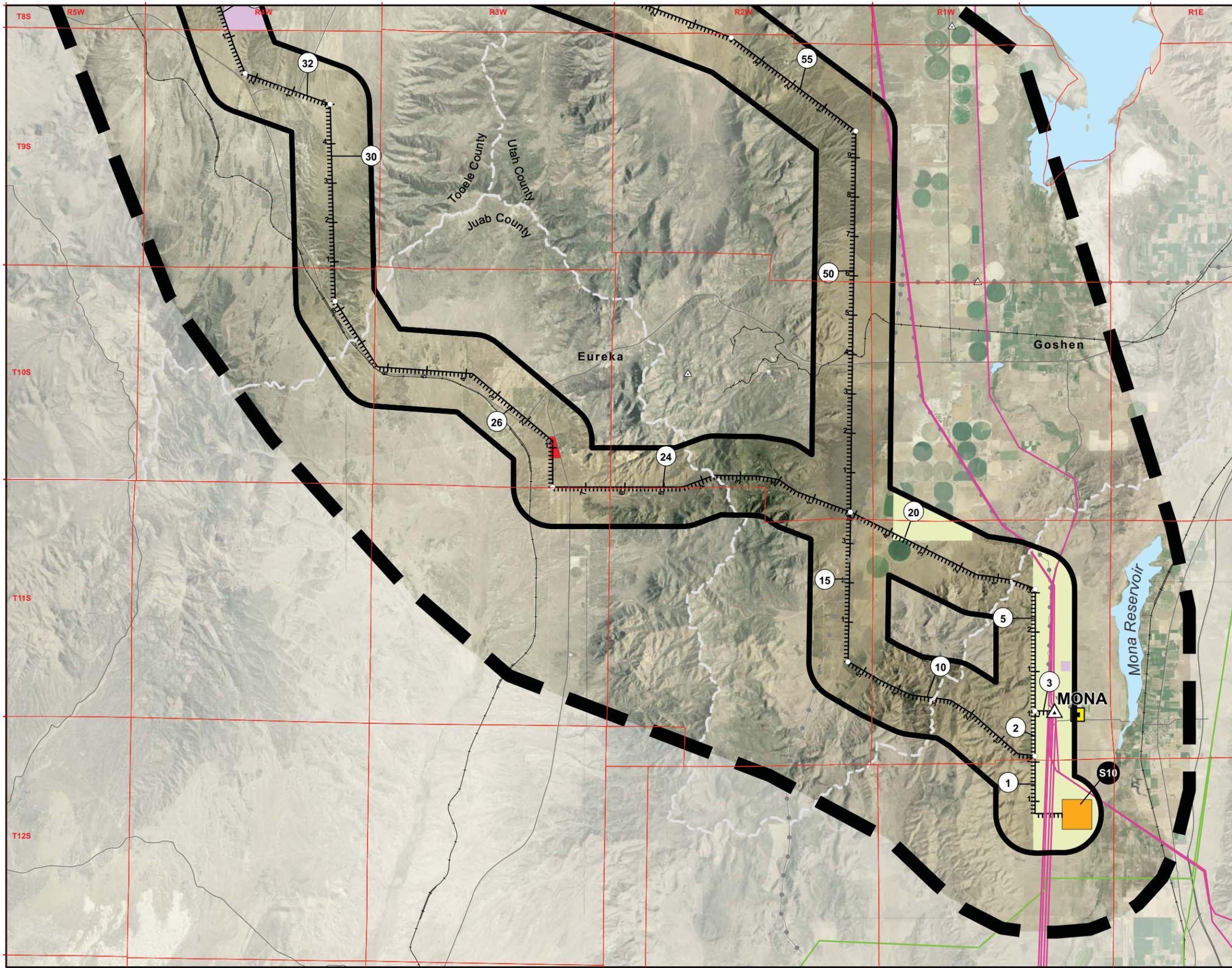


SOURCES: Zoning, Associated Municipalities;  
 Associated Counties and Municipalities;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

**Map C-10**

2 of 3  
 April 2009

Mona\_Oquirrh\_EIS LANDSCAPE\_Zoning.mxd



**Legend**

- Agriculture
- Residential
- Commercial
- Industrial
- Mixed Use
- Public Facilities
- Planned Community
- Parks / Preservation / Recreation
- Multiple Use

**General Reference Features**

- Project Study Area
- 345kV Transmission Line
- 138kV Transmission Line
- Power Plant
- Substation
- Railroad
- Major Road
- Natural Gas Pipeline
- County Boundary
- Link Node
- 95 Link Tag / Substation Tag
- 2 Mile Wide Inventory Corridor
- Alternative Routes
- Substation Site
- Township and Range Line



SOURCES: Zoning, Associated Municipalities;  
 Associated Counties and Municipalities;  
 County Boundaries, Utah AGRC 2004;  
 Transmission Lines & Substation Locations, PacifiCorp

Mona\_Oquirrh\_EIS LANDSCAPE\_Zoning.mxd

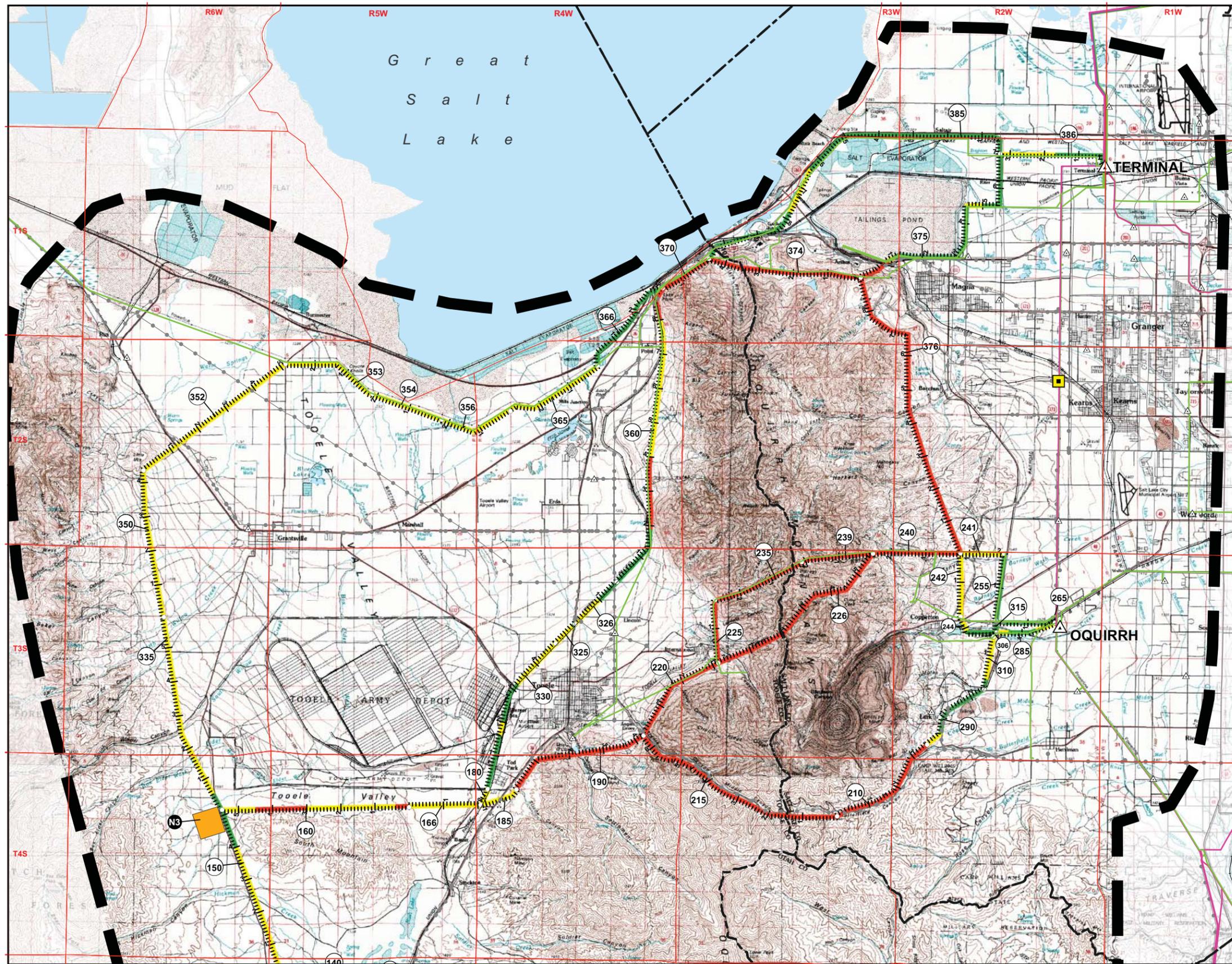
**Map C-10**

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April 2009

**Generalized Zoning**

**MONA TO OQUIRRH TRANSMISSION CORRIDOR PROJECT EIS**



- Legend**
- Level 1 - Existing Access
  - Level 2 - New Access ( 0 - 10% Slope )
  - Level 3 - New Access ( >10% Slope )
- 
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - Township and Range Line

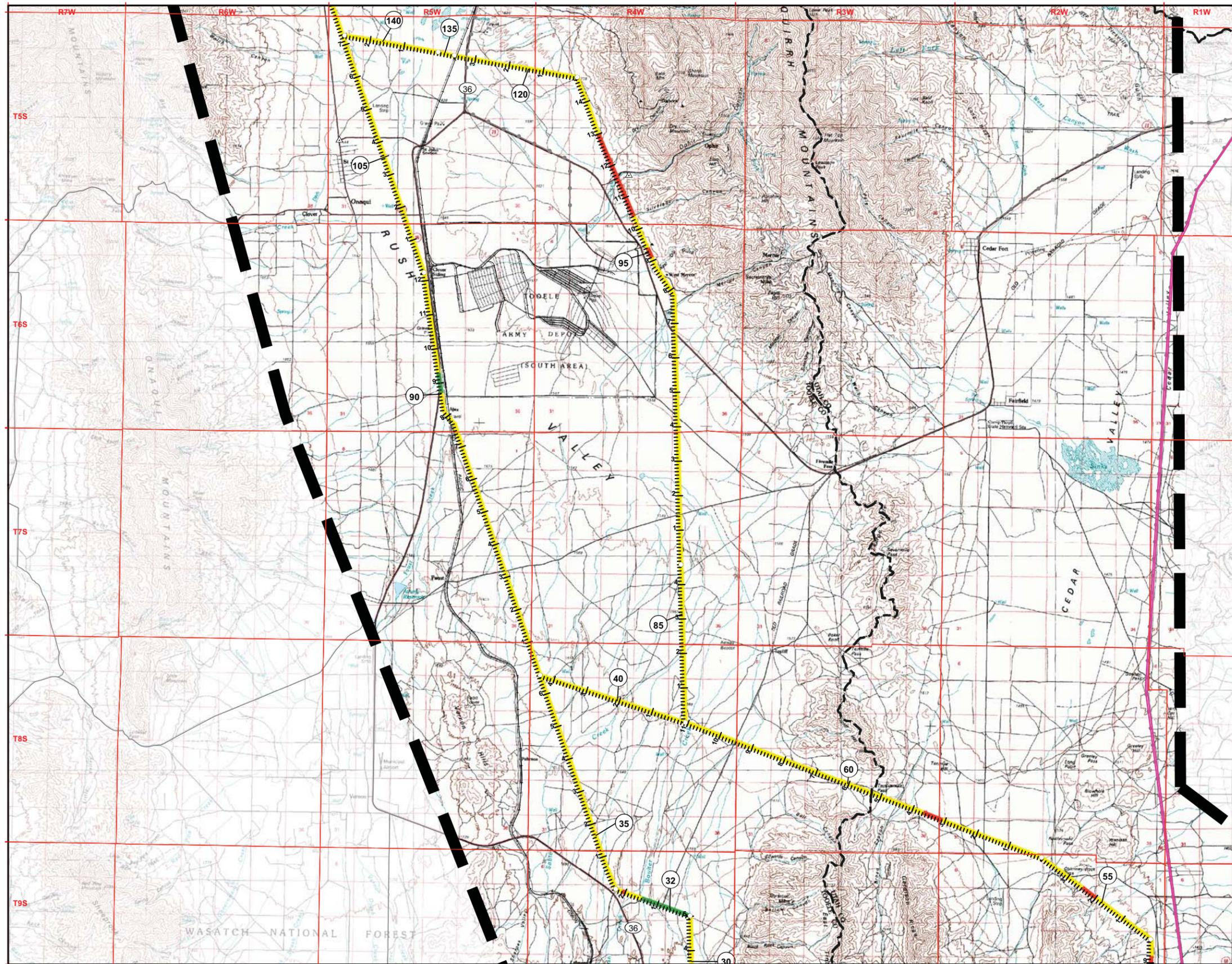
Access\_landscapes.mxd

**Map C-11**

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April 2009

**Access Levels**

**MONA TO OQUIRRH TRANSMISSION CORRIDOR PROJECT EIS**

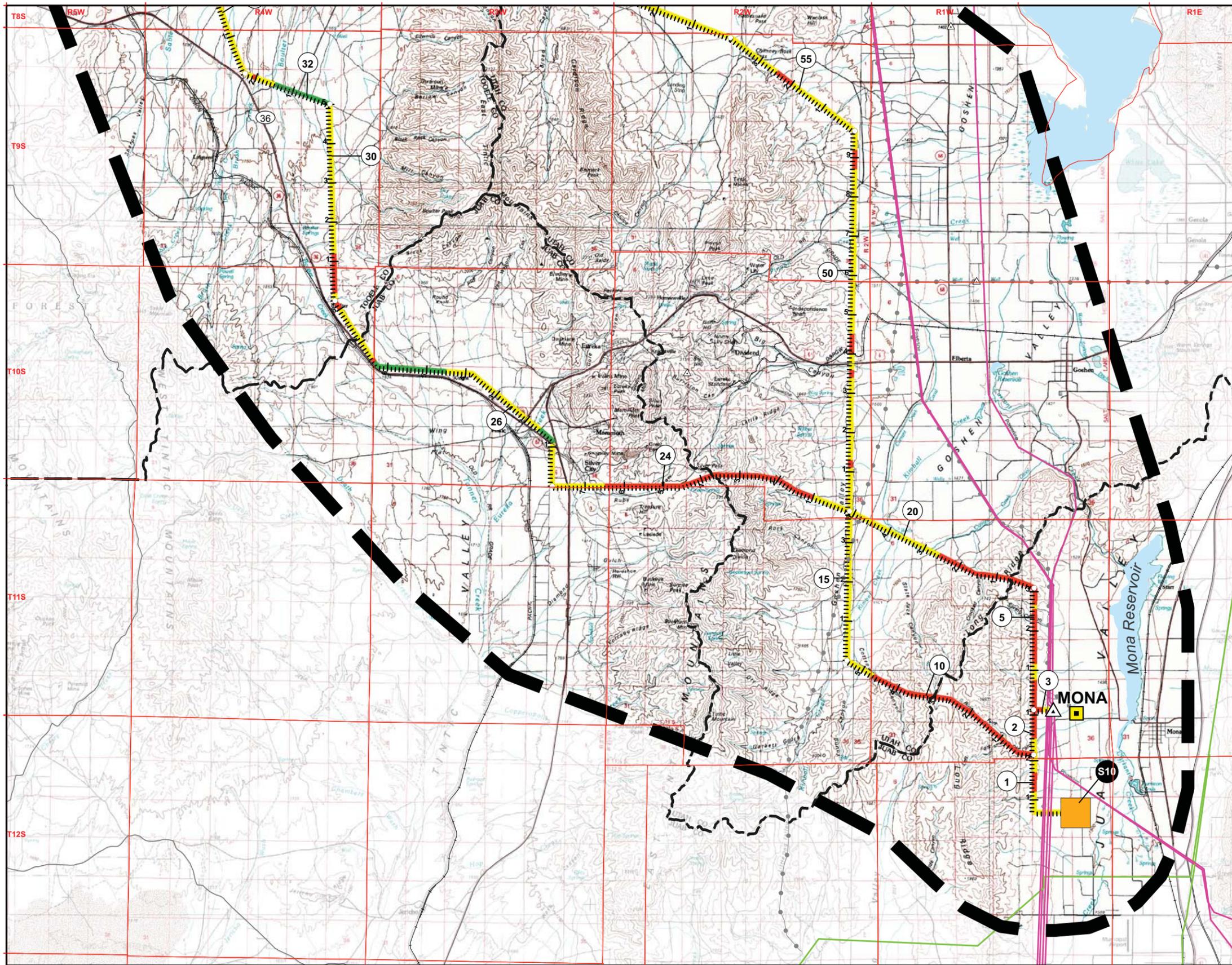


- Legend**
- Level 1 - Existing Access
  - Level 2 - New Access ( 0 - 10% Slope )
  - Level 3 - New Access ( >10% Slope )
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - Township and Range Line



**Map C-11**  
 2 of 3  
 April 2009

Access\_landscapes.mxd



- Legend**
- Level 1 - Existing Access
  - Level 2 - New Access ( 0 - 10% Slope )
  - Level 3 - New Access ( >10% Slope )
- 
- General Reference Features**
- Project Study Area
  - 345kV Transmission Line
  - 138kV Transmission Line
  - Power Plant
  - Substation
  - Railroad
  - Major Road
  - Natural Gas Pipeline
  - County Boundary
  - Link Node
  - Link Tag / Substation Tag
  - Alternative Routes
  - Substation Site
  - Township and Range Line



**Map C-11**

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## **Appendix D – Interdisciplinary Team Review Matrix**

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**TABLE D-1  
INTERDISCIPLINARY TEAM NEPA DOCUMENTATION (UT-020-2008-009)  
FEBRUARY 14, 2008**

Resource	Specialist		Preliminary Key Issues/Concerns	Determination
	BLM	EPG		
<b>Critical Elements</b>				
Air Quality	Pam Schuller Matt Rajala	Nate Ferguson	<ul style="list-style-type: none"> <li>• Dust associated with construction</li> <li>• Recognize non-attainment areas</li> </ul>	NI
Areas of Critical Environmental Concern	NA	NA	<ul style="list-style-type: none"> <li>• None</li> </ul>	NP
Cultural Resources	Peter Ainsworth Joelle McCarthy	Glenn Darrington Jon Baxter	<ul style="list-style-type: none"> <li>• Prehistoric and historic sites</li> <li>• Historic structures</li> <li>• Cemeteries</li> <li>• Donner, Clymen, Stansbury, Pony Express Historic trails</li> <li>• Camp Floyd/Stage Coach Inn State Park</li> <li>• National Register Historic Mining District in Tintic Mountains</li> </ul>	PI
Environmental Justice	Pam Schuller Matt Rajala	Christine Brown	<ul style="list-style-type: none"> <li>• Tooele - low income populations</li> <li>• Skull Valley - concerned with anything in Tooele County</li> <li>• Potential to disproportionately impact tribes in the study area</li> </ul>	PI
Farmlands (Prime and Unique)	Mike Gates Matt Rajala	Christine Brown	<ul style="list-style-type: none"> <li>• Center-pivot agriculture</li> <li>• SLFO has some prime and unique farmland</li> </ul>	NI
Floodplain	Mike Gates Matt Rajala	Christine Brown	<ul style="list-style-type: none"> <li>• Great Salt Lake floodplain</li> <li>• Liquefaction soils</li> </ul>	NI
Invasive, Noxious Weed Species	Gary Kidd David Whitaker	Terry Enk	<ul style="list-style-type: none"> <li>• Spotted knapweed (<i>Centaurea maculosa</i>)</li> <li>• Cheatgrass (<i>Bromus tectorum</i>)</li> <li>• Russian knapweed (<i>Centaurea repens</i>)</li> <li>• Squarrose knapweed (<i>Centaurea squarrosa</i>)</li> <li>• Scotch thistle (<i>Onopordum acanthium</i>)</li> <li>• Johnsongrass (<i>Sorghum halepense</i>)</li> <li>• Hoary cress (<i>Cardaria draba</i>)</li> <li>• Dalmation toadflax (<i>Linaria genistifolia ssp. dalmatica</i>)</li> <li>• Starthistle (<i>Centaurea ssp</i>)</li> <li>• Russian olive (<i>Elaeagnus angustifolia</i>)</li> <li>• Tamarisk (<i>Tamarix sp</i>)</li> </ul>	PI
Native American Religious Concerns	Peter Ainsworth Joelle McCarthy	Glenn Darrington Jon Baxter	<ul style="list-style-type: none"> <li>• 12-16 tribes</li> <li>• Tribal Values - Traditional Cultural Properties</li> </ul>	PI

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for significant impact analyzed in detail in the EIS; or identified in a DNA as requiring further analysis

**TABLE D-1**  
**INTERDISCIPLINARY TEAM NEPA DOCUMENTATION (UT-020-2008-009)**  
**FEBRUARY 14, 2008**

Resource	Specialist		Preliminary Key Issues/Concerns	Determination
	BLM	EPG		
Threatened, Endangered, or Candidate Plant Species	Mike Gates David Whitaker	Terry Enk	<ul style="list-style-type: none"> <li>• Ute ladies'-tresses (T)</li> <li>• Goose Creek milk-vetch (Petitioned)</li> <li>• Slender moonwort (C)</li> </ul>	PI
Threatened, Endangered, or Candidate Animal Species	Traci Allen	Terry Enk	<ul style="list-style-type: none"> <li>• June sucker (E)</li> <li>• Black-footed ferret (E, 10(j))</li> <li>• Bald eagle (T)</li> <li>• Canada lynx (T)</li> <li>• Lohontan cutthroat trout (T)</li> <li>• Western yellow-billed cuckoo (C)</li> <li>• Fat-whorled pondsnail (C)</li> <li>• White-tailed prairie dog (Petitioned)</li> <li>• Pygmy rabbit (Petitioned)</li> <li>• Kit Fox</li> </ul>	PI
Wastes (hazardous or solid)	Tim Ingwell Brent Crawslyn	Christine Brown	Superfund sites: • Jacobs Smelter (Stockton City)• Tooele Army Depot (Tooele City) • Eureka Mills (Eureka City)• International Smelter• Bauer Tailings• Manning Canyon	PI
Water Quality (drinking/ground)	Harvey Gates Mike Gates	Nate Ferguson	<ul style="list-style-type: none"> <li>• Lincoln County Water Users in North Oquirrh Mountains (water protection zone around spring)</li> <li>• FFO - numerous springs, plans to drill new wells north of Mona</li> <li>• Watershed - Oquirrh</li> </ul>	NI
Wetlands/Riparian Zones	Mike Gates David Whitaker	Terry Enk	<ul style="list-style-type: none"> <li>• Great Salt Lake</li> <li>• Rush Lake</li> <li>• Inland Sea Shorebird Reserve</li> <li>• Kimball and Tanner Creeks (by the western route)</li> </ul>	PI
Wild and Scenic Rivers	NA	NA	• None	NP
Wilderness	NA	NA	• None	NP
<b>Other resources/Concerns</b>				
Rangeland Health Standards and Guidelines	Mike Gates David Whitaker	Christine Brown	• Infrastructure (fences, cattle guards, etc.)	PI
Livestock Grazing	Mike Gates David Whitaker	Christine Brown	• Removal of vegetation	PI

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**TABLE D-1  
INTERDISCIPLINARY TEAM NEPA DOCUMENTATION (UT-020-2008-009)  
FEBRUARY 14, 2008**

Resource	Specialist		Preliminary Key Issues/Concerns	Determination
	BLM	EPG		
Woodland / Forestry	Mike Gates David Whitaker Tyler Stacks Brent Crawslyn	Christine Brown	<ul style="list-style-type: none"> <li>• Right-of-Wwy clearing in forest and mountain shrub communities</li> </ul>	PI
Vegetation including Special Status Plant Species other than FWS candidate or listed species	Mike Gates David Whitaker	Terry Enk	<ul style="list-style-type: none"> <li>• Hybrid Oak - North Oquirrh Mountains</li> <li>• Utah BLM sensitive species</li> </ul>	PI
Fish and Wildlife including Special Status Species other than FWS candidate or listed species	Traci Allen	Terry Enk	<ul style="list-style-type: none"> <li>• Raptors</li> <li>• Large game and avian species habitat</li> <li>• Sage grouse habitat and leks</li> <li>• UT BLM sensitive species</li> <li>• Wildlife Management Areas - James Walter Fitzgerald, Lee Kay, Carr Fork</li> <li>• Loss of habitat and habitat fragmentation due to construction activities</li> <li>• Loss of individuals due to right-of-way clearing</li> <li>• Creation of wildlife hazards not currently present in the environment</li> <li>• Creation of obstacles to wildlife management goals and objectives</li> <li>• "Crucial" seasonal habitats for elk, deer, pronghorn and sage grouse</li> </ul>	PI
Soils	Mike Gates Matt Rajala	Nate Ferguson	<ul style="list-style-type: none"> <li>• Liquefaction soils</li> <li>• Erosion associated with construction/access roads</li> <li>• Slope restrictions (in Resource Management Plan)</li> <li>• Potentially active faults and geologic structures</li> <li>• Areas of prime and unique soils</li> </ul>	PI

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**TABLE D-1  
INTERDISCIPLINARY TEAM NEPA DOCUMENTATION (UT-020-2008-009)  
FEBRUARY 14, 2008**

Resource	Specialist		Preliminary Key Issues/Concerns	Determination
	BLM	EPG		
Recreation	JuLee Palette Steve Bonar	Christine Brown	<ul style="list-style-type: none"> <li>• Fivemile Pass Recreation Area</li> <li>• Yellow Fork Canyon area</li> <li>• Off-Highway Vehicle use / access roads</li> <li>• Dispersed camping</li> <li>• Larry Miller Motorsports Park</li> <li>• Deseret Peak Complex</li> <li>• South Willow Canyon</li> <li>• Little Moab</li> <li>• Nutty Putty Caves</li> <li>• County trail network concerns</li> </ul>	PI
Visual Resources	Mike Nelson JuLee Palette Steve Bonar	Darrin Gilbert Marc Schwartz	<ul style="list-style-type: none"> <li>• BLM Visual Resource Management Class II and III</li> <li>• U.S. Forest Service Visual Quality Objective - Partial Retention</li> <li>• Travel corridors</li> <li>• Residential areas</li> <li>• Special recreation management areas</li> </ul>	PI
Geology / Minerals Resources / Energy Production	Larry Garahana Matt Rajala	Nate Ferguson	<ul style="list-style-type: none"> <li>• Mining in Oquirrh and East Tintic Mountains</li> <li>• FFO- mining claims and abandoned mines, no active mines</li> <li>• Proposed wind farm west of Mona</li> <li>• Proposed wind farm near South Mountain in Tooele County</li> </ul>	PI
Paleontology	Larry Garahana	Glenn Darrington Jon Baxter	<ul style="list-style-type: none"> <li>• Construction/buried paleontological resources</li> </ul>	NI
Lands/Access	Mike Nelson Clara Stevens	Christine Brown	<ul style="list-style-type: none"> <li>• Unimproved access roads over Oquirrh Mountains</li> <li>• DOD lands</li> <li>• UT State Trust Land</li> <li>• Existing Rights-of-way</li> <li>• Limiting roads and route proliferation</li> <li>• Needs for roads in conjunction with power line</li> <li>• Use of existing roads where possible</li> <li>• Non-motorized vehicles only in North Oquirrh plan area</li> </ul>	PI
Fuels/Fire Management	Erin Darboven Lisa Reed (Public Affairs)	Christine Brown	<ul style="list-style-type: none"> <li>• Right-of-way clearing in forest communities</li> <li>• Defensible space</li> <li>• Increased use along access roads lead to increased fire frequency</li> <li>• Existing fuels treatments</li> <li>• Fire suppression hazard</li> </ul>	NI

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**TABLE D-1  
INTERDISCIPLINARY TEAM NEPA DOCUMENTATION (UT-020-2008-009)  
FEBRUARY 14, 2008**

Resource	Specialist		Preliminary Key Issues/Concerns	Determination
	BLM	EPG		
Socioeconomics	Pam Schuller	Christine Brown	<ul style="list-style-type: none"> <li>• Potential impacts to current land uses: residential, commercial, parks, agriculture, and planned developments</li> <li>• Potential impacts to future transportation plans and road expansions</li> <li>• Important for PA, provide for appropriate public involvement</li> </ul>	PI
Wild Horses and Burros	Traci Allen	Terry Enk	<ul style="list-style-type: none"> <li>• Special Management Area - holding facility in Butterfield Canyon</li> </ul>	NI
Wilderness Characteristics	JuLee Palette Steve Bonar	Christine Brown	<ul style="list-style-type: none"> <li>• Oquirrh Mountains Wilderness Inventory Unit</li> <li>• Citizens' Proposal for Wilderness in Utah - Oquirrh Mountains</li> </ul>	PI
Planning	Pam Schuller Mike Nelson	Christine Brown	<ul style="list-style-type: none"> <li>• Potential for future projects if a utility corridor is identified through the North Oquirrh Management Area</li> </ul>	PI

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## **Appendix E – Biological Resources Supporting Data**

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## APPENDIX E – BIOLOGICAL RESOURCES SUPPORTING DATA

### E.1 Species Lists

<b>TABLE E-1 REPTILE AND AMPHIBIAN SPECIES LIKELY TO OCCUR IN THE STUDY CORRIDORS</b>	
Common Name	Scientific Name
<b>Reptiles</b>	
Desert horned lizard	<i>Phrynosoma platyrhinos</i>
Eastern racer	<i>Coluber constrictor</i>
Garter snake	<i>Thamnophis sirtalis</i>
Gopher snake	<i>Pituophis catenifer</i>
Great Basin rattlesnake	<i>Crotalus oreganus lutosus</i>
Great Basin collared lizard	<i>Crotaphytus bicinctores</i>
Greater short-horned lizard	<i>Phrynosoma hernandesi</i>
Long-nosed leopard lizard	<i>Gambelia wislizenii</i>
Long-nosed snake	<i>Rhinocheilus lecontei</i>
Nightsnake	<i>Hypsiglena torquata</i>
Sagebrush lizard	<i>Sceloporus graciosus</i>
Side-blotched lizard	<i>Uta stansburiana</i>
Striped whipsnake	<i>Masticophis taeniatus</i>
Western garter snake	<i>Thamnophis elegans</i>
Tiger whiptail	<i>Aspidoscelis tigris</i>
Western fence lizard	<i>Sceloporus occidentalis</i>
Western skink	<i>Eumeces skiltonianus</i>
<b>Amphibians</b>	
American bullfrog	<i>Rana catesbeiana</i>
Columbia spotted frog	<i>Rana luteiventris</i>
Great Basin spadefoot	<i>Spea intermontana</i>
Great Plains toad	<i>Bufo cognatus</i>
Northern leopard frog	<i>Rana pipiens</i>
Tiger salamander	<i>Ambystoma tigrinum</i>
Western chorus frog	<i>Pseudacris triseriata</i>
Woodhouse's toad	<i>Bufo woodhousii</i>

**TABLE E-2  
BIRD SPECIES LIKELY TO OCCUR IN THE STUDY CORRIDORS**

Common Name	Scientific Name
<b>Waterfowl and Shorebirds</b>	
American avocet	<i>Recurvirostra americana</i>
American bittern	<i>Botaurus lentiginosus</i>
American coot	<i>Fulica americana</i>
American white pelican	<i>Pelecanus erythrorhynchos</i>
American wigeon	<i>Anas americana</i>
Black-bellied plover	<i>Pluvialis squatarola</i>
Black-crowned night heron	<i>Nycticorax nycticorax</i>
Black-necked stilt	<i>Himantopus mexicanus</i>
Bufflehead	<i>Bucephala albeola</i>
California gull	<i>Larus californicus</i>
Canada goose	<i>Branta canadensis</i>
Canvasback	<i>Aythya valisineria</i>
Caspian tern	<i>Sterna caspia</i>
Cattle egret	<i>Bubulcus ibis</i>
Cinnamon teal	<i>Anas cyanoptera</i>
Common goldeneye	<i>Bucephala clangula</i>
Common snipe	<i>Gallinago gallinago</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Dunlin	<i>Calidris alpina</i>
Eared grebe	<i>Podiceps nigricollis</i>
Franklin's gull	<i>Larus pipixcan</i>
Gadwall	<i>Anas strepera</i>
Glaucous gull	<i>Larus hyperboreus</i>
Great blue heron	<i>Ardea herodias</i>
Greater yellowlegs	<i>Tringa melanoleuca</i>
Green-winged teal	<i>Anas crecca</i>
Horned grebe	<i>Podiceps auritus</i>
Killdeer	<i>Charadrius vociferus</i>
Least sandpiper	<i>Calidris minutilla</i>
Least tern	<i>Sternula antillarum</i>
Lesser golden Plover	<i>Pluvialis dominica</i>
Lesser scaup	<i>Aythya affinis</i>
Lesser yellowlegs	<i>Tringa flavipes</i>
Long-billed curlew	<i>Numenius americanus</i>
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>
Mallard	<i>Anas platyrhynchos</i>
Marbled godwit	<i>Limosa fedoa</i>
Northern pintail	<i>Anas acuta</i>
Northern shoveler	<i>Anas clypeata</i>
Red-breasted merganser	<i>Mergus serrator</i>
Redhead	<i>Aythya americana</i>
Red-necked phalarope	<i>Phalaropus lobatus</i>
Ruddy duck	<i>Oxyura jamaicensis</i>
Sandhill crane	<i>Grus canadensis</i>
Semi-palmated plover	<i>Charadrius semipalmatus</i>
Short-billed dowitcher	<i>Limnodromus griseus</i>
Snowy egret	<i>Egretta thula</i>

**TABLE E-2  
BIRD SPECIES LIKELY TO OCCUR IN THE STUDY CORRIDORS**

Common Name	Scientific Name
Snowy plover	<i>Charadrius alexandrinus</i>
Solitary sandpiper	<i>Tringa solitaria</i>
Sora	<i>Porzana carolina</i>
Spotted sandpiper	<i>Actitis macularius</i>
Tundra swan	<i>Cygnus columbianus</i>
Western grebe	<i>Aechmophorus occidentalis</i>
Western sandpiper	<i>Calidris mauri</i>
Whimbrel	<i>Numenius phaeopus</i>
White-faced ibis	<i>Plegadis chihi</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Wilson's phalarope	<i>Phalaropus tricolor</i>
Raptors	
American kestrel	<i>Falco sparverius</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barn owl	<i>Tyto alba</i>
Burrowing owl	<i>Athene cunicularia</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Ferruginous hawk	<i>Buteo regalis</i>
Golden eagle	<i>Aquila chrysaetos</i>
Great-horned owl	<i>Bubo virginianus</i>
Long-eared owl	<i>Asio otus</i>
Merlin	<i>Falco columbarius</i>
Northern harrier	<i>Circus cyaneus</i>
Northern pygmy owl	<i>Glaucidium gnoma</i>
Osprey	<i>Pandion haliaetus</i>
Peregrine falcon	<i>Falco peregrinus</i>
Prairie falcon	<i>Falco mexicanus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Short-eared owl	<i>Asio flammeus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Turkey vulture	<i>Cathartes aura</i>
Western screech owl	<i>Megascops kennicottii</i>
Upland Game Birds	
California quail	<i>Callipepla californica</i>
Chukar	<i>Alectoris chukar</i>
Greater sage-grouse	<i>Centrocercus urophasianus</i>
Ring-necked pheasant	<i>Phasianus colchicus</i>
Rio Grande turkey	<i>Meleagris gallopavo intermedia</i>
Passerines and Others	
American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Carduelis tristis</i>
American robin	<i>Turdus migratorius</i>
American tree sparrow	<i>Spizella arborea</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
Barn swallow	<i>Hirundo rustica</i>
Belted kingfisher	<i>Ceryle alcyon</i>
Bewick's wren	<i>Thryomanes bewickii</i>

**TABLE E-2  
BIRD SPECIES LIKELY TO OCCUR IN THE STUDY CORRIDORS**

Common Name	Scientific Name
Black-billed magpie	<i>Pica hudsonia</i>
Black-capped chickadee	<i>Poecile atricapillus</i>
Black-chinned hummingbird	<i>Archilochus alexandri</i>
Black-throated gray warbler	<i>Dendroica nigrescens</i>
Black-throated sparrow	<i>Amphispiza bilineata</i>
Blue grosbeak	<i>Passerina caerulea</i>
Blue-gray gnatcatcher	<i>Poliophtila caerulea</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Brewer's sparrow	<i>Spizella breweri</i>
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Bullock's oriole	<i>Icterus bullockii</i>
Bushtit	<i>Psaltriparus minimus</i>
Calliope hummingbird	<i>Stellula calliope</i>
Chipping sparrow	<i>Spizella passerina</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Common nighthawk	<i>Chordeiles minor</i>
Common poorwill	<i>Phalaenoptilus nuttallii</i>
Common raven	<i>Corvus corax</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Dark-eyed junco	<i>Junco hyemalis</i>
Downy woodpecker	<i>Picoides pubescens</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Eurasian collared dove	<i>Sireptopelia decaocto</i>
European starling	<i>Sturnus vulgaris</i>
Evening grosbeak	<i>Coccothraustes vespertinus</i>
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>
Great-tailed grackle	<i>Quiscalus mexicanus</i>
Hairy woodpecker	<i>Picoides villosus</i>
Horned lark	<i>Eremophila alpestris</i>
House finch	<i>Carpodacus mexicanus</i>
House sparrow	<i>Passer domesticus</i>
House wren	<i>Troglodytes aedon</i>
Lark sparrow	<i>Chondestes grammacus</i>
Lazuli bunting	<i>Passerina amoena</i>
Lewis' woodpecker	<i>Melanerpes lewis</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Marsh wren	<i>Cistothorus palustris</i>
Mountain bluebird	<i>Sialia currucoides</i>
Mourning dove	<i>Zenaida macroura</i>
Northern flicker	<i>Colaptes auratus</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Olive-sided flycatcher	<i>Contopus cooperi</i>
Pine siskin	<i>Carduelis pinus</i>
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>
Rock dove	<i>Columba livia</i>
Rock wren	<i>Salpinctes obsoletus</i>
Rough-winged swallow	<i>Stelgidopteryx serripennis</i>

**TABLE E-2  
BIRD SPECIES LIKELY TO OCCUR IN THE STUDY CORRIDORS**

<b>Common Name</b>	<b>Scientific Name</b>
Red-breasted nuthatch	<i>Sitta canadensis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Rufous hummingbird	<i>Selasphorus rufus</i>
Sage sparrow	<i>Amphispiza belli</i>
Sage thrasher	<i>Oreoscoptes montanus</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Say's phoebe	<i>Sayornis saya</i>
Scrub jay	<i>Aphelocoma californica</i>
Song sparrow	<i>Melospiza melodia</i>
Spotted towhee	<i>Pipilo maculatus</i>
Steller's jay	<i>Cyanocitta stelleri</i>
Tree swallow	<i>Tachycineta bicolor</i>
Vesper sparrow	<i>Poocetes gramineus</i>
Violet-green swallow	<i>Tachycineta thalassina</i>
Warbling vireo	<i>Vireo gilvus</i>
Western kingbird	<i>Tyrannus verticalis</i>
Western meadowlark	<i>Sturnella neglecta</i>
Western tanager	<i>Piranga ludoviciana</i>
Western wood-peewee	<i>Contopus sordidulus</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Willow flycatcher	<i>Empidonax traillii</i>
Yellow warbler	<i>Dendroica petechia</i>
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>

<b>TABLE E-3 MAMMAL SPECIES LIKELY TO OCCUR IN THE STUDY CORRIDORS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
<b>Small Mammals</b>	
Black-tailed jackrabbit	<i>Lepus californicus</i>
Botta's pocket gopher	<i>Thomomys bottae</i>
Bushy-tailed woodrat	<i>Neotoma cinerea</i>
Canyon mouse	<i>Peromyscus crinitus</i>
Chisel-toothed kangaroo rat	<i>Dipodomys microps</i>
Deer mouse	<i>Peromyscus maniculatus</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
Desert woodrat	<i>Neotoma lepida</i>
Golden-mantled ground squirrel	<i>Spermophilus lateralis</i>
Hopi chipmunk	<i>Neotamias rufus</i>
Least chipmunk	<i>Neotamias minimus</i>
Merriam's shrew	<i>Sorex merriami</i>
Montane shrew	<i>Sorex monticolus</i>
Muskrat	<i>Ondatra zibethicus</i>
Northern grasshopper mouse	<i>Onychomys leucogaster</i>
Ord's kangaroo rat	<i>Dipodomys ordii</i>
Pinyon mouse	<i>Peromyscus truei</i>
Piute ground squirrel	<i>Spermophilus mollis</i>
Pygmy rabbit	<i>Brachylagus idahoensis</i>
Rock squirrel	<i>Spermophilus variegatus</i>
Sagebrush vole	<i>Lemmyscus curtatus</i>
Vagrant shrew	<i>Sorex vagrans</i>
White-tailed antelope squirrel	<i>Ammospermophilus leucurus</i>
White-tailed jackrabbit	<i>Lepus townsendii</i>
Yellow-bellied marmot	<i>Marmota flaviventris</i>
<b>Bats</b>	
Big brown bat	<i>Eptesicus fuscus</i>
Big free-tailed bat	<i>Nyctinomops macrotis</i>
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>
Fringed myotis	<i>Myotis thysanodes</i>
Hoary bat	<i>Lasiurus cinereus</i>
Little brown myotis	<i>Myotis lucifugus</i>
Long-eared myotis	<i>Myotis evotis</i>
Long-legged myotis	<i>Myotis volans</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Spotted bat	<i>Euderma maculatum</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>
Western pipistrelle	<i>Pipistrellus hesperus</i>
Western small-footed myotis	<i>Myotis ciliolabrum</i>
<b>Carnivores</b>	
Badger	<i>Taxidea taxus</i>
Black bear	<i>Ursus americanus</i>
Bobcat	<i>Lynx rufus</i>
Coyote	<i>Canis latrans</i>
Kit fox	<i>Vulpes macrotis</i>
Long-tailed weasel	<i>Mustela frenata</i>
Mountain lion	<i>Felis concolor</i>

<b>TABLE E-3 MAMMAL SPECIES LIKELY TO OCCUR IN THE STUDY CORRIDORS</b>	
<b>Common Name</b>	<b>Scientific Name</b>
Raccoon	<i>Procyon lotor</i>
Red fox	<i>Vulpes vulpes</i>
Ringtail	<i>Bassariscus astutus</i>
Striped skunk	<i>Mephitis mephitis</i>
Western spotted skunk	<i>Spilogale gracilis</i>
<b>Ungulates</b>	
Mule deer	<i>Odocoileus hemionus</i>
Pronghorn antelope	<i>Antilocapra americana</i>
Rocky Mountain elk	<i>Cervus canadensis</i>

<b>TABLE E-4 SPECIAL STATUS SPECIES THAT POTENTIALLY OCCUR IN THE STUDY CORRIDORS<sup>1</sup></b>					
<b>Common Name</b>	<b>Scientific Name</b>	<b>Status<sup>2</sup></b>	<b>Suitable Habitat<sup>3</sup></b>	<b>Documented Occurrence<sup>4</sup></b>	<b>Likelihood of Occurrence<sup>5</sup></b>
<b>Plants</b>					
Barneby woody aster	<i>Aster kingii barnebyana</i>	S	Absent	No	Does not occur
Clay phacelia	<i>Phacelia argillacea</i>	FE	Absent	No	Does not occur
Cottam's cinquefoil	<i>Potentilla cottamii</i>	BLM	Absent	No	Does not occur
Dainty moonwort	<i>Botrychium crenulatum</i>	S	Absent	No	Does not occur
Deep creek stickweed	<i>Hackelia ibapensis</i>	BLM	Absent	No	Does not occur
Deseret milkvetch	<i>Astragalus desereticus</i>	FT	Absent	No	Does not occur
Garrett's bladderpod	<i>Lesauerella garrettii</i>	S	Absent	No	Does not occur
Giant four-wing saltbush	<i>Atriplex canescens</i> var. <i>gigantea</i>	BLM	Absent	No	Does not occur
Kass' rockcress	<i>Draba kassii</i>	BLM	Absent	No	Does not occur
Neese narrowleaf penstemon	<i>Penstemon angustifolius</i> var. <i>dulcis</i>	BLM	Absent	No	Does not occur
Pohl's milkvetch	<i>Astragalus lentiginosus</i> var. <i>pohlii</i>	BLM	Present	Yes	Known to Occur
Rockcress draba	<i>Draba globosa</i>	S	Absent	No	Does not occur
Slender moonwort	<i>Botrychium lineare</i>	FR, S	Absent	No	Does not occur
Small springparsley	<i>Cymopterus acaulis</i> var. <i>parvus</i>	BLM	Absent	No	Does not occur
Ute ladies' -tresses	<i>Spiranthes diluvialis</i>	FT	Absent	No	Does not occur
Wasatch jamesia	<i>Jamesia americana</i>	S	Absent	No	Does not occur
<b>Invertebrates</b>					
California floater	<i>Anodonta californiensis</i>	UT/BLM	Absent	No	Does not occur
Eureka mountainsnail	<i>Oreohelix eurekaensis</i>	UT/BLM	Present	Yes	Known to occur
Lyrate mountainsnail	<i>Oreohelix haydeni</i>	UT/BLM	Present	Yes	May occur
Northwest Bonneville pyrg	<i>Pyrgulopsis variegata</i>	UT/BLM	Absent	No	Does not occur
Southern Bonneville springsnail	<i>Pyrgulopsis transversa</i>	UT/BLM	Absent	No	Does not occur
Southern tightcoil	<i>Ogaridiscus subrupicola</i>	UT/BLM	Present	Yes	May occur
Utah physa	<i>Physella utahensis</i>	UT/BLM	Absent	Extirpated	Does not occur
Utah (desert) valvata	<i>Valvata utahensis</i>	FE, UT/BLM	Absent	Extirpated	Does not occur
Western pearlshell	<i>Margaritifera falcata</i>	UT/BLM	Absent	Extirpated	Does not occur
<b>Fish</b>					
Bluehead sucker	<i>Catostomus discobolus</i>	UT/BLM	Absent	No	Does not occur
Bonneville cutthroat trout	<i>Oncorhynchus clarkii utah</i>	UT/BLM, S, MIS	Absent	No	Does not occur
Colorado River cutthroat trout	<i>Oncorhynchus clarkii pleuriticus</i>	UT/BLM, S, MIS	Absent	No	Does not occur
June sucker	<i>Chasmistes liorus</i>	FE	Absent	No	Does not occur
Least chub	<i>Notropis phiegethonis</i>	UT/BLM	Absent	No	Does not occur
Leatherside chub	<i>Gila copei</i>	UT/BLM	Absent	No	Does not occur
Roundtail chub	<i>Gila robusta</i>	UT/BLM	Absent	No	Does not occur
<b>Amphibians/Reptiles</b>					
Columbia spotted frog	<i>Rana luteiventris</i>	UT/BLM, S	Absent	No	Does not occur
Smooth greensnake	<i>Opheodrys vernalis</i>	UT/BLM	Absent	No	Does not occur

<b>TABLE E-4 SPECIAL STATUS SPECIES THAT POTENTIALLY OCCUR IN THE STUDY CORRIDORS<sup>1</sup></b>					
<b>Common Name</b>	<b>Scientific Name</b>	<b>Status<sup>2</sup></b>	<b>Suitable Habitat<sup>3</sup></b>	<b>Documented Occurrence<sup>4</sup></b>	<b>Likelihood of Occurrence<sup>5</sup></b>
Western toad	<i>Bufo boreas</i>	UT/BLM	Present	Yes	May occur
<b>Birds</b>					
American white pelican	<i>Pelecanus erythrorhynchos</i>	UT/BLM	Present	Yes	Known to occur
Bald eagle	<i>Haliaeetus leucocephalus</i>	FD, UT/BLM	Present	Yes	Known to occur
Black swift	<i>Cypseloides niger</i>	UT/BLM	Absent	No	Not likely to occur
Bobolink	<i>Dolichonyx oryzivorus</i>	UT/BLM	Breeding habitat absent	Yes	Transients may occur
Boreal owl	<i>Aegolius funereus</i>	S	Absent	No	Does not occur
Burrowing owl	<i>Athene cunicularia</i>	UT/BLM	Present	Yes	Known to occur
Ferruginous hawk	<i>Buteo regalis</i>	UT/BLM	Present	Yes	Known to occur
Flammulated owl	<i>Otus flammeolus</i>	S	Present	Yes	Likely to occur
Grasshopper sparrow	<i>Ammodramus savannarum</i>	UT/BLM	Present	Yes	May occur
Great gray owl	<i>Strix nebulosa</i>	S	Absent	No	Does not occur
Greater sage-grouse	<i>Centrocercus urophasianus</i>	UT/BLM, S	Present	Yes	Known to occur
Lewis's woodpecker	<i>Melanerpes lewis</i>	UT/BLM	Present	Yes	May occur
Long-billed curlew	<i>Numenius americanus</i>	UT/BLM	Present	Yes	Known to occur
Northern goshawk	<i>Accipiter gentilis</i>	UT/BLM, S, MIS	Present	Yes	Known to occur
Peregrine falcon	<i>Falco peregrinus</i>	S	Present	Yes	Known to occur
Short-eared owl	<i>Asio flammeus</i>	UT/BLM	Present	Yes	Known to occur
Three-toed woodpecker	<i>Picoides tridactylus</i>	UT/BLM, S, MIS	Absent	No	Does not occur
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	FC	Breeding habitat absent	No	Transients may occur
<b>Mammals</b>					
Canada lynx	<i>Lynx canadensis</i>	FT	Absent	No	Does not occur
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	UT/BLM	Absent	No	Does not occur
Fisher	<i>Martes pennanti</i>	S	Absent	No	Does not occur
Fringed myotis	<i>Myotis thysanodes</i>	UT/BLM	Present	No	Likely to occur
Kit fox	<i>Vulpes macrotis</i>	UT/BLM	Present	Yes	Known to occur
North American beaver	<i>Castor canadensis</i>	MIS	Absent	No	Does not occur
Preble's shrew	<i>Sorex preblei</i>	UT/BLM	Present	No	May occur
Pygmy rabbit	<i>Brachylagus idahoensis</i>	UT/BLM	Present	No	Likely to Occur
Spotted bat	<i>Euderma maculatum</i>	UT/BLM, S	Present	No	Likely to occur
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	UT/BLM, S	Present	Yes	Known to occur
Western red bat	<i>Lasiurus blossevillii</i>	UT/BLM	Present	No	May occur
White-tailed prairie dog	<i>Cynomys leucurus</i>	UT/BLM	Absent	No	Does not occur

Common Name	Scientific Name	Status <sup>2</sup>	Suitable Habitat <sup>3</sup>	Documented Occurrence <sup>4</sup>	Likelihood of Occurrence <sup>5</sup>
NOTES:					
<sup>1</sup> based upon species lists obtained from the USFWS (county level), BLM (district level), Uinta National Forest, and State of Utah (county level)					
<sup>2</sup> FE = Federal Endangered; FT = Federal Threatened; FC = Federal Candidate; FR = removed from federal candidate list; FD = de-listed UT/BLM = wildlife species designated as sensitive by the State of Utah and Utah BLM. BLM = plant species designated as sensitive by the Utah BLM S = species designated as sensitive by the U.S. Forest Service-Intermountain Region MIS = species designated as Management Indicator Species by the Uinta National Forest					
<sup>3</sup> suitable habitat is classified as absent if the Project area does not contain required habitat or is located outside the known species range					
<sup>4</sup> documented in Project area based upon data from the Utah Natural Heritage Program, RINS, or other reliable sources such as annual breeding bird surveys					
<sup>5</sup> probability of occurrence within the Project area based species habitat requirements, current known range and distribution, and documented occurrence					

## E.2 Special Status Species Accounts

### E.2.1 Plants

#### E.2.1.1 Barneby Woody Aster (Forest Service Sensitive)

The barneby woody aster is endemic to the Canyon Mountains in Millard and Juab Counties, where it grows on quartz outcrops at 7,500 to 9,640 feet msl (UNPS 2007). The study corridors are located outside the known range of the species in Utah, and the barneby woody aster does not occur in the study corridors.

#### E.2.1.2 Clay Phacelia (Federally Endangered)

The clay phacelia was designated as federally endangered on September 28, 1978 (43 FR 44810). The clay phacelia is a narrow endemic that is only known to grow on steep talus slopes in the Spanish Fork Canyon in Utah County (Franklin 2005). The study corridors are located outside the known range of the species in Utah, and the clay phacelia does not occur in the study corridors.

#### E.2.1.3 Cottam's Cinquefoil (BLM Sensitive)

The Cottam's cinquefoil is endemic to the Raft River, Stansbury, Deep Creek, and Pilot mountain ranges. Although the species typically grows on rock crevices and ledges on north-facing cliffs at elevations between 7,500 and 10,400 feet msl, a population was recently discovered on an east-facing cliff in the western Stansbury Mountains (Franklin 2005). The study corridors are located outside the known range of the species in Utah, and Cottam's cinquefoil does not occur in the study corridors.

#### **E.2.1.4 Dainty Moonwort (Forest Service Sensitive)**

The dainty moonwort grows in high elevation wet meadows and marshes, and the only known Utah populations occur in Silver Meadow in Wasatch County and Tony Grove in Cache County (Franklin 2005). Historic populations were documented in the Bear River and Deep Creek mountain ranges and in Spirit Lake in Summit County (Franklin 2005). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the dainty moonwort. The species does not occur in the study corridors.

#### **E.2.1.5 Deep Creek Stickweed (BLM Sensitive)**

The Deep Creek stickweed is a local endemic that is restricted to granite rock outcrops in the Deep Creek Mountains (UNPS 2007). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the Deep Creek stickweed. The species does not occur in the study corridors.

#### **E.2.1.6 Deseret Milkvetch (Federally Threatened)**

The Deseret milkvetch was listed as federally threatened on October 20, 1999 (64 FR 56590). This local endemic is only known to grow on steep slopes of the Moroni Formation (ash-flow tuft) at elevations between 5,400 and 5,600 feet msl in the Thistle Creek Valley (Franklin 2005). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the Deseret milkvetch. The species does not occur in the study corridors.

#### **E.2.1.7 Garrett's Bladderpod (Forest Service Sensitive)**

The Garrett's bladderpod is a Wasatch Mountain endemic that occurs in scattered locations between Big Cottonwood Canyon and Provo Peak. The species grows on talus slopes and other unstable, sparsely vegetated substrates at elevations between 8,900 and 11,400 feet msl (Franklin 2005). The study corridors are located outside the known range of the species in Utah, and do not contain suitable high elevation habitat for the Garrett's bladderpod. The species does not occur in the study corridors.

#### **E.2.1.8 Giant Four-wing Saltbush (BLM Sensitive)**

The giant four-wing saltbush is a rare varietal that is endemic to the interdunal valleys and leeward dune margins in the Jericho Dunes (or Lynndyl Dunes) in Juab County (UNPS 2007). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the giant four-wing saltbush. The species does not occur in the study corridors.

#### **E.2.1.9 Kass' Draba (BLM Sensitive)**

The Kass' draba is a local endemic that is only known to grow in rock crevices in the Deep Creek Mountains (Franklin 2005). The study corridors are located outside the known range of the species in Utah, and the Kass' draba does not occur in the study corridors.

#### **E.2.1.10 Neese Narrowleaf Penstemon (BLM Sensitive)**

The Neese narrowleaf penstemon is a Great Basin endemic that is only known to grow on sand dunes in Juab and Millard counties (UNPS 2007). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat. The Neese narrowleaf penstemon does not occur in the study corridors.

#### **E.2.1.11 Pohl’s Milkvetch (BLM Sensitive)**

The Pohl’s milkvetch is endemic to the Rush and Skull Valleys where it grows within a vegetation association of Wyoming big sagebrush/black greasewood/bottlebrush squirreltail (Rodd Hardy, Botanist-BLM SLFO, personal communication). There are two primary populations in the Rush Valley. Population 1 is located west of the Tooele Army Depot. Population 2 is located between the Vernon Hills and Highway 36. The Pohl’s milkvetch is known to occur along Link 90, and may occur in suitable habitats along Links 30, 32, 35, 40, 85, 105, 120, and 150.

#### **E.2.1.12 Rockcress Draba (Forest Service Sensitive)**

The rockcress draba grows on gravelly soils at high elevations in the Deep Creek, Wasatch, and Uinta mountain ranges (USDA 2001a). The study corridors are located outside the known range of the species in Utah, and the rockcress draba does not occur in the study corridors.

#### **E.2.1.13 Slender Moonwort (Removed from Federal Candidate List, Forest Service Sensitive)**

The slender moonwort was removed from the list of candidate species for federal listing on December 6, 2007 (72 FR 69034). The slender moonwort grows in a variety of habitats, including mesic meadows, montane riparian zones, and limestone cliffs. The species is only known from two historic localities in Utah, near “Silver Lake” in Big Cottonwood Canyon and near the “Summit of Indian Canyon, Duchesne-Price Road” in either Duchesne or Carbon County (Franklin 2005). No individuals were found during intensive surveys conducted in historic habitat at Silver Lake during 2003 and 2004. The current range of slender moonwort includes eight states (Alaska, Colorado, Minnesota, Montana, Oregon, South Dakota, Washington, and Wyoming); the species is currently not known to occur in Utah. The study corridors are located outside the known range of the species, and the slender moonwort does not occur in the corridors.

#### **E.2.1.14 Small Springparsley (BLM Sensitive)**

The small springparsley is endemic to Aeolian sand habitats in the Sevier Desert and extreme western Millard and Tooele counties (UNPS 2007). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the small springparsley. The species does not occur in the study corridors.

### **E.2.1.15 Ute Ladies'-tresses (Federally Threatened)**

The Ute ladies'-tresses was listed as federally threatened on January 17, 1992 (57 FR 2048). The species grows in wetlands and mesic riparian meadows along lakes and major rivers. While the Ute ladies'-tresses historically occurred in the Salt Lake Valley, the species is currently only known to occur in the Uinta Basin and along the Green River, Diamond Fork and Spanish Fork, Willow Spring, and the Freemont River (Franklin 2005). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the Ute ladies'-tresses. The species does not occur in the study corridors.

### **E.2.1.16 Wasatch Jamesia (Forest Service Sensitive)**

The Wasatch jamesia is endemic to the Deep Creek and Wasatch Mountain ranges, where it grows on rock outcrops and cliffs, at elevations between 5,700 and 9,000 feet msl (USDA 2001a). The study corridors are located outside the known range of the species in Utah, and the Wasatch jamesia does not occur in the study corridors.

## **E.2.2 Invertebrates**

### **E.2.2.1 California Floater (BLM/State Sensitive)**

The California floater is a freshwater mussel that inhabits lakes, ponds, and low-gradient streams (UDWR 2006). There are currently seven known California floater populations in eastern Utah. Several historic populations (including Utah Lake) have been extirpated, and reported sightings of the California floater in Tooele County have not been verified (Oliver & Bosworth 1999). The nearest known California floater population occurs within the Burrison Ponds, south of Mona (UNHP 2008). The study corridors do not contain suitable habitat for the California floater, and the California floater does not occur in the study corridors.

### **E.2.2.2 Eureka Mountainsnail (BLM/State Sensitive)**

The Eureka mountainsnail is endemic to shrub and forest communities on limestone outcrops and calcium soils that support a well-developed layer of herbaceous vegetation or plant litter. The historic species distribution includes the northern East Tintic Mountains, Deep Creek Mountains, Hominy Creek in Duchesne County, and East Tavaputs Plateau in Grand County (Oliver & Bosworth 1999). Two of the four historic localities (East Tintic Mountains and Hominy Creek) were recently surveyed and found to support small populations (UDWR 2006). The Utah National Heritage Program (NHP) database includes two observations of the Eureka mountainsnail in the mountains near Eureka (UNHP 2008). The Eureka mountainsnail is known to occur in the study corridors, and suitable habitat occurs along Link 24.

### **E.2.2.3 Lyrate Mountainsnail (BLM/State Sensitive)**

The lyrate mountainsnail is variably distributed throughout Cache, Rich, Weber, Morgan, Salt Lake, and Tooele counties, where it is associated with limestone outcrops and calcium soils in sagebrush and mountain shrub habitats (UDWR 2006). Oliver and Bosworth (1999) report historic populations in the northern Oquirrh Mountains, although no recent surveys have been conducted to determine whether these

populations still exist. The Utah NHP also has two historic records of the species in Big Canyon and Black Rock Canyon. The study corridors are within the known historic species range, and suitable habitat for the lyrate mountainsnail occurs along Links 210, 215, 235, 240, 360, 370, 374, and 376.

#### **E.2.2.4 Northwest Bonneville Pyrg (BLM/State Sensitive)**

The northwest Bonneville pyrg is a freshwater snail that is currently known to occur in eight freshwater springs in western Box Elder County and one spring in extreme northwestern Tooele County (UDWR 2006). The study corridors are located outside the known range of the species in Utah, and there are no historical records of the northwest Bonneville pyrg within the study area. The study corridors do not contain suitable habitat for the species, and the northwest Bonneville pyrg does not occur in the study corridors.

#### **E.2.2.5 Southern Bonneville Springsnail (BLM/State Sensitive)**

The southern Bonneville springsnail is a Utah endemic that is known to currently occur in six freshwater springs in central Utah, including four localities in Tooele County and one each in Utah County and Sanpete County (UDWR 2006). There are no historical records of the southern Bonneville springsnail within the study corridors and they do not contain suitable habitat for the species. The southern Bonneville springsnail does not occur in the study corridors.

#### **E.2.2.6 Southern Tightcoil (BLM/State Sensitive)**

The southern tightcoil is known from a single historical location in Utah: Clinton's Cave in Tooele County (Oliver & Bosworth 1999). There have been no attempts to relocate this species since the original observation was made in 1929. Clinton's Cave does not appear on topographic maps and is currently considered a "lost locality" by the UDWR (UDWR 2006). Although the precise location of Clinton's Cave is unknown, Oliver and Bosworth (1999) and the Utah NHP (UNHP 2008) identify the location in the extreme north end of the Oquirrh Mountains. Although there is significant uncertainty regarding the species status, the southern tightcoil may occur along Links 370 and 374.

#### **E.2.2.7 Utah Physa (BLM/State Sensitive)**

The Utah physa is currently known to inhabit four freshwater springs in northeastern Box Elder County and southwestern Tooele County (UDWR 2006). Several historic populations, including one in Utah Lake, are extirpated (Oliver & Bosworth 1999). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the Utah physa. The species does not occur in the study corridors.

#### **E.2.2.8 Utah Valvata (Federally Endangered, BLM/State Sensitive)**

The Utah valvata (or "desert" valvata) was listed as federally endangered on December 14, 1992 (57 FR 59244). The species, which historically occurred in Utah Lake, is currently classified as extirpated in Utah (Oliver & Bosworth 1999). The current range of the Utah valvata includes short segments of three rivers

in southern Idaho (USFWS 2007b). The study corridors are located outside the known species range and do not contain suitable habitat for the Utah valvata. The species does not occur in the study corridors.

#### **E.2.2.9 Western Pearlshell (BLM/State Sensitive)**

The western pearlshell is a freshwater mussel that historically occurred in at least 11 localities in northern Utah, including Salt Lake County (Oliver & Bosworth 1999). There are no detailed habitat descriptions for the western pearlshell, but nearly all historical populations occurred in small streams. The species is currently classified extirpated in Utah (Oliver & Bosworth 1999). The western pearlshell does not occur in the study corridors.

### **E.2.3 Fish**

#### **E.2.3.1 Bluehead Sucker (BLM/State Sensitive)**

The bluehead sucker inhabits rivers in the Colorado River, Weber River, and Bear River drainages (Bosworth 2003). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the bluehead sucker. The species does not occur in the study corridors.

#### **E.2.3.2 Bonneville Cutthroat Trout (BLM/State, Forest Service Sensitive and Management Indicator Species [MIS])**

The Bonneville cutthroat trout inhabits streams and lakes in the Bear Lake/Bear River, Weber River, Jordan River, Sevier River, Virgin River, and Snake Valley drainages in Utah (USFWS 2001). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the Bonneville cutthroat trout. The species does not occur in the study corridors.

#### **E.2.3.3 Colorado River Cutthroat Trout (BLM/State, Forest Service Sensitive and MIS)**

The Colorado River cutthroat trout inhabits headwater streams and mountain lakes in the Uinta, La Sal, and Abajo mountains, as well as the Escalante and Fremont River drainages (Bosworth 2003). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the Colorado River cutthroat trout. The species does not occur in the study corridors.

#### **E.2.3.4 June Sucker (Federally Endangered)**

The June sucker is a Utah Lake endemic that was listed as federally endangered on April 30, 1986 (51 FR 10851). The species' spawning habitat, which historically included all major tributaries of Utah Lake, is currently restricted to a short segment of the lower Provo River (Bosworth 2003). June sucker populations have been established at the Springville Hatchery, Camp Creek Reservoir, Red Butte Reservoir, Ogden Nature Center, and Utah Fisheries Experiment Station for conservation purposes (UCDC 2007). The study corridors do not contain suitable habitat for the June sucker, and the species does not occur in the study corridors.

#### **E.2.3.5 Least Chub (BLM/State Sensitive)**

The least chub is endemic to low elevation streams, marshes, springs, and ponds in the Bonneville Basin. Native populations are currently limited to isolated alkaline marshes and springs along the Wasatch Front and in the West Desert (Bosworth 2003). There are records of native least chub from the Mona Springs complex north of the Burrison Ponds (UNHP 2008), and the UDWR established a population in the Atherly Reservoir in 2006. The study corridors do not contain suitable habitat for the least chub, and the species does not occur in the study corridors.

#### **E.2.3.6 Leatherside Chub (BLM/State Sensitive)**

The current distribution of the leatherside chub in Utah includes native populations in the Snake, Bear, and Sevier River drainages and Utah Lake, as well as introduced populations in the Colorado River Basin (UDWR 2006). The leatherside chub generally inhabits low gradient pools with limited riparian vegetation. The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the leatherside chub. The species does not occur in the study corridors.

#### **E.2.3.7 Roundtail Chub (BLM/State Sensitive)**

The roundtail chub is endemic to rivers and streams in the Colorado River drainage (Bosworth 2003). In Utah, the species occurs in the eastern side of the state, with one historic observation in the extreme southeastern corner of Utah County. The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the roundtail chub. The species does not occur in the study corridors.

### **E.2.4 Amphibians and Reptiles**

#### **E.2.4.1 Columbia Spotted Frog (BLM/State and Forest Service Sensitive)**

The Columbia spotted frog is variably distributed in isolated springs and wetlands along the Wasatch Front and in the West Desert (Bosworth 2003). Existing populations are known to occur in Juab, Sanpete, Summit, Utah, and Wasatch Counties (Perkins & Lentsch 1998). The nearest known populations are located in the Goshen Valley and in the vicinity of Burrison Ponds (Bosworth 2003; UNHP 2008). The study corridors do not contain suitable habitat for the Columbia spotted frog, and the species does not occur in the corridors.

#### **E.2.4.2 Smooth Greensnake (BLM/State Sensitive)**

The smooth greensnake inhabits montane riparian and wet meadow communities in scattered localities in the Wasatch, Uinta, Abajo, and La Sal Mountain ranges, as well as on the East Tavaputs Plateau (Bosworth 2003). There is one historic record of the smooth greensnake in Utah County from 1938, but there are no records of the species in the vicinity of the study corridors. The corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the smooth greensnake. The species does not occur in the study corridors.

### **E.2.4.3 Western Toad (BLM/State Sensitive)**

The western toad occurs in montane habitats in central and northern Utah, where it is associated with permanent water bodies in riparian, mountain shrub, mixed conifer, and aspen-conifer forests habitats (Bosworth 2003). The species breeds in small pools, beaver ponds, reservoirs, and side channels of creeks and rivers. Adults utilize upland habitats during non-breeding periods. The Utah NHP data includes one historic observation in 1931 near the existing Kennecott tailings ponds, but there are no recent records in the vicinity of the study corridors. Potential habitat for the western toad occurs along Links 210, 215, 220, 225, and 235.

## **E.2.5 Birds**

### **E.2.5.1 American White Pelican (BLM/State Sensitive)**

The American white pelican is a migratory species that breeds in northern Utah and winters in Mexico and southern California (Parrish et al. 2002). Gunnison Island in the northern arm of the Great Salt Lake is the only nesting site for the American white pelican in Utah and represents one of the four largest breeding colonies in North America (Parrish et al. 2002). Adult pelicans fly daily from Gunnison Island to traditional foraging areas in the Bear River Bay, wetlands along the shores of the Great Salt Lake, and Utah Lake (Parrish et al. 2002). During spring and fall migrations, pelicans occur on lakes and reservoirs throughout Utah. The American white pelican is commonly observed on lakes and reservoirs within and adjacent to the study corridors. Although transient individuals are likely to fly through/over the study corridors during seasonal migrations, the pelican is most likely to occur along Links 353, 354, 356, 365, 366, 370, 375, and 385.

### **E.2.5.2 Bald Eagle (BLM/State Sensitive)**

The bald eagle was de-listed on August 8, 2007 (72 FR 37346), but the species continues to receive federal protection through the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. There are 11 active bald eagle nests in Utah, all of which are located in large, mature cottonwood trees. Utah also supports a winter population of more than 1,200 birds, with the largest concentrations occurring along the Great Salt Lake and adjacent Wasatch Mountains. Wintering eagles typically forage along lakes, wetlands, and desert valleys, and roost in large trees and wooded canyons (UDWR 2005). There are no known bald eagle nests within or adjacent to the study corridors, but several bald eagle roosts occur along Ophir Creek. Wintering eagles have been observed throughout the study corridors. The bald eagle is likely to forage throughout the study corridors. Potential roost sites include large trees along Links 95, 190, 210, 215, 220, 225, 235, and 240.

### **E.2.5.3 Black Swift (BLM/State Sensitive)**

The black swift is a colonial nesting species that constructs nests adjacent to waterfalls above 6,000 feet msl, and forages in montane riparian habitats (Parrish et al. 2002). The only known breeding sites are located in the Wasatch Mountains at Bridal Veil Falls, Aspen Grove, and Stewart Falls (Bosworth 2003). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the black swift. The species does not occur in the study corridors.

#### **E.2.5.4 Boreal Owl (Forest Service Sensitive)**

The boreal owl is an extremely rare species in Utah that is restricted to high-elevation, old growth coniferous forests in the Wasatch, Bear River, and Uinta Mountain Ranges (UDWR 2007*t*). The study corridors are located outside the known range of the species in Utah and do not contain suitable habitat for the boreal owl. The species does not occur in the study corridors.

#### **E.2.5.5 Burrowing Owl (BLM/State Sensitive)**

The burrowing owl is widely distributed in sparsely vegetated grassland, sagebrush, and desert shrub communities, as well as agricultural fields throughout Utah (UDWR 2006). The owl utilizes burrows constructed by prairie dogs (*Cynomys* spp.), ground squirrels (*Spermophilus* spp.), and badgers (*Taxidea taxus*), as well as culverts and various man-made structures. The Raptor Inventory Nest Survey (RINS) data indicates relatively high densities of burrowing owl nests in the Goshen, Cedar, Rush, and Tooele valleys. Known nests are included in the core raptor nesting areas. The species is frequently observed in the study corridors and general vicinity. The study corridors contain suitable nesting and foraging habitat for the burrowing owl along Links 5, 20, 30, 32, 35, 50, 55, 60, 90, 95, 105, 120, 140, 150, 160, 165, 325, 335, 350, and 360.

#### **E.2.5.6 Ferruginous Hawk (BLM/State Sensitive)**

The ferruginous hawk is widely distributed throughout Utah, nests in trees and large shrubs in grassland, desert shrub, sagebrush, and pinyon-juniper habitats, and preys upon small mammals including rabbits, hares, and pocket gophers (Bosworth 2003; Parrish et al. 2002). Data from Utah NHP and RINS indicate that ferruginous hawk nests are located throughout the valleys and foothills in the vicinity of the study corridors. Areas supporting relatively high densities of ferruginous hawk nests are included in the core raptor nesting areas (Map C-6). The species is relatively common throughout the study corridors, with primary habitat occurring along Links 5, 30, 32, 35, 40, 50, 55, 60, 90, 95, 105, 120, 140, 150, and 335.

#### **E.2.5.7 Flammulated Owl (Forest Service Sensitive)**

The flammulated owl occurs in montane habitats throughout Utah, with core breeding ranges in southwest and north-central portions of the state (UDWR 2007*u*). The species inhabits mature, open-canopied ponderosa pine and aspen communities, where it forages on insects. The Utah NHP data include records of individual flammulated owls from Silver City in 1912 and South Willow Creek in 1932. The study corridors are located within the known range of the species in Utah, and suitable habitat occurs along Links 210, 215, 235, and 240.

#### **E.2.5.8 Grasshopper Sparrow (BLM/State Sensitive)**

The grasshopper sparrow is a migratory species that breeds in a few sites in northern Utah (Bosworth 2003). The species nests in early successional native short grasses habitats. Although the species has been observed in Utah and Salt Lake counties, there are no records for the grasshopper sparrow within or in the vicinity of the study corridors (UNHP 2008). The corridors contain a very limited amount of suitable breeding habitat, although transient individuals may occur in the corridors during seasonal migrations.

#### **E.2.5.9 Great Gray Owl (Forest Service Sensitive)**

The great gray owl is an uncommon winter resident in the extreme northeast corner of Utah (Bosworth 2003). The species inhabits old growth boreal forests, with Idaho and Wyoming representing the southern extent of the species breeding range. The study corridors are located outside the range of the species in Utah and do not contain suitable habitat for the great gray owl. The species does not occur in the study corridors.

#### **E.2.5.10 Greater Sage-grouse (BLM/State Sensitive and Forest Service Sensitive)**

On February 26, 2008 the USFWS initiated a status review to determine whether the greater sage-grouse warrants protection under the Endangered Species Act (ESA) (73 FR 10218). This status review is ongoing. The greater sage-grouse is a sagebrush obligate species that depends on sagebrush habitats in all seasons (Connelly et al. 2004). Sage-grouse typically utilize several seasonal habitats, including breeding and nesting habitat in the spring and early summer, brood-rearing habitat in the summer and fall, and winter habitat. High quality sagebrush vegetation is an essential habitat component in all seasonal habitats. Greater sage-grouse populations in the general study area have declined over the past several decades as a result of the degradation of sage brush habitats (UDWR 2002).

Male sage-grouse perform elaborate breeding displays on traditional strutting grounds (“leks”). A lek is an open area located within relatively dense stands of sagebrush, and generally represents the center of a population’s distribution. Female sage-grouse construct nests under large sagebrush plants in proximity to the lek and then move to brood-rearing habitat (mesic meadows or sagebrush grasslands) once the eggs have hatched. An essential component of high quality brood-rearing habitat is an abundance of native grasses and forbs. Fall habitats include sagebrush, upland meadows, riparian areas, and irrigated pastures, while winter habitat generally consists of mature sagebrush communities on exposed, windswept ridges.

Sagebrush habitats occur throughout the study corridors, and the UDWR has delineated crucial brooding/winter habitat for greater sage-grouse in the Rush Valley, Tooele Valley, and Tintic Valley (UDWR 2007v; Map C-6). Crucial greater sage-grouse habitat occurs along Links 26, 30, 32, 35, 40, 60, 90, 95, 105, 120, 135, 140, 150, 160, and 335. The Rush Valley represents the primary sage-grouse habitat in the study corridors. However, sagebrush communities in the Rush Valley have been significantly degraded by a number of factors, including wildfire, grazing, agricultural activities, and the spread of invasive grasses and reduction in native grasses and forbs. The quality of sage brush communities and associated greater sage-grouse habitat in the Rush Valley is generally poor, but increases as one moves from east to west across the valley (Ashley Green, UDWR Regional Habitat Manager, personal communication). There are no known active leks within or adjacent to the study corridors, and although UNHP data include a few recent observations of greater sage-grouse in the western Rush Valley, the species is rarely observed in the vicinity of the study corridors (Ashley Green, UDWR Regional Habitat Manager, personal communication; Robinson 2005; UNHP 2008).

#### **E.2.5.11 Lewis’s Woodpecker (BLM/State Sensitive)**

The Lewis’s woodpecker inhabits open ponderosa pine and cottonwood riparian forests in northeastern and southern Utah (Parrish et al. 2002). The species requires mature or burned stands with large dead or decaying trees that provide nesting cavities. Although there are species observations from the Oquirrh Mountains (UNHP 2008) and Burrison Ponds, the Lewis’s woodpecker has not been recorded in the

study corridors. Potential suitable habitat for the Lewis's woodpecker occurs along Links 95, 210, and 215.

#### **E.2.5.12 Long-billed Curlew (BLM/State Sensitive)**

The long-billed curlew is a relatively common migratory species that inhabits mesic grasslands in northern and central Utah. Wetlands associated with the Great Salt Lake represent a primary breeding area for the species (Parrish et al. 2002). The curlew is frequently observed in the vicinity of the study corridors, with most records in the Goshen, Cedar, and Tooele Valleys, as well as the south shore of the Great Salt Lake (UNHP 2008). Suitable habitat for the long-billed curlew occurs along Links 5, 20, 50, 90, 105, 335, 350, 356, 360, 365, 375, and 385.

#### **E.2.5.13 Northern Goshawk (BLM/State Sensitive, Forest Service Sensitive and MIS)**

The northern goshawk is a relatively uncommon species in Utah (Graham et al. 1999). The goshawk generally inhabits mature mixed conifer and aspen communities at elevations between 6,000 and 10,000 feet msl. Forest communities in the Oquirrh, Stansbury, and East Tintic mountains have been classified as low value nesting habitat for the northern goshawk (Graham et al. 1999). Utah NHP data include three historic goshawk observations in the Oquirrh Mountains, and an observation in Butterfield Canyon was reported in 2005. Suitable habitat for the northern goshawk occurs along Links 210, 215, 235, and 240.

#### **E.2.5.14 Peregrine Falcon (Forest Service Sensitive)**

The peregrine falcon currently breeds on the Colorado Plateau and along the Wasatch Front in Utah (Bosworth 2003). Nests are typically located on cliff ledges, but introduced individuals are known to nest on buildings in downtown Salt Lake City. Peregrine falcons forage for avian prey in a variety of open habitats, including marshes, desert shrub, sagebrush, and grasslands. The species has been observed foraging in the wetlands along the southern shore of the Great Salt Lake, and active nests have been recently reported near Elberta (UNHP 2008) and in South Willow Creek Canyon (Tom Becker, UDWR, personal communication). There are no known nests within the study corridors, but the peregrine falcon is likely to forage throughout the study corridors.

#### **E.2.5.15 Short-eared Owl (BLM/State Sensitive)**

The short-eared owl breeds across the northern two-thirds of Utah and occurs throughout the state during non-breeding periods (Bosworth 2003). The species nests on the ground in a variety of open habitats, including arid grasslands, marshes, agricultural fields, and winters in desert scrub and sagebrush habitats (Bosworth 2003). The short-eared owl is known to nest in the vicinity of the study corridors (RINS data, UNHP 2008). Potential short-eared owl habitat occurs throughout those links that traverse grasslands, wetland marshes, and agricultural fields.

#### **E.2.5.16 Three-toed Woodpecker (BLM/State Sensitive, Forest Service Sensitive and MIS)**

The three-toed woodpecker is a relatively uncommon species that inhabits high-elevation, montane coniferous forests in the Wasatch and Uinta mountains (Parrish et al. 2002). Spruce-fir forests represent

the primary breeding habitats for the three-toed woodpecker, and the species depends on recent burns and spruce bark beetle infestations to create foraging habitat. The three-toed woodpecker has been observed near Brighton in Salt Lake County and on Nebo Bench in Utah County. The study corridors are located outside the general range of the species in Utah; there are no records of the species within or in the vicinity of the corridors (UNHP 2008). The three-toed woodpecker does not occur in the study corridors.

### **E.2.5.17 Yellow-billed Cuckoo (Federal Candidate)**

The yellow-billed cuckoo was designated as a candidate for Federal listing on October 30, 2001 (66 FR 38611). The cuckoo is a riparian obligate species that requires large tracts of mature cottonwood/willow with a dense sub-canopy (Parrish et al. 2002). The species is considered to be an extremely rare breeder in suitable riparian habitats throughout the state, with only three breeding records in the last 10 years (Provo River, Moab Sloughs, and Ouray National Wildlife Refuge; Parrish et al. 2002). Although transient individuals may pass through the study corridors, none of the corridors contain suitable nesting habitat for the yellow-billed cuckoo.

## **E.2.6 Mammals**

### **E.2.6.1 Canada Lynx (Federally Threatened)**

The Canada lynx was listed as federally threatened in the contiguous United States on March 24, 2000 (65 FR 16052). The USFWS issued a Notice of Remanded Determination of Status in 2003, which stated that (1) there is no evidence of lynx reproduction in Utah, and (2) lynx that do occur in Utah are dispersers from adjacent states rather than residents. No critical habitat has been designated for the Canada lynx in Utah.

The Canada lynx breeds in high-elevation, mature spruce-fir forests and forages for snowshoe hare (*Lepus americanus*) in early successional montane habitats. Although it is believed that the Canada lynx historically occupied the northern and central mountains of Utah, there are few data to substantiate the species historical range (Bosworth 2003). The study area is located outside the current range of the species and does not contain suitable habitat. The Canada lynx does not occur in the study corridors.

### **E.2.6.2 Dark Kangaroo Mouse (BLM/State Sensitive)**

The dark kangaroo mouse is restricted to desert shrub and sagebrush communities with fine, gravelly soils in the West Desert (Bosworth 2003). The study corridors are located outside the range of the species in Utah, and the dark kangaroo mouse does not occur in the study corridors.

### **E.2.6.3 Fisher (Forest Service Sensitive)**

The fisher inhabits mature spruce-fir forests with extensive canopy cover. There are no reliable records establishing its historical presence in Utah, and the UDWR classifies the species as extirpated in Utah (UDWR 2006). The study corridors are located outside the species distribution in North America and do not contain suitable habitat. The fisher does not occur in the study corridors.

#### **E.2.6.4 Fringed Myotis (BLM/State Sensitive)**

The fringed myotis is a widely distributed, but relatively rare species that is known to occur in central and northeastern Utah (Oliver 2000). The species forages in a variety of habitats, including desert shrub, sagebrush, pinyon–juniper, ponderosa pine, and montane forest, and roosts in abandoned buildings, mines, and caves (Oliver 2000). Of 157 individual bats that were captured during surveys near Dugway Proving Ground, one was a fringed myotis. The study corridors are located within the range of the species in Utah and contain suitable habitat. Although the species has not been documented in the study corridors, the fringed myotis is likely to forage throughout the corridors.

#### **E.2.6.5 Kit Fox (BLM/State Sensitive)**

The kit fox inhabits arid desert shrub and sagebrush communities in east-central and western Utah (Bosworth 2003). The kit fox has been observed infrequently in the study area over the past 40 years (UNHP 2008). There were a series of observations in the Goshen and Cedar Valleys in the 1960s, and a more recent observation near the James Walter Fitzgerald Waterfowl Management Area. The study corridors are located within the range of the species in Utah and contain suitable habitat for the kit fox. The species is likely to occur throughout desert shrub and sagebrush communities in the study corridors.

#### **E.2.6.6 North American Beaver (Forest Service MIS)**

The North American beaver is relatively common throughout Utah, where it inhabits slow moving streams, ponds, small lakes, and reservoirs (UDWR 2007<sup>w</sup>). The study corridors do not contain suitable habitat for the North American beaver, and the species does not occur in the study corridors.

#### **E.2.6.7 Preble’s Shrew (BLM/State Sensitive)**

The Preble’s shrew is associated with bogs, marshes, and riparian habitats. The species is extremely rare in Utah and has been only documented at two sites in Tooele County (Bosworth 2003). Both sites are located in wetland/desert saltgrass habitats along the southern shore of the Great Salt Lake. Although the species has not been documented within the study corridors, the Preble’s shrew may occur in suitable habitat along Links 352, 353, 354, 356, 365, 366, and 385.

#### **E.2.6.8 Pygmy Rabbit (BLM/State Sensitive)**

On January 8, 2008 the USFWS announced a 90-day finding, showing substantial scientific/commercial information indicating that listing the pygmy rabbit under the ESA may be warranted. The agency was initiating a status review to determine if listing the species is warranted (73 FR 13212). The status review is ongoing.

The pygmy rabbit is a Great Basin endemic that is generally restricted to mature sagebrush habitats with deep friable soils. The species is patchily distributed across northern and western Utah (Bosworth 2003), and the study area is within the historic range of the species in Utah. Suitable habitat for the pygmy rabbit within the study area is limited, largely due to the general quality of sagebrush communities and the absence of large tracts of tall, mature sagebrush plants. Although the NHP database does not contain any

observations of the pygmy rabbit in the study corridors, no formal surveys have been conducted in these areas. The pygmy rabbit may occur in sagebrush habitats throughout the study corridors.

#### **E.2.6.9 Spotted Bat (BLM/State Sensitive and Forest Service Sensitive)**

The spotted bat is widely distributed across Utah, but is primarily associated with deep, rocky canyons in eastern and southern portions of the state (Oliver 2000). The species roosts in crevices on cliff walls and forages in open grassland, desert shrub, sagebrush, and mountain meadow communities. Although there are no Utah NHP records or known roosts in the study corridors, the spotted bat is likely to forage throughout the study corridors.

#### **E.2.6.10 Townsend's Big-eared Bat (BLM/State Sensitive and Forest Service Sensitive)**

The Townsend's big-eared bat is a relatively common species that roosts in caves and abandoned mines and forages in sagebrush, pinyon-juniper, mountain shrub, and mixed conifer communities throughout Utah (Oliver 2000). The Townsend's big-eared bat is one of the few bat species known to winter in Utah, and several hibernacula have been documented in the vicinity of Ophir Canyon (Lengas 1997; Oliver 2000; UNHP 2008). Although no known roosts and hibernacula are located within the study corridors, a core bat area has been delineated along Link 95. The Townsend's big-eared bat is likely to forage in suitable habitats throughout the study corridors.

#### **E.2.6.11 Western Red Bat (BLM/State Sensitive)**

The western red bat is considered to be extremely rare in Utah (Oliver 2000). Although most of the few species records are from Washington County, there is a specimen from Utah County and a verbal report of a capture in Cache County in recent years (Oliver 2000). The western red bat roosts in trees and foliage in low elevation, riparian cottonwood forests. There are no records of the species within or adjacent to the study corridors, and the corridors contain a limited amount of potential roosting habitat. The western red bat may occur in suitable riparian habitats along Links 95, 210, and 215.

#### **E.2.6.12 White-tailed Prairie Dog (BLM/State Sensitive)**

The white-tailed prairie dog is restricted to the Uinta Basin and the northern Colorado Plateau (Bosworth 2003). The study corridors are located outside the current range of the species in Utah, and the white-tailed prairie dog does not occur in the corridors.

## **Appendix F – Visual Resources Supporting Data**

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# APPENDIX F – VISUAL RESOURCES SUPPORTING DATA

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## F.1 Affected Environment



**Figure F-1: Class A Scenic Quality (Mountains in Background)**



**Figure F-2: Class A Scenic Quality**



**Figure F-3: Class B Scenic Quality**



**Figure F-4: Class B Scenic Quality**



**Figure F-5: Class B Scenic Quality (Irrigated Agricultural)**



**Figure F-6: Class C Scenic Quality**



**Figure F-7: Class C Scenic Quality (Dryland Agricultural)**



**Figure F-8: Class C Scenic Quality**



**Figure F-9: Residential Image Type**



**Figure F-10: Residential Image Type**



**Figure F-11: Commercial Image Type**



**Figure F-12: Commercial Image Type**



**Figure F-13: Industrial/Military Image Type**



**Figure F-14: Industrial/Military Image Type**



**Figure F-15: Industrial/Military Image Type**



**Figure F-16: Institutional Image Type**



**Figure F-17: Developed Park Image Type**

<b>TABLE F-1a SCENIC QUALITY RATING CRITERIA</b>	
Landform	Topography becomes more interesting as it gets steeper, more massive, or more severely or universally sculptured. Outstanding landforms may be monumental, such as in the Grand Canyon in Arizona or the Rocky Mountains of the western United States. Alternatively, landforms may be intricate and subtle, such as certain badlands, pinnacles, arches, and other formations.
Vegetation	Primary consideration is given to the variety of patterns, forms, and textures created by plant life. Short-lived displays should be considered when they are known to be recurring or spectacular, such as the color change displayed by contiguous groves of western aspen trees or eastern maple trees. Smaller scale vegetation features may add striking and intriguing detail to the landscape.
Water	Water can add movement, serenity, and strong lighting contrasts to a scene. The degree to which water features have the capacity to unify, diversify, or dominate the scene is the primary consideration.
Color	Overall colors are observed for the basic components of the landscape, such as soil, rocks, and vegetation as they appear during seasons or periods of high use. Key factors to use when rating “color” are variety, contrast, and harmony.
Adjacent Scenery	Under consideration is the degree to which scenery outside the unit being rated enhances the overall impression of the scenery within the unit. The distance over which adjacent scenery will influence a unit will normally range from 0 to 5 miles, depending upon the relief of the topography, the vegetation cover, sun angles, and viewer orientation. This component is generally applied to units that would normally rate very low in score, but the influence of the adjacent unit enhances the visual quality, thereby raising the rating score.
Scarcity	This component provides an opportunity to elevate the importance of one or of all scenic features within one physiographic region that appear to be unique or relatively rare within the surroundings.
Intactness	Evidence of discordant elements or deviations from the existing landscape character; thereby altering, diminishing, or minimizing the indigenous aesthetic appeal for which the said landscape would primarily have been valued as a scenic resource. This component is also used to describe the condition of the ecosystem.
Cultural Modifications	Of primary concern are the impacts of man-made changes on the visual quality of the characteristic landscape. Cultural modifications to landform, water, and vegetation, as well as the addition of structures to the landscape, may all detract from the scenery by presenting negative intrusions to the viewer. Conversely, these additions or modifications to the landscape might actually complement or improve the scenic quality of a unit.
Ephemeral & Non - Visual Conditions	This component considers short-lived but recurrent visual effects, such as wildlife sightings, and non-visual effects, such as the sound of running water, which are experientially related to the landscape being viewed.

**TABLE F-1b  
SCENIC QUALITY RATING UNITS (SQRUs)**

<b>SQRU #</b>	<b>Unit Name</b>	<b>Landform (5-1)</b>	<b>Vegetation (5-1)</b>	<b>Water (5-0)</b>	<b>Color (5-1)</b>	<b>Adjacent Scenery (5-0)</b>	<b>Scarcity (5-0)</b>	<b>Intactness (5-1)</b>	<b>Cultural Modifications (2 - -4)</b>	<b>Ephemeral &amp; Non – Visual Conditions (5-1)</b>	<b>TOTAL SCORE</b>	<b>Rating Class (A = 25 or more B = 18 – 24 C = 17 or less)</b>
1	Sanctuary Basin	1	1	2	2	2	4	2	-1	1	14	C
2	Salt Lake Shoreline	1	1	5	2	2	5	2	-1	1	18	B
3	Northeast Oquirrh Foothills	3	2	1	2	3	3	2	-1	2	17	C
4	North Oquirrh Mountains	5	3	0	3	3	4	4	1	3	26	A
5	Northeast Oquirrh Mountains	4	3	0	2	2	3	2	-3	1	14	C
6	Yellow Fork Foothills	4	3	0	2	3	3	3	0	2	20	B
7	Middle Oquirrh Mountains	5	2	0	2	2	3	3	0	2	19	B
8	Traverse Mountain	4	2	0	2	1	3	2	-2	2	14	C
9	South Oquirrh Mountains	4	2	0	2	3	3	2	-3	1	14	C
10	Southwest Oquirrh Mountains	4	2	0	2	3	3	2	-1	2	17	C
11	Rush Valley	1	2	0	2	2	2	2	-2	2	11	C
12	Thorpe Hills	3	2	0	2	3	3	3	0	2	18	B
13	Greeley/Wanlass Hills	3	2	0	2	2	2	2	-2	2	13	C
14	Pinyon Peak Mountains	4	2	0	2	2	2	2	-3	2	13	C
15	East Tintics	4	3	0	3	3	3	3	-2	2	19	B
16	East Tintic Peaks	5	4	0	3	3	4	4	0	2	25	A
17	Long Ridge-Middle Ridge	3	2	0	2	2	2	2	-2	2	13	C
18	Tintic Valley	1	2	0	2	3	2	2	0	2	14	C
19	West Tintics	3	3	0	3	3	3	3	0	2	20	B
20	Sharpes Valley	2	3	1	2	3	4	2	3	3	23	B
21	Southwest Oquirrh Foothills	3	2	0	2	2	2	2	-3	2	12	C
22	North Rush Alluvial Fan	2	2	0	2	3	3	2	-2	2	14	C
23	Onaqui-Rush Valley	1	3	1	2	2	3	2	-1	1	14	C
24	Slate Rock-Stansbury Mountains	3	3	0	3	3	3	3	0	2	20	B
25	East-Central Stansbury Mountains	4	3	0	3	3	3	3	0	2	21	B
26	Central Stansbury Mountains	4	3	0	3	3	3	4	1	3	24	B
27	Northeast Stansbury Mountains	4	3	0	3	3	3	3	0	2	21	B
28	Northeast Stansbury Front Foothills	3	2	1	2	3	3	2	-1	2	17	C
29	Northwest Shorelines Salt Desert	1	1	3	2	3	3	2	0	1	16	C
30	Northwest Oquirrh Mountains	4	3	0	3	3	3	2	-2	2	18	B
31	North Willow Canyon	4	4	0	3	4	4	4	2	3	28	A
32	South Willow Canyon	4	4	0	3	4	4	4	2	3	28	A

<p style="text-align: center;"><b>TABLE F-1b</b> <b>SCENIC QUALITY RATING UNITS (SQRUs)</b></p>												
33	Goshen Valley Irrigated Agriculture	2	3	0	3	3	4	4	3	1	<b>23</b>	<b>B</b>
34	Rush Valley Irrigated Agriculture	2	2	0	3	3	4	4	3	1	<b>22</b>	<b>B</b>
35	N. Tooele Valley Irrigated Agriculture	2	2	0	3	3	4	4	3	1	<b>22</b>	<b>B</b>
<p><b>NOTES:</b>                      Class A Rating = &gt; 24                      Class B Rating = 18 – 24                      Class C Rating = &lt; 18</p>												

<b>TABLE F-2 VIEWER SENSITIVITY LEVEL SUMMARY</b>					
	<b>View Duration (L-Long, M-Moderate, S-Short)</b>	<b>Use Volume (H-High, M-Moderate, L-Low)</b>	<b>Aesthetic Concern (H-High, M-Moderate, L-Low)</b>	<b>Designated Scenic/ Historic</b>	<b>Overall Sensitivity (H-High, M-Moderate, L-Low)</b>
<b>Sensitive Viewers</b>					
All Residences	L	L	H	-	H
<b>Travel Routes</b>					
<i>Interstate</i>					
I-80	S	H	L-M	-	M
I-15	S	H	L-M	-	M
<i>United States Highway</i>					
U.S. 6	M	L	L-H	-	M
<i>State</i>					
SR 36	M	L-H	L-H	-	M
SR 48 (New Bingham Highway)	M	L-H	L-M	-	M
SR 67	M	L	L-M	-	M
SR 68	M	L-H	L-M	-	M
SR 71 (Herriman Highway)	M	M	L-M		M
SR 73	M	M	M-H	-	M
SR 91	M	M	M		M
SR 111	M	M-H	L	-	M
SR 112	M	M	L	-	M
SR 138	M	L-M	L	-	M
SR 154	M	H	L	-	M
SR 172	M	H	L	-	M
SR 173	M	M	L	-	M
SR 199	M	L	M-H	-	M
SR 201	M	H	L	-	M
SR 202	M	L-M	L	-	M
<i>Federal Aid Route</i>					
2030, 2036, 2140, 2172, 2242, 2250, 2290, 2358, 2370, 2386	M	H	L-M	-	M
2694, 2700	M-L	L	L	-	L
<b>Designated Scenic Routes</b>					
Middle Canyon Road State Scenic Backway (Middle Canyon Overpass Tooele County Scenic Byway)	M-L	L	H	X	H

<b>TABLE F-2 VIEWER SENSITIVITY LEVEL SUMMARY</b>					
	<b>View Duration (L-Long, M-Moderate, S-Short)</b>	<b>Use Volume (H-High, M-Moderate, L-Low)</b>	<b>Aesthetic Concern (H-High, M-Moderate, L-Low)</b>	<b>Designated Scenic/ Historic</b>	<b>Overall Sensitivity (H-High, M-Moderate, L-Low)</b>
Pony Express State Scenic Backway/BLM Backcountry Byway	M-L	L	H	X	H
Railroad Bed Road Tooele County Scenic Byway	M-L	L	H	X	H
South Willow Canyon Tooele County Scenic Byway	M-L	L	H	X	H
North Willow Canyon/ Davenport Canyon Tooele County Scenic Byway	M-L	L	H	X	H
Little Moab/Nutty Putty Cave Recreation Destination Route	M-L	L	H	-	H
<b>Recreation Destination Routes</b>					
Box Elder Canyon	M-L	L-M	H	-	H
Little Moab/Nutty Putty Cave Recreation Destination Route	M-L	L-M	H	-	H
Oak Canyon	M-L	L-M	H	-	H
Rose Canyon/Yellow Fork Canyon	M-L	L-M	H	-	H
Settlement Canyon Road	M-L	L-M	H	-	H
Stansbury Island Recreation Destination Route	M-L	L-M	M	-	M
Uinta NF Recreation Destination Route	M-L	L-M	H	-	H
<b>Parks, Recreation and Preservation Areas and Cemeteries</b>					
<i>National and Regional Trails</i>					

<b>TABLE F-2 VIEWER SENSITIVITY LEVEL SUMMARY</b>					
	<b>View Duration (L-Long, M-Moderate, S-Short)</b>	<b>Use Volume (H-High, M-Moderate, L-Low)</b>	<b>Aesthetic Concern (H-High, M-Moderate, L-Low)</b>	<b>Designated Scenic/ Historic</b>	<b>Overall Sensitivity (H-High, M-Moderate, L-Low)</b>
California National Historic Trail	L	L	H	X	H
Pony Express National Historic Trail	L	L	H	X	H
<i>BLM &amp; USFS Recreation Sites</i>					
Boy Scout Campground (USFS)	L	M	H	-	H
Cottonwood Campground (USFS)	L	M	H	-	H
Fivemile Pass Rockcrawling Sites/ Fivemile Pass OHV/Large Group Camping Area (BLM) (Constrictor Canyon, Rattlesnake Canyon) (BLM)	L	M	M-H	-	M
Intake Campground (USFS)	L	M	H	-	H
<i>State Recreation Sites</i>					
Great Salt Lake Marina State Park	L	M	M-H	-	H
Burraston Ponds Wildlife Management Area	L	L-M	M-H	-	H
Nephi Wildlife Management Area	L	L	M-H	-	M
Nutty Putty Cave Area (SITLA)	L	L-M	H	-	H
Little Moab OHV Area (SITLA)	M-L	L-M	M	-	M
<i>County Parks &amp; Trails</i>					
<i>Tooele</i>					
<u>Existing Trails</u>					
Mid Valley Trail	L	L	H	-	M
Smelter Road Trail	L	L	H	-	M
Copper Pit Overlook Trail	L	L	M	-	M
Left Hand Fork Trail	L	L	H	-	M
Dark Trail Loop	L	L	H	-	M
<u>Planned Trails</u>					
Benson Grist Mill Loop Trail	L	L	H	-	M
Carr Fork Trail	L	L	H	-	M

<b>TABLE F-2 VIEWER SENSITIVITY LEVEL SUMMARY</b>					
	<b>View Duration (L-Long, M-Moderate, S-Short)</b>	<b>Use Volume (H-High, M-Moderate, L-Low)</b>	<b>Aesthetic Concern (H-High, M-Moderate, L-Low)</b>	<b>Designated Scenic/ Historic</b>	<b>Overall Sensitivity (H-High, M-Moderate, L-Low)</b>
Camp Wapiti (Settlement Canyon Recreation Area)	L	L	M		M
Copper Pit Overlook Trail	L	L	M	-	M
Jacob City Hike	L	L	H	-	M
Legion Park Campground (Settlement Canyon Recreation Area)	L	L	H	-	M
Mormon Trail Loop	L	L	H	-	M
Oquirrh Mountains Limited Use Trail	L	L	H	-	M
Rush Valley Tour Trail	L	L	H	-	M
Soldier Canyon Hike	L	L	H	-	M
South Mountain Loop Trail	L	L	H	-	M
Stansbury Front Trail	L	L	H	-	M
Timpie Valley Trail	L	L	H	-	M
Tooele Valley Overlook/Smelter Road Trail	L	L	H	-	M
<i>Salt Lake County</i>					
Magna Fitness & Recreation Center & Pool	M-L	M	M	-	M
Yellow Fork Canyon Regional Park (Trailhead)	L	M	H	-	H
<i>Other Special Use Areas</i>					
West Ajax Underground Store Roadside Historical Marker	L	L	H	X	M
Bonneville Seabase	L	M	M	-	M
Burrison Ponds WMA	L	L	H	-	M
Butterfield Pass Viewing Area	L	L	H	-	M
Copper Club Golf Course	L	M	L-M	-	M
E. T. Benson Grist Mill Historical Site	L	L	H	X	M

<b>TABLE F-2 VIEWER SENSITIVITY LEVEL SUMMARY</b>					
	<b>View Duration (L-Long, M-Moderate, S-Short)</b>	<b>Use Volume (H-High, M-Moderate, L-Low)</b>	<b>Aesthetic Concern (H-High, M-Moderate, L-Low)</b>	<b>Designated Scenic/ Historic</b>	<b>Overall Sensitivity (H-High, M-Moderate, L-Low)</b>
Glenmoor Golf Course	L	M	M-H	-	H
Grantsville Reservoir Camping Area	L	L	H	-	M
Grantsville Fort Historical Marker	L	L	H	X	M
Historic Cemeteries (Eureka, Mercur, Fairfield)	L	L	H	X	M
I-80 Great Salt Lake Viewing Area	L	M-H	L-M	-	M
Lee Creek Natural Area (Parking Area)	L	L	H	-	M
Lee Kay Center & Wildlife Conservation & Training Area Wildlife Management Area	L	M	M-H	-	H
Mona Reservoir (Parking Lot)	L	M	M		M
Overlake Golf Course	L	M	M-H	-	H
Oquirrh Hills Golf Course	L	M	H	-	H
Stansbury Park Golf Course	L	M	H	-	H
Stepptoe, Daughters of Utah Pioneers, Pony Express Station Historical Markers	L	L	H	X	M
Wingpoint Golf Course	L	M	L	-	L
<b>Local Parks</b>					
Alex Baker Memorial Baseball Park (Stockton)				-	
Centennial Park and Recreation Complex (West Valley)	M-L	M	L-M	-	M
Elton Park (Tooele)	L	L	M-H	-	H
Highland Park (Tooele)	L	L	L-M	-	M

## F.2 Environmental Consequences

### F.2.1 Impact Methodology

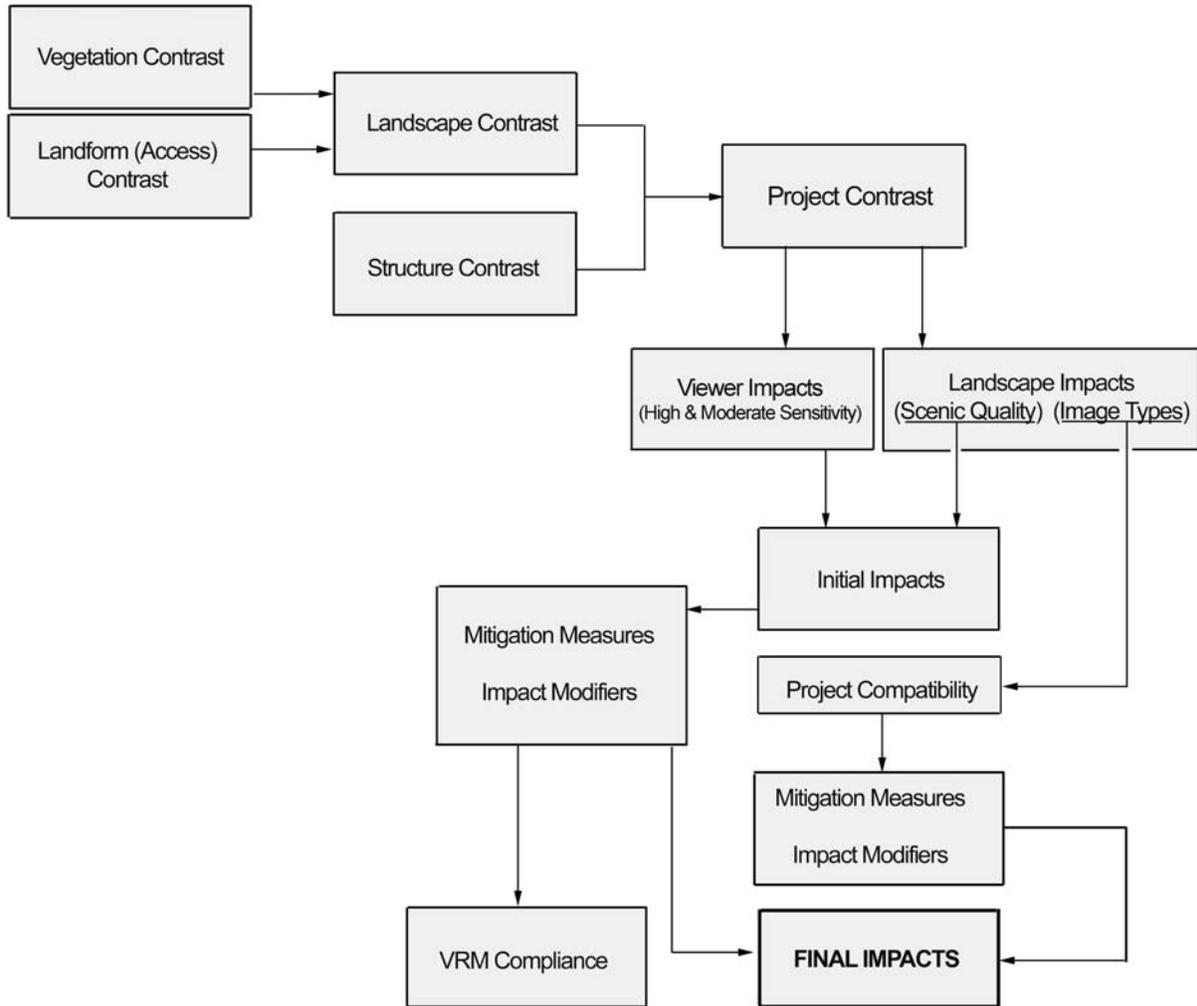


Figure F-18: Visual Impact Assessment Flow Chart

### F.2.1.1 Contrast

The visual contrast assessment is performed by comparing visual elements (form, line, color, and texture) of the existing landscape with the visual elements associated with the proposed project, including new transmission structures and lines, clearing of the right-of-way, and substation components. In this regard, landform, vegetation, and structural elements of the landscape were evaluated in conjunction with the proposed transmission line right-of-way and substation areas and assigned degrees of change/contrast, ranging from strong to strong/moderate, moderate, moderate/weak, weak, or none, as defined below.

- Strong – contrast demands attention and strongly dominates the landscape
- Strong/Moderate – contrast begins to demand attention and is still moderately dominant in the landscape
- Moderate – contrast attracts attention but is co-dominant in the landscape
- Moderate/Weak – contrast begins to attract attention and is moderately subordinate in the landscape
- Weak – contrast can be seen but is subordinate in the landscape

Project contrasts for the Project are derived from existing vegetation, slope, and utility infrastructure occurring in the study area and along the assumed centerline. Contrast is expressed in terms of changes to the landscape (landscape contrast) and the addition of structures to the landscape (structure contrast). Landscape and structure contrasts were combined into a project contrast model that is used to estimate and classify visual impacts, and to quantify total impacts (miles of high impact, moderate impact, low impact) for the alternatives being assessed in this document.

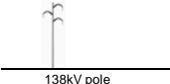
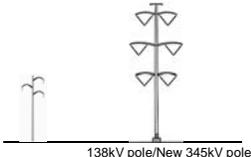
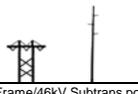
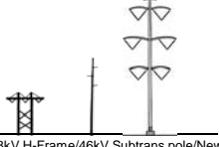
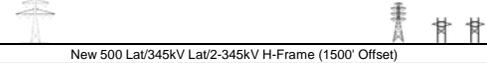
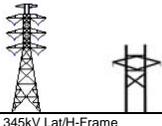
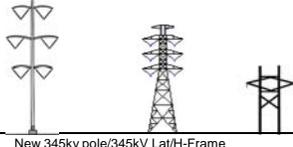
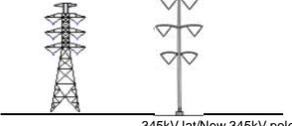
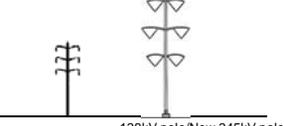
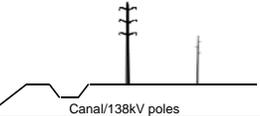
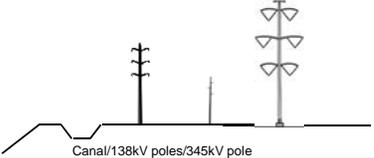
Landscape contrast is derived by combining access levels with vegetation cover (Table F-3). An access model was developed for the Project that estimated the expected road construction. Access levels are needed to estimate the amount of road construction necessary as a result of building the transmission line. Access levels (1, 2, or 3) were assigned along the Project centerline for the purposes of impact modeling for a number of resources (see Chapter 2 for detailed information on access levels). Moderate landscape contrast would occur where the transmission line crosses areas of overstory vegetation where clearing would be necessary above the height of 15 feet (Group 2 vegetation component), and where new access road construction is necessary (Access Level 3). Strong landscape contrast would not occur, because the project calls for the preservation of ground plane vegetation that would mitigate the visual effects of land scarring (cut and fill areas), except in the steepest of terrain and where viewed along a right-of-way axis.

<b>TABLE F-3 LANDSCAPE CONTRAST MATRIX</b>				
		<b>Access Level</b>		
		<b>1</b>	<b>2</b>	<b>3</b>
<i>Vegetation Component</i>	<i>Group 1: agriculture, barren, disturbed, invasive grassland, grassland, wetland, open water, desert scrub, greasewood, big sagebrush, mixed sagebrush, mountain shrub</i>	W	W/M	W/M
	<i>Group 2: deciduous forest, mixed conifer forest, pinyon-juniper, spruce-fir forest, hybrid oak stand</i>	W	W/M	M
NOTES: M = Moderate W/M=Weak/Moderate W = Weak				

Structure contrasts are determined based on the visual characteristics of the proposed structures compared to the visual characteristics of the existing corridor. Strong structure contrasts would result from the introduction of transmission line structures in areas where none are currently present, and weak structure contrasts would result from the introduction of transmission line structures where similar ones already exist (Table F-4).



**TABLE F-4  
STRUCTURE CONTRAST**

Existing Corridor	Proposed Corridor	Context	Form/Line	Dominance	Contrast Level
 <p>138kV pole</p>	 <p>138kV pole/New 345kV pole</p>	Devp'd Commercial/Industrial, Desert Scrub Plains Disturbed Cheat Plain	<b>M</b>	<b>M/S</b>	<b>M</b>
 <p>138kV H-Frame/46kV Subtrans pole</p>	 <p>138kV H-Frame/46kV Subtrans pole/New 345kV pole</p>	Mt. Shrub/Grassland Foothill, Developed Ag/Industrial	<b>M/S</b>	<b>M/S</b>	<b>M</b>
 <p>138kV H-Frame/46kV Subtrans H-frame</p>	 <p>138kV H-Frame/46kV Subtrans H-frame/New 345kV pole</p>	Rolling Sagebrush/ Grassland/PJ/ Mt. Shrub Foothills	<b>S</b>	<b>S</b>	<b>M</b>
 <p>345kV Lat/2-345kV H-Frame</p>	 <p>New 500 Lat/345kV Lat/2-345kV H-Frame (1500' Offset)</p>	Rolling Sagebrush/ Grassland/PJ Foothills	<b>M/S</b>	<b>M/S</b>	<b>M/S</b>
 <p>345kV Lat/2-345kV H-Frame</p>	 <p>New 345kV pole/345kV Lat/2-345kV H-Frame (1500' Offset)</p>	Rolling Sagebrush/ Grassland/PJ Foothills	<b>M/S</b>	<b>M/S</b>	<b>M/S</b>
 <p>345kV Lat/H-Frame</p>	 <p>New 345kV pole/345kV Lat/H-Frame</p>	Rolling Sagebrush/ Grassland/PJ Foothills	<b>M/S</b>	<b>W</b>	<b>W/M</b>
 <p>345kV lat</p>	 <p>345kV lat/New 345kV pole</p>	Devp'd Commercial/Industrial, Disturbed Cheat Plain	<b>M/S</b>	<b>W</b>	<b>W/M</b>
 <p>138kV pole</p>	 <p>138kV pole/New 345kV pole</p>	Devp'd Commercial/Industrial, Disturbed Cheat Plain	<b>W/M</b>	<b>W/M</b>	<b>W/M</b>
 <p>Canal/138kV poles</p>	 <p>Canal/138kV poles/345kV pole</p>	Devp'd Industrial, Disturbed Cheat Plain	<b>W/M</b>	<b>M</b>	<b>W/M</b>

Combining the landscape contrast with the structure contrast results in overall project contrast on which the visual impacts are based (Table F-5). The contrast model provided the foundation for impact assessment of the Project, in accordance with the VRM system and established methodology as described below.

<b>TABLE F-5 PROJECT CONTRAST MATRIX</b>				
		<b>Landscape Contrast</b>		
		<b>W</b>	<b>M/W</b>	<b>M</b>
<b>Structure Contrast</b>	<b>W</b>	W	W	M/W
	<b>M/W</b>	M/W	M/W	M
	<b>M</b>	M	M	M
	<b>M/S</b>	M/S	M/S	S
	<b>S</b>	M/S	S	S
NOTES: S = Strong M/S=Moderate/Strong M = Moderate M/W= Moderate/Weak W = Weak				

**F.2.1.2 Viewer Impacts**

Viewer impacts were initially determined by employing a geographic information system (GIS) model that combined viewpoint buffers (distance zones) and project contrast with sensitivity, or by combining project contrast with scenic quality or image type. The resulting analysis provided data on potential Project perception and distance (immediate foreground, foreground, middle ground, high sensitivity, moderate sensitivity, etc.) that was then combined with project contrast to determine initial impacts. Actual visibility was verified in the field, and adjustments were made to initial impacts to determine final viewer impact levels. Selective mitigation measures were also employed, reducing initial impacts (see below).

Impacts were also assessed on views from future residential areas and planned trails. Future viewers were based on inventory data where approved residential development or planned recreational elements (e.g., trails) were documented. A total of four models were used to estimate viewer initial impacts (Tables F-6 through F-9).

<b>TABLE F-6 HIGH SENSITIVITY VIEWER INITIAL IMPACT MATRIX</b>						
		<b>Project Contrast</b>				
		<b>Strong</b>	<b>Moderate/ Strong</b>	<b>Moderate</b>	<b>Moderate/ Weak</b>	<b>Weak</b>
<b>Distance/Visibility Threshold</b>	Immediate Foreground (0–0.25 mile 345kV) (0–0.5 mile 500kV)	High	High	Mod/High	Moderate	Moderate
	Foreground (0.25–0.5 mile 345kV) (0.5–1 mile 500kV)	High	Mod/High	Moderate	Moderate	Mod/Low
	Middleground (0.5–1 mile 345kV) (1–2 miles 500kV)	Mod/High	Moderate	Moderate	Mod/Low	Low
	Background (1–2 miles 345kV) (2–3 miles 500kV)	Moderate	Moderate	Mod/Low	Low	Low
	Seldom Seen (Beyond 2 miles 345kV) (Beyond 3 miles 500kV)	Moderate	Mod/Low	Low	Low	Low

<b>TABLE F-7 MODERATE SENSITIVITY VIEWER INITIAL IMPACT MATRIX</b>						
		<b>Project Contrast</b>				
		<b>Strong</b>	<b>Moderate/ Strong</b>	<b>Moderate</b>	<b>Moderate/ Weak</b>	<b>Weak</b>
<b>Distance/Visibility Threshold</b>	Immediate Foreground (0–0.25 mile 345kV) (0–0.5 mile 500kV)	High	Mod/High	Moderate	Moderate	Mod/Low
	Foreground (0.25–0.5 mile 345kV) (0.5–1 mile 500kV)	Mod/High	Moderate	Moderate	Mod/Low	Low
	Middleground (0.5–1 mile 345kV) (1–2 miles 500kV)	Moderate	Moderate	Mod/Low	Low	Low
	Background (1–2 miles 345kV) (2–3 miles 500kV)	Moderate	Mod/Low	Low	Low	Low
	Seldom Seen (Beyond 2 miles 345kV) (Beyond 3 miles 500kV)	Mod/Low	Low	Low	Low	Low

<b>TABLE F-8 FUTURE APPROVED HIGH SENSITIVITY VIEWER INITIAL IMPACT MATRIX</b>						
		<b>Project Contrast</b>				
		<b>Strong</b>	<b>Strong/ Moderate</b>	<b>Moderate</b>	<b>Moderate/ Weak</b>	<b>Weak</b>
<b>Distance/Visibility Threshold</b>	Immediate Foreground (0–0.25 mile 345kV) (0–0.5 mile 500kV)	Mod/High	Moderate	Moderate	Mod/Low	Low
	Foreground (0.25–0.5 mile 345kV) (0.5–1 mile 500kV)	Moderate	Moderate	Mod/Low	Low	Low
	Middleground (0.5–1 mile 345kV) (1–2 miles 500kV)	Moderate	Mod/Low	Low	Low	Low
	Background (1–2 miles 345kV) (2–3 miles 500kV)	Mod/Low	Low	Low	Low	Low
	Seldom Seen (Beyond 2 miles 345kV) (Beyond 3 miles 500kV)	Low	Low	Low	Low	Low

<b>TABLE F-9 FUTURE APPROVED MODERATE SENSITIVITY VIEWER INITIAL IMPACT MATRIX</b>						
		<b>Project Contrast</b>				
		<b>Strong</b>	<b>Strong/ Moderate</b>	<b>Moderate</b>	<b>Moderate/ Weak</b>	<b>Weak</b>
<b>Distance/Visibility Threshold</b>	Immediate Foreground (0–0.25 mile 345kV) (0–0.5 mile 500kV)	Moderate	Mod/Low	Low	Low	Low
	Foreground (0.25–0.5 mile 345kV) (0.5–1 mile 500kV)	Mod/Low	Low	Low	Low	Low
	Middleground (0.5–1 mile 345kV) (1–2 miles 500kV)	Low	Low	Low	Low	Low
	Background (1–2 miles 345kV) (2–3 miles 500kV)	Low	Low	Low	Low	Low
	Seldom Seen (Beyond 2 miles 345kV) (Beyond 3 miles 500kV)	Low	Low	Low	Low	Low

An example of viewer impact analysis is as follows: After employing the sensitivity analysis as described in Chapter 3.2.7 (an assessment of viewing duration, viewer attitudes toward change, use volumes of visually sensitive areas), it was determined that the Pony Express National Historic Trail has a high sensitivity level (refer to Table F-2). To determine initial impacts of the transmission line to the high sensitivity trail user views, project contrast is modeled (for viewer impacts and scenic quality impacts) by combining landscape contrast (refer to Table F-3) and structure contrast (refer to Table F-4).

Landscape contrast is modeled by assessing the vegetation component group (Group 1 – low growing shrubs or groundcover, or Group 2 – vegetation over 15 feet, also see biological resources) crossed by the centerline and which access level (refer to Chapter 2, Table 2-7) would be used for the transmission line segment. For this example, the transmission centerline segment crosses mixed conifer forest and has an access level of 3 (build new road), yielding a moderate landscape contrast (refer to Table F-3).

Structure contrast is determined to be strong because there are no existing transmission lines being paralleled (refer to Table F-4). To determine project contrast, Table F-5 is used. The left column shows the various structure contrast levels and the top row shows the various landscape contrast levels. Taking the strong structure contrast (S), and combining it with the moderate landscape contrast level (M) yields an overall project contrast of strong (S) for that particular segment of the transmission line. Initial impacts are then determined by calculating how far the project is from the viewer (what distance zone the alternative transmission line segment is in), and comparing that distance with the project contrast using the appropriate (moderate or high sensitivity) impact matrix, in this case Table F-6: High Sensitivity Viewer Initial Impact Matrix.

Using GIS modeling, it is determined that a 500kV transmission line is 1.2 miles away from the trail; looking at the left column on Table F-6, the 500kV transmission line would be in the middleground (1 mile to 2 miles 500kV). Reading to the right to the appropriate project contrast column, in this case strong, indicates an initial impact of moderate-high for that segment of 500kV transmission line. Appropriate mitigation measures and appropriate impact modifiers are then identified (see below), field verification of impacts are conducted, and a final impact level (high, moderate, or low) is determined for that segment of transmission line (Table F-10).

**TABLE F-10  
VIEWER FINAL IMPACT MATRIX**

		Initial Impact Level				
		High (Mitigation Measures 3, 4, 6, 8, 9, 10, 12, and/or 19)	Moderate/High (Mitigation Measures 3, 4, 6, 8, 9, 10, 12, and/or 19)	Moderate (Mitigation Measures 3, 4, 6, 8, 9, 10, 12, and/or 19)	Moderate/Low (Mitigation Measures 3, 4, 6, 8, 9, 10, 12, and/or 19)	Low
<b>Distance/Visibility Threshold</b>	Immediate Foreground (0–0.25 mile 345kV) (0–0.5 mile 500kV)	High	Moderate	Low	Low	Low
	Foreground (0.25–0.5 mile 345kV) (0.5–1 mile 500kV)	Moderate	Moderate	Low	Low	Low
	Middleground (0.5–1 mile 345kV) (1–2 miles 500kV)	Moderate	Moderate	Low	Low	Low
	Background (Beyond 1–2 miles 345kV) (Beyond 2–3 miles 500kV)	Moderate	Moderate	Low	Low	Low

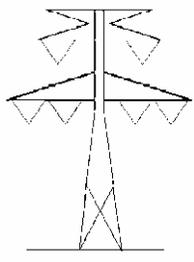
**F.2.1.3 Scenic Quality and Image Type Impacts**

Scenic quality impacts were determined by combining scenic quality classes (A, B, or C) in naturally dominated or agricultural landscapes with project contrast. Compatibility with the existing development character was derived by combining the image type with the proposed transmission line.

To determine scenic quality impacts, project contrast was determined along the centerline of the Project (as described above). Tables F-11 through F-13 were used to determine scenic quality initial and final impacts and Project compatibility with existing development patterns (image types). Referring to the same segment as described above in viewer impact analysis, Table F-11 shows that the strong project contrast level (top row) combined with a scenic quality rating of Class C (left column) yields a moderate-high initial impact level on scenic quality. After employing appropriate mitigation measures (see below), final impacts on scenic quality could be reduced to a moderate level. High scenic quality impacts would remain in areas of Class A scenery.

<b>TABLE F-11 SCENIC QUALITY INITIAL IMPACT MATRIX</b>						
		<b>Project Contrast</b>				
		<b>Strong</b>	<b>Strong/ Moderate</b>	<b>Moderate</b>	<b>Moderate/ Weak</b>	<b>Weak</b>
<b>Scenic Quality Rating</b>	<b>Class A</b>	High	High	Moderate/High	Moderate	Moderate
	<b>Class B</b>	High	Moderate/High	Moderate	Moderate	Moderate/Low
	<b>Class C</b>	Moderate/High	Moderate	Moderate	Moderate/Low	Low

<b>TABLE F-12 SCENIC QUALITY FINAL IMPACT MATRIX</b>						
		<b>Initial Impact Level</b>				
		<b>High (Mitigation Measures 3, 4, 6, 8, 9, 10, 12, and/or 19)</b>	<b>Moderate/High (Mitigation Measures 3, 4, 6, 8, 9, 10, 12, and/or 19)</b>	<b>Moderate (Mitigation Measures 3, 4, 6, 8, 9, 10, 12, and/or 19)</b>	<b>Moderate/Low (Mitigation Measures 3, 4, 6, 8, 9, 10, 12, and/or 19)</b>	<b>Low</b>
<b>Scenic Quality Rating</b>	<b>Class A</b>	High	Moderate	Low	Low	Low
	<b>Class B</b>	Moderate	Moderate	Low	Low	Low
	<b>Class C</b>	Moderate	Moderate	Low	Low	Low

TABLE F-13 IMAGE TYPE COMPATIBILITY MATRIX		
	Proposed Structures	
		
	<i>345kV</i> <i>100-150 feet</i>	<i>500kV</i> <i>130-170 feet</i>
Image Type		
Residential	Low Compatibility	Low Compatibility
Developed Parks	Low Compatibility	Low Compatibility
Commercial	Moderate Compatibility	Moderate-Low Compatibility
Industrial/Military	High Compatibility	High Compatibility
Institutional	Moderate Compatibility	Moderate-Low Compatibility

This exercise (scenic quality impact analysis and viewer impact analysis) is conducted for each project component (500kV and 345kV) to quantify total miles of high, moderate, and low impacts for each alternative. Impact tables are developed that quantify the highest impacts for each 0.1 mile segment of transmission line alternatives for comparative purposes (see example segment, Table F-14).

**TABLE F-14**

**VISUAL IMPACT DATA TABLE SAMPLE (Pony Express National Historic Trail 500kV Crossing, Link 90 – Alternatives A1, A2, C1, & C2 )**

Link #	From Mile Post	To Mile Post	Distance	Project Contrast	High Sensitivity View	Moderate Sensitivity View	Image Type	Scenic Quality	Impacts					
									Scenic Quality Initial Impact	Viewer Initial Impact	Image Type Impact	Impact Modifiers	Mitigation Measures	Final Impact Level
90	2.4	2.7	0.3	S	FG	FG	N/A	C	HM	H	N/A	none	MM 6, MM10	M
90	2.7	3.7	1.0	S	IFG	IFG	N/A	C	HM	H	N/A	none	MM 6, MM 9, MM10	H
90	3.7	4.2	0.5	S	FG	FG	N/A	C	HM	H	N/A	none	MM 6, MM10	M

NOTES:  
 S = Strong  
 FG = Foreground  
 IFG = Immediate Foreground  
 M = Moderate  
 HM = High-Moderate  
 H = High

#### **F.2.1.4 Mitigation Planning**

Mitigation measures would be applied Project-wide (generic) and on a case-by-case (selective) basis, as described in Chapter 2. For visual resources, a total of eight selective mitigation measures are proposed for the Project (3, 4, 6, 8, 9, 10, 12, and 18). Mitigation measures were applied to all high, moderate-high, and moderate impacts to reduce initial impact levels where necessary and where appropriate.

Mitigation measures 4 and 12 would be applied where the transmission line crosses overstory vegetation (deciduous forest, mixed conifer forest, pinyon-juniper, spruce-fir forest, or hybrid oak stand). Selective mitigation measures 4 and 12 would reduce impacts by reducing vegetation contrast created as a result of overstory vegetation (tree) clearing and the hard visual line created by the cleared right-of-way/forest interface. Where an existing line is paralleled, mitigation measure 8 was applied to reduce impacts. Selective use of mitigation measure 8 would modify the standard tower spacing where feasible to better match that of the existing structures along the adjacent line. Where the line crosses a sensitive feature at a perpendicular or near perpendicular angle, mitigation measure 9 was applied to offset the proposed structure from a trail, road, scenic byway or other sensitive viewpoint, thereby reducing dominance of the transmission line structures in the viewshed. In areas of strong, moderate-strong, or moderate landscape contrast, mitigation measure 3 was applied to initial impacts. Selective use of mitigation measure 3 would reduce landform contrast created by new access roads, reducing project contrast in sloping areas where grading could expose underlying soils in cut and fill areas. Where structure contrast would be strong to moderate, mitigation measure 6 and mitigation measure 10 would be applied to reduce structure contrast by minimizing tower heights or using alternate finishes on the towers. Where the transmission line crosses slopes greater than 10 percent, mitigation measure 18 would be applied to minimize the landscape contrast created in areas of exposed soil and extensive cut and fill.

After application of mitigation measures and field observation of the site specific variations in viewing conditions (viewing position, adjacent landscape influence, viewing orientation, etc.), impacts along the assumed Project centerline were assigned a high, moderate, or low impact level. Final impacts are based on Tables F-10 and F-12 and these field observations. Impacts are generally reduced one level after implementation of mitigation measures: high to moderate, moderate-high to moderate, moderate to low, etc. Final impacts were then quantified for each alternative, and summarized in Table F-15.

<b>TABLE F-15 VISUAL IMPACT SUMMARY TABLE</b>																
<b>Alt. Route</b>	<b>Initial Residential Impacts (miles)</b>			<b>High Sensitivity Recreation/Road Initial Impacts(miles)</b>			<b>Moderate Sensitivity Recreation/Road Initial Impacts(miles)</b>			<b>Initial Scenic Quality/Image Type Impacts(miles)</b>			<b>Selective Mitigation Measures</b>	<b>Final Impacts</b>		
	<b>H-HM</b>	<b>M</b>	<b>ML-L</b>	<b>H-HM</b>	<b>M</b>	<b>ML-L</b>	<b>H-HM</b>	<b>M</b>	<b>ML-L</b>	<b>H-HM</b>	<b>M</b>	<b>ML-L</b>		<b>H</b>	<b>M</b>	<b>L</b>
<b>Mona To Limber</b>																
<b>A1</b>	22.9	38.7	4.2	6.2	44.0	7.4	26.0	22.0	17.8	57.2	6.9	1.7	3, 4, 6, 9, 10, 12, 18	<b>13.3</b>	<b>45.7</b>	<b>6.8</b>
<b>A2</b>	24.6	39.9	2.4	6.2	48.2	4.4	26.0	21.1	19.9	61.4	5.3	0.2	3, 4, 6, 9, 10, 12, 18	<b>13.3</b>	<b>49.8</b>	<b>3.7</b>
<b>B1</b>	22.6	42.0	3.6	6.8	43.3	8.8	24.2	28.9	15.1	59.7	6.7	1.7	3, 4, 6, 8, 9, 10, 12, 18	<b>11.5</b>	<b>49.3</b>	<b>7.3</b>
<b>B2</b>	24.3	43.1	1.8	6.8	48.5	5.7	24.2	27.9	17.2	63.8	5.2	0.2	3, 4, 6, 8, 9, 10, 12, 18	<b>11.5</b>	<b>53.5</b>	<b>4.1</b>
<b>C1</b>	32.6	29.8	4.2	10.4	39.2	7.4	36.4	15.7	14.5	54.2	10.7	1.7	3, 4, 6, 9, 10, 12, 18	<b>25.8</b>	<b>34.0</b>	<b>6.8</b>
<b>C2</b>	34.4	31.0	3.4	10.4	43.3	4.4	36.4	14.7	16.6	58.3	9.2	0.2	3, 4, 6, 9, 10, 12, 18	<b>25.8</b>	<b>38.1</b>	<b>3.7</b>
<b>Limber to Oquirrh</b>																
<b>D</b>	8.2	5.6	5.9	4.5	17.0	8.2	6.5	11.1	11.2	20.5	7.3	1.9	3, 4, 6, 8, 9, 10, 12, 18	<b>2.6</b>	<b>15.8</b>	<b>11.3</b>
<b>E1</b>	7.1	14.4	9.9	4.5	13.4	12.5	7.2	9.9	13.3	19.5	10.8	0	3, 4, 6, 8, 9, 10, 12, 18	<b>5.0</b>	<b>12.0</b>	<b>13.3</b>
<b>E2</b>	8.2	12.1	10.3	4.5	12.4	13.8	6.5	10.4	12.9	18.4	10.3	1.9	3, 4, 6, 8, 9, 10, 12, 18	<b>5.0</b>	<b>12.6</b>	<b>13.0</b>
<b>F1</b>	8.9	18.2	1.7	13.9	12.6	2.4	19.5	4.7	4.7	23.6	5.3	0	3, 4, 6, 8, 9, 10, 12, 18	<b>12.7</b>	<b>13.1</b>	<b>3.1</b>
<b>F2</b>	8.9	18.5	1.9	13.9	12.6	2.9	19.8	4.4	4.2	23.7	3.7	1.9	3, 4, 6, 8, 9, 10, 12, 18	<b>12.7</b>	<b>13.3</b>	<b>3.3</b>

<b>TABLE F-15 VISUAL IMPACT SUMMARY TABLE</b>																
<b>Alt. Route</b>	<b>Initial Residential Impacts (miles)</b>			<b>High Sensitivity Recreation/Road Initial Impacts(miles)</b>			<b>Moderate Sensitivity Recreation/Road Initial Impacts(miles)</b>			<b>Initial Scenic Quality/Image Type Impacts(miles)</b>			<b>Selective Mitigation Measures</b>	<b>Final Impacts</b>		
	<b>H-HM</b>	<b>M</b>	<b>ML-L</b>	<b>H-HM</b>	<b>M</b>	<b>ML-L</b>	<b>H-HM</b>	<b>M</b>	<b>ML-L</b>	<b>H-HM</b>	<b>M</b>	<b>ML-L</b>		<b>H</b>	<b>M</b>	<b>L</b>
<b>G</b>	9.5	30.4	9.1	9.8	31.7	7.6	6.9	26.5	14.7	31.6	15.5	1.9	3, 6, 8, 9, 10, 18	<b>7.5</b>	<b>24.5</b>	<b>17.0</b>
<b>Limber to Terminal</b>																
<b>H</b>	7.5	26.4	11.2	9.8	27.3	8.0	7.7	20.5	16.9	22.4	22.7	0	3, 6, 8, 9, 10, 18	<b>7.5</b>	<b>19.4</b>	<b>18.2</b>
<b>I</b>	11.1	12.8	16.2	7.2	24.1	8.6	3.8	21.6	13.8	12.8	27.2	0	3, 6, 8, 9, 10, 18	<b>4.8</b>	<b>13.6</b>	<b>21.6</b>

<b>TABLE F-16 VRM COMPLIANCE MATRIX</b>						
		<b>Project Contrast</b>				
		<b>Strong</b>	<b>Moderate/ Strong</b>	<b>Moderate</b>	<b>Moderate/ Weak</b>	<b>Weak</b>
<b>VRM Class</b>	<b>II</b>	No	No	No	Yes	Yes
	<b>III</b>	No	No	Yes	Yes	Yes
	<b>IV</b>	Yes	Yes	Yes	Yes	Yes

**TABLE F-17  
VISUAL SIMULATION SUMMARY**

<b>Viewpoint (VP)</b>	<b>Location</b>	<b>Sensitivity</b>	<b>Landscape Setting</b>	<b>Alternative</b>
VP 1	Mormon Trail Road (about 1.5-miles south of Box Elder Canyon Road)	Moderate (Travel Corridor, Planned County Trail)	Agricultural, Stansbury Mountains	<ul style="list-style-type: none"> <li>▪ Alternatives A (1 and 2), B (1 and 2), and C (1 and 2)</li> <li>▪ Limber Substation Site</li> </ul>
VP 2	South of Burraston Ponds	High (Residential), Moderate (Recreation)	Developed Agricultural Valley, Developed Utility Corridor, Undeveloped Foothills,	<ul style="list-style-type: none"> <li>▪ Alternatives A (1 and 2), B (1 and 2), and C (1 and 2)</li> <li>▪ Mona Annex Substation</li> </ul>
VP 3	Faust Road, Pony Express Monument	High (Pony Express National Historic Trail)	Undeveloped Valley	<ul style="list-style-type: none"> <li>▪ Alternative B (1 and 2)</li> </ul>
VP 4	State Route 73 (FiveMile Pass OHV)	Moderate (Travel Corridor, Recreational)	Undeveloped Valley	<ul style="list-style-type: none"> <li>▪ Alternative B (1 and 2)</li> </ul>
VP 5	Middle Canyon Road	High (Designated Scenic Backway, Recreation)	Undeveloped Oquirrh Mountains	<ul style="list-style-type: none"> <li>▪ Alternatives E (1 and 2)</li> </ul>
VP 6	South Willow Canyon Scenic Byway (Stansbury Foothills)	High (Recreation, Designated Scenic Route)	Undeveloped Foothills, Class C Scenery, Tooele Valley Vista	<ul style="list-style-type: none"> <li>▪ Alternatives G and H</li> </ul>
VP 7	Interstate 80 Eastbound (about 1.4 miles west of Tooele Exit)	High (California National Historic Trail); Moderate (Travel Corridor)	Developed Corridor, Agricultural, Industrial, Great Salt Lake	<ul style="list-style-type: none"> <li>▪ Alternative G and H</li> </ul>
VP 8	State Route 36	High (Residential), Moderate (SR 36)	Developed, North Oquirrh Mountains Backdrop	<ul style="list-style-type: none"> <li>▪ Alternative I</li> </ul>
VP 9	Lincoln, Pine Canyon Road	High (Residential)	Residential, Undeveloped, North Oquirrh Mountains (NOMA) Backdrop	<ul style="list-style-type: none"> <li>▪ Alternatives E (1 and 2)</li> </ul>

## **Appendix G – Visual Simulations**

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## APPENDIX G – VISUAL SIMULATIONS

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### G.1 Introduction

Visual simulations were produced to show the range of potential impacts and associated contrasts caused by the presence of the various Project components in different landscape settings from sensitive viewpoints. Landscape settings include undeveloped valleys, agricultural landscapes, foothills, and mountainous areas. A total of 10 simulations were developed at nine viewpoints over the Project area. Table F-16 (Appendix F) summarizes the locations of the simulations and sensitivities of the viewpoints shown in this Appendix.

#### G.1.1 Viewpoint 1

This viewpoint was chosen to illustrate the effects of the future Limber Substation from nearby moderate sensitivity travelers using the Mormon Trail Road. From this point, views of the Project would be in the immediate foreground, set against the Stansbury Mountains in an area of strong project contrasts. The substation would be in the foreground, or about 0.5 mile from this viewpoint, with the 345 kilovolt (kV) Alternatives G or H (Proponent's Proposed Action/Bureau of Land Management [BLM] Preferred) crossing within the immediate foreground (<0.25 mile) to the southwest. This visual simulation shows strong contrast and high impact to views from the Mormon Trail Road.

#### G.1.2 Viewpoint 2

This viewpoint is located south of the Burraston Ponds Wildlife Management Area (WMA) and 0.3 mile west of the closest residence to the future Mona Annex Substation, and represents typical views of the Project from the WMA (recreation area) and nearby residence. From this viewpoint, the Project would be located at a distance of approximately 0.85 mile, and would be viewed from within the context of existing transmission line infrastructure (345kV) already in place in the foreground, and would be set against the Long Ridge Mountains. Final impact represented in this viewpoint would be caused primarily by the cumulative impacts created by the additional 500kV and 345kV transmission lines and new substation (Alternatives A1 (BLM Preferred) and A2 (Proponent's Proposed Action), B1 and B2, C1 and C2). This visual simulation shows strong contrast viewed at over one mile resulting in moderate residual impact.

#### G.1.3 Viewpoint 3

This viewpoint is located at the Pony Express Trail Marker located on Faust Road, east of Faust, and about 6.1 miles west of the State Route (SR) 73 intersection. This viewpoint illustrates the Project Alternatives B1 and B2, where the long duration views would occur from high sensitivity viewers stopping at the marker. Views would be generally oriented toward the Project (north and northeast) from this location, in an area of strong contrast. The Project would be located in the middleground distance zone (1.6 miles). This visual simulation shows strong contrast viewed at over 1.5 miles resulting in moderate residual impact from this viewpoint.

#### **G.1.4 Viewpoint 4**

This viewpoint is located just north of the Fivemile Pass Recreation Area on SR 73, about 6.7 miles north of the Faust Road intersection, and would be in the immediate foreground view of moderate sensitivity SR 73 southbound travelers in this simulation. Strong contrast would be viewed for a short duration in this area, and this simulation shows the visual changes created as a result of Alternatives B1 and B2. This visual simulation shows strong contrasts viewed in the immediate foreground resulting in high residual impact.

#### **G.1.5 Viewpoint 5**

This viewpoint is located at the mouth of Middle Canyon along the Scenic Backway (Middle Canyon Road State Scenic Backway, Middle Canyon Overpass Tooele County Scenic Byway), about 1.3 miles east of Droubay Road. Alternatives D (BLM Preferred), E1 (Proponent's Proposed Action), and E2 would be viewed in the immediate foreground from this viewpoint. This simulation shows dull grey, double-circuit steel structures viewed by travelers entering the Oquirrh Mountains and Middle Canyon area. This visual simulation shows strong contrast in the immediate foreground resulting in high residual impact.

#### **G.1.6 Viewpoint 6**

Two simulations of Alternatives G and H (Proponent's Proposed Action/BLM Preferred) are shown from this viewpoint, located on South Willow Canyon Tooele County Scenic Byway on the east side of the Stansbury Mountains - one with dull grey finish 345kV single pole structures (BMPs), and one with self-weathering (corten) steel finish mitigation measure applied to structures (selective mitigation measure 10). This viewpoint is located where viewers begin to see the vista overlooking Tooele Valley when traveling east out of the Stansbury Mountains from the Cottonwood Campground (Uinta-Wasatch-Cache National Forest). The view of the transmission line in this simulation would be in the middleground for the 345kV alternatives. This visual simulation shows strong contrast in the foreground with selective mitigation measure 10 applied causing moderate residual impact, and moderate-high initial impact with the implementation of Best Management Practices.

#### **G.1.7 Viewpoint 7**

This viewpoint is located along a high volume travel corridor in the north Tooele Valley, and represents foreground views of the 345kV transmission line in a modified landscape. The viewpoint is located about 0.5 mile west of the I-80 crossing of 345kV Alternatives G and H (Proponent's Proposed Action/BLM Preferred), looking toward Lake Point to the east, with the Great Salt Lake on the north. This visual simulation shows moderate residual impact from the foreground view.

#### **G.1.8 Viewpoint 8**

This viewpoint is located on SR 36, looking toward the North Oquirrh Mountains and Alternative G at a distance of 1.2 miles in the background viewing condition. This simulation represents moderate contrasts created by the Project from SR 36, a high volume road in the Project area. This visual simulation shows low residual impact resulting from moderate contrast viewed in the background.

### **G.1.9 Viewpoint 9**

This viewpoint is located at the end of Pine Canyon Road, and represents typical views of the Project from residences located in Lincoln (east Tooele Valley) looking toward the North Oquirrh Management Area and 345kV transmission line Alternatives E1 (Proponent's Proposed Action) and E2. Strong to moderate/strong contrasts would be viewed in the background (1.6 miles) from these viewers. This visual simulation shows moderate-strong contrast in the background resulting in low residual impact.



**Existing Condition – Viewing south from the Mormon Trail Road.**

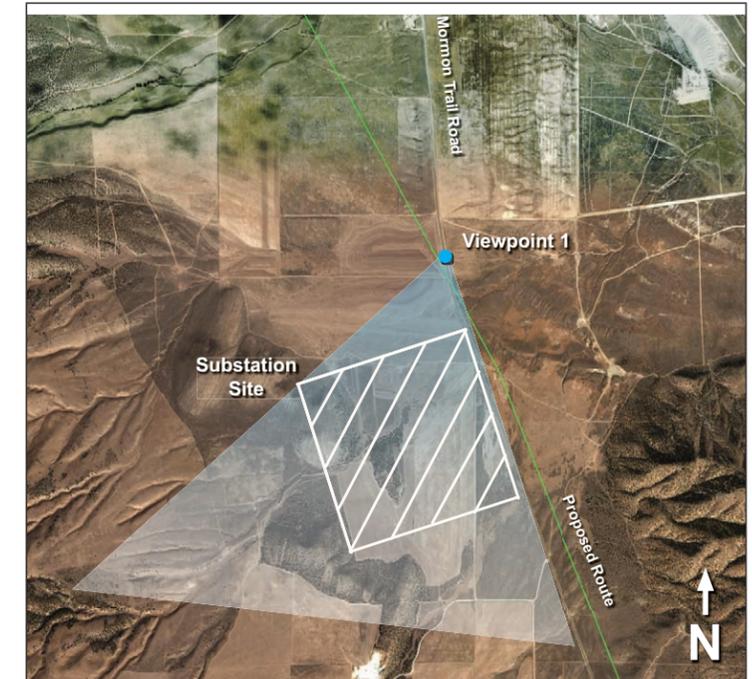
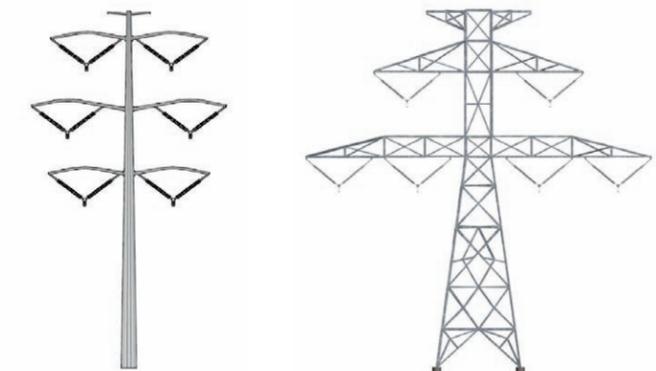


Photo Location: 1.5 miles south of Box Elder Canyon Road on Mormon Trail Road.



**Simulation – Proposed Limber Substation, Proposed 500kV and 345kV transmission line along Mormon Trail Road.**  
**Alternatives A1 - BLM Preferred & A2 - Proponent's Proposed Action, B1 & B2, C1 & C2**  
**Alternative G**  
**Alternative H - Proponent's Proposed Action/ BLM Preferred**

Photo Date: 05-14-08 Time: 1:18 p.m.  
 Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.



Typical dull grey, double-circuit 345kV tangent structure.

Typical dull grey, double-circuit 500kV tangent structure.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 1**



**Existing Condition – Viewing east to southeast toward the Long Ridge Mountains.**

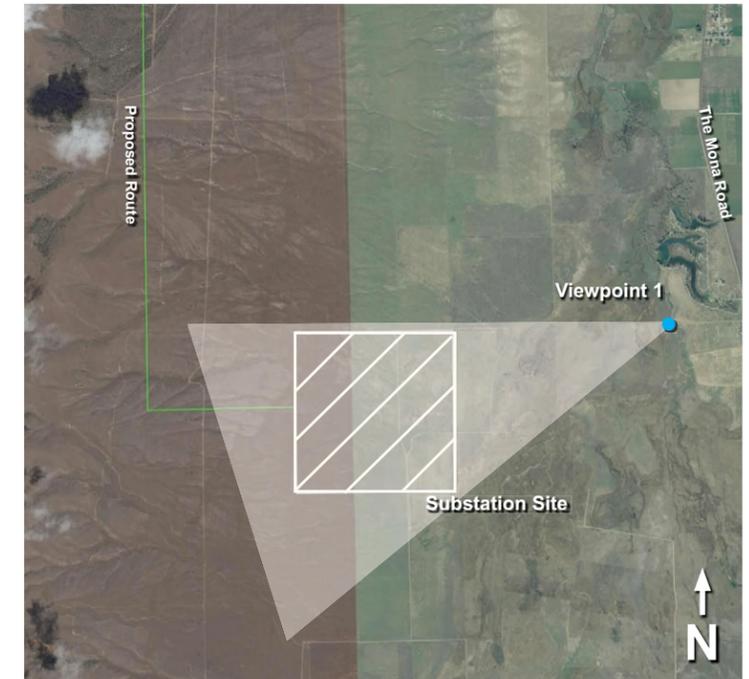


Photo Location: 0.2 mile Southwest of Burraston Pond's WMA.



**Simulation – Proposed Mona Annex Substation Proposed 500kV transmission line.  
Alternatives A1- BLM Preferred & A2 - Proponent's Proposed Action, B1 & B2, C1 & C2**



Typical dull grey, double-circuit 500kV tangent structure.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 2**

Photo Date: 12-12-08 Time: 3:26 p.m.  
Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.



**Existing Condition – Viewing northeast from the Pony Express Trail at the Faust Road Station Marker.**

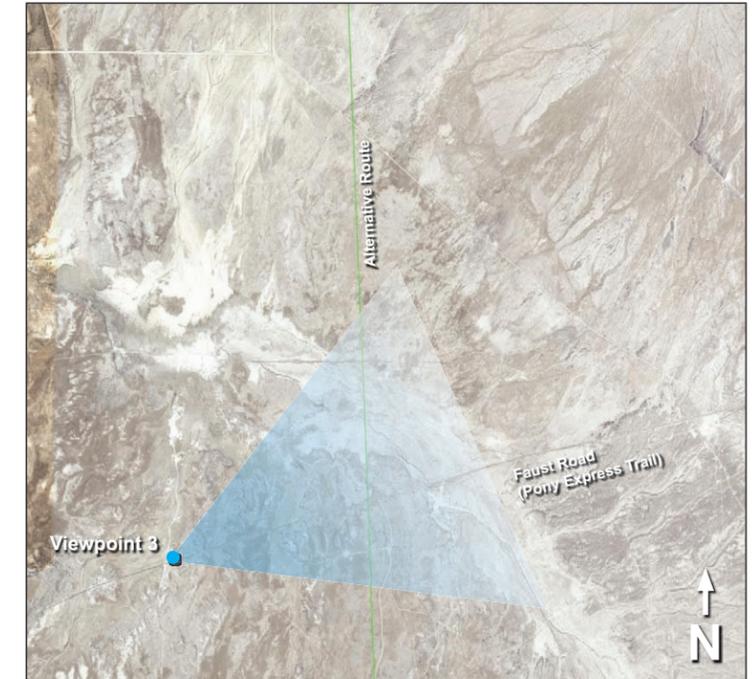
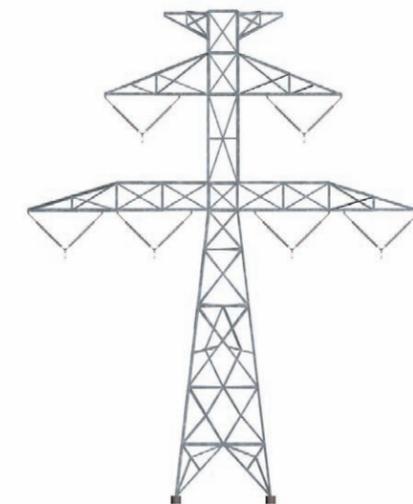


Photo Location: 5.5 miles east of Faust on Faust Road.



**Simulation -Typical 500kV transmission line.  
Alternatives B1 & B2**



Typical dull grey, double-circuit  
500kV steel-lattice transmission  
tower.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 3**

Photo Date: 08-12-08 Time: 10:16 a.m.  
Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.



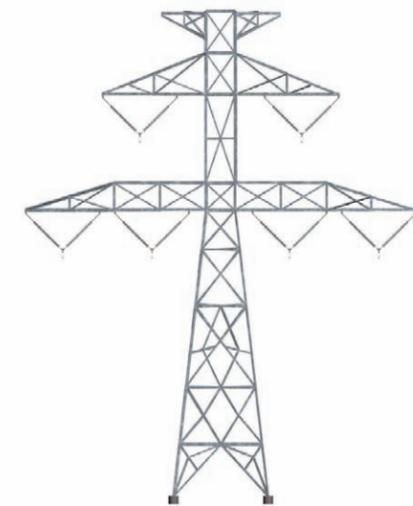
**Existing Condition – Viewing south from SR 73 near the Fivemile Pass Recreation Area.**



Photo Location: SR 73 near the Fivemile Pass Recreation Area, 2 miles south of Ophir Canyon Road.



**Simulation -Typical 500kV transmission line along SR 73.  
Alternatives B1 & B2**



Typical dull grey, double-circuit 500kV steel-lattice transmission tower.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 4**

Photo Date: 08-12-08 Time: 9:43 a.m.

Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.



**Existing Condition – Viewing southeast toward Middle Canyon and the Oquirrh Mountains.**

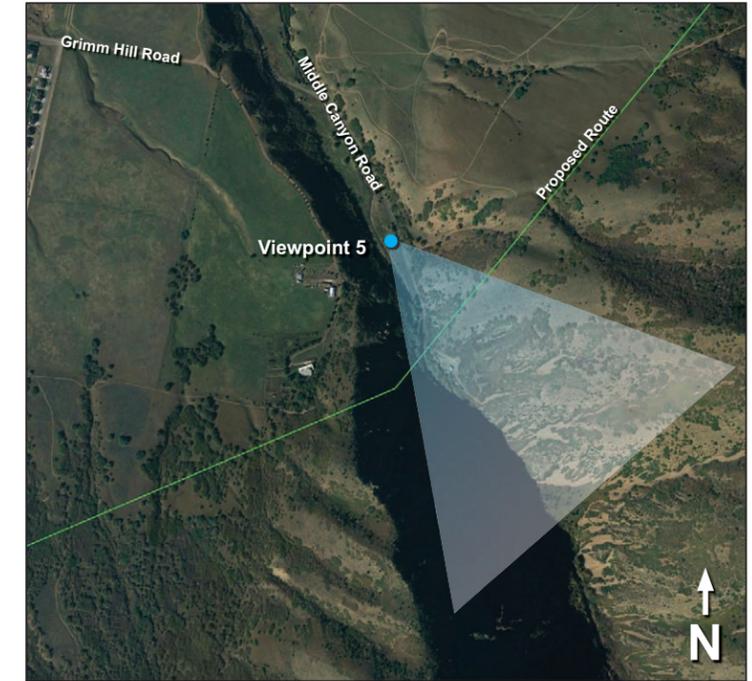
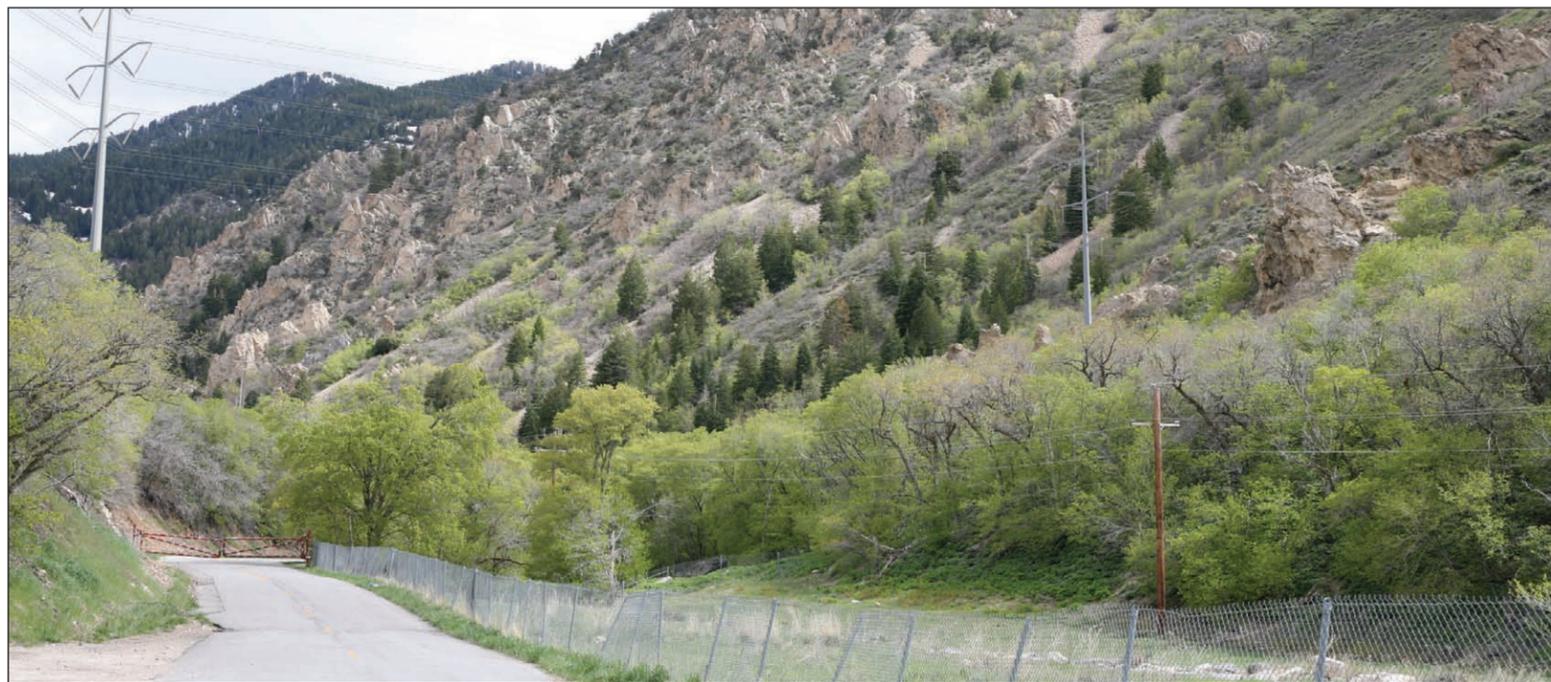
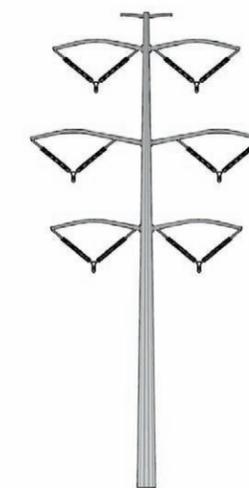


Photo Location: Middle Canyon State Scenic Backway (Middle Canyon Road) 1.25 miles east of Droubay Road.



**Simulation – Proposed 345kV transmission line crossing at the Middle Canyon Road. Alternatives D - BLM Preferred, E1 - Proponent's Proposed Action & E2**



Typical dull grey, double-circuit 345kV tangent structure.



Typical dull grey, double-circuit 345kV turning structure.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 5**

Photo Date: 05-14-08 Time: 2:42 p.m.  
 Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.



**Existing Condition – Viewing east toward the Oquirrh Mountains and Tooele Valley from South Willow Canyon Scenic Byway.**

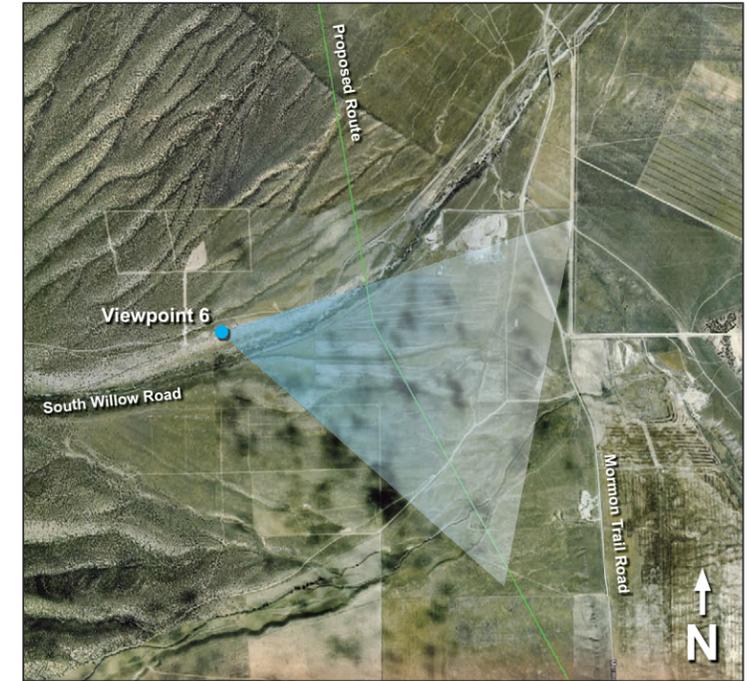
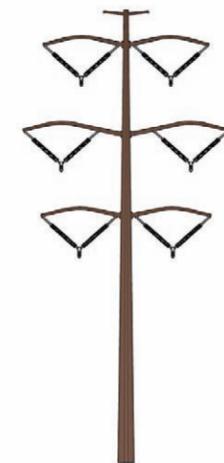


Photo Location: Viewing east from South Willow Road 1.75 miles west of Mormon Trail Road.



**Simulation - Proposed 345kV transmission line along the Mormon Trail Road (Selective Mitigation #10 applied).  
Alternative G  
Alternative H - Proponent's Proposed Action/ BLM Preferred**



Typical double-circuit 345kV tangent structure – self-weathering steel finish.



Typical double-circuit 345kV turning structure – self-weathering steel finish.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 6**

Photo Date: 05-14-08 Time: 1:32 p.m.  
Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.



**Existing Condition – Viewing east toward the Oquirrh Mountains and Tooele Valley from South Willow Canyon Scenic Byway.**



**Simulation -Proposed 345kV transmission line along the Mormon Trail Road.  
Alternative G  
Alternative H - Proponent's Proposed Action/ BLM Preferred**

Photo Date: 05-14-08 Time: 1:32 p.m.  
Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.

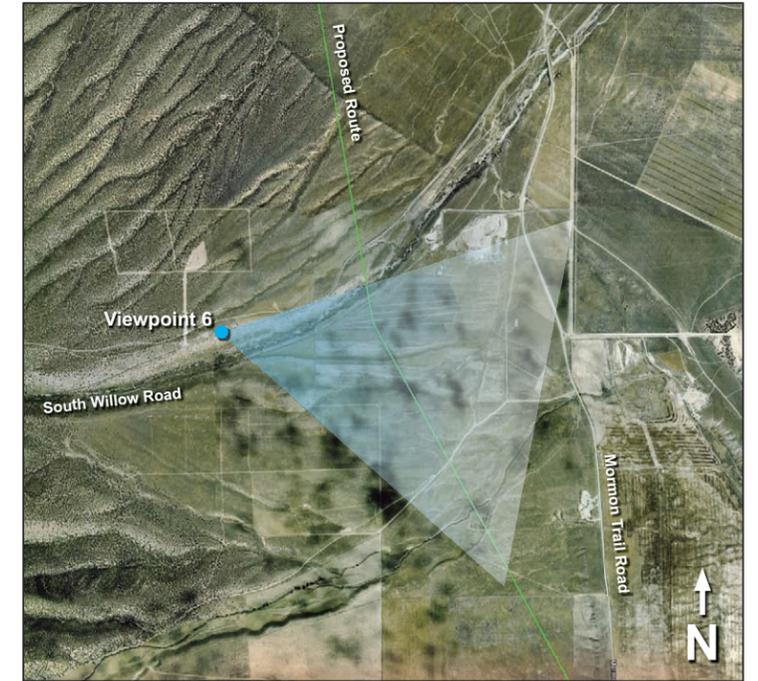
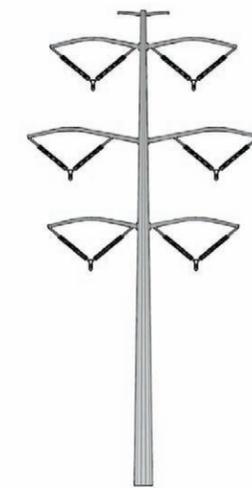


Photo Location: Viewing east from South Willow Road 1.75 miles west of Mormon Trail Road.



Typical dull grey, double-circuit 345kV tangent structure.



Typical dull grey, double-circuit 345kV turning structure.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 6**



**Existing Condition – Viewing east from Interstate 80 toward the North Oquirrh Mountains.**

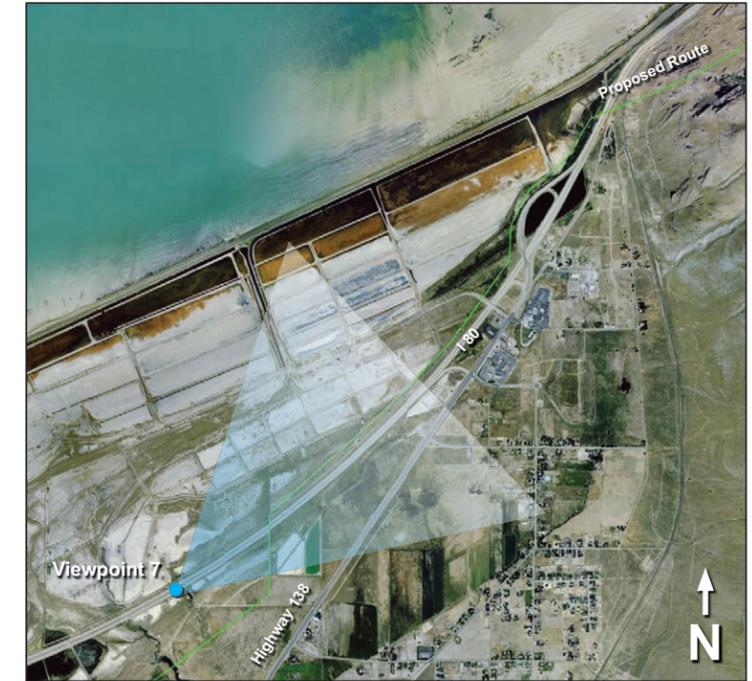


Photo Location: Eastbound Interstate 80, milepost 100.5 (appx.)



**Simulation – Proposed 345kV transmission line crossing Interstate 80.  
Alternative G  
Alternative H - Proponent's Proposed Action/ BLM Preferred**

Photo Date: 05-14-08 Time: 4:36 p.m.

Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.



Typical dull grey, double-circuit 345kV tangent structure.



Typical dull grey, double-circuit 345kV turning structure.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 7**



**Existing Condition – Viewing east toward the Oquirrh foothills from SR 36.**

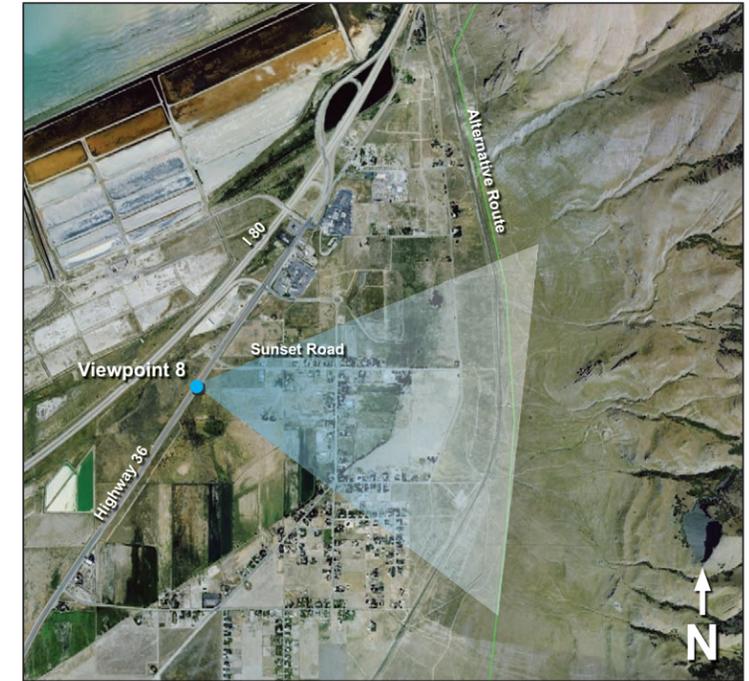
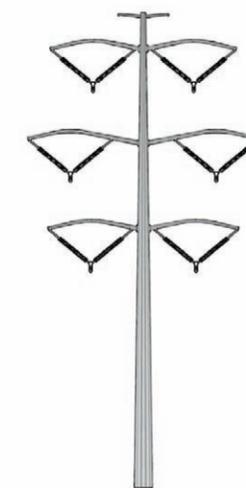


Photo Location: SR 36 just south of Sunset Road.



**Simulation – Typical 345kV transmission line along the Oquirrh foothills.  
Alternative I**



Typical dull grey, double-circuit 345kV tangent structure.



Typical dull grey, double-circuit 345kV turning structure.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 8**

Photo Date: 05-14-08 Time: 5:01 p.m.

Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.



**Existing Condition – Viewing east toward the North Oquirrh Management Area (NOMA).**

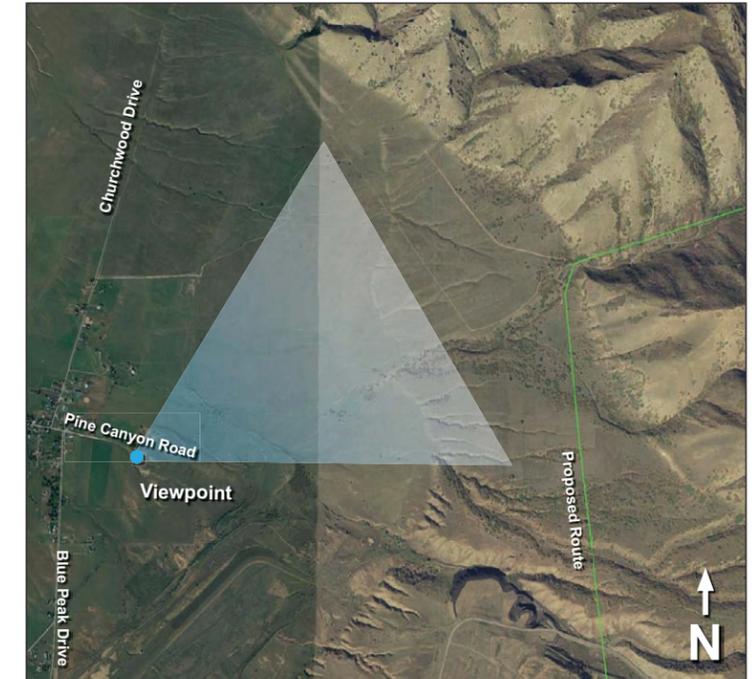
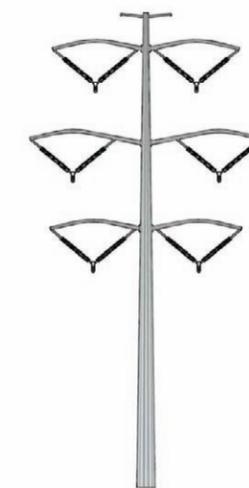


Photo Location: East end of Pine Canyon Road.



**Simulation – Typical 345kV transmission line crossing the NOMA.  
Alternatives E1 - Proponent's Proposed Action & E2**



Typical dull grey, double-circuit 345kV tangent structure.



Typical dull grey, double-circuit 345kV turning structure.

**Mona to Oquirrh Transmission Corridor Project EIS**

**Viewpoint 9**

Photo Date: 12-12-08 Time: 3:26 p.m.  
Structure models that were used in the simulations were created using diagrams provided by Rocky Mountain Power. This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.