

# **Appendix J**

## **Cumulative Impact Technical Study**



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## MEMO

**TO:** File **DATE:** November 14, 2012

**FROM:** Jennifer Bassett-Hales

**SUBJECT:** Cumulative Impact Methods and Findings

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NEPA evaluation requires that the all direct, indirect, and cumulative impacts of a proposed project be assessed and disclosed. Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” (40 Code of Federal Regulations [CFR] 1508.7). While there is no single formula to determine the extent of a cumulative impact analysis, it is the responsibilities of the lead agency to determine the methods and extent of the analysis based on the size and type of the proposed project, its location, potential to affect environmental resources, and the health of any potentially affected resource.

The following cumulative impact analysis builds upon information derived from the direct and indirect impacts analyses of the various technical reports, technical memorandum, and *Chapter 3, Environmental Resources, Impacts, and Mitigation*.

### **1.0 Methods**

Cumulative effects for proposed project were analyzed using the eight steps outlined in the EPA’s Guidance for Preparers of Cumulative Impact Analysis (EPA 2005). Each of these steps is described in the following sections.

### **2.0 Identify the resources that may have cumulative effects to consider in the analysis**

In December 2011, Nevada Department of Transportation (NDOT) distributed intent-to-study letters to project stakeholders announcing preparation of this Environmental Assessment (EA). The study team also held a scoping meeting with the general public and local and federal agencies on January 17, 2012. One comment received by Nevada Department of Wildlife (NDOW) raised concerns about the cumulative effects of habitat fragmentation and impacts to terrestrial wildlife movement in the Virginia Range for mule

deer and big horn sheep. After scoping and a review of regional planning documents, the study team ruled out resources that would be minimally impacted by the project. However, the study team did identify three resources of concern to be evaluated for cumulative impacts: land use, biological resources, and cultural resources.

### **3.0 Define the study area and timeframe for each affected resource**

The geographic resource boundary to be used for the cumulative impacts analysis is based on the resources of concern and the potential impacts to these resources under a build scenario. The regional study area includes the 107,000-acre Tahoe Reno Industrial Area (TRIC), the eastern Lyon County communities of Silver Springs and Stagecoach located along the US 50 corridor, and the Virginia Range. This was chosen as the cumulative impact study area for the following reasons:

- For land use, the regional study area includes those areas and communities that may use USA Parkway and captures the area where past, present, and reasonably foreseeable future land use changes may occur.
- For biological resources, the regional study area includes the Virginia Range, which is a contiguous area of habitat for large game species (e.g., mule deer and big horn sheep).
- For cultural resources, the regional study area includes the Virginia Range, where historic Comstock Lode mining activities were concentrated.

The time frame for the analysis of cumulative impacts is typically based upon the availability of data or a meaningful event that has influenced existing conditions (e.g., construction of a highway or railroad). The time frame established for this cumulative impact analysis extends from 1905 to 2035. These dates were based upon the establishments of the Ramsey Mine in 1905, which was established towards the end of the mining boom associated with the Comstock Lode and resulted in the earliest documented settlement of the region, in addition to the project horizon of 2035.

### **4.0 Describe the current health and historical context for each affected resource.**

#### **Land Use**

Land use patterns in Storey County and Lyon County have been shaped by county land use regulations, physical factors such as topography, water availability, and the availability of infrastructure. Throughout most of their histories, both Storey and Lyon counties have been characterized by compact communities and rural settlements spread over a landscape of valleys and mountains, farm/ranch lands, rivers, and extensive undisturbed areas. For years, the counties have been defined by their rural character.

Over the last decade, more rapid growth and development has come to the region as Storey and Lyon counties have become bedroom communities to the metropolitan areas of the cities of Sparks and Reno and Carson City. Between 2000 and 2010, the Lyon County population grew by 50 percent and Storey County grew by 18 percent, despite a dramatic economic slow-down beginning in 2007 (U.S. Census 2010). Growth in Storey County and Lyon County has primarily occurred along the I-80 and US 50 corridors because many of the residents of both counties commute to work or obtain services in either the cities of Sparks and Reno and Carson City.

Future development will be influenced by factors such as employment growth and the availability of water and infrastructure. Most of Storey County is inaccessible to vehicular traffic, and there are no paved routes that connect the northern and southern portions of the County (Storey County 1994). Over 90 percent of Storey County is privately owned and has limited access to basic infrastructure (e.g., roads and water). The primary source of planned growth in Storey County is associated with the development of TRIC, Storey County has permitted development of 30,000 acres within TRIC.

The Lyon County Comprehensive Master Plan (LCCMP) indicates that “the County’s purpose is not to restrict future growth but to direct it in a way that minimizes negative impacts while offering residents a range of choices and promoting job creation. The County seeks to successfully accommodate growth and consciously decide how development should occur to achieve a more efficient pattern for future development. Lyon County intends to ensure the county’s long-term viability by using methods to guide new development to locations where adequate public infrastructure such as roads, water, sewer, schools, and related facilities, is available or can be provided most efficiently and cost effectively, promoting infill development, and providing incentives for quality development.” (Lyon County 2010)

### Biological Resources

The regional study area occurs in the Virginia Range across Storey and Lyon counties. It is a fairly contiguous and undeveloped area bound by Interstate 80 (I-80) to the north, U.S. Highway Route 50 (US 50) to the south, U.S. Highway Route 95 (US 95) to the east, and U.S. Highway Route 341 (US 341) to the west. The terrain ranges from gently rolling hills in the northern and southern most portions to steep, rocky hills in the center portion. Most of this land is privately-owned, but there are some BLM lands in the eastern half of the regional study area. Surface water sources are very limited, but there are some springs and seeps. The habitat is generally characterized as intermountain scrub, sagebrush, and rock outcrops (e.g., cliffs and canyons) that range in elevation from 4,400 to 5,600 feet in elevation. This area does not provide critical habitat for any federally-listed threatened or endangered species, but does provide habitat for big game

species (e.g., mule deer and big horn sheep), bird and bat species, and small, terrestrial species. The regional study area also contains Clark Mountain, which is a bighorn sheep re-introduction area. The Virginia Range Estray Horse Area is located in this area and is managed by the Nevada Department of Agriculture in accordance with estray livestock statutes.

### Cultural Resources

Early settlement of Nevada began in the 1850, with many early settlers being Mormons and prospectors. The Overland Road was one of the early trails through the regional study area and ran between Salt Lake City and Carson City from 1859 to 1869.

Probably the largest and single most influential development in Nevada's history was the discovery of gold and silver during the early 1850s. Mining placed the State of Nevada (State) in the national spotlight and created numerous cities and towns throughout the State. While mining continues to be highly profitable, the first "boomtown" era of mining took place between 1859 and 1878 with the Comstock bonanza.

By 1859 several claims were filed on the main ore body, and the following year the true 'rush to the Comstock' began. With the Comstock mines proving the profitability of Nevada's ores, prospectors began exploring other mountain ranges in the State. The Ramsey Mining District (also known as the Nevada or Gooseberry Mining District), located within the regional study area along the Storey/Lyon County line, was discovered in 1906. Commodities extracted from this area include gold, silver, antimony, and mercury. The mining camp of Ramsey was also located in this area. Tom and Bladen Ramsey discovered gold there in early 1906, and by mid-year three town sites were planned and promoters began selling lots. By 1907 the boom subsided, by 1913 Ramsey lost its post-office. Some work was done in the 1920s and 1930, and a revival in 1939 did not outlast 1940. Mill foundations, tent flats, and scattered debris are all that remain of the town.

## 5.0 Identify direct and indirect effects that may contribute to a cumulative effect

While the Build Alternative would not have any significant adverse impacts, the following direct and indirect impacts would occur.

- **Land Use:** There would be a conversion of approximately 223 acres of undeveloped private land and 71 acres of BLM land for roadway use. This conversion of land is consistent with Storey and Lyon County plans and the BLM Resource Management Plan (see *Section 3.5, Land Use*).

- **Biological Resources:** There would be impacts to 294 acres of habitat for common wildlife species, resulting in habitat fragmentation. Mitigation measures would minimize the potential for impacts to sensitive plant species, revegetate disturbed areas, and provide wildlife crossing structures (see *Section 3.3, Biological Resources*).
- **Cultural Resources:** There would be direct impacts to non-contributing elements of the Ramsey town site and Overland Route (see *Section 3.8, Cultural Resources*).

## **6.0 Identify other historic, current, and reasonably foreseeable actions that may affect resources**

Long-range transportation plans include the widening of I-80 and US 50 to provide increased capacity and accommodate future population growth.

TRIC is a 107,000-acre industrial complex that includes 30,000 acres of developable land, of which approximately 3,800 acres has been sold and developed since 2000. Continued development of TRIC is planned. TRIC businesses employed approximately 2,500 people in 2010 and are projected to employ 23,500 by 2035. Full build out of TRIC is beyond the 2035 horizon of this analysis. Due to limited infrastructure and water, no other major development in Storey County is anticipated.

The LCCMP indicates that “Lyon County sees more growth and development occurring in and around the existing community cores (its towns and established settlement areas) with more focus on balancing residential, employment, and retail land uses” (Lyon County 2010). NDOT met with Lyon County planners to discuss future development plans for the area, and no specific development plans were identified.

The LCCMP does include the 20,000-acre Highlands Specific Planning Area. The land use plan, policies, and criteria for the Highlands Specific Planning Area have not yet been adopted by Lyon County, and future uses of the area are speculative at this time. This parcel is owned by a developer that was working with the County on plan for a mixed use development on this parcel. Lyon County has not heard from the developer in several years. Major impediments to the Highlands development include a large supply of developable lots in Lyon County and surrounding counties that have access to existing infrastructure or are located in areas where infrastructure could be extended incrementally, a lack of water rights to serve a future development, and a projected slow economic recovery with little demand for development of new lots. For these reasons, future development of the Highlands Specific Planning Area is not considered reasonably foreseeable. NDOT and the Federal Highway Administration (FHWA) consulted with the Lyon County planner, and he concurred with this conclusion (Loveburg 2012).

## **7.0 Assess potential cumulative effects to each resource and determine the magnitude and significance**

### **Land Use**

The Build Alternative and the widening of I-80 and US 50 would all provide additional transportation facilities to accommodate the planned growth of TRIC and the communities of Silver Springs and Stagecoach. Also, approximately 1,200 acres of BLM land is designated for disposal and would be available for future development. The Build Alternative would make TRIC, Silver Springs, and Stagecoach more accessible and may influence the rate, intensity, and location of future development. Likely impacts resulting from development are increased impervious surfaces (e.g., roads, driveways, rooftops, and parking lots); loss and fragmentation of wildlife habitat; and stress on infrastructure, water availability, and water supply.

This growth is already expected and is consistent with adopted long-range master plans. Lyon and Storey counties were hit especially hard by the economic downturn, and the Build Alternative is intended to provide infrastructure to support planned growth. Providing transportation infrastructure is just one element necessary for economic growth. Other major elements identified by Lyon and Storey counties include obtaining water rights to support population growth and the development of wastewater infrastructure. The Lyon County and Storey County plans include policies to ensure developments have adequate infrastructure services, to minimize impacts of developments, and to concentrate development in areas that are most suited for it. These policies are expected to minimize the potential for adverse impacts from development.

### **Biological Resources**

The widening of the I-80 and US 50 roadways projects are unlikely to contribute to cumulative impacts because the roadways currently exist, and the additional lanes are not anticipated to result in reduced habitat quality, barrier effects, and loss of connectivity resulting in restricted or altered wildlife movement patterns.

The continued development of TRIC may result in development in areas that are currently undeveloped and would increase human presence and activities in the area, resulting in habitat fragmentation. This development would occur with or without the project. However, implementation of the Build Alternative may accelerate the rate of development.

The Build Alternative would bisect a large area of contiguous habitat and may affect the movement of terrestrial wildlife species. The implementation of wildlife crossing structures and fencing would mitigate those effects. Major additional development in the

Virginia Range beyond that identified above is not anticipated due to the water supply limitations and topographic constraints. While cumulative development would result in habitat fragmentation, large contiguous areas of habitat would remain that would adequately support species affected by cumulative development.

### Cultural Resources

Similar to biological resources, cumulative impacts to cultural resources could occur as a result of development of currently undeveloped lands and increased human presence and activities in an area that is currently inaccessible. This development would occur with or without the project. However, implementation of the Build Alternative may accelerate the rate of development. Increased human presence would be mitigated through the use of wildlife fencing along the right-of-way, which would also prevent travelers from accessing the lands outside of the right-of-way. Consequently, cumulative impacts to the historic sites located near the Ramsey mine and the Overland Road are not anticipated.

## **8.0 Report the results**

Based on the analysis above, although the Build Alternative would have some temporary and permanent impacts, these impacts would be mitigated and not have a substantial contribution to cumulative impacts.

## **9.0 Assess and discuss potential mitigation issues for all adverse impacts**

The Build Alternative would not contribute to any adverse cumulative impacts requiring mitigation.