

Chapter 5

Table of Contents

CHAPTER 5	5-1
5.1 Introduction	5-1
5.2 Water Resources	5-9
5.2.1 CESA Boundary	5-9
5.2.2 Introduction.....	5-9
5.2.3 Past and Present Disturbances.....	5-10
5.2.4 Reasonably Foreseeable Future Disturbances	5-15
5.2.5 Cumulative Disturbances	5-20
5.2.6 Cumulative Effects	5-20
5.3 Geology, Minerals, and Topography	5-21
5.3.1 CESA Boundary	5-21
5.3.2 Introduction.....	5-21
5.3.3 Past and Present Disturbances.....	5-21
5.3.4 Reasonably Foreseeable Future Disturbances	5-24
5.3.5 Cumulative Disturbances	5-24
5.3.6 Cumulative Effects	5-24
5.4 Paleontological Resources	5-24
5.4.1 CESA Boundary	5-24
5.4.2 Introduction.....	5-25
5.4.3 Past and Present Disturbances.....	5-25
5.4.4 Reasonably Foreseeable Future Disturbances	5-26
5.4.5 Cumulative Disturbances	5-26
5.4.6 Cumulative Effects	5-26
5.5 Soils	5-27
5.5.1 CESA Boundary	5-27
5.5.2 Introduction.....	5-27
5.5.3 Past and Present Disturbances.....	5-27
5.5.4 Reasonably Foreseeable Future Disturbances	5-27
5.5.5 Cumulative Disturbances	5-27
5.5.6 Cumulative Effects	5-28
5.6 Air Resources	5-28
5.6.1 CESA Boundary	5-28
5.6.2 Introduction.....	5-28
5.6.3 Past and Present Disturbances.....	5-29
5.6.4 Reasonably Foreseeable Future Disturbances	5-31
5.6.5 Cumulative Disturbances	5-32
5.6.6 Cumulative Effects	5-34
5.6.7 Climate Change.....	5-35
5.7 Vegetation, Including Noxious and Non-native, Invasive Weeds and Special Status Plants.....	5-36
5.7.1 CESA Boundary	5-36
5.7.2 Introduction.....	5-36
5.7.3 Past and Present Disturbances.....	5-38
5.7.4 Reasonably Foreseeable Future Disturbances	5-41
5.7.5 Cumulative Disturbances	5-43

5.7.6	Cumulative Effects	5-44
5.8	Wildlife Resources, Including Special Status Wildlife, Migratory Birds, Fisheries, and Aquatic Species	5-44
5.8.1	CESA Boundary	5-44
5.8.2	Introduction.....	5-44
5.8.3	Past and Present Disturbances.....	5-45
5.8.4	Reasonably Foreseeable Future Disturbances	5-48
5.8.5	Cumulative Disturbances	5-49
5.8.6	Cumulative Effects	5-50
5.9	Range Resources	5-54
5.9.1	CESA Boundary	5-54
5.9.2	Introduction.....	5-54
5.9.3	Past and Present Disturbances.....	5-55
5.9.4	Reasonably Foreseeable Future Disturbances	5-57
5.9.5	Cumulative Disturbances	5-58
5.9.6	Cumulative Effects	5-58
5.10	Cultural Resources	5-59
5.10.1	CESA Boundary	5-59
5.10.2	Introduction.....	5-59
5.10.3	Past and Present Disturbances.....	5-59
5.10.4	Reasonably Foreseeable Future Disturbances	5-59
5.10.5	Cumulative Disturbances	5-60
5.10.6	Cumulative Effects	5-60
5.11	Native American Concerns	5-61
5.11.1	CESA Boundary	5-61
5.11.2	Introduction.....	5-61
5.11.3	Past and Present Disturbances.....	5-61
5.11.4	Reasonably Foreseeable Future Disturbances	5-62
5.11.5	Cumulative Disturbances	5-62
5.11.6	Cumulative Effects	5-62
5.12	Land Use.....	5-63
5.12.1	CESA Boundary	5-63
5.12.2	Introduction.....	5-63
5.12.3	Past and Present Disturbances.....	5-64
5.12.4	Reasonably Foreseeable Future Disturbances	5-68
5.12.5	Cumulative Disturbances	5-70
5.12.6	Cumulative Effects	5-71
5.13	Special Designations	5-71
5.13.1	CESA Boundary	5-71
5.13.2	Introduction.....	5-71
5.13.3	Past and Present Disturbances.....	5-71
5.13.4	Reasonably Foreseeable Future Disturbances	5-72
5.13.5	Cumulative Disturbances	5-73
5.13.6	Cumulative Effects	5-75
5.14	Recreation.....	5-75
5.14.1	CESA Boundary	5-75
5.14.2	Introduction.....	5-76

5.14.3	Past and Present Disturbances.....	5-76
5.14.4	Reasonably Foreseeable Future Disturbances	5-77
5.14.5	Cumulative Disturbances	5-78
5.14.6	Cumulative Effects	5-78
5.15	Visual Resources	5-78
5.15.1	CESA Boundary	5-78
5.15.2	Introduction.....	5-79
5.15.3	Past and Present Disturbances.....	5-79
5.15.4	Reasonably Foreseeable Future Disturbances	5-79
5.15.5	Cumulative Disturbances	5-80
5.15.6	Cumulative Effects	5-80
5.16	Noise.....	5-80
5.16.1	CESA Boundary	5-80
5.16.2	Introduction.....	5-80
5.16.3	Past and Present Noise Sources	5-81
5.16.4	Reasonably Foreseeable Future Noise Sources.....	5-82
5.16.5	Cumulative Noise Sources	5-83
5.16.6	Cumulative Effects	5-83
5.17	Socioeconomics.....	5-83
5.17.1	CESA Boundary	5-83
5.17.2	Introduction.....	5-85
5.17.3	Past and Present Disturbances.....	5-85
5.17.4	Reasonably Foreseeable Future Disturbances	5-85
5.17.5	Cumulative Disturbance	5-87
5.17.6	Cumulative Effects	5-87
5.18	Environmental Justice.....	5-88
5.19	Hazardous and Solid Waste Materials.....	5-88
5.19.1	CESA Boundary	5-88
5.19.2	Introduction.....	5-89
5.19.3	Past and Present Disturbances.....	5-89
5.19.4	Reasonably Foreseeable Future Disturbances	5-90
5.19.5	Cumulative Disturbance	5-90
5.19.6	Cumulative Effects	5-90
5.20	Transportation.....	5-90
5.20.1	CESA Boundary	5-90
5.20.2	Introduction.....	5-90
5.20.3	Past and Present Disturbances.....	5-91
5.20.4	Reasonably Foreseeable Future Disturbances	5-91
5.20.5	Cumulative Disturbance	5-92
5.20.6	Cumulative Effects	5-92

List of Tables

Table 5.1-1	Land Ownership by CESA.....	5-3
Table 5.1-2	Existing Quantifiable Land Uses by CESA.....	5-4
Table 5.1-3	Potential Quantifiable Permanent Disturbance from Reasonably Foreseeable Projects	5-6
Table 5.1-4	Programmatic Actions and Potential Disturbance Acreage.....	5-8
Table 5.3-1	Mining Operations in the CESA.....	5-22
Table 5.3-2	Mining Districts in the CESA	5-22
Table 5.3-3	Nevada Oil and Gas Wells in the CESA as of 2004.....	5-23
Table 5.6-1	Emission Rates for Permitted Facilities within the CESA North of Clark County.....	5-30
Table 5.6-2	Source Emission Rates for Reasonably Foreseeable Facilities Within or Immediately Adjacent to the CESA.....	5-31
Table 5.7-1	Land Cover Acreages Found Within the CESA for Vegetation	5-37
Table 5.7-2	NNHP State Sensitive Species Found on Grazing Allotments within the CESA for Vegetation	5-38
Table 5.12-1	Recent Enacted Federal Legislation Affecting Land Use and Realty	5-64
Table 5.13-1	Cumulative Impacts to SDAs.....	5-75
Table 5.15-1	BLM VRM Designations in the CESA.....	5-79
Table 5.17-1	Cumulative Direct Employment Impacts	5-86
Table 5.20-1	Projects from the Nevada Proposed Highway Projects for FY2010- 2019 and Statewide Transportation Improvement Program for Fiscal Years 2010-2013.....	5-92

List of Figures

Figure 5.2-1	Surface Water CESA.....	5-11
Figure 5.9-1	Grazing CESA	5-56
Figure 5.12-1	Land Use CESA	5-67
Figure 5.17-1	Socioeconomics CESA	5-84

Chapter 5

Cumulative Effects

5.1 Introduction

Cumulative effects are those impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions in the Cumulative Effects Study Areas (CESAs), regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taken over a period of time. Major past and present land uses and disturbances in the area, which are also projected to continue into the future, include: roads, wildfires, livestock grazing, agriculture, and mining. Dispersed recreation (including hunting and fishing) and residential development also occur in parts of the CESAs.

The size of CESAs for this FEIS varies by resource. The configuration of the Proposed Action and Action Alternative, as well as public comment input gathered for this EIS, provided the foundation for identifying CESAs. Cumulative effects should be evaluated in terms of the specific resource, ecosystem, and human community being impacted. An attempt was made for each environmental resource to determine the extent to which the environmental effect could be reasonably detected and then include the geographic areas of resources that could be impacted by the environmental effect. However, for simplicity, ease of cumulative impact analysis, and in an attempt to avoid having only slightly different CESAs for a number of resources, CESA boundaries were left identical for multiple resources where it seemed reasonable and conservative to do so. The CESA boundaries are reasonably sized to prevent dilution of the cumulative effects over large areas. Guidance from the CEQ, “Considering Cumulative Effects – January 1997,” was used in identifying geographic boundaries and ultimately the CESA for each resource. The CESA for each environmental resource – and the rationale for its boundaries – is described below in each specific resource subsection. Maps for the various CESAs are also included.

Table 5.1-1 details the land ownership by CESA. The information in this table will be referred to throughout the discussions by resource topic in the proceeding sections.

Appendix 5A provides a complete list and brief descriptions of past, present, and reasonably foreseeable projects that contribute to cumulative effects. Many of these projects are specifically discussed under the resource discussions that follow.

Table 5.1-2 details the existing quantifiable land uses within each CESA that will be discussed by resource topic in the proceeding sections.

Table 5.1-3 details the future quantifiable land uses within each CESA that will be discussed by resource topic in the proceeding sections, and that are detailed in **Appendix 5A**. Resources are presented in this table by CESA footprint. Detailed descriptions of most of the projects are provided in **Section 5.2**. Projects that are not discussed in **Section 5.2** are detailed under the resource topic for which they are evaluated.

NV Energy proposed in 2006 to construct and operate a coal-fueled electric generating facility about 20 miles north of Ely, in White Pine County, Nevada, referred to as the Ely Energy Center (EEC) (BLM 2009a). NV Energy announced in February 2009 its plan to postpone development of the EEC indefinitely and proceed with just the transmission facilities component of the original project to connect NVE’s northern and southern service territories. NV Energy submitted a

revised Plan of Development and ROW application to the BLM specifically for the ON Line Project; because the previous application was withdrawn and the current application does not include the EEC, the EEC is not considered a reasonably foreseeable project and will not be included in the following cumulative effects analysis.

A number of actions listed in **Appendix 5A** could potentially affect large acreages in the CESA, however, because these actions are more programmatic in nature rather than project-specific, there are uncertainties about how specific projects will be carried out in the future. For this reason, these projects are not included in **Table 5.1-3** below, but are listed separately in **Table 5.1-4**.

TABLE 5.1-1 LAND OWNERSHIP BY CESA

LAND OWNERSHIP	WATER RESOURCES, ETC ¹		SOCIOECONOMICS		RANGE RESOURCES CESA		LAND USE CESA*		SPECIAL DESIGNATIONS** AND RECREATION CESA	
	ACRES	% OF CESA	ACRES	% OF CESA	ACRES	% OF CESA	ACRES	% OF CESA	ACRES	% OF CESA
Bureau of Land Management	849,470	89.000	16,642,511	69.05	2,961,261	96.01	17,721,616	68.84	13,739,535	74.27
Bureau of Indian Affairs	5,014	0.53	80,290	0.33	4,301	0.14	152,946	0.59	83,974	0.45
Bureau of Reclamation	N/A	N/A	N/A	N/A	746	0.02	30,612	0.12	38,173	0.21
Department of Defense	N/A	N/A	2,585,285	10.73	2	0.01>	2,597,197	10.09	1,146,500	6.20
Department of Energy	N/A	N/A	910,389	3.78	N/A	N/A	910,389	3.54	41,544	0.22
National Park Service	N/A	N/A	183,528	0.76	N/A	N/A	482,447	1.87	476,854	2.58
U.S. Fish & Wildlife Service	58,710	6.15	299,401	1.24	23,369	0.76	341,062	1.32	780,951	4.22
U.S. Forest Service	10,858	1.14	2,751,576	11.42	6,081	0.20	2,736,264	10.63	1,199,674	6.48
Total Federal	924,052	96.81	23,452,980	97.30	2,995,760	97.13	24,972,533	97.00	17,507,205	94.63
Open Water	N/A	N/A	1,028	0.00	N/A	N/A	1,177	0.00	472	0.00
Private	29,553	3.10	614,169	2.55	77,821	2.52	695,281	2.70	915,430	4.95
State of Nevada	857	0.09	34,492	0.14	10,843	0.35	74,817	0.29	77,145	0.42
Total All Owners	954,463	100.0	24,102,668	100.0	3,084,424	100.0	25,743,807*	100.0	18,500,251**	100.0

Source: BLM\bnld_landownership_2006_Sept_poly updated with the new Ely Shoshone file

¹Includes water resources, soils, vegetation, cultural resources, Native American concerns, visual, noise, geology, minerals, paleontological resources, wildlife and special status species.

*There are discrepancies among the shape files for land use; therefore the total acreage for the CESA is slightly less than actual.

**The CESA for Special Designations extends into the State of Utah as the CESA includes lands within a 50-mile radius of project components. However, data in this table is only available for the State of Nevada. Therefore, acreages and percentages are slightly less than actual for the CESA.

TABLE 5.1-2 EXISTING QUANTIFIABLE LAND USES BY CESA

LAND USE DISTURBANCES	WATER RESOURCES, ETC ¹		RANGE RESOURCES		LAND USE		SPECIAL DESIGNATIONS AND RECREATION		SOURCES
	ACRES	% OF CESA	ACRES	% OF CESA	ACRES	% OF CESA	ACRES	% OF CESA	
Mining (active & abandoned)	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	N/A
Mine tailings (KCC-McGill tailings)	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	KCC Undated
Gravel Pits (active & abandoned)	9 acres	<0.01	41 acres	<0.01	22 acres	<0.01	22 acres	<0.01	Source: unknown File Name: gravelpits_poly
Habitat Improvement Areas	19,000	<0.01	19,925	<0.01	24,025	<0.01	19,925	<0.01	Source: BLM websites
Burned Areas	83,267 acres	8.72	214,790 acres	6.96	1,031,506 acres	4.01	1,076,453 acres	5.81	Source: BLM, File Names: 1999, 2000, 2001, 2002, 2003, 2005t, 2006, 2007, & nv_fires_20081106
Roads – Interstate and Primary U.S.	1,051 acres 87 linear miles	0.10	1,801 acres 149 linear miles	0.05	10,611 acres 875 linear miles	0.04	10,598 acres 875 linear miles	0.06	Source: http://sagemap.wr.usgs.gov/data/ist_thm.asp 100 foot right-of-way assumed to calculate acreage from linear miles
Roads – Secondary State Highway	117 acres 10 linear miles	<0.01	860 acres 71 linear miles	<0.01	9,139 acres 754 linear miles	0.04	6,599 acres 544 linear miles	0.04	
Roads – Local, neighborhood, rural, city	6,407 acres 1,057 linear miles	0.67	23,289 acres 3,843 linear miles	0.76	178,627 acres 29,473 linear miles	0.69	152,284 acres 25,127 linear miles	0.82	Source: http://sagemap.wr.usgs.gov/data/ist_thm.asp 50 foot right-of-way assumed to calculate acreage from linear miles
Vehicular Trail – passable by 4WD only	178 acres 98 linear miles	<0.01	927 acres 510 linear miles	<0.01	8,170 acres 4,493 linear miles	0.03	8,009 acres 4,405 linear miles	0.04	Source: http://sagemap.wr.usgs.gov/data/ist_thm.asp 15 foot right-of-way assumed to calculate acreage from linear miles
Grazing Lands	860,328 acres	90.14	2,967,342 acres	96.20	20,457,880 acres	79.47	14,939,209	80.75	Assumed to include BLM and USFS lands
Irrigated Agriculture	328 acres	0.03	4,082 acres	0.13	52,554	0.20	53,912	0.27	Source: BLM File Name: nv04 ReGap.mdb

LAND USE DISTURBANCES	WATER RESOURCES, ETC ¹		RANGE RESOURCES		LAND USE		SPECIAL DESIGNATIONS AND RECREATION		SOURCES
	ACRES	% OF CESA	ACRES	% OF CESA	ACRES	% OF CESA	ACRES	% OF CESA	
Utility ROWs	3,336 acres 275 linear miles	0.35	4,312 acres 355 linear miles	0.14	14,198 acres 1,1714 linear miles	0.06	17,583 acres 1,450 linear miles	0.10	Source: http://sagemap.wr.usgs.gov/data/ist_thm.asp 100 foot right-of-way assumed to calculate acreage from linear miles
Urban (medium-high density)	100 acres	0.01	342 acres	0.01	3,955	0.02	20,071	0.10	Source: BLM File Name: nv04 ReGap.mdb
Total (Not including Habitat Improvements, Grazing Lands or Burned Areas*)	11,526	1.2	35,312	1.1	273,321	1.1	249,007	1.4	

¹Includes water resources, soils, vegetation, cultural resources, Native American concerns, visual, noise, geology, minerals, paleontological resources, wildlife and special status species.

²Includes Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project, White Pine Sagebrush Restoration Project, and Smith Valley Habitat Improvement and Fuels Reduction Project, see **Appendix 5A** for resource applicability.

* To lump all types of disturbances together would not provide an accurate picture of the CESA, much of which, though grazed or burned, is relatively undisturbed. By including burned, grazed, or habitat improvement areas in this table, it acknowledges that some level of modification to the natural state has occurred. Acreages are not necessarily exclusive and may overlap.

TABLE 5.1-3 POTENTIAL QUANTIFIABLE PERMANENT DISTURBANCE (IN ACRES) FROM REASONABLY FORESEEABLE PROJECTS

PROPOSED PROJECT DISTURBANCES	WATER RESOURCES, ETC	AIR QUALITY	SOCIOECONOMICS	RANGE RESOURCES	LAND USE	SPECIAL DESIGNATIONS AND RECREATION
Ely Airport (Yelland Field) Expansion	N/A	1,545	1,545	N/A	1,545	N/A
Coyote Springs Community Development	43,000	43,000	29,000	N/A	43,000	43,000
Hidden Valley Community Development	N/A	914	914	N/A	914	N/A
Apex Industrial Park	6,000	6,000	N/A	N/A	6,000	6,000
Northern Nevada Railway Reconstruction	N/A	2,600	2,600	N/A	2,600	2,600
Nevada Wind Company Egan Range Wind Project	N/A	4,470	4,470	4,470	4,470	4,470
Enexco Wind Project	N/A	4,536	4,536	4,536	4,536	4,536
SNWA	7,888	7,888	7,888	7,888	7,888	7,888
Kane Springs Water Development	21	21	21	21	21	21
Lincoln Co. Land Act Groundwater Dev. and Utilities ROW	240	240	240	240	240	240
Flat Top Mesa Solar Project	N/A	N/A	1,000	N/A	1,000	1,000
GBT 500 kV Line*	800	800	800	800	800	800
Spring Valley Wind Project	N/A	111	111	N/A	111	111
Toquop Natural Gas Power Plant	N/A	450	450	N/A	450	450

PROPOSED PROJECT DISTURBANCES	WATER RESOURCES, ETC	AIR QUALITY	SOCIOECONOMICS	RANGE RESOURCES	LAND USE	SPECIAL DESIGNATIONS AND RECREATION
White Pine Energy Station (WPES)	N/A	1,510	1,510	1,510	1,510	1,510
Wilson Creek Wind Project	N/A	31,000	31,000	31,000	31,000	31,000
ON Line Project	800	800	800	800	800	800
Totals	58,749	105,855	86,885	51,265	106,855	104,426

¹ Includes water resources, soils, vegetation, cultural resources, Native American concerns, visual, noise, geology, minerals, paleontological resources, wildlife, and special status species

N/A: Information not quantifiable, the project does not fall within the CESA, or would not impact the resource.

*Acres of long-term disturbance estimated based on similarity to current project.

Note: Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time but would contribute additional future disturbance.

TABLE 5.1-4 PROGRAMMATIC ACTIONS AND POTENTIAL DISTURBANCE ACREAGE

PROGRAMMATIC ACTION	WATER RESOURCES, ETC	AIR QUALITY	SOCIOECONOMICS	RANGE RESOURCES	LAND USE	SPECIAL DESIGNATIONS AND RECREATION
Humboldt-Toiyabe NF White Pine and Grant-Quinn Oil and Gas Exploration Leases	255,063 acres authorized for exploration leases.					
Lincoln County Lands Act of 2000	-	-	Disposal of over 13,000 acres of public land	-	Disposal of over 13,000 acres of public land	Disposal of over 13,000 acres of public land
Lincoln County Conservation Recreation and Development Act	-	-	Disposal of approximately 100,000 acres of public land	-	Disposal of approximately 100,000 acres of public land	Disposal of approximately 100,000 acres of public land
Solar Energy Development PEIS	Armagosa Valley Tract (32,699 ac.), Dry Lake Tract (16,516 ac.), Delamar Valley Tract (17,932 ac.), Dry Lake Valley North Tract (49,775 ac.), East Mormon Mountain Tract (7,418 ac.), Gold Point Tract (5,830 ac.), and Miller's Tract (19,205 ac.)					
SWIP Utility Corridor	Designated corridor established in the Ely and Las Vegas RMPs (within the project area) that provides for utility development and bundling to minimize impacts. Within the project area, the width varies from 2,640 to 3,500 feet and includes about 106,000 acres. Subsequently this same utility corridor was federally designated in the West-wide Energy Corridor Programmatic EIS. .					
West-wide Energy Corridor (Designation of Energy Corridors on BLM Lands in 11 Western States)	Federally designated utility corridors. Proposed for Nevada are 1,630 miles of corridor on 925,051 acres, of which 46% is existing utility & transportation ROWs.					

¹ Includes water resources, soils, vegetation, cultural resources, Native American concerns, visual, noise, geology, minerals, paleontological resources, wildlife, and special status species

5.2 Water Resources

5.2.1 CESA Boundary

Surface Water Resources – The CESA for surface water resources is a 2.5-mile buffer either side of the ON Line Project footprint (**Figure 5.2-1**). The total area of this CESA is 954,373 acres and includes BLM, USFS, USFWS, BIA, and private lands.

Groundwater Resources – Groundwater resources would not be affected directly or indirectly by the Proposed Action or Action Alternative, as described in Chapter 4, thus there would be no cumulative impacts. Therefore, no additional consideration of groundwater resources is included in this chapter.

Wetlands – The CESA for wetlands would be the same as that described for surface water (**Figure 5.2-1**).

Rationale

Surface Water Resources – The direct and indirect effects of the Proposed Action and Action Alternative on flow and quality of surface streams would be limited to direct disturbance areas, which are confined within the larger boundaries along the linear facilities.

Wetlands – Wetlands are supported by surface water and near-surface ground water. Wetland resources in the Proposed Action or Action Alternative alignments would be avoided by design (**Section 4.2.3.2**). Impacts by the project on wetlands should not be noticeable beyond the project area.

5.2.2 Introduction

Water Rights

Water physically available for use in any water basin is the difference between the water coming into the basin (e.g., from precipitation or other basins), minus water consumed through natural and anthropogenic uses, and any change in basin storage. Water rights are a legal requirement for use of water in Nevada, and represent the cumulative use of water by people living and working in the State. The Nevada State Engineer's Office is responsible for administering water rights in a way that ensures that water will be put to beneficial use, and that water used will not exceed that which is available on an annual basis.

Surface Water Resources

Surface water hydrology of the project area is described in **Section 3.2** of this document and depicted on **Figure 3.2-1**. Direct and indirect impacts of the construction and operation of the transmission line and associated facilities are described in **Section 4.2**. Potential cumulative effects to surface water resources within the CESA can occur from any surface disturbance, change in vegetation, surface water withdrawal for irrigation or other purposes; change in land use or alteration of natural drainage patterns; and deposition impacts that change water quality.

Water quality is discussed in **Section 3.2.3.2**, including water quality degradation that is attributed to past and current development.

Wetlands

Locations and descriptions of wetlands in the project area are found in a report by JBR (2007a), which is summarized in **Section 3.2.3.3**. These include naturally occurring wetlands, as well as those created by developed facilities (e.g., irrigation reservoirs, irrigation or drainage ditches) or heavily influenced by anthropogenic development. See also **Figures 3.2-1a-d**. Naturally occurring wetlands are primarily associated with surface water features such as streams and springs, but wetlands in the CESA also occur as wet meadows in areas of local high groundwater. The USGS estimates that 52 percent of native wetlands in Nevada have been lost since European settlement. According to USGS (1996):

More than one-half of Nevada's original wetlands have been lost, primarily due to conversion of wetlands to cropland and diversion of water for agricultural and urban use; many others have been seriously degraded by human activities. Some wetlands have been created by mine dewatering and sewage treatment.

5.2.3 Past and Present Disturbances

Surface Water Resources

The primary source of impacts to surface water resources is surface disturbance, which is directly affected by land use. Impacts can be to water quality or water quantity, which are interrelated in many cases (see **Section 3.2.2**). Types of development that might affect surface water resources would include road construction and maintenance, livestock grazing, timber harvest, agricultural activities, residential development, energy development, recreational trails/facilities, utility corridors, landfills, and mining activities. Point-source wastewater and storm drain discharges from urbanization and industrial development are regulated under National Pollution Discharge Elimination System (NPDES) permitting, which minimizes their impact on receiving surface water quality. Non-point storm water runoff from land uses such as transportation corridors, livestock grazing, and timber harvest are less easily regulated and have the potential to affect surface water quality as well as the timing and volume of surface water flows. Events such as wildfires or failed culverts can have impacts on water quality.

Analysis of cumulative effects on surface water for the ON Line Project is simplified by NV Energy's proposed use of existing utility corridors. Active grazing and agricultural activities, including irrigation, dominate surface use in the CESA.

Land Use

Table 5.1-1 gives land ownership by acreage and **Table 5.1-2** gives land uses for the surface water CESA. Note that there is a great range of potential impacts within some categories. For example, a paved multi-lane highway, like US-93, has different impacts than an unpaved, abandoned logging road. Land use is described in greater detail in **Sections 3.12, 4.12, and 5.12**.

Land Management

The Lincoln County Lands Act of 2000, the Lincoln County Conservation, Recreation, and Development Act of 2004, and the White Pine County Conservation, Recreation, and Development Act of 2006 direct the management of lands within those counties through designation and/or release of wilderness areas, designation of OHV trails, conveyance of lands from BLM to the state and county, provisions for land disposals, transfer of administrative jurisdiction of lands between federal agencies, establishment of utility corridors, and other land management directives.

Figure 5.2-1 Surface Water CESA

Changes in land management can affect water use and management and thereby water quality and quantity. For example, the White Pine County Conservation, Recreation, and Development Act supports the funding of All American Canal Projects, which guarantees Nevada the right to divert and consume a portion of Lake Mead which directly impacts water quality and quantity. Utility corridor development and OHV trail use contribute to surface disturbance which can increase sediment, affect quantity and timing of runoff, and impact water quality.

Agriculture, Forestry, and Similar Sources of Surface Disturbance

Other anthropogenic impacts to surface water in the CESA include reservoirs in the White River Basin, such as those in the Kirch Wildlife Management Area in Nye County (Tule Field, Hay Meadow, and Whipple reservoirs) (NDOW 2007d). Irrigation reservoirs, diversions, and delivery systems (e.g., ditches) impact surface water by altering natural drainage systems as well as the timing and volume of runoff. Irrigated agricultural lands can result in increased sediment and nutrient loads in surface water.

Agricultural and forestry practices can alter or remove vegetation temporarily or over long periods. This has the potential to increase erosion and sediment delivery to streams or other surface water features. In addition, fertilizer and other chemicals applied to the land can be carried into surface water bodies. **Table 5.1-2** lists the areal extent of agriculture and related land uses in the CESA.

An ecosystem enhancement project is partly within the surface water CESA, the White Pine Sagebrush Restoration Project enhanced sagebrush habitat and reduced the risk of large scale, high severity wildfire throughout approximately 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush. The Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project occurred within several CESAs. For this project, 3,253 acres were subject to mechanical treatment and 844 acres for prescribed fire treatment. Projects like these cause short-term disturbance but long-term benefits to water resources by reducing wildfire risk, restoring native vegetation to pre-development conditions, and, in some cases, increasing water yield.

Vegetation loss and soil permeability can be severely impacted by wildfires and efforts to control them. During the last ten years, over 83,267 acres within the CESA burned, and most notably, nearly 67,442 of those acres burned in 2005 (BLM 2007h). Widespread burning of lands can result in deposition of sediment in surface water; loss of riparian areas (shading of streams and temperature effects); change in quantity and timing of runoff; and loss of the organic soil layer, impeding new vegetation and infiltration. Fuels reduction and habitat restoration projects may have similar effects in the short-term, but beneficial effects in the long-term by reducing the incidence of catastrophic wild fire.

Community Development

Community development can affect quantity and timing of storm water runoff. Hardscaping, such as buildings, roads, and parking lots, can affect surface water by reducing or eliminating infiltration over large areas and changing drainage patterns. This, in turn, affects the timing and quantity of overland flow and runoff to surface water features, and can lead to increased sediment yield by increasing the erosion potential of runoff by concentrating it. **Table 5.1-2** gives an indication of overall urbanization, roads, and industrial land uses within the CESA. Most roads and hardscaping development in recent years has integrated infiltration basins and other best management practices into their storm water design and permitting, substantially mitigating the effect of development on surface water resources.

Extractive Industry (Mining, Gravel Pits, Gas and Oil Exploration/Development)

Development associated with extractive industry (mining, oil/gas exploration) includes road construction, drilling, mining disturbance, dewatering, and supportive facilities. Extractive industry disturbance is more likely to be long-term in nature as the extractive process is lengthy, and rehabilitation of disturbances can take many years. The extractive industry can impact water quality through increased acidity, metals, nutrients, or sediment in the water. Mining can affect both surface and ground water resources, and, in some cases, consumes substantial quantities of water.

Section 3.3.3.3 describes the mining districts within the CESA or adjacent to it. **Table 3.3-2** shows the project element nearest to each mining district, the mineral commodities (e.g., gold, copper, phosphate), and the mining claim number for active claims. **Figure 3.3-4** shows the locations of the districts. **Table 5.3-2** expands on **Table 3.3-2** to include a larger area (the minerals CESA), and historical context to mining in the area. **Section 3.3.3.3** also shows active oil and gas leases in the area and authorized geothermal leases. The preceding was obtained primarily from BLM databases. In addition to the active mines and oil and gas leases, there are mining claims within the project area that have been abandoned or patented (BLM 2007h), such as a portion of the Robinson Nevada Mine (Mine Development Associates 2004), 22 miles west of Ely.

Abandoned mines can be troublesome for surface water, since many of them were mined before environmental regulations, reclamation bonding, or other types of permitting went into effect. At some sites, disturbed areas do not support plant growth, particularly on tailings or waste rock depositories. Consequently, these sites may yield higher sediment loads, acid mine drainage, metals, and other water quality contaminants. The Nevada Bureau of Mines and Geology (NBMG) estimates that there are as many as 225,000 to 310,000 inactive and abandoned mine sites statewide, including 102,464 that had been digitized statewide as of 1995 (NBMG 1995).

Table 5.3-1 shows current sand and gravel operations in the geology CESA, and **Section 5.3** describes other current, historic, and anticipated mining activities in the project area. Gravel pits can result in deposition of sediment in surface waters, as well as changes in drainage patterns. Landfills in the project area are discussed in **Section 5.19**.

Grazing

In the case of the water resources CESA the predominant land use is grazing for livestock and for wild horses. **Figures 3.9-1a, 3.9-1b, and Figure 3.9-2** show BLM grazing allotments and the HMA, which are described in **Sections 3.9** and **4.9**, under Range Resources. Grazing can result in loss of vegetation leading to increased sediment delivery, promotion of less palatable species, loss of riparian vegetation, increased nutrients in surface waters, and stream bank failure due to trampling and loss of riparian vegetation. BLM is reducing grazing impacts through increased monitoring and use restrictions on new and renewed grazing leases.

Industrial Development

The Apex Industrial Park (the Park) is located at the southern tip of the CESA in Clark County. It is noteworthy that the Park appears to represent substantial industrial development in close proximity to the project area. The Park consists of 21,000 acres with contiguous lots ranging from 5 to 500 acres. The Park is zoned to allow most industrial uses, pays no corporate income tax, and has utility services access, including electric transmission and distribution service, an interstate natural gas pipeline, and fiber-optic communications capability. The Park currently

contains operating power plants, as well as quarries, industrial facilities, and landfills. Existing utility infrastructure includes Harry Allen Substation, Chuck Lenzie Generating Station, numerous transmission lines, and other types of utilities (such as underground petroleum pipelines). The electric generating plants here use dry cooling which reduces water consumption compared to wet-cooled plants. Permitting requirements under the federal CWA have mitigated impacts from wastewater at industrial facilities.

The Western Elite (Bedrock) property is located approximately 5 miles north of the Lincoln/Clark County line along US-93. The Western Elite (Bedrock) Land fill consists of 83 acres. This includes an open gravel pit for dumping.

Recreation

BLM's Ely District contains the majority of the area within the CESA. OHV activity is a popular recreational pursuit in Nevada (see **Section 3.14**). OHVs are notably destructive of natural resources under some conditions, damaging vegetation, compacting soils in some areas and breaking up soil in others. These impacts lead to increased erosion, changes in infiltration of precipitation, and mobilization of sediment. Restricting OHV use to well defined and maintained areas can substantially mitigate impacts to water resources.

Roads

Roads within the CESA result in changes in drainage patterns, vegetation, infiltration, and wetlands. Sanding and deicer materials may affect vegetation and result in vegetative loss, ultimately impacting water quality through increased sedimentation. BLM's Ely District RMP (2008a) currently restricts OHV use to existing roads and trails. Previously, OHV use on the Ely District was unrestricted, and present use within the BLM's Southern Nevada District is unrestricted. Unrestricted use of OHVs results in creation of a network of social roads that lead to a wide range of resource impacts. Vehicular trails greatly increase sediment delivery, overland flow, flood risk, and erosion, while decreasing vegetation.

Utility Production and Distribution

Existing power production and transmission within the CESA includes the Harry Allen complex consisting of the generating station, switchyards, and substations; and segments of numerous transmission lines. Individual utility ROWs within the CESA have been developed for power transmission, and placement of water and gas pipelines and fiber optic cable. The majority of acreage disturbed within the CESA by utilities installation (for example, transmission lines associated with the Harry Allen Substation; and existing SNWA, Lincoln County and NV Energy transmission lines) is in the southern portion of the CESA. Approximately 90 miles of the SWIP Utility Corridor contains an existing Lincoln County and NV Energy 69 kV line.

The Kern River gas pipeline enters the southern tip of the CESA and terminates in the Apex Industrial Park. The project consists of a 36-inch diameter natural gas pipeline originating in Salt Lake City, Utah.

Lincoln County Power District #1's Alamo 69 kV Transmission Project involved upgrades to the existing Alamo North Substation and construction of approximately 12 miles of 69 kV power line within the existing permitted BLM ROW (N-63042), construction of approximately one mile of new 69 kV power line on BLM-administered lands, and construction of approximately 1.5 miles of 69 kV power line on private lands. The disturbance associated with this project was 212 acres and mostly within the designated LCCRDA utility corridor.

Utility line construction and operation can increase sediment, affect quantity and timing of runoff, and adversely impact water quality. Construction of power generation facilities and towers supporting associated transmission lines have had short-term adverse impacts due to ground disturbance, and permanent adverse effects on water resources as existing permeable surfaces (vegetated areas) have been replaced by structures creating impermeable surfaces. Placement of existing water supply lines, gas lines, and fiber optic cable within utility ROWs also have resulted in ground-disturbing activities. However, because there are little or no surface facilities associated with these buried lines, there would be minor permanent impacts.

Wastewater Discharge

NDEP Bureau of Water Pollution Control reports no industrial NPDES permits for discharge of wastewater to surface water in the project area (Kaminski 2007). All sources permitted for wastewater disposal are classified as having “zero discharge to waters of the State” (Kaminski 2007). “Waters of the State” are defined as follows in Nevada Revised Statutes (NRS 445A.415):

All waters situated wholly or partly within or bordering upon this State, including but not limited to:

1. All streams, lakes, ponds, impounding reservoirs, marshes, water courses, waterways, wells, springs, irrigation systems and drainage systems; and
2. All bodies or accumulations of water, surface and underground, natural or artificial.

This definition is quite broad and inclusive, covering closed basins and other waterbodies that are not federally regulated Waters of the U.S. (see **Section 3.2.3.3**).

Wetlands

Anthropogenic influences on wetlands within the CESA are described in **Section 3.2.3.3**. A number of significant wetland features in the CESA were created and/or maintained as a result of human development, such as those related to the Kirch WMA.

5.2.4 Reasonably Foreseeable Future Disturbances

Surface Water

Land Use

Community Development

Another prominent development within the CESA that would result in surface disturbance will be the Coyote Springs community development. The planned development, currently in initial stages of construction, is on private property located on the Clark/Lincoln County line, east of US-93 and separated from the Desert National Wildlife Range by the highway and the SWIP Utility Corridor. The development is planned for a total of 43,000 acres, of which 12,000 acres are planned for a nature preserve, trail system, parks, open spaces, and multi-species habitat. In addition, the development is planned to include a 17-acre lake (Las Vegas Review-Journal 2007) and several golf courses, one of which (The Chase) is already complete (Coyote Springs Investment 2010). Recently, Coyote Springs Development set aside a 9,000 acre site for solar power generation, as part of the planned development (Coyote Springs Investment 2010). The first phase of development is planned to include 13,000 acres in Clark County, 3,000 acres of which would accommodate approximately 10,000 homes. Coyote Springs’ developers own 6,100 af/y of water rights; their application for an additional 16,000 af/y brought objections from

federal agencies and environmental advocacy groups. The Nevada State Engineer has put a five-year moratorium on new water rights in the area while a study of sustainable levels of water use from local sources can be completed. The moratorium is delaying construction of the project.

Extractive Industry (Mining, Gravel Pits, Gas and Oil Exploration/Development)

Oil and gas exploration and development are accelerating in the CESA, with BLM and the USFS actively leasing lands for this use. The Humboldt-Toiyabe National Forest released a ROD for the White Pine & Grant-Quinn Oil and Gas Leasing authorizing 255,603 acres of National Forest for oil and gas exploration leases (USFS 2007b). The ROD minimizes erosion hazards by restricting leasing on hillsides with a high potential for slope failure or difficult restoration after project completion; the ROD also stipulates “No Surface Occupancy – 30 meter buffer on perennial streams, springs, ponds, and wet meadows and 15 meter buffer on seasonal or subsurface streams” (USFS 2007b) as a means of minimizing impacts on surface water quality. Inspections, regulations, and construction requirements for the handling of hazardous materials and the drilling and construction of wells would minimize the risk that fresh water aquifers would be contaminated through the exploration, production, and closure of oil and gas wells (USFS 2007b). The ON Line Proposed Action and/or Action Alternative transmission line within the SWIP Utility Corridor would cross the White Pine Division of the USFS project. With these and other restrictions on surface occupancy, road construction, and seasonal use, oil and gas development leasing by the USFS and the BLM would have minor cumulative effect on water resources.

Grazing

The majority of the grazing permits within the CESA are managed under the Ely District RMP. Under the RMP, the goal is to manage livestock grazing on public lands to provide for a level of livestock grazing consistent with multiple use, sustained yield, and watershed function and health. The objective is to allow livestock grazing to occur in a manner and at levels consistent with multiple use, sustained yield, and the standards for rangeland health. Management actions in support of this goal and objective include:

- Continue livestock grazing at current levels of 545,267 AUMs on 11,246,900 acres on a long-term basis.
- Unavailability of the following lands for livestock grazing:
 - Mormon Mesa, Kane Springs, and Beaver Dam Slope ACECs (203,670 acres);
 - Baker Archeological Site ACEC (80 acres) and Snake Creek Indian Burial Cave ACEC (40 acres);
 - Leased public lands associated with the Coyote Springs Development (6,200 acres); and
 - Private/Utah Allotment above Beaver Dam State Park (4,400 acres).
- Allowing allotments or portions of allotments within desert tortoise habitat, but outside of ACECs, to remain at current stocking levels unless a subsequent evaluation indicates a need to change the stocking level.
- Continuing to monitor and evaluate allotments to determine if they are continuing to meet, or are making significant progress toward meeting the standards for rangeland health. Changes, such as improved livestock management, new range improvement

projects, and changes in the amount and kinds of forage permanently available for livestock use, can lead to changes in preference, authorized season-of-use, or kind of livestock. Such changes will continue to meet the RMP goals and objectives, including the standards for rangeland health.

While historic grazing practices have damaged upland and riparian vegetation as well as stream banks and water quality, public agencies, like BLM, are promulgating more stringent regulations for new and renewed grazing leases that will mitigate these impacts to water resources over time.

Industrial Development

Approximately 6,000 acres of the Apex Industrial Park have been available for immediate sale and development for a wide range of industrial uses for the past 8 – 10 years. A privately held travel-center developer plans to develop a travel center at the intersection of I-15 and US-93. Providing access to US-93, I-15, and the Union Pacific Railroad, the Park is marketing future development of commercial business (truck, retail, transportation, lodging), warehousing and distribution, light and heavy industrial, and light and heavy manufacturing. Surface disturbance related to this development could affect surface water quality and drainage patterns. These would be controlled through compliance with State of Nevada requirements for storm water pollution prevention BMPs.

Recreation

The population of White Pine and Lincoln counties may temporarily increase with construction of the ON Line Project (**Section 4.17.2.1** and BLM 2008d). The Coyote Springs development could permanently increase the population in Lincoln County. Increased population could likely also increase recreational pressure on surrounding public lands. Increased ground disturbance from roads and trails caused by increased recreational use would impact water resources.

Roads

Nevada Department of Transportation, the counties, and federal agencies have ongoing road improvement projects in their jurisdictions (see **Appendix 5A**, Past, Present and Reasonably Foreseeable Projects). Disturbance during construction, and increased hardscaping, affect the timing, quantity, and quality of runoff (e.g., suspended and dissolved sediment), but standards for storm water management on new roads and on road improvement projects mitigate these impacts to a minor level.

Utility Production and Distribution

Two major planning efforts identified/designated federal utility corridors: The West-Wide Energy Corridor (WVEC) Programmatic EIS (PEIS) and the SWIP Utility Corridor. The WVEC (BLM 2009b) encompasses the SWIP Utility Corridor (BLM 1998a, 2008a). These corridor projects address the same utility corridor within the CESA in their planning (NEPA) documents. These designated corridors provide for utility development in support of the Energy Policy Act of 2005.

The WVEC PEIS plans for a 3,500-foot-wide corridor where possible, and specifies actual widths allotted along various segments. Within the project area, the width varies from 2,640 to 3,500 feet.

Segments of the SWIP Utility Corridor proposed for the transmission line alignment associated with the ON Line Project (Segments 6C, 8, 9B, 9C (Action Alternative), 9D, and portions of Segment 11) are generally designated to be 2,640 feet wide in the WVEC PEIS, although some portions are up to 3,500 feet wide.

The Lincoln County Conservation, Recreation, and Development Act (LCCRDA), enacted on November 30, 2004, became Public Law 108-424. The LCCRDA designated utility corridors to be used for ROWs for roads, wells, pipelines, power lines and other infrastructure needed for construction and operation of a water conveyance system in Lincoln County. The LCCRDA corridor width is 3,500 feet wide in the area where a portion of Segment 10 (sub-alternative), which could be utilized under the Action Alternative of the ON Line Project, would be located.

Several additional utility projects have been proposed and are in various stages of planning and development, including the SNWA Ground Water Development Project. SNWA has submitted a ROW application to the BLM for the Groundwater Development Project (GWD Project) in Clark, Lincoln, and White Pine counties. The project would include the construction and operation of groundwater production, conveyance, and treatment facilities, as well as associated power conveyance facilities. Specifically the project components would include 306 miles of pipeline, 5 pumping stations, 6 regulating tanks, 3 pressure reducing stations, a buried storage reservoir, a water treatment facility, and 323 miles of power line with 2 associated primary substations and 5 secondary substations. The GWD Project would convey 170,000 af/y of water from 5 hydrographic basins. The permanent disturbance/ROW for this project is estimated to be 7,888 acres. The facilities would be within the designated utility corridors discussed above.

The Kane Springs Valley Groundwater Development Project would develop a system for tapping groundwater resources in the Kane Springs Valley Hydrographic Basin. The proposed pipeline would have the capacity to transport 5,000 af/y of water. The project would be located in the designated utility corridor with a permanent disturbance of 21 acres. This project is scheduled to commence in 2012 (Poulsen 2010).

The GBT line has an approved ROW that was previously evaluated in the SWIP EIS (BLM 1993). Two minor amendments to this ROW were approved in 2008 (BLM 2007d, 2008b), but otherwise the GBT line alignment follows and was the basis for defining the SWIP Utility Corridor. At this time, the GBT line ROW is the only approved major (>230 kV) transmission line ROW within the SWIP Utility Corridor. Idaho Power originally secured the permitted ROW, but has subsequently sold its rights to White Pine Energy Associates who created the Great Basin Transmission LLC and transferred the ROW to this entity. The GBT line project would disturb approximately 800 acres, which could have a negligible to minor affect on water resources.

With the high percentage of public land in Nevada, linear projects must undergo public scrutiny through NEPA and are subject to state and federal environmental regulation. In addition, while buried utilities may disturb a significant number of acres during construction, permitting regulations require restoring land contours and prompt revegetation of disturbed areas that in the long-term generally returns the majority of the disturbed areas to pre-existing conditions, thus minimizing impacts to water resources.

White Pine Energy Associates, LLC. (WPEA) proposed construction of a 1,590 MW, coal-fired power plant, the White Pine Energy Station (WPES), approximately 34 miles north of Ely, Nevada (BLM 2008d). The proposed WPEA project would include 1,902 acres of temporary disturbance and 1,510 acres of permanent disturbance for the power plant, transmission lines from the plant to the proposed Thirtymile Substation adjacent to the SWIP Utility Corridor, rail connection to the Nevada Northern Railway, a groundwater supply system, distribution power lines for the plant and well field, and an aggregate open pit. The project is situated within the CESAs for air quality, land use, recreation, special designations, and socioeconomics; however, only the proposed transmission lines and the Thirtymile Substation would be situated within the

CESA for water and the other resources with the same CESA footprint. This project has been postponed by WPEA for an indefinite period of time; however, because the BLM issued a ROW to WPEA for the project in 2008, it is considered a reasonably foreseeable project.

The BLM issued a ROD to facilitate geothermal leasing of the federal mineral estate in 12 western states (Geothermal Energy Leasing Programmatic), including Nevada, in December 2008. This decision (1) allocates BLM lands as open to be considered for geothermal leasing or closed for geothermal leasing, and identifies those National Forest System lands that are legally open or closed to leasing; (2) develops a reasonably foreseeable development scenario that indicates a potential for 12,210 megawatts of electrical generating capacity from 244 power plants by 2025, plus additional direct uses of geothermal resources. The ROD amends the Elko, Wells, and Las Vegas RMPs, opening 10,932,025 acres to geothermal leasing in those districts and projecting 238 MW of production by 2015 and 488 MW of production by 2025. The above described power generation projects are entirely outside of the water resources CESA, but are mentioned here because the electricity they would generate would potentially be transmitted by the ON Line Project or other power transmission lines within the water resources CESA.

Currently, the Office of Energy Efficiency and Renewable Energy (EERE), Department of Energy, and the BLM, Department of the Interior, are in the process of preparing a Programmatic Environmental Impact Statement (PEIS) to 1) evaluate utility-scale solar energy development, 2) develop and implement Agency-specific programs that would establish environmental policies and mitigation strategies for solar energy projects, and 3) amend relevant BLM land use plans with the consideration of establishing a new BLM solar energy development program (EERE and BLM no date; <http://solareis.anl.gov/>). The PEIS will identify public lands that are best suited to solar energy development in six states (Arizona, California, Colorado, Nevada, New Mexico, and Utah), will identify mitigation strategies and BMPs to guide future solar energy development, and look at the possibility of identifying additional transmission corridors specifically for the purpose of facilitating solar energy development. The solar facilities would be large-scale 10 MW or larger which would be fed into high-voltage transmission lines. A utility scale solar project, which generates enough power for tens of thousands of homes, requires intense solar radiation and at least 5 acres for each MW – a 250 MW project would need 1,250 acres or 2 square miles. Seven study areas or tracts have been identified in Nevada: Armagosa Valley Tract (32,699 acres, Nye County), Dry Lake Tract (16,516 acres, Clark County), Delamar Valley Tract (17,932 acres, Lincoln County), Dry Lake Valley North Tract (49,775 acres, Lincoln County), East Mormon Mountain Tract (7,418 acres, Lincoln County), Gold Point Tract (5,830 acres, Esmeralda County), and Miller's Tract (19,205 acres, Esmeralda County). These acreages reflect areas identified as having potential for solar facilities; they are not actual disturbance acreages, and therefore these acreages are not included in **Table 5.1-3**. Three of these tracts would overlap or be adjacent to the ON Line Project: Dry Lake, Delamar Valley, and Dry Lake Valley North.

Wetlands

The reasonably foreseeable developments with the potential to impact wetlands in the CESA are the same as those described above.

5.2.5 Cumulative Disturbances

Table 5.1-3 shows the acreage that would be disturbed by the reasonably foreseeable activities in the CESA. The table is based on the proposed actions as described in the respective EISs, NOIs, or other applicable documents that describe these proposed projects and the acreages they might impact.

Surface Water

Quantifying the past and present surface disturbance in the CESA requires clarifying assumptions for a number of reasons, including the following:

- disturbances from various sources may overlap, such as utility corridors and grazing allotments,
- impacts of wildfires on a watershed, or the extent of these impacts, cannot always be accurately determined,
- historical disturbances, such as abandoned mines and old roadways, may have been reclaimed naturally over time or by agency action; and
- filling or draining of wetlands was common practice for many years and acreage was not recorded, therefore, a baseline or starting point may not be definite.

Consequently, the past and present surface disturbance in the CESA that could actually impact surface water could range from the sum of all disturbances in the CESA, including all acres in habitat enhancement projects, grazing allotments, as well as urban areas, highways, mine tailings, and burned areas (**Table 5.1-2**). However, to lump all types of disturbances together would not provide an accurate picture of the CESA, much of which, though grazed or burned, is relatively undisturbed. Removing these disturbance categories (grazed and burned), along with habitat enhancement projects, leaves areas of long term disturbance, and a total disturbed acreage of 11,526 acres or 1.2 percent of the CESA. Potential future quantifiable permanent disturbance totals 58,749 acres, for a total of 70,275 acres, which represents 7.4 percent of the CESA.

5.2.6 Cumulative Effects

Surface Water

Under the Proposed Action or Action Alternative, cumulative effects to surface water resources in the surface water CESA would be negligible. Best management practices and storm water management during construction and operation would prevent any significant storm water runoff or wastewater from disturbed or hardscaped areas from reaching surface water features, groundwater, or wetlands. During operations, permitting requirements would ensure that water quality standards are met.

Wetlands

Under the Proposed Action or Action Alternative, cumulative impacts to wetland resources in the surface water CESA would be minor, if any. The extensive historical damage to wetlands has occurred primarily from conversion to cropland or similar activities (see **Section 5.2.2**). Wetlands along the transmission line alignments would be avoided.

5.3 Geology, Minerals, and Topography

5.3.1 CESA Boundary

The CESA for geology, minerals, and topography is the same as the surface water CESA and consists of a 2.5-mile buffer surrounding the ON Line Project footprint, including the Proposed Action and Action Alternative transmission line alignment (including the SWIP Utility Corridor) and substations (**Figure 5.2-1**). The total area of this CESA is 954,373 acres.

Rationale

The direct and indirect effects of the Proposed Action and Action Alternative on these resources would be confined to the actual disturbance areas. However, the boundaries of the project area are larger than the actual disturbance areas within them (e.g., 200-foot wide construction corridor versus 66 x 66 foot structure location footprint) and impacts to these resources would be undetectable outside of these larger boundaries.

5.3.2 Introduction

Potential effects to the geology, mineral, and topographic resources consist of mineral resource depletion, removal of mineral resources from availability for development, and topographic changes.

Sections 3.3 and **4.3** discuss in detail the geology of the project area and the project's likely affect on mineral resources, respectively. **Figures 3.3-2a-b** show geological resources of the project area.

The past, present, and future disturbances with cumulative impacts to geology, minerals, and topography discussed below are described in detail in **Sections 5.3.3** and **5.3.4**.

5.3.3 Past and Present Disturbances

Current land ownership and uses within the geology, minerals, and topography CESA are presented in **Tables 5.1-1** and **5.1-2**, respectively.

Extractive Industry (Mining, Mine Tailings, Gravel Pits, Oil & Gas Exploration/Development)

The Nevada Bureau of Mines and Geology (NBMG) shows one major mine in the CESA (NBMG 2009). The Apex Quarry and Plant is located within the Apex Industrial Park and produces dolomite and lime. **Table 5.3-1** shows mining operations in the CESA, taken from the NBMG major mines report and the Nevada Department of Business & Industry (NDBI) Directory of Mine Operations for 2006 (NDBI 2007), which includes smaller operations than the NBMG major mines database. All of these operations are in or are adjacent to the proposed transmission segments.

TABLE 5.3-1 MINING OPERATIONS IN THE CESA

OPERATION NAME	COUNTY	SECTION, TOWNSHIP, RANGE	COMMODITY/OPERATION
American Asphalt & Grading Co.	Clark	Sec 21, T13S, R63E	Aggregate, rock, sand, crushing
Apex Quarry and Plant	Clark	Sec 14, T18S, R63E	Dolomite and lime mining
Silver States Landfill at Apex	Clark	Secs 13, 14, T18S, R63E	Sand, sand/gravel, crushing, screening
Coyote Springs Service Rock Products	Lincoln	Sec 13, T11S, R62E	Sand/gravel, crushing, screening

Source: NDBI 2007

Transmission lines and associated facilities overlap with mining districts where mining could have occurred in the past (see **Figure 3.3-4**). As described in **Section 5.2**, a substantial number of abandoned mine sites are found throughout the CESA. As commodity prices fluctuate and new uses are found for specific metals and other mineral products, some of these abandoned resources may become economically viable in the future and reopened. Since a substantial portion of the ON Line Project is located on alluvial fans and basin-fill material, it is highly unlikely that construction and operation of the ON Line Project would preclude development of any metallic mineral resources in the area. **Table 5.3-2** gives some history of the mining districts, which overlap or are adjacent to project facilities; the table is taken from NBMG Report 47, "Mining Districts of Nevada" (NBMG 1998).

TABLE 5.3-2 MINING DISTRICTS IN THE CESA

NAME/COUNTY	YEAR ORGANIZED/COMMODITIES	COMMENTS
Arrow Canyon Range / Clark	silica, building stone	The Arrow Canyon Range lies east of US-93 about 8 miles west of Moapa. Silica and building stone deposits occur along the east and west flanks of the southern part of the range.
Bristol / Lincoln	1971/ silver, copper, lead, zinc, gold, manganese, montmorillonite	The Bristol district is located in the northern Bristol Range about 15 miles north of Pioche. The historic Blind Mountain district (1871) covered the southern part of the present district. Bristol originally included only the area around mines on the western slope of the Bristol Range, and the Jackrabbit district included the area on east side of the range.
Currant / Nye & White Pine	1914/ gold, lead, copper, tungsten, magnesite, uranium, fluorspar	This district encompasses the southern White Pine Range, the Horse Range, and the northernmost part of the Grant Range. Kral (1951) included Railroad Valley (Butterfield) Marsh along with Silverton, to the west, in a large Currant district. Deposits of magnesite occur in the White Pine County part of the district.
Delamar / Lincoln	1892/ gold, silver, copper, lead, perlite	Delamar came into use as the district name starting in mid-1930s. The main portion of the Delamar district is located on the western front of the range between Monkey Wrench Wash and Cedar Wash, although the district extends to the east almost to Rainbow Canyon and includes the upper part of Taylor Mine Canyon.
Ely Springs / Lincoln	silver, zinc, lead, gold	The Ely Springs district is on the west side of the Ely Springs Range, about 13 miles west of Pioche.
Meadow Valley Mountains / Lincoln	gold, silver, uranium	Located east of US-93.

NAME/ COUNTY	YEAR ORGANIZED/ COMMODITIES	COMMENTS
Robinson / White Pine	1868/ copper, gold, silver, zinc, lead, iron, manganese, tungsten, molybdenum, rhenium, platinum, palladium, nickel	The Robinson district is centered near the towns of Ely and Ruth, in the Egan Range. Originally organized as the Robinson district and includes the towns of Ely, East Ely, Ruth, Reipetown, Veteran, Kimberly, and Lane City (formerly Mineral City).
Silver King / Lincoln	1874/ silver, lead, copper, gold	The Silver King district includes a small area near Silver King Well on the west side of the southern Schell Creek Range (historic Lake Valley Range) in T7N, R62E, 16 miles northwest of Bristol, Lincoln County, and about 12 miles southeast of Sunnyside, Nye County.

Source: NBMG 1998

Section 4.3 describes in detail current oil and gas leases in the project area, as recorded in the BLM database. **Table 5.3-3** is taken from the Nevada Oil and Gas Well Database (NBMG 2004), last updated in 2004. All of the wells in the table are within the CESA. Out of the 20 wells that were permitted, 6 were never drilled (as of 2004) and 13 were abandoned; the status of the remaining well, permitted in 2002, is described only as “drilled.” Despite the outcome of these wells, the leases identified in **Section 4.3** demonstrate renewed interest in finding and producing oil and gas in the CESA.

TABLE 5.3-3 NEVADA OIL AND GAS WELLS IN THE CESA AS OF 2004

COUNTY	SEC	TOWN	RANGE	PERMIT ISSUED	STATUS*	DEPTH (FT)	SHOW
Clark	14	18S	63E	10 JUN 81	P & A	17,110	Gas
Clark	7	18S	64E	02 JUN 50	A	1,455	
Nye	18	10N	61E	25 AUG 89	Never Drilled		
Nye	18	10N	61E	24 MAY 93	P & A	7,118	Oil
Nye	28	11N	60E	11 SEP 56	P & A	692	
Nye	10	5N	61E	09 JUL 84	Never Drilled		
Nye	11	5N	61E	09 JUL 84	Never Drilled		
Nye	14	5N	61E	07 OCT 02	Drilled		
Nye	33	5N	62E	02 JUL 98	P&A	4,447	Oil
Nye	33	5N	62E		Never Drilled		
Nye	5	8N	60E	19 MAY 70	P & A	800	
White Pine	3	13N	61E	09 JUL 84	Never Drilled		
White Pine	4	14N	61E	27 SEP 71	P & A	2,603	Water
White Pine	9	14N	61E	27 JAN 74	D & A	271	
White Pine	9	14N	61E	10 JUL 75	P & A	4,600	
White Pine	33	14N	61E	23 MAY 85	P & A	1,442	
White Pine	14	14N	61E	23 MAY 85	P & A	464	
White Pine	29	15N	61E	19 MAY 70	Never Drilled		
White Pine	29	16N	61E	21 OCT 93	P & A	7,356	
White Pine	16	19N	61E	19 MAY 70	P & A	712	

*A = abandoned; D = drilled; P = plugged
Source: NBMG 2004

5.3.4 Reasonably Foreseeable Future Disturbances

Future disturbances to geology, topography, and minerals are quantified in **Table 5.1-3** above.

Community Development

Use of mineral products for the construction of roads, railroads, buildings and other facilities would likely continue in the future. Impacts from use of licensed gravel pits and other borrow sources are regulated and minimal.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Oil and gas wells, mines for various commodities, and other mineral resources would likely continue to be developed as their economic value increases.

Utility Production and Distribution

The construction and operation of the proposed WPES would require borrow and other construction materials. The WPES project includes a proposed a borrow pit of approximately 40 acres. The power plant would dispose of combustion solid waste on site in above-grade landfills. This construction project would reduce existing aggregate supplies in the immediate area to a negligible effect. The topographic effects of the borrow pits and the combustion waste landfills would be minor.

5.3.5 Cumulative Disturbances

Within the CESA, known quantifiable past and present disturbances total approximately 11,526 acres. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WVEC cannot be accurately quantified at this time (**Table 5.1-4**) but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CESA. Other potential permanent disturbance, as presented in **Table 5.1-3**, totals 58,749 acres, about one-third of which would be within the designated utility corridors.

5.3.6 Cumulative Effects

The cumulative effects of the ON Line Project on mineral and geological resources would be minor and its effect on topography would be negligible. No existing or reasonably foreseeable mining districts or petroleum products wells would be affected by the project, either directly or by affecting site access.

5.4 Paleontological Resources

5.4.1 CESA Boundary

The CESA for Paleontological Resources would be the same as described for Surface Water (**Figure 5.2-1**). This boundary encompasses 954,373 acres.

Rationale

Because the project should not affect paleontological resources outside of the direct effects area, this CESA was chosen mainly for simplicity purposes, as defined in **Section 5.1**. Activities attached to the Proposed Action and Action Alternative that might affect

paleontological resources could occur outside of the actual disturbance area (e.g., within the 200-foot wide construction corridor outside the 66 x 66 foot structure location footprint), but not likely outside of this proposed CESA.

5.4.2 Introduction

Southeastern Nevada has yielded paleontological resources that have contributed to our understanding of the development and history of life on earth. Many studies and research papers include discussions and analysis of these (Reynolds 2007). Paleontological resources are subject to cumulative impacts via loss through both natural processes of erosion and weathering, and man-made disturbances.

Cumulative effects to paleontological resources occur through the incremental degradation of the resources from various impacts, which reduce the information and scientific research potential of the resources.

The past, present, and reasonably foreseeable future disturbances with cumulative impacts to paleontological resources discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.4.3 Past and Present Disturbances

The current land ownership and uses for (thus disturbances within) the paleontological resources CESA can be found in **Tables 5.1-1** and **5.1-2** above.

Recreation, Land Use, and Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

The primary activities/disturbances that have already affected paleontological resources in the CESA include off-highway vehicle use, recreational collecting, lands and realty management, and mining activities. Fossils have been and continue to be discovered during ground disturbances related to developments such as mining, oil and gas development, landfill development, quarrying, and other activities in the CESA. Natural processes such as soil erosion and rock weathering have also exposed fossils.

As discussed in **Section 3.3.3**, there are mining districts within or near the CESA (**Figure 3.3-4**). Also noted in **Section 3.3.3**, there are active oil and gas leases within the CESA. All of these endeavors include ground disturbing activities related to exploration, development, and extraction that could encounter paleontological resources. There is no quarrying or gravel pit disturbance in the CESA.

Roads, Utility Production, and Distribution

Roads, power lines, pipelines, and utility construction can impact near surface deposits of paleontological resources in general and possibly deeper deposits in areas that required excavation through landforms.

Vertebrate fossils such as dinosaurs, mammals, fishes, reptiles, and uncommon invertebrate fossils are collected by trained researchers under BLM permit. These remain public property and are placed in museums or other public institutions after they are studied. Although the resources are removed from their original context, the documentation adds to the body of knowledge about paleontological resources in the region. However, casual use and unpermitted collection of fossils has contributed to the loss of the resource and its research potential and interpretation. The lack of regular site monitoring and public education about fossil

collecting has led to illegal commercial collecting of trilobites and excessive unauthorized collection (BLM 2008a).

5.4.4 Reasonably Foreseeable Future Disturbances

Future disturbances to paleontological resources are quantified in **Table 5.1-3**. The reasonably foreseeable future actions applicable to the CESA all have the potential to impact paleontological resources. However, as much of the land in the CESA is publicly administered, these projects would all be subject to NEPA and federal and state regulations protecting paleontological resources.

Geological formations with exposures containing paleontological resources would continue to be impacted by natural agents (e.g., erosion, rock weathering, surface water drainage).

Community Development

Community development projects, such as the Coyote Springs Development (43,000 acres), have the potential to impact paleontological resources as well. Private development does not afford the same protections and standard operating procedures as activities under federal administration.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Any future mining development on public lands would require an inventory of paleontological resources, as well as documentation or collection of specimens uncovered during operations (BLM 2008a).

The White Pine & Grant-Quinn Oil & Gas Leasing program (USFS 2007b, 2007c) would lease up to 255,603 acres of National Forest System lands for oil and gas development, including exploration and possibly well development. A small portion of this falls within the paleontological resources CESA boundary.

Utility Production and Distribution

Numerous linear developments, including projects within the SWIP Utility Corridor and the WWEC have been proposed through the CESA. These include new or expanded utility ROWs for power transmission, water pipelines, roads (e.g., residential developments or access to other uses), fiber-optic, petroleum products, natural gas, and others (see **Appendix 5A**). Most of the proposed utility developments would be within the designated utility corridors (**Table 5.1-3**).

5.4.5 Cumulative Disturbances

Within the CESA for paleontological resources, known quantifiable past and present disturbances total approximately 11,526 acres. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time (**Table 5.1-4**), but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CESA. Additional projects would amount to 58,749 acres (**Table 5.1-3**) of disturbance, of which much would be within the designated utility corridors.

5.4.6 Cumulative Effects

Encountering paleontological resources during development/disturbance has the potential to destroy and/or lose the resource. However, it also has the potential of providing additional data

and rare or previously unknown specimens which can further scientific knowledge. Additional impacts to paleontological resources in conjunction with the ON Line Project would not be known until discovered and evaluated. Impacts to paleontological resources associated with federal land management decisions/actions would be minimized or reduced in accordance with federal legislation and existing standard operating procedures. Thus, cumulative impacts to paleontological resources would be negligible to minor.

5.5 Soils

5.5.1 CESA Boundary

The CESA boundary for soils would be the same as described for surface water (**Figure 5.2-1**).

Rationale

This CESA boundary is the same as surface water due to the effect that soil disturbance has on surface water quality through erosion and sedimentation. Soil resources outside the watersheds for the Proposed Action and Action Alternative would not be affected.

5.5.2 Introduction

Section 3.5 details typical soil mapping units for the ON Line Project area and depicts them on the figures provided in **Appendix 3A**. **Section 4.5** describes the impacts that would disturb soil resources and reduce their value or function for the short- or long-term. Very little soil disturbance would occur on steeper slopes that would increase erosion potential.

As noted in **Section 4.5**, disturbed soil loses its structure and porosity when disturbed through displacement or compaction by heavy equipment. Consequently, the soil is more prone to erosion by water or wind and may be less able to support some kinds of vegetation (loss of productivity).

There are 954,463 acres within the CESA for soils (**Figure 5.2-1, Table 5.1-1**).

5.5.3 Past and Present Disturbances

The primary source of impacts to soils is surface disturbance which is directly tied to land use. The types of past and present disturbances that may affect soils in the CESA are the same as those described for surface water in **Section 5.2**, including road construction, livestock grazing, agricultural activities, residential development, energy development, recreational use, utility corridors, and mining activity (**Table 5.1-2**). Specific projects, legislation, and disturbances that have affected soils are described in **Section 5.2.3**. Existing quantifiable land use within the soils CESA totals 11,526 acres.

5.5.4 Reasonably Foreseeable Future Disturbances

The reasonably foreseeable future disturbances in the CESA that may affect soils are the same as those described in **Section 5.2.4**. Future disturbances to soils are quantified in **Table 5.1-3** and total 58,740 acres.

5.5.5 Cumulative Disturbances

The cumulative disturbances in the CESA that may affect soils are the same as those described for surface water in **Section 5.2.5**. Past, present, and reasonably foreseeable future disturbances comprise 70,275 acres, or 7.4 percent of the CESA.

5.5.6 Cumulative Effects

Under the Proposed Action or the Action Alternative, disturbance to soil resources would be minor to moderate during construction and negligible to minor post-construction. Use of BMPs during construction, and prompt post-construction reclamation, assures that temporary soil disturbance would be of short duration and minor impact. The same can be said of all proposed projects in or adjacent to the CESA, individually and cumulatively, based on current regulatory requirements for storm water permitting. The most likely source of moderate to severe impacts to soils in the CESA, short-term or long-term, is from wildfires, abandoned mines, and unrestricted use of OHVs (see **Section 5.2.3** and **Section 5.2.4**).

5.6 Air Resources

5.6.1 CESA Boundary

The CESA for air quality includes the area within 50 miles of the linear components (including the proposed Robinson Summit Substation), plus a 5 kilometer (3.1 mile) circle around the Falcon Substation. No Class I areas are located within the CESA. It would include one FLM-identified sensitive Class II area, Great Basin National Park. Generally, the CESA includes only light development and population density that result in only small volumes of air pollutant emissions, with the exception of portions at either end which reach to Las Vegas and Clark County on the south and to the lesser developed town of Ely and Steptoe Valley on the north.

Rationale

The primary air pollutant emissions associated with the project, during construction and operation would be fugitive dust and engine exhausts, including gases that contribute to global warming.

The direct project impact review of dust sources and particulate impacts would be limited to sources in or potentially impacting the valleys the linear project component traverses, since the surrounding valley walls would channel flow and prevent transport cross valley.

This cumulative effects analysis analyzes all activities in and affecting the CESA for their potential effects on all applicable ambient air quality standards. It considers the impacts of major sources outside the CESA, especially energy generation facilities that generate or transmit their electricity within the region, because the cumulative impact analysis will include an analysis of energy production and transmission options with and without the Proposed Action and their implications on air quality, greenhouse gas contributions, and climate change.

5.6.2 Introduction

Section 3.6 documents that air quality in the project area, with the exception of along the far southern end of the transmission line alignment after it crosses into Clark County, is generally better than the National and Nevada Ambient Air Quality Standards. Air pollutant measurements at the previously proposed (and now postponed indefinitely) EEC plant site locations in Steptoe Valley showed concentrations less than 15 percent of those standards for all pollutants except ozone. Other regional monitoring results reported by NBAPC (current PM₁₀ monitoring in Elko and Battle Mountain, historic PM₁₀ monitoring in the Steptoe Valley) and the IMPROVE monitoring network (historic and ongoing PM₁₀, PM_{2.5}, and ozone monitoring) show air pollutant concentrations well below those air quality standards in local urban areas (except in Clark County) and regional sensitive areas including parks and wilderness areas. Winter inversions

occur in the valleys along the project area, but proposed activity levels are generally low enough that not enough air pollutants are emitted to lead to significant buildups of pollution levels (as documented by air quality monitoring data collected at the proposed EEC plant sites). Dispersed air pollution sources in the CESA include emissions resulting from ranching and land management activities including agricultural burning, dust from disturbed ground, and smoke from wildfires and prescribed burning. Regional haze studies including the recent Western Regional Air Partners (WRAP) regional haze modeling effort show impacts within acceptable ranges from large regional sources, including power plants. The results of those WRAP studies have included permit compliance follow-up at facilities shown to have the potential to adversely affect ambient air quality or limits on incremental degradation. Cumulative effects to air quality in the CESA from past, present, and reasonably foreseeable future activities are documented in this section.

5.6.3 Past and Present Disturbances

In Steptoe Valley, just north and east of the ON Line Project's northern terminus, historic operations of the McGill Smelter resulted in McGill and Steptoe Valley failing to meet SO₂ ambient air quality standards and being declared non-attainment for SO₂. The smelting activities were closed down in the late 1970s bringing ambient concentrations of pollutants, including SO₂, in line with low regional background values. Those changes contributed to the current status of attainment with all applicable ambient air quality standards, including SO₂. The non-attainment status for SO₂ was dropped by the EPA in 2002 (EPA 2002). The section of Clark County traversed by the project is considered non-attainment for ozone, likely due to emissions from in and around the Las Vegas area.

The Robinson Mine outside of Ruth continues to produce copper, silver, gold, and molybdenum. A number of larger mines operate well north of the project area, toward the Carlin Trend. Three large Carlin Trend mines operate approximately 10 miles northeast of the Falcon Substation. Dust is generated from mining activities at operating mines. That windborne dust could contain metals.

Regional population and development across the CESA historically and currently generate regional air pollutant emissions referred to as regional area sources. Few if any of those area sources have air quality permits. These sources include vehicle emissions along roadways and in the towns and cities; space heating emissions from residences, ranches, and businesses; emissions associated with residential or business land management like dust generation from disturbed surfaces or small equipment exhaust; and any other small engine emissions or fossil fuel burning equipment. These sources also include smaller industrial emission sources like gas stations, vehicle maintenance facilities, and dry cleaners.

Table 5.6-1 documents the existing permitted industrial sources in the CESA north of Clark County, and their allowable potential criteria air pollutant emission rates. All except the Robinson Mine (outside Ruth) and the Foreland Refinery (west of Lund) are in the Steptoe Valley near Ely, west or northeast of the ON Line Project's northern terminus. All except the Robinson Mine have emissions low enough to qualify as minor sources with the NDEP. Non-permitted air emissions sources potentially affect historic and current air quality in the CESA. Dust sources would include vegetation disturbing land management practices, including: ranching; private and public grazing and agriculture; ground clearing in open lands and along utility corridors; road dust; smaller mining and rock crushing operations; recreational activities; and regional construction and maintenance efforts. Smoke is generated from agricultural burning, and wild and prescribed fires. Sources of gaseous air pollutants not requiring an air

permit generally have low emission volumes individually, but could represent higher emission volumes cumulatively. Existing emission sources, permitted or non-permitted, were accounted for in the analysis consistent with actual activity levels during the air quality monitoring period, since the impact of their emissions was included in the background concentrations measured. Those sources include the regional area sources described above.

TABLE 5.6-1 EMISSION RATES FOR PERMITTED FACILITIES WITHIN THE CESA NORTH OF CLARK COUNTY

FACILITY NAME	UTM E	UTM N	PERMITTED POTENTIAL TO EMIT (POUNDS PER HOUR)		
			PM10	NOX	SO2
Robinson Nevada Mining Company	671580	4347540	104.4	4.0	5.8
J & M Trucking, Inc.	684020	4346150	0.9		
Reck Brothers	689110	4348990	4.5	2.3	
Reed Distributing, Inc.	682780	4348580	0.005		
Cooper & Sons, Inc.	688350	4356200	10.8	3.2	
Country Construction	685820	4353520	3.3		
White Pine County School District	684170	4346840	2.1	0.1	0.3
Chevron Environmental Management Company	683560	4347130		0.4	
Foreland Refining Corp. Eagle Springs Refinery	620240	4275540	11.5	0.0	0.0
NV Dept of Corrections Ely State Prison	677220	4361750	0.5	5.0	16.0
Nevada Slag, Inc.	691300	4364600	14.3	2.4	

Note: UTM – Universal Transverse Mercator system. See glossary in Chapter 8 for definition.

Air pollution sources occur in higher density in Clark County, especially close to Las Vegas. While the proposed project ends northeast of Las Vegas at the Harry Allen Substation in the Apex Valley, and is northeast of the PM₁₀ and CO non-attainment areas associated with the Las Vegas metropolitan area, the southernmost few miles still traverse the Clark County ozone non-attainment area.

Existing energy industry sources in the CESA include the 650 MW Reid Gardner coal-fired plant, nine natural gas-fired generating stations with a combined capacity of over 3800 MW in the Apex Valley or between there and Las Vegas, the 168 MW (652 MW by 2011) natural gas-fired Harry Allen plant at the proposed southern terminus of the ON Line Project, and two other 500+MW natural gas-fired energy centers in southern Clark County.

Smaller regional coal fired energy production centers, outside the CESA but with the potential to affect air quality and contribute greenhouse gases within the CESA, include the 521 MW Sierra Pacific Valmy plant in north central Nevada west of the Falcon Substation, the 200 MW (coal and natural gas fired) Newmont power plant 5 miles southwest of that substation, and a couple of plants in the 175 MW range in the Salt Lake City vicinity. Each of those coal plants requires volumes of coal fuel each day, typically from Utah or Wyoming, with associated air emissions at the mine, the train loading site, along the rail lines from the diesel train engines, and at the unloading sites at the power plants.

Other potentially major industrial contributors to local air pollutant levels regionally include industries in and around Las Vegas, the military installations north and east of Las Vegas, and the mineral or smelting industry in southeast Arizona and west of Salt Lake City, as well as the mines in central and northern Nevada. A thorough and complete listing of regional air pollutant sources is included in the referenced WRAP study.

Other non-permitted emission sources, or changes from current emission patterns include:

- The Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project within the CESA, where 3,253 acres received mechanical treatment, 844 acres of which were treated for a primarily prescribed fire treatment.
- White Pine Sagebrush Restoration Project in the CESA, in which the USFS is enhancing sagebrush habitat and reducing the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush.

5.6.4 Reasonably Foreseeable Future Disturbances

The most significant potential air pollution sources in the CESA or that are near enough to have moderate impacts in the CESA are two proposed power plants, the White Pine Energy Station (coal-fired) in Steptoe Valley and the Toquop Energy Project (natural gas), east of the southern terminus of the proposed linear component's southern terminus. Construction of the WPES power plant has been postponed by the proponent and any air quality impacts from the construction of this project would occur after the ON Line Project is completed. The Toquop power plant has an approved ROW authorization from the BLM, but is awaiting a Notice to Proceed before construction can commence. **Table 5.6-2** provides details on the two foreseeable power plants in the CESA and the estimated power plant emissions during their operational phase.

TABLE 5.6-2 SOURCE EMISSION RATES FOR REASONABLY FORESEEABLE FACILITIES WITHIN OR IMMEDIATELY ADJACENT TO THE CESA

FACILITY NAME	POWER GENERATION CAPACITY (MW)	ENERGY SOURCE	POLLUTANT	EMISSION RATE (LB/HR)	LOCATION
LS Power White Pine Energy Station ^(a)	1590	Coal	CO	2,367.5	Steptoe Valley north of McGill
			NO _x	1,098.9	
			PM ₁₀	626.5	
			SO ₂	1,386.3	
Toquop Energy Project	700	Natural Gas	CO	236.5	East of Apex Valley
			NO _x	84.1	
			PM ₁₀	105.1	
			SO ₂	50.1	

^{a)} Emission rates proposed in EIS. Plans for the WPES were indefinitely delayed in March 2009.

The WPES power plant would also require haulage of coal from coal mines to the power plant and handling of the coal at the power plant. The shipping and handling of the coal would produce locomotive exhaust and coal dust emissions.

The Toquop Energy Project power plant would require delivery of natural gas along and from local pipelines. That delivery could lead to additional combustion emissions, although less than those at the Toquop Energy Project or at existing or new pumping stations along the natural gas

pipeline(s). Nevada Wind Company has identified a site in the North Egan Range for development of potential wind generation facilities. The proposed project would cover 4,470 acres. North Wind Energy has been monitoring the site and is expected to propose development. A 4,536-acre project has been proposed by Enexco, also in the North Egan Range.

The Flat Top Mesa Solar Project would consist of a 50 MW photovoltaic power facility on private lands, located approximately 4 miles northwest of Mesquite in Lincoln County, Nevada. This facility would cover about 1,000 acres.

Reasonably foreseeable new non-permitted emission sources, or changes from current emission patterns, are expected to include:

- growth in general rail traffic,
- potential local and regional growth in auto, truck, and air traffic,
- potential energy exploration and/or development,
- proposed mining ventures,
- range improvement and fire management efforts, and
- increases in ground disturbances from:
 - vegetation changes associated with grazing and agricultural activities,
 - vegetation removal under or along utility corridors, along fire breaks, and from construction efforts
- changes in emissions from non-permitted sources identified as currently existing.

Specific projects are identified in **Table 5.1-3** and **Appendix 5A**.

5.6.5 Cumulative Disturbances

The regional energy system potentially could include a number of current and proposed coal and natural gas fired power plants surrounding the CESA.

The emissions and impacts from existing regional power plants with emissions over 250 TPY of any air pollutant were included in the recent WRAP modeling to assess potential air pollutant and regional haze impacts. That study included requirements for Best Available Retrofit Technology (BART) for any facility determined to have excess impacts in any Class I area.

Oil and gas exploration and extraction are established industries to the east and northeast of the CESA in Utah, Wyoming, the Four Corners area, and points beyond. Though oil and gas exploration and extraction are not as established in the project area or CESA, the Nevada BLM has five Competitive Oil and Gas Lease sales scheduled between September 2010 and December 2011. Those lease sales could result in public land leases, oil and gas exploration, or possibly extraction in the CESA and its vicinity. Air emission estimates for these activities are speculative at this time because the volume of activity is unknown, though the energy recovery rates are expected to be modest in comparison to developed western fields further east in the Rocky Mountain region.

There are currently two major mines active or open in White Pine County (NBMG 2008), including the Robinson Mine outside of Ruth which is within the CESA. Other smaller mines exist in that county and are, or could be, active. The Tenacity Perlite Mine and Mill operates and

employs less than ten people in Panaca in Lincoln County. Four mines, two with over 100 employees, operate and extract gypsum, lime, dolomite and/or silica sand in Clark County south of the project area. Each of those mines' impacts are believed to be local and minor within the CESA. Outside the CESA, large mining operations exist that could have minor impacts at or near the northern terminus of the ON Line Project.

Public land management efforts are expected to continue to try to minimize large magnitude smoke generation from big wildfires by using prescribed burning and other techniques to control fuel accumulations. That effort would not be expected to change the long-term volume of smoke and air pollutants generated much, but would even the distribution of smoke and combustion by-products out over time and minimize the high uncontrolled exposures that can have the most significant effects on public health.

Ranching and agricultural activities are expected to remain near current levels. Public and private lands management planning could affect dust generation directly or via changes in vegetation strength and density. Grazing management plans indicate trends toward maintaining or possibly gradually decreasing grazing rates for livestock, wild horses, and wildlife. Vegetation management, road building efforts, and potentially the development of solar or wind power projects, including the specific projects listed in **Section 5.6-4** are anticipated to result in a slight trend toward increases in disturbed ground and dust generation. Utility corridor maintenance and expansion, including the ON Line Project, would have the same effect. Construction efforts to prepare or maintain improvements throughout the CESA would also represent a source of dust generation and exhaust emissions.

Other regionally distributed contributors to air quality trends are area source emissions associated with transportation, residential and industrial space heating, and other household and small service industry activities associated with population density. All paved highways are sources of exhaust emissions from vehicles, and some dust generation as well. Unpaved roads generate considerably more dust from the roadbed materials. US-93 and SR-318 serve as main arteries north and south through the project area and CESA, with light to moderate highway traffic volumes. Those roads generally run parallel to the proposed transmission line, within a couple of miles. US-50 also crosses east to west through the southern Steptoe Valley, traversing through Ely and then west toward Ruth via Robinson Summit. Isolated paved and unpaved roads crossing along or running in the vicinity of the project and in surrounding areas in the CESA facilitate local travel patterns. The Ely airport features air and ground operations that generate exhaust and other air pollutant emissions. Commercial rail traffic and associated train exhaust and dust emissions, limited to the UPRR line to the north since the Nevada Northern Railway ceased operation, have the prospect of returning locally, in conjunction with any of the two proposed fossil fuel fired power plants in the immediate vicinity of the CESA. Space heating associated with occupied buildings, including residential, public, and private ownerships occur throughout the CESA consistent with the light population and development patterns. Those emissions, and others, like home, yard and street maintenance, are most concentrated in the few areas with population density in the CESA. The most notable areas where those types of emissions are concentrated are the cities of Ely, Pioche, and Caliente east of the ON Line Project and screened by intervening terrain. The same effect occurs, to a lesser extent, in the other smaller communities along the proposed transmission line segments.

Regional traffic and population rates are expected to receive a boost as a result of construction of the ON Line Project. That boost would subside after the 24 month construction process and to a lesser extent during the operational phase for the proposed transmission line and substations, though the renewable energy sources the proposed transmission line could help

foster, could potentially maintain or subsequently provide another boost to populations and traffic levels. Vehicle exhaust emissions from those traffic increases are expected to remain steady or decrease slightly, with improved efficiency and emission controls offsetting increased volume. Road dust emissions would be expected to increase proportionally to traffic volume increases. Renewable energy projects potentially fostered by the proposed transmission line could have construction and operational emission profiles comparable to this proposed project, but would involve considerably less air emissions per kilowatt hour than the traditional fossil fuel fired power plant alternatives like those proposed in two locations around the CESA.

5.6.6 Cumulative Effects

This section documents ambient air quality impacts of the ON Line Project and other existing or reasonably foreseeable activities in the CESA. For the ON Line Project, the predicted cumulative impacts of all current and reasonably foreseeable activities are presented in terms of potential impacts on FLM (Federal Land Managers) identified sensitive Class II areas, and their impacts on Class II areas everywhere else in the CESA.

5.6.6.1 Ambient Air Quality Impacts with the Proposed Action or Action Alternative

FLM Identified Sensitive Class II Area Impacts

On-site measurements by the IMPROVE monitoring system in Class I areas show that ambient air quality standards applicable in Class I airsheds are currently being met. NPS monitoring has Great Basin National Park and NPS staff concerned about the potential for acidification of lakes in the park with any significant increase in acid deposition. The ON Line Project would not have any direct impact on the park during construction or operation, but could provide an opportunity to help meet regional energy needs without additional fossil fuel burning and the potential associated acid deposition.

The overall impact of the existing and reasonably foreseeable emissions sources identified in **Sections 5.6-3 to 5.6-5** would not be expected to significantly change the current air quality levels in the CESA. Air pollutant levels are generally well below state and national ambient air quality standards, except in Clark County. Local and regional energy planning has shifted from higher emitting coal-fired plants to lower emitting natural gas fired, solar, wind, and geothermal sources. Those renewable energy sources' air quality impacts in the CESA would be minor to negligible, as a result of dust impacts from construction or wind erosion from exposed ground during operation. The only reasonably foreseeable actions that could bring about moderate impacts would be the two proposed power plants in the near vicinity, identified in **Table 5.6-2**, and/or a combination of a number of other regional (outside CESA) fossil fuel-fired power plants, especially higher emitting coal-fired plants. The overall impact of all other activity trends identified would be to maintain current air quality levels, possibly but not definitely a minor upward trend over time. Individual projects could have a very localized moderate impact on air quality, though not likely over any extended duration.

Construction emissions associated with the ON Line Project would be comparable to any potential energy system enhancement in the region, including the numerous projects proposed. Those emissions would be distributed along a long linear path, so that impacts in any one place would be very temporary and minor in magnitude. Operational emissions associated with the ON Line Project would be minor.

5.6.7 Climate Change

Construction, operation, maintenance and decommissioning of the ON Line Project would emit GHGs that, together with emissions of past, present, and reasonably foreseeable future actions, could contribute to climate change. ON Line Project-specific GHG emissions are considered in the context of this cumulative impacts analysis. However, because renewable electricity transported by the ON Line Project is expected to displace some electricity generated from fossil fuels, the ON Line Project would result in a net reduction in GHG emissions. Cumulative effects analysis for climate change is by nature, very broad: it is both regional and global. Potential cumulative effects, whether adverse or beneficial, on climate change could be short-term (i.e., limited to the ON Line Project's proposed 24-month construction period) or long-term (i.e., occur during the projected 50 year operational lifespan of the ON Line Project).

Existing conditions within the cumulative effects study area reflect a combination of the natural condition and the effects of past actions. Recent years have seen record-high average global surface temperatures; in fact, the past 20 years include the 18 warmest years on record since 1850 (Pew 2008). This warming trend could result from several factors that influence the earth's climate, including natural factors, such as changes in solar radiation and volcanic activity, and anthropogenic (or human-caused) factors, such as the release of GHGs to the atmosphere and land-cover changes (Pew 2008). Though climate science is complex, compelling evidence exists, demonstrating that human activities associated with fossil fuel burning and land use are primarily responsible for the changing global climate.

The US Supreme Court has held that climate change impacts are reasonably foreseeable, are caused in part by human activities, and should be regulated as pollutants under the Clean Air Act. *Massachusetts et al. v. Environmental Protection Agency*, 549 U.S. 497 (2007). Additionally, several states have enacted legislation establishing reduction targets for GHG emissions. Although similar state laws and regulations do not apply to federal agencies, NEPA does require that environmental documents consider the relationship between proposed federal actions and state environmental protection legislation.

The construction effort associated with the ON Line Project would emit GHGs during the construction period, which could last up to 24 months, primarily from the exhaust of equipment and transportation of employees and materials. Those construction emissions are documented in **Table 4.6-3**. **Table 4.6-3** provides an estimate of cumulative CO₂ emissions associated with the construction phase of the project. The construction emissions would be one time emissions, which would cease when the construction phase is completed.

The operational phase of the ON Line Project would include SF₆ loss from gas-insulated equipment located inside the substations that would be expected to result in the equivalent of an additional 167 tons of CO₂ per year in the atmosphere. Maintenance activities would include vehicular travel and construction activities which would release greenhouse gases. **Table 4.6-4** provides an estimate of the low annual GHG emissions estimated for the operational phase of the project.

The ON Line Project is expected to foster the development of renewable energy options in eastern Nevada, and possibly elsewhere, by providing a cost-effective method for bringing the power they produce to the market. Like the ON Line Project, renewable energy sources (other than biomass) would not have routine stack emissions of combustion exhaust. The Nevada Renewable Energy Transmission Access Committee report (Nevada RETAAC 2007) indicates two solar energy zones and one biomass zone along the proposed transmission line, with a geothermal zone, a biomass zone, another solar zone, and three wind zones also within the

CESA. At least four projects in or immediately around the CESA (one geothermal, two wind, and one solar) have either applied for ROWs or permit approval. Air emissions for these proposed projects are not quantified at this time but would consist of construction emissions of the type similar to those for the ON Line Project (dust and internal combustion engine exhaust). Operational air emissions from these renewable energy projects would be expected to be low but have not been quantified.

The ON Line Project would potentially bring to market renewable energy options that otherwise wouldn't be feasible. The GHG emissions of the project combined with those associated with renewable energy options are considerably lower than the emissions associated with the traditional energy production options that without the ON Line Project would be the most feasible. Therefore, the project would result in moving the state of Nevada toward the goal of an increased percentage of their energy from renewable sources, and result in considerably lower GHG emissions than the only current alternative, fossil fuel combustion.

5.7 Vegetation, Including Noxious and Non-native, Invasive Weeds and Special Status Plants

5.7.1 CESA Boundary

The CESA boundary for vegetation would be the same as described for surface water (**Section 5.2**).

Rationale

In addition to adopting a similar CESA for simplicity purposes, as defined in **Section 5.1**, vegetation can be removed and affected by ground disturbances, which can lead to habitat conversion and can make soil more susceptible to erosion, potentially contributing sediment to surface waters. The soil disturbance areas described previously to delineate the soil CESA boundaries would have associated vegetation disturbances. Cumulative vegetation impacts as a result of the project should not be noticeable beyond this area.

5.7.2 Introduction

The CESA for vegetation includes nearly one million acres in the Central Basin and Range and Mojave Basin and Range ecoregions (EPA 2008b). Data on land cover for the CESA for vegetation was obtained from the BLM landcover dataset (BLM 2007h). Thirty-nine land cover types defined in the Nevada GAP data are represented within the CESA for vegetation. To facilitate analysis of land cover, and to better correlate the data with project-specific data presented in **Sections 3.7.4** and **4.7**, the 39 land cover types were condensed into 11 categories based on methodology provided within Nevada's Wildlife Action Plan (NDOW 2006). **Table 5.7-1** indicates the acreage of various types of land cover within the CESA and correlates the land cover types with the project-specific data presented in **Chapters 3** and **4**.

TABLE 5.7-1 LAND COVER ACREAGES FOUND WITHIN THE CESA FOR VEGETATION

LAND COVER CATEGORIES	VEGETATIVE COMMUNITIES WITHIN PROJECT AREA	LAND COVER ACREAGE WITHIN CESA
Agriculture	Agriculture	328
Barren Lands	N/A	82
Developed/Disturbed (includes medium and low density development, sand and gravel pits, roads; does not include existing utility line development)	Disturbed Lands	7,850
Basins & Desert Scrub	Creosote Bush	426,727
	Greasewood	
	Joshua Tree	
	Salt Desert Shrub	
Lower Montane	Blackbrush	94,023
	Mountain Big Sagebrush	
	Pinyon-Juniper Woodland	
Montane to Alpine	N/A	1,957
Sagebrush Semi-desert	Basin Big Sagebrush	396,514
	Black Sagebrush	
	Douglas Rabbitbrush	
	Rubber Rabbitbrush	
	Winterfat	
	Wyoming Sagebrush	
Sand Dunes & Badlands	Dune	25,709
Riparian/Wetlands	Alkaline Meadow	6,669
	Desert Playa	
	Open Water	
	Riparian	
	Wetland	
Burned Areas	Burn/Fire Affected	711
Invasives ¹	N/A	1,471

¹ Acreage of invasives derived from the nv04_ReGap.mdb file from the BLM, which is based on the southwest regional GPA analysis, and represents gross infested acres.

Areas of basins and desert scrub vegetation, the land cover type with the greatest number of acres within the CESA for vegetation, are found within the proposed transmission line alignment through most of Lincoln and Clark counties. Areas of sagebrush semi-desert, the second most prominent land cover type, are found extending from the Robinson Summit Substation into northern Lincoln County within the transmission line segments. Areas of lower montane vegetation are found within the proposed transmission line segments as the third most common land cover type.

Historically, ecosystem process and vegetative cover were altered by grazing practices and development of the West. Present and future disturbance of vegetation in the CESA occurs primarily through activities related to grazing, followed by development of linear facilities, roads and railroad lines, and extractive industries (mining and oil/gas exploration). The most extensive land use within the CESA is grazing.

The extent of special status plant species within the CESA for vegetation is unknown. The USFWS developed a biological sensitivity index and analysis of trust resources on BLM grazing allotments in Nevada (USFWS 2003). According to this analysis, none of the grazing allotments

within the CESA for vegetation contain any plants with designations under the ESA. **Table 5.7-2** details the State sensitive species with a Global and State Rank, defined by the Nevada Natural Heritage Program (NNHP), found within grazing allotments in the CESA for vegetation. In addition, as described in **Section 3.7**, the Las Vegas buckwheat is known to occur east of the SWIP Utility Corridor south of the Coyote Springs Development in Clark County (Segment 11).

TABLE 5.7-2 NNHP STATE SENSITIVE SPECIES FOUND ON GRAZING ALLOTMENTS WITHIN THE CESA FOR VEGETATION

SPECIES SCIENTIFIC NAME	SPECIES COMMON NAME	ALLOTMENT(S) WHERE FOUND	GLOBAL AND STATE RANK
<i>Eriogonum phoeniceum</i>	Scarlet Buckwheat	Wilson Creek	G1 S1
<i>Mentzelia argillicola</i>	Pioche Blazingstar	Wilson Creek	G1Q S1
<i>Mentzelia tiehmii</i>	Tiehm Blazingstar	Wilson Creek	G1G2 S1S2
<i>Frasera gypsicola</i>	Sunnyside Green Gentian	Sunnyside	G1 S1

Source: USFWS 2003

The past, present, and future disturbances with cumulative impacts to vegetation discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.7.3 Past and Present Disturbances

Development of the west changed vegetative conditions through a variety of factors including historic grazing practices (BLM 2009c), poor agricultural practices that led to erosion (Seiberg et al. 2007), the introduction and transportation of invasive and exotic species (Kelly Undated), and fire suppression (MDES 2007). The combination of these led to establishment and expansion of invasive and exotic species, such as cheatgrass (*Bromus tectorum*). Changes in vegetative cover in conjunction with fire suppression led to further changes that favored invasive and exotic species over native vegetative cover. Widespread changes in vegetative cover changed fire regimes and enhanced the effects of uncontrolled fire (Vallentine 1980; Sieberg et al. 2007). Together these effects have altered ecosystems processes and vegetative cover within the CESA.

The current land ownership and uses for (thus disturbances within) the vegetation CESA can be found in **Tables 5.1-1** and **5.1-2**.

Vegetation

Agriculture, Forestry, and Similar Sources of Surface Disturbance

Agriculture accounts for a negligible portion (328 acres) of the CESA. Wildfire burning of over 83,267 acres in the CESA (nearly 8.7 percent) changes the maturity of an area's vegetation, can affect the vegetative composition of an area, and can result in the spread of noxious and non-native, invasive weeds with disturbance in addition to the burn. Controlled burning of vegetation is used to maintain and enhance desired habitats and to reduce hazards from wildfires.

The Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project treated vegetation within the vegetation CESA. For this project 3,253 acres received mechanical treatment and 844 acres were treated for prescribed fire treatment. One other similar project is partly within the vegetation CESA. The White Pine Sagebrush Restoration Project is enhancing sagebrush habitat and reducing the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper and sagebrush. These projects have resulted in a short-term adverse impact from

destruction of vegetation. However, the fire break will have indirect long-term beneficial impacts by protecting vegetation from the effects of fire.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

No data is available estimating the total acreage of disturbance from the extractive industry within the CESA. Sand and gravel pits, including those that are active, inactive, and abandoned, occupy less than 0.01 percent of the vegetation CESA. Extractive industry disturbance has caused long-term disturbance to vegetation because the extractive process, including use of roads, is long-term. Reclamation, either man-made or natural, has resulted in various levels of revegetation of these disturbances. Increased use of roads can lead to transportation of noxious and non-native, invasive weeds into disturbed areas.

Grazing

Approximately 860,300 acres of the nearly one million acre CESA (nearly 90 percent) is available for grazing. The majority of the CESA is enclosed within various BLM administered grazing allotments. Grazing also occurs on USFS and private lands within the CESA. Livestock grazing has utilized and continues to utilize the grass/forb species, reducing competition for natural regeneration of tree/shrub species. In addition, grazing activities can result in specific, localized damage in riparian areas from vegetation removal by cattle as well as increasing the introduction and spread of noxious and non-native vegetation species.

Some allotments within the vegetation CESA have been found to have substandard conditions, such as adversely impacted vegetative cover and riparian areas, most of which were created by historic grazing practices. Substandard conditions resulted in modifications to grazing management in order to achieve improvements in range conditions (BLM 2007a, BLM 2007b, and BLM 2007i).

Nearly 70,000 acres within the CESA lie within the Desert NWR and Pahranaagat NWR. NWRs do not allow grazing, thus vegetation should not experience effects from livestock grazing within these NWRs. In addition, under the Ely BLM District RMP (2008a), BLM public lands west of US-93, in the vicinity of the Desert NWR are not open for grazing. Lands within the Desert and Pahranaagat NWRs consist predominantly of basins and desert scrub. The southern portion of the CESA that falls within the Desert NWR contains some isolated areas of sand dunes and badlands.

Industrial Development

Apex Industrial Park, located at the southern tip of the CESA, is within an area of basins and desert scrub. It is mostly private lands zoned for industrial use. An unknown portion of the 21,000-acre park is currently developed; therefore actual disturbance to vegetative communities is unknown. It is assumed that within the industrial park, development would result in vegetation removal and construction of structures, roads, and other hardened surfaces. The Western Elite (Bedrock) Landfill has disturbed approximately 83 acres of vegetation.

Roads

In addition to nearly 1,250 miles (7,750 acres) of roads in the CESA impacting vegetation permanently or in the long-term, roads have associated adverse effects on vegetation. In the case of large expanses of sparsely vegetated unfenced public lands (such as BLM lands), roads can beget other roads. Some people drive off road to access an area they want to reach. In desert climates, soil disturbances from vehicles and desert vegetation are slow to recover, and attract future additional vehicle use. Disturbed areas are much more likely to become infested

with noxious and non-native, invasive weeds, and vehicles tend to spread seed from these species.

Utility Production and Distribution

The Harry Allen complex is located in an area consisting of basins and desert scrub vegetation. Power generation facilities and substations have a long-term adverse affect on vegetation, as existing vegetation has been replaced by structures. Associated power lines have less impact than the power generation facilities and substations since the majority of disturbance is revegetated post-construction. Placement of existing water supply lines and fiber optic cable within utility ROWs also has resulted in vegetation disturbances. However, because there are little or no surface facilities associated with these buried lines, there would be minimal permanent impacts.

Utility disturbance (Harry Allen complex, natural gas lines, telecommunication lines, Lincoln County, Mt. Wheeler, Alamo, SNWA, Great Basin, and NV Energy power lines, water pipelines, etc.) in the southern part of the CESA would have had a short-term minor impact on basins and desert scrub vegetation. Other utility development disturbance (for example, the Falcon-Gonder transmission line, and the Silver State East fiber optic line) has taken place within areas of sagebrush semi-desert vegetation, but this is much more limited in extent.

Community Development

Community development projects, such as the Coyote Springs Development (ultimately 43,000 acres), have long-term minor to major impacts on vegetation. Private development does not afford the same protections, standard operating procedures, and reclamation requirements as activities under federal administration.

Noxious and Non-native, Invasive Weeds

Noxious and non-native, invasive weeds are prolific in areas of past disturbance, such as the land uses discussed above. Populations of noxious and non-native, invasive weeds are not as frequently observed in disturbance areas which are outside of drainages, washes, or generally not near moist environments. Estimated total acreage for invasive species within the CESA is approximately 1,471 acres (see **Table 5.7-1**).

Special Status Plants

Past disturbances to special status plant species are unknown; however, because few to no special status plant species were found within the project area, it is unlikely that populations were significantly disturbed by past or present activities within the CESA.

Summary

Previously disturbed areas represent a measurable, but small proportion of the total CESA. In addition to temporarily and/or permanently reducing vegetation in the CESA, past and present disturbances also result in introduction and increased susceptibility for the establishment of noxious and non-native, invasive weeds. Past and present disturbances to special status plant species are unknown, but assumed to be minimal.

5.7.4 Reasonably Foreseeable Future Disturbances

Future disturbances to vegetation are quantified in **Table 5.1-3**.

Vegetation

Community Development

Ultimately, approximately 43,000 acres (Las Vegas Review-Journal 2007) of basins and desert scrub vegetation would be disturbed in the Coyote Springs community development and likely replaced with roads, sports fields, structures (homes and other community infrastructure), and non-native vegetation (lawn grasses and ornamental shrubs and trees).

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities (mining or oil/gas development) is possible in the future. At this time, all known plans are for exploration, which would involve some road construction and drilling in selected areas; however, these projects are small, the largest affecting 2.2 acres (**Appendix 5A**). Expansion of extractive industries exploration activities would have negligible adverse impacts on vegetation in the CESA. However, should economic feasibility of resource development improve in the future, adverse impacts to vegetation would increase in acreage as well as intensity.

Grazing

Grazing on BLM and USFS lands would continue within authorized allotments of the CESA in the reasonably foreseeable future. Per the Ely RMP, the goal is to manage vegetation resources to achieve or maintain resistant and resilient ecological conditions while providing for sustainable multiple uses and options for the future across the landscape. These resistant and resilient ecological conditions include healthy, productive, and diverse populations of native or desirable non-native plant species appropriate to site characteristics. In addition, the RMP specifies goals and objectives to meet range health standards, which are directly related to vegetative cover. Grazing on private lands would also continue.

Future range health on BLM lands would be anticipated to improve. Under the Ely RMP, the BLM will continue to monitor and evaluate allotments to determine if they are continuing to meet or are making significant progress to meeting the standards for rangeland health, and management prescriptions adjusted accordingly.

As discussed in **Section 5.9**, changes to the livestock grazing management systems are proposed to improve the overall management of livestock on certain allotments, and updates to the allotment management plans would help to meet the objectives of the allotments. Future changes to grazing management on these allotments would be designed to improve range conditions, which would also result in improvements to vegetative communities.

Industrial Development

Of the 21,000 acres within the Apex Industrial Park, 6,000 acres of private lands zoned for industrial use are currently for sale and available for future development. It is assumed that development would result in construction of structures and other hardened surfaces, and removal of native basins and desert scrub vegetation.

Recreation

Increased human recreational activity on arid lands from an expected population increase in White Pine County would result in increased disturbed areas, which could lead to infestations of

noxious and non-native, invasive weeds, or increased erosion which would further decrease vegetative cover, adversely impacting vegetative resources.

Roads

With increasing community development (i.e., Coyote Springs Development), additional local roads are likely. Adverse effects to vegetation would result from damage to and/or removal of vegetation within the construction zone, and potential invasion of noxious and non-native, invasive weeds into the disturbed area.

Utility Production and Distribution

Several proposed and authorized projects within the CESA would develop power lines and water pipelines to be located within the utility corridors in White Pine, Lincoln, and Clark counties (see **Table 5.1-3** and **Section 5.2.4**). Should the entire SWIP Utility Corridor be maximized with underground water, telecommunication lines, petroleum or natural gas pipelines, the entire 2,640-foot wide utility corridor would be disturbed; however, there would be minor permanent vegetative disturbance. Additional utilities would likely be developed outside the designated utility corridors as well. Because this area consists primarily of basins and desert scrub, adverse impacts to vegetation would be anticipated to be mostly short-term as grasses and smaller shrubs regenerate. Larger species (such as Joshua trees) would sustain longer-term effects.

Utilization of the SWIP Utility Corridor for a combination of power lines and underground pipelines would be most likely, resulting in a combination of short-term and long-term disturbance. It is possible that the entirety of the corridor would not be developed. Construction ROWs can be revegetated; however, disturbance has high potential to lead to the incursion of noxious and non-native, invasive weeds.

As discussed in **Section 5.7.3**, land cover within the Proposed Action or Action Alternative alignments is primarily either basins and desert scrub or sagebrush semi-desert. Development along the length of the SWIP Utility Corridor within the CESA would impact both vegetation types. Impacts to basins and desert scrub vegetation from disturbance would likely be short-term as the native vegetation would be more likely to reestablish in 10 years or less after disturbance. Impacts to sagebrush semi-desert vegetation would be long-term as many of the larger species of sagebrush do not reestablish after disturbance for approximately 20 years (Whitson et al. 2004).

Noxious and Non-native, Invasive Weeds

Indirect effects of any ground disturbing activities would likely include the spread of noxious and non-native, invasive weeds. This would be particularly true for roadway and railroad facility rehabilitation and construction as there are existing infestations along the railway.

Special Status Plants

Development within the SWIP Utility Corridor would be the only activities that would affect the Wilson Creek and Sunnyside grazing allotments where sensitive species are found within the CESA, in addition to the known locations of Las Vegas buckwheat east of the corridor near Segment 11. Given the limited findings of special status plant species within the project area, it is unlikely that populations would be extensive or significantly adversely impacted by utility corridor development in the cumulative impacts scenario.

Summary

Anticipated future disturbances to vegetation within the CESA would be a measurable but relatively small proportion of the total CESA. Future disturbances are anticipated to temporarily and/or permanently reduce vegetation in the CESA. The potential for future vegetation disturbances within the CESA that result in the introduction and increased susceptibility for the establishment of noxious and non-native, invasive weeds is high. The potential for disturbances to affect special status plant species is unknown, but anticipated to be low.

5.7.5 Cumulative Disturbances

Vegetation

Vegetative cover within the CESA that would be affected by past, present, and reasonably foreseeable projects primarily consist of basins and desert scrub and sagebrush semi-desert. Much of the disturbance to vegetation in the CESA has been and will continue to be mitigated by reclamation activities that follow the initial disturbances to reduce the level of impacts.

Permanent existing disturbances within the CESA include grazing, mining, roadways, agriculture, power lines, telecommunication lines, community development, and industrial uses. Additional permanent disturbances are anticipated in the future with the construction of the WPES and several new transmission and water lines. Disturbances to the basins and desert scrub vegetative community would result from construction activities, and would largely be short-term in duration. Long-term impacts would occur to sagebrush semi-desert communities from construction activities due to the length of time required for sagebrush to reach maturity.

Approximately 90 percent of the CESA is available for grazing. Grazing on allotments within the CESA has resulted in disturbance and has impacted vegetation to varying degrees, and would continue in the future. Management of grazing on BLM grazing allotments under the Ely District RMP would result in monitoring of effects from grazing and modification of practices to maintain or improve vegetative communities.

The vegetation CESA totals nearly one million acres. Within the CESA for vegetation, known quantifiable past and present disturbances total approximately 11,526 acres. Proposed future disturbances identified in **Table 5.1-3** would potentially disturb another 58,749 acres, including approximately 800 acres for the ON Line Project. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time (**Table 5.1-4**), but the maximum area within the roughly 2,640-to-3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CESA.

Noxious and Non-native, Invasive Weeds

Occurrences of noxious and non-native, invasive weeds within the CESA along the SWIP Utility Corridor where utility development has not taken place are sporadic. However, occurrences of noxious and non-native, invasive weeds in areas of disturbance demonstrate a dense population and wide variety of noxious and non-native, invasive weeds. The probability of invasion of noxious and non-native, invasive weeds into disturbed areas, particularly transportation routes, is high.

Special Status Plants

Cumulative effects to special status plant species are anticipated to be negligible as no plants with designated status under the ESA are identified as being found within the grazing allotments within the CESA. Four allotments contain a total of three state sensitive species and very few sensitive species were found within the project area. Potential cumulative effects from the ON Line Project to the Las Vegas buckwheat should also be negligible since prompt revegetation activities would be implemented for all temporarily disturbed areas and noxious and non-native invasive weed species would be controlled.

5.7.6 Cumulative Effects

Adding the Proposed Action or Action Alternative disturbances to past, present, and reasonably foreseeable future vegetation disturbances, would result in cumulative effects to the vegetative community in the CESA being both short- and long-term and negligible to minor. Cumulative effects from noxious and non-native, invasive weeds would be long-term, minor to moderate. Cumulative effects to special status species would be negligible.

5.8 Wildlife Resources, Including Special Status Wildlife, Migratory Birds, Fisheries, and Aquatic Species

5.8.1 CESA Boundary

Wildlife – The wildlife CESA includes suitable habitat for a given species within a 2.5-mile buffer on each side of the ON Line Project footprint. The varied distances of suitable habitat from the direct effect areas are further defined to the individual species' likely dispersal capabilities and/or more appropriately enlarged for big game (i.e. herd size and summer/winter ranges). The total area of this CESA is the same as the surface water CESA, 954,373 acres.

Fisheries – Since there are no anticipated direct or indirect effects to fisheries from the ON Line Project, there cannot be any cumulative impacts, thus there is no CESA boundary for fisheries.

Rationale

Wildlife – Most impacts to wildlife would occur within or immediately adjacent to the project disturbance area. Impacts would mostly be limited to localized displacement. (Displacement is when one or more wildlife individual abandons a habitat because the habitat is no longer suitable, and must seek out alternative habitat, which may or may not be adjacent. If the abandonment of habitat is caused by a disturbance, wildlife individuals may or may not return to the habitat after the disturbance is no longer present.) Incidental take or permanent displacement of some individuals could occur; however, there should be no significant impacts to wildlife populations on whole. The project area does not provide unique habitats that are not already widely available adjacent to the project area, thus minimizing potential impacts related to displacement. How far individuals would displace, and the impacts of this displacement on resident populations is not known; however, given the scale of this project, it is unlikely that any short-term or long-term, adverse impacts to wildlife species would be noticeable beyond the identified CESA.

5.8.2 Introduction

Sagebrush semi-desert and basins and desert scrub are the two dominant vegetation types within the CESA (BLM 2007h). Riparian areas and other vegetation communities also occur throughout the CESA in lesser amounts. This diversity in habitat types allows for many wildlife

species to utilize the area. Types of wildlife species and their habitat found within the CESA would be very similar to those described in the affected environment for the Proposed Action, in **Section 3.8**.

In addition to BLM lands, over 68,000 acres of the 1.5-million acre Desert NWR and nearly 1,300 acres of the 5,380-acre Pahranaagat NWR fall within portions of CESA for wildlife. Both areas are managed by the USFWS, who, "...works with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people" (USFWS 2007h). A portion of the Desert NWR is contiguous with the Coyote Springs ACEC, and portions of the ACEC are contiguous with the Arrow Canyon, Meadow Valley Range, and Delamar Mountains WAs. Taken together, the range and refuge along with the ACEC and WAs provide a large expanse of public lands that provide wildlife habitat, in particular habitat for desert tortoise.

Past, present, and reasonably foreseeable actions in the wildlife CESA have likely resulted in both beneficial and negative impacts, at various levels, on wildlife. The foremost impact to wildlife within the area has been habitat changes associated with past and present grazing, utility development (electric, water, gas, etc.), and extractive industry activity. Negative impacts would include loss of habitat, displacement, and fragmentation as a result of grazing, utility developments, extractive industry activity, roads, private land development, agriculture, and recreation. Other impacts include noise disturbance/displacement from agriculture, extractive industry, roads, and recreational activities.

Past impacts to smaller less mobile wildlife species from direct crushing and mortality by livestock, large wild ungulates, and vehicles has likely also occurred within the CESA. In addition, grazing can contribute to impacts by increasing competition for forage, facilitating the spread of noxious and non-native, invasive weeds, changing the structure or composition of native plant communities, and degrading water quality and bank stability. Conditions in some wildlife habitat could be improved through revised grazing allotment management.

The past, present, and future disturbances with cumulative impacts to wildlife discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.8.3 Past and Present Disturbances

Within the CESA, past and present disturbances have primarily resulted from grazing, mining, industrial uses, community development, agriculture, and utility development. The majority of the CESA is within various grazing allotments. In general, wildlife are affected by livestock grazing due to competition for forage, direct mortality by trampling (i.e., amphibians and reptiles), and habitat removal/conversion.

Wildlife

Current land ownership and uses within the wildlife CESA are presented in **Table 5.1-1** and **5.1-2**, respectively.

Agriculture, Forestry, and Similar Sources of Surface Disturbance

In the last ten years, over 8.7 percent of the CESA burned, and most notably, nearly 68,000 of those acres burned in 2005. In years immediately preceding burns, barring other disturbances or significant erosion of burned areas, new vegetation growth can be prolific offering high quality forage for a wide range of wildlife species. However, loss of stands of mature vegetation reduces vegetative cover beneficial to the protection and survival of wildlife, particularly smaller species. With additional or associated disturbance (such as erosion) the spread of noxious and

non-native, invasive weeds within burned areas can result, reducing the value of the area for wildlife habitat. Beneficial and adverse effects would be anticipated to be offsetting.

The Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project treated vegetation within the vegetation CESA. For this project 3,253 acres received mechanical treatment and 844 acres were treated by prescribed fire. One other similar project is partly within the wildlife CESA. The White Pine Sagebrush Restoration Project is enhancing sagebrush habitat and reducing the risk of large scale, high severity wildfire throughout 19,000 acres between Carrant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush. This project has had an adverse impact on wildlife from the destruction of vegetation that provides forage and cover. However, the fire break will continue to have indirect long-term beneficial impacts by protecting vegetation, and thus wildlife habitat, from the effects of fire.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Extractive industry disturbance is more likely to be long-term in nature as the extractive process is lengthy, and rehabilitation of roads and other disturbance can take many years. Sand and gravel pits, including those that are active, inactive, and abandoned, occupy less than 0.01 percent of the wildlife CESA. Development of sand and gravel pits results in long-term elimination of wildlife habitat, and reduction of the value of areas surrounding pits due to human activity. Increasing the number of roads can lead to transportation of noxious and non-native, invasive weeds into disturbed areas, further degrading wildlife habitat.

Grazing

Studies of selected allotments within the CESA have found in some cases rangeland health standards are not being met (BLM 2007a, BLM 2007b, BLM 2007i). Current grazing practices are largely not to blame for substandard range conditions rather; historic grazing practices resulted in currently experienced substandard conditions. Substandard range health conditions adversely affect wildlife as the forage for sheep and cattle also sustain populations of antelope, deer, and elk. Substandard conditions are found on a relatively small proportion of the CESA. In addition, there are numerous miles of range fence that provide perching opportunities for hunting raptors.

Roads

Approximately 0.13 percent of the CESA for wildlife is disturbed by existing roads. Numerous unmapped dirt and two-track roads access areas within open BLM lands. In addition to reducing forage, increasing opportunity for erosion to degrade habitat, and the increased possibility of introduction of invasive species, roads create breaks in vegetation that make it easier for smaller species to be preyed upon, and ultimately fragment habitat. Higher speed paved roads through undeveloped areas increase risk of collisions of wildlife with vehicles, resulting in increased levels of mortality.

Industrial Development

Apex Industrial Park, a development on private land, is located just south and east of the Coyote Springs ACEC and south of the Desert NWR. Given its proximity to other high quality wildlife habitat, it is assumed that the industrial park formerly contained wildlife habitat prior to development. The current level of development of the 21,000-acre park is unknown. Given the fact that 6,000 acres within the park are advertised for sale, it is assumed that some undisturbed lands remain; however, they would be impacted by other development in close proximity within the park.

Utility Production and Distribution

Approximately 3,336 acres or 0.35 percent within the CESA for wildlife are disturbed by utility ROWs. Utility ROWs within the CESA have been developed for substations, power lines, the placement of water and gas pipelines, and fiber optic cables. Existing power generation and delivery within the CESA includes the Harry Allen complex consisting of the generating station, switchyard, and substations; and segments of numerous utility lines (Alamo Power, Lincoln County Power, Mt. Wheeler Power, Lincoln County Telephone, SNWA, Great Basin Transmission). Permanent structures supporting transmission lines reduce range resources within the tower footprints that support wildlife; they also provide perches and nest sites for raptors, which prey on smaller sensitive species such as pygmy rabbits and greater sage-grouse. Transmission lines can cause mortality to avian wildlife through electrocution and collisions although their design is intended to mitigate this.

Placement of existing water supply lines and fiber optic cables within utility ROWs has disturbed vegetation. Surface facilities associated with water and fiber optic lines include power lines, substations, pumps, vents, splice yards, and regeneration stations. However, the majority of disturbances associated with these buried lines are reclaimed so the impact is short term. Removal of vegetation, that provides both forage and cover during installation of lines or cable, results in both short and long-term adverse impacts to wildlife habitat.

Installation of power lines, water or gas lines, fiber optic lines, or extractive industry access often require construction of roads for access. Roads may be used long-term for ongoing operations or maintenance within a mining claim or utility ROW. Road construction along with utility construction or mine operations can result in direct mortality of wildlife, while long-term use and maintenance of roads can result in habitat fragmentation. Increased use of roads can lead to transportation of noxious and non-native, invasive weeds into disturbed areas, further reducing the value of habitat in the vicinity of mines and utility development.

Special Status Wildlife

The current land ownership and uses for (thus disturbances within) the special status species CESA would be the same as those described for wildlife in **Tables 5.1-1** and **5.1-2**.

The effects described above are often amplified for special status wildlife. Sensitive species, such as desert bighorn sheep, pygmy rabbits, burrowing owls, and greater sage-grouse, are adversely affected by substandard range conditions (often caused by historic grazing practices), as these species also rely on the range for food sources as well as cover. The effect of habitat fragmentation from roads described above is particularly important for smaller sensitive species, such as pygmy rabbits and greater sage-grouse, as the “breaks” in the habitat either separate populations from each other resulting in genetic isolation, separate habitat components that are crucial at different life stages, or offer greater opportunities for predators.

Migratory Birds

The current land ownership and uses for (thus disturbances within) the CESA would be the same as those described for wildlife in **Tables 5.1-1** and **5.1-2**.

The effects described above for general wildlife also similarly impact migratory birds. Past changes in vegetative communities and removal of native vegetation has changed or eliminated habitat used by migratory birds for cover, forage, and reproduction.

5.8.4 Reasonably Foreseeable Future Disturbances

Future disturbances to wildlife are quantified in **Table 5.1-3**.

Wildlife

Community Development

The Coyote Springs community development, described in detail in **Section 5.2.4** under Community Development, would potentially have largely adverse effects on wildlife. Ultimately, approximately 31,000 acres of wildlife habitat (basins and desert scrub vegetation) would be removed for community development. Approximately 12,000 acres planned for parks, open space, and multi-species habitat and a planned 17-acre lake would provide habitat and a new water source, enhancing habitability. However, overall wildlife impacts are anticipated to be long-term and adverse due to loss of habitat that was essentially contiguous with the Desert NWR (separated and somewhat fragmented by US-93) and the Coyote Springs ACEC, and from removal of native vegetation. While provision for open space and development of a man-made water source would enhance wildlife habitat, these changes would likely result in shifts in the kinds and the population levels of wildlife found as the ecosystem of the immediate area would be permanently altered and differ from the native ecosystem.

Another result of the Coyote Springs Development would be increased traffic on US-93 between Coyote Springs and Las Vegas. Increased traffic in this area surrounded by public lands managed for wildlife values would likely result in increased collisions between wildlife and vehicles, increasing mortality.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities, which would involve some road construction and drilling in selected areas, would have adverse impacts on wildlife, is anticipated to be minimal at this time. However, should economic feasibility of resource development improve in the future, adverse impacts to wildlife (from direct mortality, habitat loss, and fragmentation) would increase.

Grazing

Grazing would be anticipated to continue within the CESA in the foreseeable future. See **Section 5.9** for a detailed discussion of future grazing. Future range health (and therefore wildlife habitat) would be anticipated to improve with changes to the livestock grazing management systems and updated allotment management plans to meet the objectives of the allotments. Future changes to grazing management would be designed to improve range conditions, and as a result, wildlife habitat conditions would improve as well.

Industrial Development

Of the 21,000 acres within the Apex Industrial Park, 6,000 acres are currently for sale and available for future development. As stated above, it is assumed that development would result in construction of facilities that would eliminate any remaining lands from serving as wildlife habitat.

Recreation

Increased population in White Pine County would likely increase recreational pressure on surrounding public lands. Increased human activity, hunting, and potential increased poaching would all lead to short-term impacts to wildlife. Adverse effects to wildlife would also be experienced in the long-term with permanent increases in human population from plant operations.

Roads

While no new major highway development is currently proposed, development within the SWIP Utility Corridor and the WVEC would involve development of roads for construction as well as ongoing maintenance of infrastructure within the future ROWs. Additionally, increased use of public lands would lead to increased development and use of informal roads on public lands that would adversely impact wildlife through increased potential for collisions, displacement, and habitat fragmentation.

Utility Production and Distribution

One of the prominent anticipated disturbances of wildlife within the CESA would be utility production and ROW development.

Two major planning efforts have addressed the development of multiple-use utility corridors: the WVEC PEIS and the SWIP Utility Corridor. These planning projects address the utility corridor within the CESA. The possible development scenarios for this corridor are discussed in greater detail in **Section 5.2.4**.

Overhead power lines and other underground utilities would result in permanent long-term impacts to wildlife through placement of structures for such facilities, creating perches as well as hazards for birds of prey, and construction of temporary maintenance roads that fragment habitat. Several proposed projects within the CESA would develop water resources and transport the water through pipelines to be located within portions of the utility corridors. Wildlife habitat would be disturbed in the short term due to construction; however, assuming effective reclamation, there would be little permanent disturbance of habitat.

Utilization of the corridor for a combination of overhead facilities (i.e., power lines, substations, communication stations, compressor and pump stations, water detention basins, etc.) and underground facilities (i.e., pipelines, stormwater drains, telecommunication lines, etc.) would be most likely, resulting in a combination of short-term and long-term disturbance. It is possible that the entirety of the corridor would not be developed due to topography constraints and incompatibility of such facilities in close proximity to each other. Additionally, project proponents do not have to locate linear facilities within designated corridors so it is possible that as the SWIP Utility Corridor and the WVEC get developed by linear utilities, future applicants may look outside these corridors for placement of facilities to reduce compatibility, topographic, and other potential conflicts. Temporary construction areas of linear facilities can be revegetated; however, disturbance has high potential to lead to the incursion of noxious and non-native, invasive weeds that reduce the quality of wildlife habitat.

Special Status Wildlife

Future effects to special status wildlife would be similar to those described under past and present disturbances above.

Migratory Birds

Future effects to migratory birds would be similar to those described under past and present disturbances above.

5.8.5 Cumulative Disturbances

The wildlife CESA totals almost one million acres. Within the CESA for wildlife, known quantifiable past and present disturbances total 11,526 acres. Proposed future disturbances, including the ON Line Project, would potentially disturb another approximately 58,749 acres.

Acres of disturbance for future proposed developments within the SWIP Utility Corridor and the WVEC cannot be accurately quantified at this time (**Table 5.1-4**), but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CESA.

Approximately 90 percent of the CESA is available for grazing. Grazing on allotments within the CESA has resulted in disturbance, has adversely impacted vegetation to varying degrees, and would continue in the reasonably foreseeable future. Management of grazing on BLM grazing allotments under the Ely District RMP would result in monitoring of effects from grazing and modification of practices to maintain or improve vegetative communities, which would result in improved wildlife habitat.

5.8.6 Cumulative Effects

Threatened, Endangered, Proposed, and Candidate (TEPC) Species

Desert Tortoise

Approximately 138,000 acres of the CESA for wildlife are desert tortoise habitat, located in an area approximately 40 miles either side of the Clark/Lincoln County line. Both above and below ground development within the utility corridors in this area would adversely impact desert tortoises. Temporary adverse impacts to desert tortoise would result from noise and human activity associated with construction activities within the corridor. Short-term impacts could result from direct mortality of individuals and potential destruction of burrows, although these impacts would be reduced and possibly eliminated through implementation of mitigation measures. Short- to long-term impacts to desert tortoise would result from clearing of vegetation that provides forage and cover.

Long-term impacts would result from the permanent loss of habitat as new linear utility facilities would occupy land (i.e., compressor and pump stations, substations, power lines, gas lines, etc.); creating perches for birds of prey (particularly ravens); increasing predation in the vicinity of such structures; from maintained access roads creating permanent breaks in vegetation and potentially fragmenting habitat. Fragmentation is a major contributor to population declines in desert tortoises because tortoises have large home ranges (over 1.5 square miles of habitat per tortoise, USFWS 1994). When home ranges are fragmented, tortoise movements can be restricted and tortoises are potentially less able to self-regulate localized population densities and find mates outside an isolated pool. This can potentially create relatively small populations that are more susceptible to localized mortality.

The Coyote Springs Development, located within the wildlife CESA, is essentially surrounded on the north, east, and south sides by the Coyote Springs ACEC protecting critical desert tortoise habitat. As the development is surrounded by desert tortoise habitat, the development would result in a loss of up to 31,000 acres of desert tortoise habitat, reducing available habitat and further fragmentation of remaining habitat.

Implementation of mitigation measures as those described in **Section 4.8.2.5** would help to reduce potential impacts to desert tortoise. Overall cumulative effects to desert tortoise would be short- and long-term and moderate as Terms and Conditions from applicable BOs prepared for projects that impact desert tortoise habitat would also be implemented to minimize and reduce potential direct and indirect impacts to desert tortoise.

Greater sage-grouse

Approximately 30 percent of the area within the CESA along the Proposed Action and Action Alternative alignments south from the Robinson Summit Substation to just inside the Lincoln County border is yearlong greater sage-grouse range, totaling over 300,000 acres. In this area, the projects that could result in cumulative effects to greater sage-grouse would include utility corridor development, development and use of roads, and increased recreational activity.

Temporary effects to greater sage-grouse due to human activity during construction would extend to acreage beyond the actual development due to the fact that human disturbance associated with construction activities would discourage habitation of the area. Vegetation trampling and clearing required for transmission facility construction would reduce or eliminate vegetation for foraging and cover in the short term. Because some species of sagebrush require 20 or more years to mature, some adverse wildlife effects from vegetation removal may be long-term as well.

Development of the WWEC/SWIP Utility Corridor would adversely impact greater sage-grouse. Construction of linear facilities would permanently remove lands from greater sage-grouse habitat. In the long term, despite installation of perch prevention devices, new structures, along with existing range fences and older power line structures would likely serve as perches for birds of prey, enhancing predation of greater sage-grouse along the corridor.

Roads developed for construction of the Proposed Action or Action Alternative alignments or ongoing maintenance would be temporary and would be reclaimed after construction, outside or desert tortoise habitat. Increased recreational use on public lands could result in increased habitat fragmentation and unintentional disturbance of leks and mating strategies that could lead to further population declines. However, the amount of public lands available for recreation and the extent of potential greater sage-grouse habitat available moderates these effects.

Implementation of mitigation measures such as those described in **Section 4.8.2.5** during work within the utility corridors on public lands would help to reduce potential impacts to greater sage-grouse.

Overall cumulative effects to greater sage-grouse would be short- and long-term, minor to major (i.e., if abandonment of an active lek occurred as a direct result of a specific project or combination of projects).

BLM Sensitive and State of Nevada Special Status Species

Pygmy Rabbits

Because pygmy rabbits are typically found in areas of tall, dense Wyoming sagebrush, and were observed in the northern portions of the project area, they would most likely be found in the northern portions of the CESA in areas of Wyoming sagebrush semi-desert vegetation. Because of the pygmy rabbits' dependence upon sagebrush habitat and susceptibility to predation, cumulative impacts to pygmy rabbits would be very similar to those described above for greater sage-grouse. Overall cumulative effects to pygmy rabbits would be short- and long-term, minor to moderate.

Raptors, includes Bald and Golden Eagles

Many species of raptors, including eagles, utilize the diversity of habitats that exist throughout the proposed transmission line alignments, and thus would utilize these areas. Noise and increased human activity associated with the construction of the transmission facilities and other developments in the CESA would have a temporary impact on nesting and foraging activities.

Mitigation measures similar to those discussed in **Section 4.8.2.5** could be employed prior to and during construction activities that would greatly reduce the likelihood of raptor nesting behavior being disrupted or nests being destroyed. Transmission lines result in adverse effects to raptors (i.e., electrocutions) due to collisions between birds and lines. Beneficial effects to raptors from transmission lines result from improved hunting opportunities from the towers. The intensity of these impacts would vary according to species, but impacts that are a direct result of construction activities and presence of towers and lines are not expected to exceed a negligible level.

Increased usage of US-93 and human presence on public lands may result in increased mortality and affect habitat usage patterns; however, these long-term adverse effects to raptors would be anticipated to be negligible.

Adding the Proposed Action or Action Alternative disturbances to past, present, and reasonably foreseeable future disturbances, would result in expected cumulative effects to raptors, including eagles, being short- and long-term, minor and adverse. In addition, adhering to and implementing approved Avian Protection Plans for future projects would assist in minimizing these potential impacts.

Burrowing Owls

Suitable habitat for burrowing owls occurs throughout various portions of the project area, and thus throughout the CESA. The introduction of new linear facilities in utility corridors within the CESA for wildlife increases the likelihood of burrowing owls experiencing in-flight collisions with overhead facilities. The presence of above ground structures may also deter burrowing owls from nesting in previously occupied habitat. The operations, maintenance, and abandonment of facilities would have both short-term and long-term impacts on burrowing owls. The magnitude of these cumulative impacts could range from minor to moderate.

Burrowing owls may habituate themselves to humans as well as anthropogenic structures and machinery. As a result, burrowing owls would likely avoid nesting in these areas, but over time may resume foraging in these areas. Overall cumulative effects to burrowing owls would be short- and long-term, negligible to minor.

Bats

Bat roosting areas could be present within the CESA. Construction activities could disturb bats in the short term, while increased population and industrialization could have a longer term adverse impact. Bats likely use most of the CESA for foraging opportunities. Construction activities could cause bats to temporarily abandon foraging within active work zones. Changes to or removal of vegetative cover could reduce the quality of insect life available to sustain bat populations. However, short- and long-term cumulative effects to bats would be anticipated to be negligible.

Kangaroo Mouse

Potentially suitable habitat for kangaroo mice occurs throughout various portions of the project area, and thus throughout the CESA. Construction activities could disturb potentially suitable habitat in the short term and kangaroo mice could be directly affected through destruction of burrows and habitat.

Utility line facilities within or near suitable habitat would result in direct habitat loss, would provide raptor perches that facilitate predation, and increase human access for recreational activities, all of which could impact kangaroo mice and their habitat. Power line structures can

provide hunting and roosting perches, and nesting support, for many raptor species that can prey upon kangaroo mice.

Overall cumulative effects to kangaroo mice would be short- and long-term, negligible to minor.

Montane Vole

Montane voles could be directly affected by construction activities and other projects through destruction of burrows and habitat. However, the montane vole is localized to wetland/riparian areas which have been or typically would be avoided by construction activities and projects. Thus, overall cumulative effects to montane voles would be negligible in both the short-term and long-term.

Desert Bighorn Sheep

The Proposed Action and Action Alternative alignments within the CESA for wildlife cross both potential and occupied desert bighorn habitat from the vicinity of the proposed Robinson Summit Substation site to the southern terminus of the CESA. Increased traffic on US-93 between Las Vegas and the Coyote Springs Development could result in increased collisions between vehicles and individuals, increasing mortality. Effects to bighorn sheep from development within the SWIP Utility Corridor and WVEC and increased recreational use of public lands would occur through displacement during project construction activities and habitat disturbance.

Overall cumulative effects to desert bighorn sheep would be short- and long-term, and negligible to minor.

General Wildlife

Pronghorn Antelope

Most of the CESA for wildlife is habitat for pronghorn antelope, except for the higher elevations. Development within the SWIP Utility Corridor throughout the CESA north of Segment 9B would disturb pronghorn antelope in the short term due to human activity. Cumulative adverse impacts to pronghorn would be short-term and negligible to minor, depending on the magnitude of concurrent development within the SWIP Utility Corridor.

An increase in the human population within White Pine County would result in increased human activity within pronghorn habitat, potentially concentrating pronghorn populations in lesser used areas. Long-term loss of habitat from permanent transmission facility foundations located within the Proposed Action or Action Alternative alignments and from increased human activity within pronghorn habitat would be anticipated to have negligible adverse impacts on pronghorn antelope due to the large extent of suitable habitat within the CESA.

Overall cumulative effects to pronghorn antelope would be short- and long-term, and negligible to minor.

Mule Deer

The majority of development contained within the cumulative effects scenario would not be within the mule deer year-round range. The Proposed Action and Action Alternative alignments cross through summer and winter range, crucial winter range, and migration corridors in several locations. Effects to mule deer from increased traffic on US-93, development of the SWIP Utility Corridor and WVEC, and increased recreational use of public lands would be similar to those described above for pronghorn antelope.

Overall cumulative effects to mule deer would be short- and long-term, and negligible to minor.

Elk

The majority of the area of the CESA for wildlife is potential elk habitat, with exception of the WWEC/SWIP Utility Corridor south of and along US-93 in Lincoln County. The construction of the Robinson Summit Substation in conjunction with development within the Proposed Action or Action Alternative alignments may disturb elk and alter their movement patterns. Because those developments are in the immediate vicinity of US-50, the disturbance could result in increased elk presence along the highway, and increased incidence of collisions with vehicles. All other effects to elk from, increased traffic on US-93, development within the SWIP Utility Corridor and WWEC, and increased recreational use of public lands would be similar to those described above for pronghorn antelope.

Overall cumulative effects to elk would be short- and long-term, and negligible to minor.

Migratory Birds

The introduction of a new transmission line increases the likelihood of avian wildlife and waterfowl experiencing in-flight collisions with structures and lines. Development of utility corridors would increase the number of linear facility structures, increasing the potential incidence of collision. In areas where high-density migration takes place across the utility corridors, including design features intended to reduce collisions by making structures more visible to avian wildlife and waterfowl would be considered. Transmission structures would be designed to reduce electrocutions, roosting, perching, and nesting to the extent practicable. These measures would mitigate most adverse effects.

Overall cumulative effects to migratory birds would be short- and long-term, and negligible to minor.

5.9 Range Resources

5.9.1 CESA Boundary

The CESA boundary for range resources includes the full extent of the allotments which the ON Line Project footprint crosses and the permitted range uses within these allotments that the alignments impact. The total area of this CESA is 3,084,424 acres of BLM, state, and private lands.

Rationale

Portions of each of these allotments and permitted range uses occur within the direct effects area and could be impacted by the project. Livestock displaced from the direct effects area by the project would likely be moved to other portions of the allotments outside of the direct effects area.

5.9.2 Introduction

Figure 5.9-1 depicts the CESA for range resources. The entire CESA for range resources is enclosed within various grazing allotments. Range resources within the CESA would be similar to those described for the project area in **Section 3.9**.

Cumulative effects to range resources in the CESA primarily occur from historic fire suppression activities, historic and ongoing grazing, utility generation and delivery, recreation, community development, and extractive industry activities. These activities reduce public lands available as

range resources, or result in adverse effects to the resource such as spread of noxious and non-native, invasive weeds, or loss of vegetative cover.

5.9.3 Past and Present Disturbances

Current land ownership and uses within the range resources CESA are presented in **Tables 5.1-1** and **5.1-2**, respectively.

Development of the West changed range conditions through historic grazing practices; activities that altered natural hydrology; irresponsible use of fire; introduction and transportation of invasive and exotic species; and fire suppression. The combination of these led to establishment and prolific expansion of invasive and exotic species, such as cheatgrass. Changes in vegetative cover in conjunction with fire suppression led to further changes in range conditions that favored invasive and exotic species over native vegetative cover. Widespread changes in vegetative cover changed the fire regime and enhanced the effects of uncontrolled fire (Young and Blank 1995). Together these effects have altered ecosystems processes, vegetative cover, and range resources found within the CESA.

Agriculture, Forestry and Similar Sources of Surface Disturbance

The Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project treated 3,253 acres mechanically and 844 acres by prescribed fire. This type of project has direct adverse effects by reducing forage and indirect long-term beneficial impacts by protecting range resources from the effects of uncontrolled wildfire, and continued deterioration of range resources. The White Pine Sagebrush Restoration Project is enhancing sagebrush habitat and reducing the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush. This project has had direct adverse effects by reducing forage, and will continue to have indirect long-term beneficial impacts by protecting range resources from the effects of uncontrolled wildfire, and continued deterioration of range resources.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Twenty-six existing mining claims or districts are located within the CESA. Approximately 41 acres or less than 0.01 percent, of the CESA is disturbed by gravel pits. The area disturbed by the extractive industry (mining, gas/oil exploration and development) reduces acreage available for grazing within the CESA, resulting in long-term impacts to range resources. Currently, extractive activities within the CESA for range resources are minimal; therefore adverse impacts would be negligible.

Grazing

The foremost past and present impacts to range resources within the area have been recent past grazing practices, utility generation and delivery, and extractive industries activity. Almost three million acres, over 96 percent of the CESA, is available for grazing.

Past and present disturbances to range resources from grazing would be the same as conditions described for range resources in the affected environment, **Section 3.9**.

Figure 5.9-1 Grazing CESA

Roads

The CESA for range resources contains over 26,000 acres of disturbance from roads. Existing roads impact livestock by reducing acreage available for grazing, separation of grazing allotments, and through collisions between livestock and vehicles. Given that roads only occupy 0.87 percent of the CESA, the impacts on range resources from roads are minimal.

Utility Production and Distribution

Existing utility generation and delivery facilities reduce available acreage in grazing allotments in the long term as structures/equipment (i.e., compressor and pump stations, telecommunication sites, water detention structures, power plants, substations, power lines) permanently remove vegetation and occupy the land.

5.9.4 Reasonably Foreseeable Future Disturbances

Future disturbances to range resources are quantified in **Table 5.1-3** above.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities (mining or oil and gas development) and related impacts on range resources are anticipated to be minimal. However, should economic feasibility of resource development improve in the future, adverse impacts to range resources would increase in intensity as well as acreage.

Grazing

Grazing would continue within the CESA in the foreseeable future. Management of grazing on BLM land under the Ely BLM District RMP (2008a) is discussed in detail in **Section 5.2.4** above. Under the Ely RMP, the BLM will continue to monitor and evaluate allotments to determine if they are continuing to meet or are making significant progress to meeting the standards for rangeland health, and management prescriptions would be adjusted accordingly.

Future range health would be anticipated to improve. Changes to the livestock grazing management systems are proposed to improve the overall management of livestock on the affected allotments, and updates to the allotment management plans would help to meet the objectives of the allotments. Through the permitting process some allotments have been identified where standards have not been met, however, significant progress is being made toward meeting standards. Future changes to grazing management on any identified substandard allotments would be designed to improve range conditions, resulting in a long-term negligible to minor beneficial impact to range resources. However, without active improvements to grazing management, the substandard conditions could contribute to the expansion of invasive and exotic species and ecological change that result in long-term adverse effects to range resources.

Recreation

Increased human population would likely also increase recreational pressure on surrounding public lands. Increased human activity would likely involve increased vehicular and OHV use on public lands, resulting in increased soil disturbance that would lead to increased infestation of noxious and non-native, invasive weeds. The potential for spread of noxious weeds from OHVs off-road is greater than the potential for spread of noxious weeds from vehicular traffic on roads as there is increased soil disturbance and greater potential to encounter and pick-up noxious weed seed when traveling off of designated or maintained travel ways. These effects could result in long-term degradation of range resource quality.

Roads

Under the Ely District RMP, OHV use will be largely limited to existing roads and trails within the majority of the CESA. Enforcement of this management policy would result in maintaining the number and extent of existing roads and trails, and prevention of establishment of new road disturbance within grazing allotments, avoiding future degradation of range resources.

Utility Production and Distribution

Future WPES generation and delivery facilities constructed when carbon capture/sequestration is commercially feasible, would adversely impact grazing allotments in both the short and long term in the CESA and Steptoe Valley. As proposed, approximately 1,510 acres permanently occupied by the WPES facilities would no longer be available for grazing, potentially reducing the AUM capacity of the allotments. Other proposed linear utility projects would potentially disturb 8,600 acres and the two wind generation projects would potentially disturb another 9,000 acres (**Table 5.1-3**). Impacts to range resources from future utility development would be similar to those discussed above in **Section 5.7**, Vegetation.

5.9.5 Cumulative Disturbances

The CESA for range resources totals over three million acres of BLM, state, and private lands. Within the CESA for range resources, known quantifiable past and present disturbances total approximately 35,654 acres. Proposed future disturbances identified above would potentially disturb another approximately 51,265 acres, including approximately 800 acres for the ON Line Project. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WVEC cannot be accurately quantified at this time (**Table 5.1-4**), but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed and authorized developments would be about 106,000 acres or about 3.4 percent of the CESA.

Nearly 96 percent of the CESA is available for grazing. Grazing on allotments within the CESA has resulted in disturbance, has adversely impacted vegetation to varying degrees, and would continue in the future. Management of grazing on BLM grazing allotments under the Ely District RMP would result in monitoring of effects from grazing and modification of practices to maintain or improve vegetative communities, which would result in improved range resources.

5.9.6 Cumulative Effects

Adverse effects have occurred to range resources from historic practices, but the affected acreage is relatively small. Future short- and long-term adverse cumulative impacts to, and permanent loss of range resources would result from construction associated with additional development of utility production and transmission facilities within the CESA. Long-term beneficial impacts to range resources may be realized through modified grazing management practices on allotments with substandard conditions.

Adding the Proposed Action or Action Alternative disturbances to past, present, and reasonably foreseeable future range resources disturbances, would result in cumulative effects to range resources, expected to be long-term and negligible to minor.

5.10 Cultural Resources

5.10.1 CESA Boundary

The CESA boundary for cultural resources is the same as that for surface water (**Figure 5.2-1**).

Rationale

The project should not affect cultural resources outside of the direct effects area. Activities associated with the ON Line Project that might affect cultural resources could occur outside of the actual disturbance area, but not likely outside of the CESA.

5.10.2 Introduction

Cultural resources potentially vulnerable to the cumulative effects of the ON Line Project include prehistoric sites, prehistoric landscapes, historic sites, historic structures, and traditional cultural properties. The incremental degradation of the resources reduces the information and interpretive potential of historic properties. Data recovery in the form of excavation or artifact collection is considered an adverse effect. Further, not every site to be impacted is mitigated but rather a representative sample of sites, as directed by the agencies. Therefore there is the loss of information from those sites not mitigated. Although this approach may not have a large impact on cultural resources as a result of a single project, the cumulative effect of many large projects in a region can amount to a major loss of scientific and historic information about the local and regional past.

5.10.3 Past and Present Disturbances

Land ownership and use as it relates to cultural resources is detailed in **Tables 5.1-1** and **5.1-2** above.

Past and present disturbances in the CESA that have potentially affected cultural resources include fire, vandalism/looting, road construction and maintenance, above and below ground utility facilities, mining, mineral material activities (quarry/gravel pit), ranching/agriculture, and other developments (see **Section 5.2.3** and also **Appendix 5A**). Known sites that have been determined ineligible for the NRHP do not require avoidance; have been discharged from management (BLM 2008a); and therefore have likely been impacted by activities requiring the cultural resource inventory (i.e., development, utility installation, fence projects, energy exploration, etc.). As directed by Section 106 of the NHPA, eligible sites are generally avoided or mitigated if avoidance is not possible for projects with a federal or state nexus. Projects/development disturbances conducted prior to 1966 (i.e., prior to NHPA) and/or those without a federal or state nexus generally did not identify/quantify cultural resource sites or impacts to them.

5.10.4 Reasonably Foreseeable Future Disturbances

The reasonably foreseeable disturbances in the CESA are described in **Section 5.2.4** and quantified for the cultural resources CESA in **Table 5.1-3** above.

Utility Production and Distribution

As disclosed in the White Pine Energy Station (WPES) ROD (BLM 2008e), construction of the WPES would impact four NRHP eligible sites. Construction of proposed utilities and other ROW

uses (i.e., water detention basins, telecommunication sites) within the SWIP Utility Corridor and WWEC (**Appendix 5A**) could also potentially impact eligible sites.

Community Development, Recreation, and Land Use

Changes to private agricultural lands within the CESA are likely as some of these lands get converted in the future from traditional agricultural utilization (farming and ranching) to more residential, commercial, and recreational utilization. However, specific plans are not known and cannot be evaluated for this analysis. Other lands, private and public, have been proposed and authorized for community development (e.g. Coyote Springs Development).

Impacts to cultural resources would depend on the exact project location and extent of ground disturbance. As much of the CESA is on federal land (96.8 percent), future disturbances would be subject to NEPA, Section 106 of the NHPA, and state and federal regulations providing protection and management of cultural resources.

5.10.5 Cumulative Disturbances

Past and present disturbance to cultural resources in the CESA have been the result of range resource development, utility installation, road development, ranching/agriculture, private development, archaeological excavation, recreational activities, and likely vandalism and unauthorized artifact collection (**Appendix 5A**). Since the majority of the CESA is under federal jurisdiction, impacts to eligible cultural resources have generally been avoided or mitigated through Section 106 regulatory compliance. Cumulative impacts to cultural resources from reasonably foreseeable projects would mostly result from ground disturbance related to new commercial, agricultural, or industrial developments.

Past and present disturbance has impacted cultural resources (**Section 5.2.3**). NRHP-eligible sites within permitted disturbance areas were subject to oversight of Section 106 of NHPA; therefore impacts or the loss of the resource was mitigated.

Increased disturbance from multiple actions could result in cumulative adverse impacts to as yet unknown cultural resource sites. Increased accessibility created by new roads built in association with projects can cause cumulative impacts related to increased public visitation, recreational impacts, unauthorized artifact collection, and vandalism.

The cultural resources CESA totals nearly one million acres. Within the CESA for cultural resources, known quantifiable past and present disturbances total approximately 11,526 acres. Proposed future disturbances, including the ON Line Project, would potentially disturb approximately 58,749 acres. These past, present, and reasonably foreseeable disturbances total 70,275 acres, or about 7.4 percent of the CESA. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time (**Table 5.1-4**), but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CESA.

5.10.6 Cumulative Effects

Current and future development will contribute to the cumulative effects, both direct and indirect, on prehistoric and historic cultural resources in the region. All proposed, reasonably foreseeable developments would be completed under the oversight of Section 106 of NHPA if there were a federal nexus and thus project impacts would therefore be individually addressed.

The effects of adding the ON Line Project impacts to existing cultural resource disturbances would be minimal. Section 106 of the NHPA requires avoidance and/or mitigation of impacts to NRHP-eligible cultural resources by federal undertakings; therefore, cumulative impacts from the ON Line Project and reasonably foreseeable future activities should be minor. Data recovery of NRHP-eligible sites would expand the regional database and knowledge of prehistoric and historic contexts. The mitigation measures developed to avoid direct impacts to cultural resource would also minimize contributions to cumulative effects.

5.11 Native American Concerns

5.11.1 CESA Boundary

The CESA boundary for Native American concerns is the same as that for surface water (**Figure 5.2-1**).

Rationale

This boundary was chosen because it encompasses the area where there could be indirect effects to known culturally significant places and direct affects to cultural resource sites.

5.11.2 Introduction

The BLM initiated Native American consultation with regard to the project with the Section 106 consultation letter sent out in July 2007 as a result of the proposed EEC (which included the components of what is now referred to as the ON Line Project), and since then consultation has been ongoing. The Tribes consulted are listed in **Table 3.11-1**. Consultation included letters, phone calls, and meetings. Through this process, the BLM requested information from the Tribes about geographically important places, traditional cultural places (TCPs), and sacred sites that may be impacted by the proposed facilities now referred to as the ON Line Project. Further, previous ethnographic studies have identified places of geographic interest to the Tribes within the CESA.

Native American tribes are generally concerned with public distribution of information regarding the nature or location of TCPs, sacred sites, or geographically important places; therefore any specific information provided to the BLM has been held as confidential.

The ability of Native Americans to practice their traditional culture may be reduced through modification of the landscape; loss of available or open land due to developments and private ownership; and degradation of resources over time. Resources such as water, plants, and wildlife not only provide subsistence, but play an important role in Native American culture and lifeways. In addition, archaeological sites and artifacts retain power and life-force; alteration of these places or removal of objects can disturb traces of the past and existing power relationships.

5.11.3 Past and Present Disturbances

Land ownership and uses for (thus disturbances within) the Native American concerns CESA is detailed in **Tables 5.1-1** and **5.1-2** above.

Past and present impacts to resources utilized by Native Americans, such as water, vegetation, and wildlife, are described in **Sections 5.2**, **5.7**, and **5.8**, respectively. Projects/developments/disturbances that occurred prior to implementation of the NHPA of 1966 or without a federal or state nexus may have impacted archaeological sites and objects of

importance to the Tribes. In general, artifact collection associated with archaeological surveys and archaeological excavations as mitigation are considered impacts to the Tribes and contribute to cumulative impacts. No previous disturbances to TCPs, sacred sites, or geographically important places were indicated by the Tribes during consultation at this time.

As noted in **Table 5.1-2**, a minimal amount of the CESA has been disturbed. Approximately 1 percent of the CESA has been impacted by disturbances including gravel pits, roads, agriculture, utility and other ROWs, and urban development. Additional unquantified disturbances such as mining and rural development have also disturbed area within the CESA. Further, grazing has taken place on 90 percent of land within the CESA. Cumulative disturbances to resources utilized by the Tribes are presented in the associated sections (**Section 5.2** - Water, **Section 5.7** - Vegetation, **Section 5.8** - Wildlife).

5.11.4 Reasonably Foreseeable Future Disturbances

Reasonably foreseeable future impacts to resources utilized by the Tribes within the CESA are described in **Section 5.2.4** and would likely include continuation of grazing, recreation, development of private lands, energy development, utility development (water, telecommunication, power, gas), fire management, and mining (see **Appendix 5A**). Disturbances within the CESA are quantified in **Table 5.1-3**.

Utility Production and Distribution

The predominant landscape altering disturbances in the CESA would be the Coyote Springs Development, Bedrock Landfill, ON Line Project, and the other utility-related projects (i.e., water, telecommunication, and gas) within the SWIP Utility Corridor and WVEC. These projects are discussed in detail in **Section 5.2.4**.

5.11.5 Cumulative Disturbances

As shown in **Section 5.2.5**, approximately 11,526 acres of the CESA has been disturbed by past and present activities, not including habitat enhancement projects, grazing, or burned areas. Proposed future disturbances, including the ON Line Project, would potentially disturb another approximately 58,749 acres, for a total of 70, 275 acres (7.4 percent of CESA). Cumulative disturbances to water, vegetation, and wildlife are presented in **Sections 5.2, 5.7, and 5.8**. Mitigation has been included with the ON Line Project which is protective of the resources.

5.11.6 Cumulative Effects

There are potentially 11 culturally and/or geographically significant areas identified within or in proximity to the CESA (Bengston 2007); not all of these have verified locations but rather identified general vicinities. These areas include traditional use areas, habitations, battle sites, burials, ceremonial areas, and areas associated with traditional stories. The commitment of public land for the projects and developments in the CESA (**Appendix 5A**), would constitute a cumulative effect to Native American tribes that claim the region as their traditional use area. The continued modification of the landscape through numerous regional projects that impact culturally and/or geographically important places or modify the Tribes' visual relationship to the landscape can have a cumulative impact on Native Americans. However, how this cumulative impact affects the Tribes or the individual over time is unknown and difficult to quantify.

5.12 Land Use

5.12.1 CESA Boundary

The CESA boundary for land use includes White Pine, Nye, and Lincoln counties, and a portion of northern Clark County. The total area of this CESA is 25,840,602 acres.

Rationale

Cumulative effects to land use are closely associated with socioeconomics. The majority of lands in the affected counties are federally owned. Shifts in land ownership (such as the sale of public lands into private ownership) and changes in land management (such as wilderness designations) not only indicate shifts in land use, but also indicate shifts in socioeconomic drivers. At the same time, the ON Line Project would facilitate development of renewable and conventional energy facilities which have the potential to affect land use on large tracts of public or private land.

White Pine, Nye, and Lincoln counties are rural; have relatively low populations and economic activities; and contain most of the proposed facilities. Two federal laws passed in recent years direct changes in federal land management and ownership within Lincoln County. A bill recently passed by Congress will provide similar provisions for White Pine County. For these reasons, evaluation of cumulative effects to land use within these counties is appropriate and relevant to this environmental analysis.

The Clark County Comprehensive Plan divides the county into different types of planning areas. The proposed southern terminus of the transmission line and the Harry Allen Substation are located within the Northeast County Rural Planning Area of Clark County. Socioeconomic effects from the proposed project have been evaluated as negligible for Clark County because the City of Las Vegas so overwhelmingly affects the socioeconomics of the county. For these reasons, only the portion of the county that contains the project (the Northeast County Rural Planning Area) is contained within the CESA for land use.

5.12.2 Introduction

Figure 5.12-1 depicts the CESA for land use. County and BLM land use plans for the lands, and land use within the Desert NWR and the Pahrangat NWR, encompassed by the CESA would be the same as those described in **Section 3.12** for the Proposed Action.

The 1.5-million acre Desert NWR and the 5,380-acre Pahrangat NWR fall within the CESA for land use. Both areas are managed by the USFWS, who "...works with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people."

Historically, the predominant use of the lands within the CESA was for ranching/grazing and the extractive industry. The public lands administered by the BLM within the CESA are managed for multiple use including grazing, hunting, recreation, and extractive industries. More recently, energy industry developments have led to an increase in proposals for utility generation, particularly from renewable energy resources, and transmission infrastructure. Over the past 10 years, federal legislation has been enacted directing sale of public lands to private interests and establishment of designated wilderness. Proposed community developments would expand residential communities into previously rural, undeveloped areas.

The past, present, and future disturbances with cumulative impacts to land use discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.12.3 Past and Present Disturbances

Current land ownership and uses within the land use CESA are presented in **Tables 5.1-1** and **5.1-2**, respectively.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

In addition to the mining districts adjacent to or within the project area (**Table 3.3-2**), there are 26 mining districts along with oil and gas exploration activities within the CESA. For cumulative effects related to minerals, see **Section 5.3**.

Federal Legislation Governing Land Use

Five laws enacted by Congress within the past 10 years directly affect the land use within the CESA. **Table 5.12-1** outlines the requirements of the various pieces of legislation.

TABLE 5.12-1 RECENT ENACTED FEDERAL LEGISLATION AFFECTING LAND USE AND REALTY

ACT TITLE, YEAR	ACT PROVISIONS
Southern Nevada Public Lands Management Act (SNLMA) of 1998	<ul style="list-style-type: none"> • First piece of legislation establishing authority for retention of land sale proceeds by BLM, State, and County for various uses (Ensign 2008a)
Lincoln County Lands Act of 2000	<ul style="list-style-type: none"> • Disposal of over 13,000 acres of public land • Retention of a portion of the proceeds by the State for general education • Retention of a portion of the proceeds by the County with an emphasis on support for schools • Retention of a portion of the proceeds by the BLM in special accounts to be used for inventory, evaluation, protection, and management of unique archaeological resources; development of a multi-species habitat conservation plan; reimbursement of the State and County for costs associated with sales; and for acquisition of environmentally sensitive land (GPO 2008)
Clark County Conservation of Public Land and Natural Resources Act (CCCPLNRA) of 2002	<ul style="list-style-type: none"> • Established the Arrow Canyon, Jimbilnan, Jumbo Springs, Lime Canyon, Muddy Mountains, and Pinto Valley WAs • Released WSA lands on the southeast boundary of the Desert NWR, contiguous with the Arrow Canyon, Muddy Mountains, and Lime Canyon WAs, and south of the Lime Canyon WA • Expanded the boundary of the SNPLMA to include 22,000 additional acres identified for disposal, with retention of proceeds for conservation initiatives within Clark County • Transfer of land parcels from the BLM to the USFWS and NPS for administrative jurisdiction (BLM 2008c)

ACT TITLE, YEAR	ACT PROVISIONS
<p>Lincoln County Conservation, Recreation, and Development Act (LCCRDA) of 2004</p>	<ul style="list-style-type: none"> • Disposal of up to 90,000 acres of public land • Retention of a portion of the land sale proceeds by the State for the educational fund • Retention of a portion of the proceeds by the County for economic development • Retention of a portion of the proceeds by the BLM in special accounts to be used for inventory, evaluation, protection, and management of unique archaeological resources; development of a multispecies habitat conservation plan; reimbursement of BLM costs associated with sales; for management of the Silver State OHV Trail; and for management of the wilderness designated by the act • Designation of nearly 770,000 acres of wilderness • Release of over 245,000 acres of WSA • Establishment of utility corridors for the Southern Nevada Water Authority and the Lincoln County Water District, and relocation of an existing utility corridor along US-93 • Designation of the Silver State OHV Trail • Conveyance of nearly 5,000 acres of BLM land to the State and County for use as parks and open space • Transfer of administrative jurisdiction for over 8,000 acres associated with the relocated utility corridor from the USFWS to the BLM, and transfer of over 8,500 acres of land from the BLM to the USFWS near the Desert NWR (Ensign 2008b) • Allows funds to be used to process public land use authorizations and ROWs relating to the development of the 13,000 acres of land conveyed under the Lincoln County Lands Act
<p>White Pine County Conservation, Recreation and Development Act (WPCCRDA) of 2006</p>	<ul style="list-style-type: none"> • Disposal of up to 45,000 acres of BLM lands • Designation of approximately 558,000 acres of wilderness • Release of over 54,000 acres of WSAs • Allow for jurisdictional land transfers to protect areas around Great Basin NP and expand two Nevada State Parks • Conveyance of approximately 1,750 acres of BLM lands to White Pine County for airport and industrial park expansion • Study of an OHV trail • Transfer of lands into trust for the Ely Shoshone Tribe • Amendments to the SNPLMA • Funding of All-American Canal Projects, in return for which Nevada would be guaranteed the right to divert and consume a portion of water from Lake Mead (Ensign 2008c)

In general, the above legislation resulted in transfer of ownership of public lands to private interests, along with the designation of WAs and release of some WSA lands. Conversion of WSAs to designated wilderness assured permanent protection for the wilderness values for the areas, with no change to existing land use as WSAs are managed as wilderness until final determination is made. The release of WSA lands would have freed the lands under study for broader multiple use.

The Lincoln County Land Act Groundwater Development and Utility Right-of-Way Project, includes groundwater facilities, electrical power infrastructure, communication facilities, and a natural gas pipeline. The Lincoln County Water District, in cooperation with the Lincoln County Power District No. 1, and the Lincoln County Telephone Company, is proposing to construct groundwater facilities and ancillary utility infrastructure designed to pump and convey groundwater that has been permitted or may be permitted by the Nevada State Engineer in the Clover Valley and Tule Desert Hydrographic Areas for use by Lincoln County Water District customers. In addition, Southwest Gas Corporation is proposing to construct and operate a natural gas line and metering facility within the southernmost portion of the water project corridor to serve planned development in the area. Permanent disturbance associated with this project would be 240 acres.

Grazing

For the most part, grazing in the CESA appears to be in conformance with established BLM RMPs and standards. Substandard conditions on a few allotments, created largely by historic grazing use rather than current use, are being addressed to bring allotments into conformance with plans and standards. For cumulative effects related to grazing, see **Section 5.9**.

Industrial Development

The Apex Industrial Park represents concentrated industrial development within the CESA. Because of the location of the park, it is surrounded by open space and removed from other potentially conflicting uses, such as recreation or communities.

Utility Production and Distribution

Existing electric utility generation and delivery facilities within the CESA for land use include the Harry Allen Generation Station, Crystal Substation, Chokecherry power line, Falcon-Gonder transmission line, numerous transmission lines to and from the Harry Allen Generating Station, Lincoln County Power District transmission lines, Gonder to Machacek transmission line, other NV Energy power lines, water detention basins for Coyote Springs Development, and Mount Wheeler power lines. All existing transmission lines appear to be within authorized utility ROWs.

Summary

Past and present land uses within the CESA for land use appear to be in accordance with BLM land use plans or county zones or land use designations.

Figure 5.12-1 Land Use CESA

5.12.4 Reasonably Foreseeable Future Disturbances

Future disturbances to land use are quantified in **Table 5.1-3** above.

Community Development

Residential/community development on private land in the Coyote Springs area (described in detail in **Section 5.2**) deviates from the other surrounding and historic land uses in the area. This development would represent a shift in land use in the future. However, this development is consistent with the comprehensive plans for Clark and Lincoln counties. The transmission line for the ON Line Project, within the SWIP Utility Corridor, would lie between the Coyote Springs Development and immediately adjacent to the Desert NWR, a prominent land use in the immediate vicinity of Coyote Springs. Development of the residential area and projects within the SWIP Utility Corridor and WWEC would result in three very different land uses occurring in immediate proximity to each other. While these land uses are not necessarily incompatible, they could detract from one another.

Another residential community, Hidden Valley, to be developed on a 914-acre ranch would be located near Moapa, Nevada. The community would include a small commercial center surrounded by over 4,000 homes. Home sites would range from half-acre lots up to multi-family homes with 18 units per acre. The property is adjacent to the Reid Gardner power plant. NV Energy raised concerns about the development limiting future economic growth through industrial development because of the proximity of the proposed residential development to the power plant (Moapa Valley Progress 2006).

Federal Legislation Governing Land Use

The five pieces of federal legislation listed above provided for release of BLM land for sale into private ownership. While sale of some tracts has been accomplished or is underway, future sales of lands under these laws would continue to result in shifts land use into the future.

Industrial Development

Approximately 6,000 acres of industrial lots are available for sale within the 21,000-acre Apex Industrial Park. The number of acres currently disturbed is unknown. The intent is for further development of industry within the park, which would be compatible with existing uses, and thus would have no adverse impact on land use.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities (mining or oil and gas development) would involve some road construction and drilling in selected areas, and would have negligible adverse impacts on land use. However, should economic feasibility of resource development improve in the future, additional impacts to land use could occur. As extractive operations increase in acreage and legislated land sales reduce availability of public land for recreational activity, conflicts in land use could result. Permits issued by the BLM for planned mining, oil, and gas exploration assure that future exploration and development would be consistent with BLM RMPs.

Airport Expansion

Yelland Field (aka Ely Airport), the airport north of Ely, is proposed for expansion. The conveyance of 1,545 acres of public land to White Pine County occurred as part of the White Pine County Conservation, Recreation, and Development Act of 2006 to provide the needed area to lengthen the runway by 5,000 feet and construct additional hangars, road, and fencing. The Yelland Field Expansion project would allow for the expansion and development of airport

facilities in White Pine County, and encourage development of air service and aviation-related industry. The extension of the runway and construction of new terminal building have not been initiated.

Railroad Development

The Nevada Northern Railway is an existing ROW, extending from northern Goshute Valley, near Shafter, Nevada south through Steptoe Valley to the City of Ely, Nevada. The project includes reconstruction of the existing railroad. The City of Ely and the White Pine Historical Railroad Foundation currently own the rail line and ROW, and intend to rehabilitate the track to support economic development in the Ely area. Construction staging areas would be necessary along the ROW. These areas would be on private land and would be located every 20 to 50 miles. No fencing of the private ROW is anticipated. Borrow pits for earth materials would be required for grade construction/rehabilitation.

Reconstruction and use of the Nevada Northern Railway would cross 15 grazing allotments and could affect access of livestock to all areas of these allotments and lead to land use conflicts such as collisions between trains and livestock. Long-term use of the Nevada Northern Railway is intended to increase commercial and industrial development north of Ely which would be a change to the existing agricultural land use.

Recreation

Increased White Pine County population would lead to increased recreational use of public lands in the County and in the vicinity. Increased recreational use could lead to increased use conflicts on those lands. Additionally, the Desert NWR is proposing to develop a visitor center to improve visitor services, increase wildlife-dependent recreational opportunities, and protect unique natural, cultural, and historical resources. A new visitor facility could result in increased public use of the NWR. New visitor facilities could result in both beneficial and adverse effects to land use. Increased public use could lead to increased land use conflicts. However, increased public contact and information could enhance environmentally responsible use of public lands.

Utility Production and Distribution

Development of the WPES in White Pine County, along with associated infrastructure when commercially feasible, may result in the sale of federal lands into private ownership. Installation of various power lines, gas lines, water supply lines, water detention basins, telecommunication facilities, and petroleum product lines within the SWIP and other utility corridors (discussed in greater detail in **Section 5.7**, disturbance summarized in **Table 5.1-3**) in the CESA would affect surface land uses, such as grazing, to a minor extent in the short term, and to a limited extent in the long term. Utility developments identified within the CESA appear to be consistent with county land use plans and BLM RMPs. Together these developments would result in a slight reduction in federal land ownership and a shift away from grazing uses.

Future identified development of transmission and other utility lines within established utility corridors includes the Great Basin Transmission line (aka SWIP-South), a second circuit on the Harry Allen-Mead transmission line (NV Energy), SNWA transmission and water lines, Lincoln County Power District transmission lines, and the TransCanada transmission lines. These identified developments would be consistent with planned uses for the corridors. Future addition of the transmission line associated with the Proposed Action and the Action Alternative, as well as other proposed power and pipelines would be compatible with existing land uses in the Apex Industrial Park.

Sithe Global Power LLC's proposed development of the Toquop Energy Project, a 700-MW natural gas electric power plant, located 14 miles northwest of the City of Mesquite, Nevada in Lincoln County, to provide electrical power to utilities in Nevada is also a potential future reasonably foreseeable development. The electric power-generating facility would be located on a 450-acre parcel of land. The plant would average approximately 400 construction workers for the 32-month construction period, with peak employment of over 800 workers. Once operational, the plant would have about 50 full-time employees (Lincoln County Record 2010). The approved plant was granted 2,100 acre-feet per year of the 7,000 acre-feet per year of water needed to run that plant; the Nevada State Engineer was studying the availability of the additional 4,900 acre-feet per year requested (Toquop Energy Project 2007). In addition, Sithe Global plans to develop the Flat Top Mesa Solar Project, a 50 MW photovoltaic power facility on about 1,000 acres of private land, located about 4 miles northwest of Mesquite, Nevada.

The Nevada Wind and Enexco Wind projects, as described in **Section 5.6.4**, would include a lease area total of approximately 9,006 acres. In addition, Spring Valley Wind has applied for a ROW grant from the BLM, Ely District to construct a 149 MW wind powered generation facility that would utilize 75 wind turbines. This project would be located in Spring Valley, northeast of Ely, in White Pine County. The facility would be constructed within an 8,565-acre project area with 336 acres of temporary disturbance and 111 acres of long-term disturbance. An EA for this project was released in July 2010.

Wilson Creek Power Partners LLC has applied for a ROW grant from BLM, Ely District to construct, operate, and maintain up to a 990 MW wind powered generation facility. It would include 158 to 195 wind turbines and collateral infrastructure. This project would be located in the Wilson Creek Range about 20 miles northwest of Pioche, in Lincoln County. This project would require about 31,000 acres located on lands administered by the BLM, Ely District Office. This project is in the initial stages of the NEPA process.

Summary

Reasonably foreseeable future land uses within the CESA appear to be in accordance with BLM land use plans or county zones or land use designations.

5.12.5 Cumulative Disturbances

Past, present, and future land use appears to be in accordance with BLM land use plans, county zones, or land use designations. Past, present, and future development of utility generation and delivery facilities, along with residential development, potential extractive (mine, gas, and oil) development, and legislated land sales could result in a trend shifting land ownership from public to private, and land use away from past uses such as grazing to industrial. Additionally land sales would reduce public lands available for recreation and other public use.

The CESA for land use totals 25,840,602 acres. Within the CESA for land use, known quantifiable past and present disturbances total over 277,270 acres (about 1 percent of CESA). Proposed future disturbances would potentially disturb another approximately 106,855 acres, including approximately 800 acres for the ON Line Project, 1,510 acres for the WPES, 450 acres for Toquop Energy Project, and 1,000 acres for the Flat Top Mesa Solar Project. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time, but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 0.4 percent of the CESA.

5.12.6 Cumulative Effects

Adding the Proposed Action or Action Alternative disturbances to past, present, and reasonably foreseeable future land uses, cumulative adverse effects to land use are expected to be long-term and negligible to minor, resulting largely from sale of public lands and increased potential for use conflicts.

5.13 Special Designations

5.13.1 CESA Boundary

The CESA for Special Designations includes all SDAs within a 50-mile buffer of the ON Line Project footprint, although the majority of potential effects would be very localized, centered around construction activities. The total area of this CESA is 18,500,251 acres (no figure).

Rationale

As stated in **Section 4.13**, analysis of impacts to special designations is from the perspective of people utilizing SDAs. Impacts to SDAs should not be noticeable beyond this area (i.e., people using SDAs outside of the identified CESA would not likely perceive impacts from the Project). The majority of impacts would be localized, centered around and during actual construction activities.

5.13.2 Introduction

There are 53 SDAs within the CESA, established by the federal or state government to protect wilderness, wildlife habitat, and other recreational, ecological, or historical values. Special designations within the CESA are described in detail in **Section 3.13**.

Depending on proximity of SDAs to disturbances, impacts to the areas can be from visual or air quality degradation, or noise. Projects within the CESA could result in adverse impacts to air quality through ground disturbance and emissions, or create visual or auditory disturbances. When combined with the effects of the Proposed Action or Action Alternative, these projects could affect qualities managed for within the Special Designations that are found in the CESA.

The past, present, and future disturbances with cumulative impacts to SDAs discussed below are described in detail in **Section 5.2.3** and **5.2.4**.

5.13.3 Past and Present Disturbances

Current land ownership and uses within the special designations CESA are presented in **Tables 5.1-1** and **5.1-2**.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Existing extractive industry uses within the CESA may impact SDAs. Open pit mined areas are susceptible to wind erosion and can impact air quality and visibility. Mining and oil and gas exploration involve road construction and use of drilling equipment. Construction has short-term impacts through increased road dust, and the visual intrusion of the equipment. Long-term effects would result from the presence of roads on the landscape.

Grazing

Existing grazing uses throughout the CESA should have little effect on SDAs. Grazing uses can result in dust that would adversely affect air quality and visibility, but the effects would be localized in areas of degraded range conditions and susceptible to wind erosion.

Industrial Development

The Apex Industrial Park containing utility infrastructure, landfills, quarries, and manufacturing could impact SDAs a couple of ways. The power plants produce emissions that in the long term would affect SDAs that lie within a 10 to 15 mile radius of the plants, as well as SDAs down wind. Disturbed areas are susceptible to wind erosion and could impact air quality and visibility downwind in the long term.

Utility Production and Distribution

Existing transmission lines west of US-93 may be in the view shed from portions of the Delamar Mountains WA, and would clearly be visible from backcountry hikers along portions of the Sheep and Las Vegas Ranges within the Desert NWR.

Expanded Recreation Facilities

The Desert NWR has released a Draft EA for development of visitor facilities within the Range. Existing visitor use facilities do not provide adequate capacity or opportunities to inform visitors about recreational opportunities and increased visitation is anticipated to further strain existing facilities. New facilities would include a visitor center and administrative complex, along with associated roads and parking areas (USFWS 2007d).

5.13.4 Reasonably Foreseeable Future Disturbances

Potential disturbances from reasonably foreseeable actions within the SDA CESA are quantified in **Table 5.1-3**.

Community Development

Development of the residential areas of Coyote Springs (described in detail in **Section 5.7** and **5.12.4** above) could impact down-wind SDAs in both the short and long term. Short-term effects would result from construction dust and emissions impacting air quality and visual resources. Long-term effects would result in visual disturbance from the density of development, and adverse impacts to air quality from residents motor vehicle use. Both developments would create new or additional light sources in the area, potentially affecting dark night skies, but those effects would be incremental to the effects of the City of Las Vegas and its suburbs. Construction or operation of transmission lines associated with the Proposed Action or Action Alternative would not be anticipated to contribute to these cumulative effects to dark night skies.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Future development of mining and gas and oil leases could impact air quality and visual resources through ground disturbance and distribution of dust particles in the air during construction. Long-term impacts to air quality and visual resources could result should mineral resources be developed within claims, resulting in establishment of new mines, or expansion of existing surface mining operations.

Industrial Development

Sale of remaining lots and full development of the approximately 6,000 acres available within the Apex Industrial Park could increase emissions and dust affecting visibility, and could result in increased population affecting recreational use of SDAs in the area.

Recreation

Increased population would lead to increased recreational use of public lands in the county and in the vicinity. Increased recreational use would likely lead to increased contact between persons using remote and wilderness areas, and potentially increased opportunity for degradation of natural conditions. Additionally, the Desert NWR has approved a visitor center to improve visitor services, increase wildlife-dependent recreational opportunities, and protect unique natural, cultural, and historical resources. A new visitor facility could result in increased public use of the NWR.

Utility Production and Distribution

Development of additional power, water, and gas lines and other development within the SWIP Utility Corridor in particular could impact SDAs. Any construction of above ground facilities or underground pipelines could impact air quality and thus, visibility in the short term. Long-term effects from utility development within the SWIP Utility Corridor and WWEC could include visual impacts in proximity to SDAs.

Development of the Flat Top Mesa 1,000-acre solar power facility near Mesquite or a 9,000 acre solar power facility at the Coyote Springs planned community development could impact SDAs. There could be short-term impacts to air quality from ground disturbance and emissions during construction. The facilities would be visible over a large area which could result in a long-term impact to SDAs in the area.

Development of the WPES coal-fired power plant or the Toquop natural gas-fired power plant would result in short-term impacts to air quality and visual resources from ground disturbance and emissions from construction. In the long term the facilities would be visible in the surrounding area, emissions would impact air quality, visibility and visual resources, and night lighting of the facility would impact dark night skies. These effects would impact SDAs in the immediate vicinities and downwind of the power plants.

As discussed in **Section 5.15.4** (Visual Resources), wind turbines from the various proposed wind projects (**Table 5.1-3** and **Appendix 5A**) would introduce large scale visual disturbances on the landscape, potentially visually impacting SDAs in the vicinity of those projects.

5.13.5 Cumulative Disturbances

The special designations CESA totals 18,500,251 acres. Within the CESA for special designations, known quantifiable past and present disturbances total approximately 269,078 acres. Proposed future disturbances would potentially disturb another 104,426 acres, including an estimated 1,510 acres for the WPES power plant and related facilities. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time, but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 0.6 percent of the CESA. The total quantifiable cumulative disturbance to special designations within the CESA would be approximately 342,393 acres, which is less than 2 percent of the total area of the CESA.

Changes to Ambient Air Quality

Section 5.6 of this FEIS discusses air quality due to the proposed construction and operation of the ON Line Project in conjunction with other projects in the Air Resources CESA. Evaluation of past and present projects is contained within analysis of the existing ambient air conditions, and discussed in conjunction with potential impacts of the ON Line Project on SDAs in **Section 4.13.2.1**.

Sections 5.6.6.1 and **5.6.6.2** describe ambient air quality impacts from the Proposed Action and the Action Alternative, to include future projects. The overall impact of the existing and reasonably foreseeable emissions sources identified in **Sections 5.6.3** to **5.6.5** would not be expected to significantly change the current air quality levels in the CESA. The same analysis approach described in **Section 4.13.2.1** was used for cumulative impact analysis.

Based on information provided in the WPES EIS (BLM 2008d), cumulative impacts to air quality in SDAs within a 50 mile radius of the proposed WPES plant site within the CESA would be long-term and would comply with applicable NAAQS. Cumulative effects to air quality of SDAs from ON Line Project in conjunction with other construction in nearby areas within the CESA would be short-term and negligible.

Changes to Viewsheds

In the CESA, cumulative visual effects to SDAs would occur to the Desert NWR, Delamar Mountains, Meadow Valley Range, and Arrow Canyon WAs, and the Mormon Mesa and Kane Springs ACECs from increased development within the SWIP Utility Corridor/WWEC combined with the Coyote Springs Development. Utility corridor development would contribute a short-term impact on visual resources for underground facilities (pipelines), although these often have associated aboveground appurtenances (i.e., pumps, regeneration stations, etc.) that would contribute to long-term impacts. Above ground transmission lines would contribute a long-term impact. Future development, in conjunction with transmission lines in the Apex Industrial Park area would increase the density of development in the area, potentially making it more visible from Coyote Springs ACEC, and the Arrow Canyon and Muddy Mountains WAs. Such development could contribute both short-term (construction) and long-term (permanent structures) visual impacts.

The stacks and boilers from the WPES project would be visible within a broad area of Steptoe Valley (described in detail in **Section 5.15**). Other new visual intrusions in the vicinity of the proposed power plant would include power lines (associated with the WPES and those installed in conjunction with the SWIP Utility Corridor and WWEC). These visual developments would expand the visual intrusion of human development on the natural scene primarily for Goshute Canyon, Becky Peak, Bristlecone, and High Schells WAs, the Pony Express Trail, and for the Cleve Creek Baldy RNA.

The solar and wind power generating projects would likely be visible from long distances. Numerous wind turbines and broad solar facilities would introduce large scale visual impacts on the SDAs in adjacent areas. SDAs impacted by these facilities would include the Beaver Dam Slope ACEC, Mormon Mesa ACEC, Parsnip Peak WA, Bristlecone WA, and Becky Peak WA.

Changes to Noise Levels

Cumulative noise effects to the Goshute Canyon, Becky Peak, Bristlecone, and High Schells WAs, and the North-South Schells RNA would result from the cumulative effects of construction and increased worker traffic in the short term, as noise is quickly attenuated by distance and topography (**Section 5.16.1**). Increased noise effects may be noticeable in some nearby SDAs

at certain times, depending on wind direction and speed; however, those effects would not be expected to be a prominent disturbance in the natural setting.

Changes in Recreation

The northern section of the CESA in White Pine and northern Lincoln counties would likely see increases in recreational use of SDAs from the population influx associated with construction of the ON Line Project and construction and operation of the WPES. Those SDAs located in closest proximity, or more easily accessed from the developed population centers (Goshute Canyon, Becky Peak, Bristlecone, High Schells and Mount Moriah WAs; North-South High Schells and Cleve Creek Baldy RNAs; and Great Basin NP) would likely see the most intensive recreational use.

5.13.6 Cumulative Effects

Table 5.13-1 indicates which SDAs within the CESA would experience either temporary or permanent impacts to various aspects of the SDA. Those SDAs not listed in **Table 5.13-1** would experience no or negligible effects.

TABLE 5.13-1 CUMULATIVE IMPACTS TO SDAS

SPECIAL DESIGNATION AREA	LIGHT POLLUTION	VISUAL	NOISE	RECREATION
Arrow Canyon WA		X		
Becky Peak WA	X	X	X	X
Bristlecone WA	X	X	X	X
Delamar Mountains WA		X		
Goshute Canyon WA	X	X	X	X
High Schells WA	X	X	X	X
Meadow Valley Range WA		X		
Mount Grafton WA	X			
Mt. Moriah WA				X
Muddy Mountains WA		X		
Parsnip Peak WA		X		
South Egan Range WA	X			
Arrow Canyon ACEC		X		
Beaver Dam Slope		X		
Coyote Springs ACEC		X		
Kane Springs ACEC		X		
Mormon Mesa ACEC		X		
Desert NWR		X		
Cleve Creek Baldy RNA		X		X
North-South Schells RNA	X		X	X
Great Basin NP	X			X
Pony Express NHT	X	X	X	X

5.14 Recreation

5.14.1 CESA Boundary

The CESA boundary for Recreation is the same as for Special Designations (50-mile buffer around the ON Line Project footprint; no figure).

Rationale

Recreation impacts should not be noticeable beyond this area (i.e., people recreating outside of the identified CESA would not likely be impacted from the Project).

5.14.2 Introduction

Existing recreational use within the CESA is generally dispersed and light, and includes activities such as hiking, primitive camping, horseback riding, OHV use, hunting, and fishing. In addition to dispersed recreational use, within the CESA there are 28 developed federal and state recreational use areas. Descriptions of dispersed and developed recreational opportunities and associated recreational management plans for areas within the CESA are discussed in detail in **Section 3.14**.

The primary land uses within the CESA are grazing, utility production and distribution, and extractive activities (mining, gas and oil leases). These land uses all have the potential to affect the quality and quantity of recreational activities within the CESA by affecting the actual acreage available for recreation; or visual impacts such as transmission lines, air pollution, or disturbances associated with extractive activities. The transient workforce associated with project construction would increase the area population and would likely introduce different cultures that may use recreational resources differently from the existing culture of the rural area. While the area for dispersed recreation is expansive, developed recreation sites are limited in scope and capacity. With increased population, users of dispersed recreation areas may experience more encounters with other recreational users. Increased levels of recreational use may increase competition for access to developed facilities. Thus, increased levels and different types of recreational use increases the potential for use conflicts that can reduce the quality of recreational experiences.

The past, present, and future disturbances with cumulative impacts to recreation discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.14.3 Past and Present Disturbances

The current land ownership and uses for (thus disturbances within) the recreation CESA can be found in **Tables 5.1-1** and **5.1-2**.

Federal Legislation Governing Land Use

Five pieces of federal legislation resulted in changes in management of BLM lands, the sale of BLM lands, and the establishment of numerous WAs. Provisions of this legislation are discussed in detail in **Section 5.12** above. Sale of BLM lands would effectively reduce the amount of public lands available for recreation. Conversion of WSAs to designated wilderness assured permanent protection for the wilderness values for the areas, with no change to existing recreational resources.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Past and present extractive activities include approximately 30 mining districts, and numerous oil and gas exploration leases within the CESA. Lands occupied by extractive activities have reduced recreational value, or may reduce acreage available for recreation when vegetation and/or wildlife are adversely affected. Development of roads associated with mining, gas, and oil exploration can enhance recreational use of an area by improving access.

Utility Production and Distribution

Past and present disturbance associated with utility infrastructure includes existing power plants, transmission lines, and underground pipelines within designated corridors. Lands occupied by utilities infrastructure are no longer available for recreation. Existing transmission lines west of US-93 may be visible from portions of the Delamar Mountains WA, and would

clearly be visible from backcountry hikers along portions of the Sheep and Las Vegas Ranges within the Desert NWR and hikers in the private Coyote Springs Development.

5.14.4 Reasonably Foreseeable Future Disturbances

Future disturbances to recreation are quantified in **Table 5.1-3**.

Expanded Recreation Facilities

The Desert NWR has released a Draft EA for development of visitor facilities within the Refuge. Existing visitor use facilities do not provide adequate capacity or opportunities to inform visitors about recreational opportunities and increased visitation is anticipated to further strain existing facilities. New facilities would include a visitor center and administrative complex, along with associated roads and parking areas (USFWS 2007b).

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities exploration (mining or oil and gas development) is possible in the future, and would minimally adversely impact recreation. However, should economic feasibility of resource development improve in the future, adverse impacts to recreation could increase.

Federal Legislation

The five pieces of federal legislation listed in **Section 5.12.3** provided for release of BLM land for sale into private ownership. While sale of some tracts has been accomplished or is underway, future sales of lands under these laws would continue to result in relatively slight reductions of public lands available for recreation in the future.

Utility Production and Distribution

Construction of the proposed WPES, the Toquop Energy Project, a Coyote Springs Solar Facility, and the Flat Top Mesa Solar Facility, as well as the Enexco Wind Project, Nevada Wind Company Egan Range Wind Project, Spring Valley Wind Project, and Wilson Creek Wind Project, would result in an influx of temporary construction workers followed by permanent operations staff. The effect of increased population would be most evident in the northern portion of the CESA, in White Pine and Lincoln counties, where the existing population is relatively small. An influx of temporary workers would also utilize recreational resources in the southern portion of the CESA; however, these effects would be overshadowed by recreational use by people living in the Las Vegas area.

Developed recreational outlets, particularly those in proximity to the above developments would see increased visitation and more intensive use due to population increases associated with construction and operation. Existing developed campgrounds on federal lands generally are designed to accommodate 10 or fewer parties (publiclands.org 2008). Increased use could mean that facility users recreate in a more heavily used setting, encountering other users and different types of use. User conflicts over the limited number of developed facilities, and adverse impacts to the resource/facilities from intensive use could result. Increased dispersed use within the CESA could make it more difficult to recreate without encountering other people, or experiencing human effects. Increased transient population could result in higher demand for hunting permits, and thus increased competition for limited resources, traditionally utilized by the long-term or permanent residents of the area. Increased transient population could also result in increased illegal hunting that could adversely impact wildlife conditions, further adversely impacting hunting.

The development of these power generating facilities could impact recreational users' experiences as there would be a reduction in acreage available to recreate and large visual intrusions in areas that were previously undeveloped.

Future addition of transmission lines within designated corridors would result in towers supporting transmission lines occupying acreage, thus reducing acreage available for recreation. Other utility lines (pipelines, telecommunications) within the designated corridors would have associated aboveground facilities that would also contribute to a minor reduction in acreage available for recreation. Future ROWs granted for transmission lines could include exclusive access provisions, reducing or eliminating recreational access to certain areas.

Consolidation and development of utility lines within identified corridors (such as the SWIP Utility Corridor and WWEC) reduces potential cumulative effects to recreational resources from utility infrastructure as multiple entities could use the same access roads for construction as well as line maintenance.

5.14.5 Cumulative Disturbances

Grazing, development of utility infrastructure, and extractive industry would have minor effect on recreation within the CESA as the proportion of lands impacted by these uses in comparison with lands available for recreation is relatively small. Cumulative adverse effects to recreation would primarily result from increased and different types of use of recreational resources within the CESA. Effects of increased population and recreational use of public lands are increased by the sale of BLM lands. Increased use of recreational resources would result in varying kinds of uses that may conflict with each other, increased competition for limited developed facilities creating potential user conflicts, and could potentially result in degraded quality of recreational experiences and resources from intensive use. However, the proportion of lands available for recreation is far greater than the potential increases in recreational use or lands to be sold into private ownership.

Quantification of acreages of past, present, and anticipated future disturbances to recreation would be the same as those described for special designations in **Section 5.13.5**.

5.14.6 Cumulative Effects

Adding the ON Line Project disturbances to past, present, and reasonably foreseeable future disturbances with the potential to impact recreation, cumulative effects to recreation are expected to be long-term and minor to moderate.

5.15 Visual Resources

5.15.1 CESA Boundary

The CESA boundary for visual resources is the same as described for surface water (**Figure 5.2-1**).

Rationale

This boundary was chosen for simplicity purposes, as defined in **Section 5.1**, and the fact that vantage points from which the Proposed Action and Action Alternative alignments, and other past, present, and reasonably foreseeable disturbances can be discerned are roughly contained within these areas.

5.15.2 Introduction

The CESA is within a region of generally north- to south-trending mountain ranges and valleys. Scenic variety exists in the topography and densities, arrangements, and colors of vegetation found in the CESA. The VRM of the BLM lands within the CESA are generally Class III or Class IV with small intermittent areas of Class I and II. The VRM designations (Ely District) that exist within the CESA are shown in **Table 5.15-1**.

TABLE 5.15-1 BLM VRM DESIGNATIONS IN THE CESA

VISUAL QUALITY OBJECTIVE	ELY DISTRICT (ACRES)	SOUTHERN NEVADA DISTRICT (ACRES)	TOTAL ACRES	PERCENT OF BLM IN THE CESA
Class I	42,478	0	42,478	4.86
Class II	44,164	770	44,934	5.15
Class III	295,471	75,611	371,082	42.49
Class IV	390,089	24,747	414,836	47.50
Total	772,201	101,128	873,329	100.00

Source: BLM 2008a

The past, present, and future disturbances with cumulative impacts to visual resources discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.15.3 Past and Present Disturbances

The current land ownership and uses for (thus disturbances within) the visual resources CESA would be the same as those described for surface water resources in **Tables 5.1-1** and **5.1-2**.

Visual disturbances within the CESA are fairly minimal and generally include roads, mining, agriculture, sparse residential development, and utility corridors. Past and present disturbances have visually altered approximately 5 percent of the CESA. Burned areas and agricultural areas are more or less visually acceptable; burned areas if occurring as a natural wildland event are noticeable, but typically are not perceived as man-caused or intrusive development. Agriculture is a common land use in the area, and visually is part of the historic and present landscape. Past and existing mining operations are generally not visible within the CESA.

The White Pine Sagebrush Restoration Project is enhancing sagebrush habitat and reducing the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush. This project may have short term adverse effects from ground and vegetation disturbance, but would be beneficial to visual resources in the long-term by helping to prevent large scale burn scars.

5.15.4 Reasonably Foreseeable Future Disturbances

There are several reasonably foreseeable projects with the potential to impact the visual environment in the CESA by adding industrial man-made features to the landscape. Future disturbances to visual resources are quantified in **Table 5.1-3**.

Community Development

Coyote Springs would develop 43,000 acres of land, of which 12,000 acres is slated for green space. However, the development would create a visual change in an area currently undeveloped.

Utility Production and Distribution

Numerous power lines, water lines, water detention basins, telecommunication facilities, and other utility facilities including those proposed to be located within the SWIP Utility Corridor and the WWEC would also add large-scale man-made elements to the landscape. The utility facilities within the SWIP Utility Corridor and WWEC would be noticed mostly where the corridor parallels in close proximity or crosses transportation routes such as US-93.

Development of several solar and wind projects with their broad footprints and large and/or tall structures would introduce visual changes to the area. These facilities would be visible over large areas, some within view of Highway 93, which would result in long-term visual impacts.

5.15.5 Cumulative Disturbances

Quantification of acreages of past, present, and anticipated future disturbances to visual resources would be the same as those described for the water resources CESA in **Section 5.2.5**, or 70,275 acres (7.4 percent of the CESA).

5.15.6 Cumulative Effects

Considering the relative remoteness and natural state of the project area, the reasonably foreseeable projects would represent a cumulative impact to the character and scenic integrity of the landscape. Co-location of utility ROWs and communication sites into designated corridors (i.e., SWIP Utility Corridor and WWEC) would serve to lessen impacts.

5.16 Noise

5.16.1 CESA Boundary

The CESA boundary for noise is the same as described for surface water (**Figure 5.2-1**).

Rationale

Noise from construction is quickly attenuated by distance, vegetation, and topography. Noise related to construction and operation of the ON Line Project construction is of importance to human receptors along these areas. All of these noise sources are contained within the CESA boundaries.

5.16.2 Introduction

The CESA generally traverses broad valleys in its north to south path from the Robinson Summit Substation to the Harry Allen Substation in Clark County, with a few exceptions where ridges are crossed. Those valleys are typically deep enough to minimize most cross-range noise transport, and generally wide enough to attenuate all but high volume sources of noise across their width. Tight canyons or other features that could concentrate sound exist in a few areas, including along the valley walls, but those features are generally not in or very near the linear path and typically do not feature sensitive receptors in areas where noise from current or reasonably foreseeable sources could be concentrated.

Section 3.16 documents current noise levels in the vicinity of the CESA. **Section 4.16** documents the noise anticipated to be generated by the ON Line Project, and the temporary and limited impacts to local residents and on areas of human activity in the vicinity. This cumulative effects analysis assesses anticipated noise levels and impacts within the CESA

based upon the ON Line Project in combination with reasonably foreseeable activities within or potentially affecting that area.

The past, present, and future disturbances with cumulative impacts to noise discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.16.3 Past and Present Noise Sources

The current land ownership and uses for (thus disturbances within) the noise CESA would be the same as those described for the water resources CESA in **Tables 5.1-1** and **5.1-2**.

Noise levels in the rural areas that dominate the CESA were estimated with the support of measurements across the Steptoe Valley. Isolated areas near small roads are typically in the 30 dBA L_{eq} range. Noise levels away from the isolated noise sources are low level, typically dominated by natural sources including winds. In areas of concentrated residential development, like Pioche and Caliente, local noise generation sources combined with slower moving traffic typically result in noise levels in the 50 dBA range. In smaller communities or along roads with moderate traffic volumes, current noise levels are estimated to typically be in the 35 to 40 dBA L_{eq} range.

Aircraft

Air traffic impacts are generally isolated to near the vicinity of the Ely Airport (Yelland Field) outside the CESA, and maybe a few isolated small and/or private air strips in or adjacent to the CESA. Takeoffs and landings generate brief but loud local impacts. Military aircraft utilize a portion of the CESA when flying between Nellis AFB and the DWR/Training Site. Crop spraying can generate higher impacts from low flying planes, but if those efforts occur it would be infrequently during late spring and summer. Air traffic for any other purpose is generally light and infrequent, except in the far southern reaches with heavier traffic to and from the Las Vegas area.

Community Development

As described in **Section 3.16**, the most prominent noise impacts in the CESA result from transportation sources and ranch, residential, or small development sounds generated in areas of comparably higher population density. Natural sound sources including wind represent a significant portion of measurable noise, and average noise volumes are at or below 30 dBA L_{eq} , comparable to sound levels within a typical residential home. Maximum measured noise levels approached 60 dBA L_{eq} , alongside busier stretches of roads, comparable to conversational voice levels at six feet but below FHWA noise mitigation levels for residential areas.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Eleven mines were listed as operating in White Pine County in 2006, though the Robinson Mine outside Ruth is the only one in the CESA with production levels sufficient to list among the major mines of Nevada in 2006 (NBMG 2007). Noise from heavy mining machinery and blasting can be significant within the mine property but are attenuated with distance and largely unnoticeable from nearby highways.

Industrial Development

Commercial and industrial activities in the CESA can produce localized noise but these are few in number.

Railroad Facilities

Rail traffic currently generates noise impacts at the southern and southwestern extent of the CESA, with the UPRR traversing toward Las Vegas. Sound generated by current rail traffic along the UPRR elevates current noise levels within ¼-mile of those tracks.

5.16.4 Reasonably Foreseeable Future Noise Sources

The following section documents reasonably foreseeable sources of noise potentially affecting the CESA in addition to those described in **Section 4.16** from the ON Line Project. The nature of those reasonably foreseeable actions and their actual or potential noise generation are discussed below. Impacts associated with those actions are discussed in **Section 5.16.6**, Cumulative Effects.

Reasonably foreseeable changes in the CESA include potential growth in rail, auto, truck, and/or air traffic, proposed mining ventures, and construction efforts and/or changes in industrial sources.

Airport Expansion

The proposed Ely Airport (Yelland Field) expansion north of Robinson Summit, although outside of the CESA, could increase the air traffic noise impacts, and lead to noticeable increases in noise levels along approaching and departing flight paths near the north end of the CESA. Use of helicopters in construction of the transmission lines in the SWIP Utility Corridor and WWEC would produce noise impacts along their flight paths, but only during construction in localized areas of the project after transmission structures have been installed.

Community Development

The Coyote Springs development would generate increased noise as the residences and associated infrastructure (i.e., roads) are constructed, and recreation areas are developed.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Six proposed mines in Nye County have either just completed their permitting and approval process or anticipate final decisions by 2009. The larger regional mines have documented their noise generation and impacts through NEPA analysis during their authorization efforts.

Industrial Development

Sale of remaining lots and full development of the approximately 6,000 acres available within the Apex Industrial Park would increase noise as additional commercial and industrial businesses are developed.

Traffic & Transportation

State traffic projections feature modest growth in the current low volume traffic on the major highways paralleling the project activity area from the Robinson Summit Substation to the Harry Allen Substation. Project construction is expected to result in a temporary and minor increase in traffic. During operation, maintenance efforts are expected to have very minor increase in traffic volumes. Development of the renewable energy resources that the Proposed Action hopes to bring to the market could result in an appreciable increase in traffic volumes, which would still be light compared to much of the state's highway network. Development of any of the nearby coal-fired power plants would have impacts on traffic levels in their vicinity.

Utility Production and Distribution

The development of the various power facilities (coal, gas, solar, wind; see **Table 5.1-3** and **Appendix 5A**) would likely result in moderate short-term noise impacts during construction and long-term minor noise impacts in the CESA, approaching moderate impact levels at only the closest residences.

5.16.5 Cumulative Noise Sources

Section 4.16 of this FEIS documents the anticipated direct and indirect impacts of the Proposed Action and Action Alternative.

5.16.6 Cumulative Effects

Noise in the CESA caused by the construction of the Proposed Action or Action Alternative would be combined with the relatively low current noise effects from air, vehicle, and rail traffic in and near the CESA. Increases in commercial activity in and near the CESA could include construction and operation of electrical generation facilities, an airport expansion, and expanded or new mining developments. These would increase noise levels in the immediate vicinities of these activities. Increases in area population due to these developments could increase noise generated by vehicular traffic and recreational vehicles. Cumulative effects of the ON Line Project in conjunction with past, present, and reasonably foreseeable future activities would be negligible.

5.17 Socioeconomics

5.17.1 CESA Boundary

The CESA for socioeconomics includes Lincoln and White Pine counties (**Figure 5.17-1**). In-depth analysis was only performed for Lincoln and White Pine counties for reasons stated below and in **Section 4.17.1**. The total area of this CESA is 35,118,276 acres.

Rationale

The majority of the transmission line route of the ON Line Project would be constructed in White Pine and Lincoln counties. These counties are rural, have relatively low populations and economic activities, and contain most of the proposed facilities, with the exception of a portion of transmission line in Nye County and the southern terminus of the transmission line at the Harry Allen Substation in Clark County. Nye County is not included in the impact analysis as only a small portion of the transmission line passes through the county and there would be negligible local socioeconomic impacts. Eureka County is not included in the impact analysis as only a small portion of the project (i.e., Falcon Substation Expansion) would be within the county and there would be negligible local socioeconomic impacts. Clark County is not included in the impact analysis for socioeconomics as impacts to Clark County would be negligible and a cumulative impact would be indiscernible compared to the existing and future economic activity in the county driven by the growth of the Las Vegas urban area. Additionally, including the economic activity in this cumulative impact analysis would artificially reduce the significance of the overall economic impact of the project on the two main counties that would be impacted.

Figure 5.17-1 Socioeconomics CESA

5.17.2 Introduction

The social and economic structures and relationships that are in place in White Pine and Lincoln counties of the CESA are described in **Section 3.17**. Along with the description in **Section 3.17**, the analysis presented in **Section 4.17** of the FEIS includes a detailed discussion of the potential direct and indirect social and economic impacts of the Proposed Action and Action Alternative, including the No Action, for the CESA.

The past, present, and future disturbances in regards to cumulative impacts to socioeconomics discussed below are described in detail in **Sections 3.17** and **5.2.4**.

Land ownership within the socioeconomics CESA is presented in **Table 5.1-1**.

5.17.3 Past and Present Disturbances

The past and present disturbances as related to the socioeconomics of White Pine and Lincoln counties of the CESA are discussed in detail in **Section 3.17**.

5.17.4 Reasonably Foreseeable Future Disturbances

Community Development

Proponents for the Coyote Springs Development project as many as 240,000 residents at full build-out in 30-40 years. The development would encompass 29,000 acres in Lincoln County and include golf courses, conservation areas, potentially a 9,000-acre solar facility, and 150,000 homes. A development of this magnitude, if constructed, would have a substantial impact on the economics of Lincoln County. Proponents would first have to obtain enough water rights to support the development (see **Section 5.2.4**).

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

As discussed in **Section 5.2.4**, interest in oil and gas exploration and production has increased in the project area and the socioeconomic CESA. This interest, coupled with increasing commodity prices that may make previously abandoned mineral mines profitable in the future, have the potential to trigger a new economic “boom” cycle in the CESA.

Federal Legislation

Several Congressional actions have the potential to promote economic growth in Lincoln and White Pine counties. As noted in **Sections 3.17**, **4.17**, and throughout this document, land in Lincoln and White Pine counties is over 90 percent federal in ownership, which limits economic development. The Southern Nevada Public Lands Management Act of 1998; the Lincoln County Lands Act of 2000; the LCCRDA of 2004; and the White Pine County Conservation, Recreation, and Development Act of 2006 all direct transfer of federal lands to private, tribal, state, county or local sectors. In addition to freeing federal lands for development, these acts allow proceeds from land sales to benefit tribal, state, and local governments.

Another likely economic benefit of the above noted legislation is associated with conservation and wilderness areas, which generate tourism and contribute to an area’s quality of life. The Lincoln County Conservation of Public Land Natural Resources Act of 2002, for example, designates 770,000 acres of wilderness, and the White Pine County Conservation, Recreation, and Development Act of 2006 designates 558,000 acres of wilderness.

Transportation

The proposed Ely Airport (Yelland Field) expansion would provide additional transportation infrastructure and could increase the air traffic at the north end of the CESA. Further the rehabilitation of the Nevada Northern Railway would provide additional transportation options in and out of the Ely area. These transportation improvements would support additional economic development of the area.

Utility Production and Distribution

The ON Line Project would contribute effects on public services beyond existing levels as there may be a minor but temporary increase in the White Pine County population during construction.

In addition to the ON Line Project there are several other potential projects in the area that would contribute to cumulative social and economic effects: Sithe Global Power LLC is developing the Toquop Energy Project (gas-fired power plant), Wilson Creek Wind Project, and the Flat Top Mesa solar facility project in Lincoln County; the Enexco Wind Project, the Nevada Wind Company Egan and Antelope Range Wind Projects, and Spring Valley Wind Project in White Pine County; the Great Basin Transmission line in White Pine, Lincoln, Nye, and Clark counties; and the SNWA Groundwater Development Project to be located in White Pine, Lincoln, and Clark counties. Further, the Coyote Springs Development has set aside a 9,000 acre site for solar facility development.

The direct employment involved in constructing the ON Line Project is estimated to average approximately 224 workers over the life of the construction project (**Table 5.17-1**). The proposed WPES would have a workforce of about 760 persons (BLM 2008d). The Toquop Energy Project would employ a construction workforce averaging 400 workers over the 32-month construction period and the Flat Top Mesa Solar Project would employ a construction workforce averaging 200 workers for the 12-month construction period (Lincoln County Record 2010). The WPES project has been postponed so its construction worker impacts would not be cumulative to those for the ON Line Project. The Groundwater Development Project planned by the SNWA is projected to have an average workforce of about 240 persons (SNWA 2008). The Spring Valley Wind Project would have an average construction workforce of 175 workers for 9 to 12 months and an operational workforce of 10-12 full-time employees (BLM 2010). The estimated workforce for the other power projects is unknown at this time.

**TABLE 5.17-1 CUMULATIVE DIRECT EMPLOYMENT IMPACTS
(AVERAGE NUMBER OF ESTIMATED EMPLOYEES)**

	CONSTRUCTION	OPERATIONS
ON Line Project	224	0
Toquop Energy Project	400	50
Flat Top Mesa Solar Project	200	2-4
SNWA Groundwater Development Project	579	10
Totals	964	120

The total workforce associated with operating the Toquop Energy Project is estimated to be about 50 persons with 2-4 persons operating the Flat Top Mesa Solar Project. The workforce necessary to operate the SNWA Groundwater Development Project is estimated at 5-10 for the Lincoln and White Pine County areas, with a similar number of employees in the Clark County area.

The Toquop Energy Project and the Flat Top Mesa Solar Project would be located in the southern part of Lincoln County, approximately 180 miles south of Ely and 80 miles northeast of Las Vegas. Although these projects would be located in the CESA considered for social and economic impacts, they would have very little impact on White Pine County. Construction for the Flat Top Mesa Solar Project is scheduled to begin in 2011 and for the Toquop Energy Project in 2012. The social and economic impacts arising from these projects would be concentrated in the southern portion of Lincoln County and extend south into Clark County.

The SNWA (GWD) Project is slated for development in five different groundwater basins in Clark, Lincoln, and White Pine counties. Construction in the different basins would be staged and occur at different times. The construction crews building the GWD Project would be located at different locations during the life of the project, according to what phase is being built at the time. Construction of the GWD Project facilities under this ROW request is planned to begin upon receipt of the ROW grant and reach completion in 2018 with an average of 579 employees over the 9 year construction period. Various components of the GWD Project may be constructed simultaneously throughout the project area during this period. If initiated within late 2010 or early 2011, construction would peak in 2013 with an estimated 932 construction workers (SNWA 2008).

The SWIP Utility Corridor and the WWEC, that share a common route in the project area, are two major utility corridors through eastern and southern Nevada (see **Section 5.2.4**) that would facilitate economic and population growth in the CESA, rather than cause it (indirect impacts). During construction of individual utility facilities (i.e., power lines, gas, and water pipelines, etc.) within the common corridor, there could be brief population and economic increases, but negligible long-term direct impact.

5.17.5 Cumulative Disturbance

Once it is operational, the Toquop Energy Project would be the largest taxpayer in Lincoln County. The anticipated tax revenues are estimated to exceed \$10 million dollars per year at current tax rates. No estimate of potential property tax impacts is available for Toquop. Since the SNWA is a government agency, the Groundwater Development Project would be exempt from property tax and property that the SNWA has purchased in Spring Valley for the Groundwater Development Project has been removed from the tax rolls. This represents a decrease of approximately \$20,000 in annual property tax payments to White Pine County and the amount may increase to up to \$50,000 in subsequent years. Due to this, SNWA has entered into an agreement with White Pine County to make Payments in Lieu of Taxes on the Spring Valley Ranches property (Las Vegas Review-Journal 2008).

5.17.6 Cumulative Effects

The cumulative effects of the ON Line Project in conjunction with other upcoming projects would not significantly strain resources in the area such as schools, medical facilities, and housing during the construction phases.

Once construction of the ON Line Project, Toquop Energy Project, the wind projects, and SNWA Groundwater Development Project are complete and the facilities are operational, there may be a minor permanent addition to the workforce, employment, and income of White Pine County.

5.18 Environmental Justice

As discussed in **Sections 3.18** and **4.18**, minority populations of Native Americans were identified as residing in or near the project area, concentrated primarily on the Goshute, Ely, Duckwater, and Odgers Ranch Reservations. In addition, Lincoln County was identified as having a meaningfully greater percentage of individuals and families living at or below the poverty level than the general population of the State of Nevada. For the purpose of cumulative effects analysis, impacts from the ON Line Project combined with operations of the WPES were considered to determine if they would constitute a disproportionate adverse impact on any of these minority or low income populations.

As for analysis of direct and indirect effects of the ON Line Project in **Section 4.18.2.1**, CEQ and EPA guidelines for environmental justice compliance were applied with the following results:

- Geographically, no concentrated minority population (e.g., Goshute, Ely, Duckwater, South Fork (Odgers Ranch), Elko, Wells, and Duck Valley Indian Reservations) would be directly impacted (no project facilities on or through the reservation)
- Economically, overall impacts would be positive, not adverse
- Tribes have had, and continue to have, opportunity to participate in project discussions, through the public participation process, and in solicited requests (see **Sections 3.11** and **4.11**)
- The population of the poor in Lincoln County are not concentrated in any geographically identifiable area, and, as for the minority populations, would not experience any disproportionate adverse effects from the project, during construction or operations

In general, the area is rural. The area is within the traditional use area of Native Americans and dispersed casual use may continue (**Section 5.11** Native American Concerns). The analysis of environmental justice is affected by the incremental effects of employment, income, governmental revenue, and other social and economic characteristics that may change over time. No disproportionately high and adverse impacts to an environmental justice population were identified under past, present, or the reasonably foreseeable future developments for the ON Line Project. Therefore, the overall projected effects of this project to identified minority and low income populations are beneficial impacts resulting from increased economic opportunity, as discussed in **Section 5.17** Socioeconomics.

5.19 Hazardous and Solid Waste Materials

5.19.1 CESA Boundary

The CESA for hazardous and solid waste materials includes all landfills impacted by the Proposed Action and Action Alternative (no figure).

Rationale

Hazardous and solid waste generated by the ON Line Project would be transported by contractors to permitted landfill facilities.

5.19.2 Introduction

This section provides an inventory of existing or reasonably foreseeable facilities that generate, treat, transport, or dispose of solid or hazardous waste in the immediate vicinity of the proposed project, and any landfills that may be impacted by the project. **Section 3.19** describes current conditions of hazardous and solid waste within the project footprint. **Section 4.19** describes in detail the substances, or their hazardous criteria, that would be used by the ON Line Project during construction or operation, and how those substances would be managed in compliance with all applicable state, federal, and local regulations.

5.19.3 Past and Present Disturbances

The City of Ely has a licensed Class I municipal landfill for solid waste (WPC 2006). This landfill has capacity to accept the solid waste generated during construction and operation of the ON Line Project, along with other local sources. Class II landfills (low volume facilities) were formerly located in Baker, Cherry Creek, Eight Mile Community, Lages, Lund/Preston, Moorman Ranch, Preston, and Schellbourne; an open dump for medical waste was located in Ely (NDEP 2007a). These were removed and are not covered in the White Pine County Solid Waste Management Plan (WPCC 2006).

NDEP lists only one facility licensed to dispose of RCRA hazardous waste in the State of Nevada, which is U.S. Ecology in Beatty. In addition, NDEP lists two private Treatment, Storage, or Disposal (TSD) facilities and two federal TSD facilities (NDEP 2007b). U.S. Ecology also operates a hazardous waste disposal facility at Grand View, Idaho, about 70 miles southeast of Boise. This facility accepts hazardous waste, industrial waste, and low-level radioactive waste. Clean Harbors LLC operates the Aragonite Incinerator facility about 34 miles west of Grantsville in western Utah. It also operates the Grassy Mountain hazardous waste landfill about 80 miles west of Salt Lake City, Utah. Both of these facilities also accept industrial waste.

Energy Solutions operates the Clive landfill about 80 miles west of Salt Lake City. This facility accepts low-level radioactive waste and mixtures of such waste with hazardous waste.

The EPA (2007b) database for White Pine County shows seven conditionally exempt small quantity generators (generating less than 220 lbs RCRA waste in any single month), two transporters of RCRA waste, one small quantity generator (generators of 220 to 2,200 lbs of RCRA waste in any single month), and one "used oil program" facility. The quantity and character of wastes generated by small and conditionally exempt generators is not reported.

The EPA (2005) shows 8,863 tons of RCRA hazardous waste interstate shipments from Nevada, and 50,072 tons of RCRA hazardous waste interstate receipts for 2005. The state's five RCRA hazardous waste receivers accepted 61,996 tons of material in 2005 (EPA 2005). Specific routes, transportation corridors, or modes of transportation (e.g. truck, rail) were not reported.

The National Library of Medicine (NLM 2007) shows no Superfund or National Priority List sites in the project area or CESA. The NDEP Bureau of Corrective Actions (NDEP 2007a) shows two active leaking underground storage tank (LUST) sites in White Pine County and five non-LUST sites, all of which were for petroleum product releases (e.g., diesel, gasoline, motor oil). The same source shows 76 closed sites where clean-up and/or remediation have been completed (NDEP 2007a). These sites include some leaks to soil and/or groundwater which occurred

during transportation (mobile), buried lines that were dug up, and Brownfields (Old White Pine County Landfill). A number of these sites are within the CESA.

5.19.4 Reasonably Foreseeable Future Disturbances

Reasonably foreseeable generators of solid and/or hazardous waste in the CESA include the construction/development of the proposed WPES, the Toquop Energy Project, the Flat Top Mesa Solar Facility, the solar facility at Coyote Springs, and several wind projects, among others (see **Table 5.1-3** and **Appendix 5A**). All construction projects would be required to comply with all state, federal, and local regulations relevant to the handling and disposal of all wastes.

5.19.5 Cumulative Disturbance

All solid and hazardous wastes generated during the construction phase and during the operations phase of the ON Line Project would be transported to licensed facilities off-site for treatment and disposal. In the context of existing and reasonably foreseeable solid and hazardous waste generation locally and regionally, the ON Line Project would constitute a minor increase in waste generation and management, well within existing capacities and infrastructure.

5.19.6 Cumulative Effects

Given the existing capacity and regulatory framework for generators, transporters, and TSD facilities, the ON Line Project in combination with the other energy projects would have minor effects on solid and hazardous waste generation and management. As noted in **Sections 3.19** and **4.19**, the ON Line Project would comply with all local, state, and federal regulatory requirements.

5.20 Transportation

5.20.1 CESA Boundary

The Transportation CESA (no figure) consists of the existing transportation routes into the project area including US-6, US-50, US-93, and SR-318, I-15 and I-80 (**Figure 3.20-1**), along with major rail lines and airports.

Rationale

Transportation into the project area would primarily be on these existing and established access routes. Transportation should not be noticeably affected outside of these major roads.

5.20.2 Introduction

The transportation system in and around the proposed ON Line Project contains established routes including highways, county roads, local roads, and a railway. Transportation associated with the ON Line Project would continue to be along existing routes. The existing transportation routes include paved, graveled, and dirt roads providing access to communities, industrial areas, utility ROWs, private land, and public lands. The current condition of the transportation system is generally good with a LOS A designation (free flow, low traffic density, or delay) along US-93 (**Section 3.20**), the main access to the proposed project.

The past, present, and future disturbances with cumulative impacts to transportation discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.20.3 Past and Present Disturbances

Past and present developments, such as mining, utility projects, community development, ranching, and recreation, have influenced transportation routes, their improvement, and increased use.

Population Increases

Increases in state and regional populations (**Section 3.17**, Socioeconomics) have contributed to increased traffic and use of the transportation system. The CESA includes segments of the CANAMEX corridor (US-93, I-15), a generally north-south route running from Arizona north into Canada (NDOT 2000). Being designated as a major regional corridor indicates the importance of US-93 as an interstate and regional route for the transportation of goods in and through Nevada. Recreational use increases (**Section 3.14**, Recreation) have also impacted the area transportation system and likely increased the miles of unimproved dirt roads.

5.20.4 Reasonably Foreseeable Future Disturbances

Future increases in road use, and subsequent road damage, and road improvements could result in subsequent changes to the LOS designations of roads within the CESA. However, future road improvements could mitigate increased utilization of the transportation system.

Airport Expansion

The Ely Airport (Yelland Field) Expansion project would allow for the expansion and development of airport facilities in White Pine County, and encourage development of air service and aviation-related industry. Additional air service into the Ely area could result in less long-distance vehicle traffic within the CESA; however, this would be negligible to average traffic volumes on the interstates and highways.

Railroad Facilities

The Nevada Northern Railway is proposed to be reconstructed and upgraded to support economic development in the Ely area. The reconstruction of the railway would provide improved transportation of goods into the area, possibly resulting in less truck traffic on the highways. This would be a beneficial impact. If the Nevada Northern Railway were utilized by the proposed WPES, it is estimated that 12 coal trains would travel to the power plant site per week. Quantity of additional train trips due to other economic development is unknown.

Roads

The NDOT STIP for 2010-2019 lists future transportation improvement projects (http://www.nevadadot.com/traveler/construction_projects/STIP/). These include maintenance (resurfacing) projects along US-6, US-93 and US-50 (**Table 5.20-1**).

**TABLE 5.20-1 PROJECTS FROM THE NEVADA PROPOSED HIGHWAY PROJECTS
FOR FY2010-2019 AND STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM
FOR FISCAL YEARS 2010-2013**

PROJECT NUMBER	DESCRIPTION	FY '10	FY '11	FY '12	FY '13	PROJECT SPONSOR
WP20090028	US-93 from 5.39 miles N of Success Summit Rd to 0.29 miles S of Cherry Creek Rd.	X				State
WP20090029	US-50 from 0.16 miles E of Ruth/Kimberly Rd to US-6.		X			State
WP20090005	US-6 from 2.06 miles E of Jct. US-50 to 5.5 miles E of Sacramento Pass.	X				State
WP20090022	US-6 from 9.34 miles E of Jct. Success Summit Rd to 0.58 miles E of Jct. US-93.	X				State
WP200921	US-6 from 13.90 miles N of Jct. Sunnyside Rd (SR-318) to Jct. Murray St. in Ely.	X				State
WP20090008	US-50 from Pancake Summit to City of Ely.	X				State
WP20090020	US-50 from 6.21 miles E of Jct. Ruby Valley Rd to 3.15 miles E of Robinson Summit.	X				State
WP20090004	US-50 from 2.72 miles E of Little Antelope Summit E for 5.0 miles	X				State
LN20090009	US-93 from 1 miles N of Monarch Mine to Pony Springs Rest Point.	X				District

Source: NDOT 2009

Utility Production and Distribution

Projects that would include a large amount of construction workers and materials, and therefore would increase traffic would include the ON Line Project, the WPES, the Flat Top Mesa Solar Facility, Coyote Springs solar facility, and the wind generating projects (**Table 5.1-3**).

5.20.5 Cumulative Disturbance

The transportation network in the CESA in the reasonably foreseeable future would be the same as past and present with no change to existing transportation routes. Project specific access routes would not provide public thoroughfares. Road upgrades and improvements associated with present and future developments would improve the transportation network and make it generally safer. The added traffic during construction of the ON Line Project, and construction and operation of the WPES would be noticeable to locals.

Twelve coal trains per week would travel along the Nevada Northern Railway to and from the proposed WPES. These train trips may cause some traffic delay at road crossings.

5.20.6 Cumulative Effects

Traffic increases on the transportation network due to construction of the WPES, which is currently postponed, would be expected to last for 4-5 years (BLM 2008d); however, due to postponement it would not overlap with traffic increases associated with construction of the ON Line Project. There would be a cumulative impact on transportation if multiple projects were constructed at the same time. Although there would be an increase in traffic on the entire CESA, the impact would be most noticeable on US-93. This cumulative effect would be

temporary during construction and would not affect the overall level of service (LOS A) of US-93.

There would be minor impacts to the transportation network in the CESA as it develops to meet the demands of industrial development and increased population. There would be no net increase or decrease in transportation routes as a result of the ON Line Project. There would be a general need to expand and improve existing infrastructure to accommodate cumulative regional transportation needs.