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1.0 INTRODUCTION AND BACKGROUND

Churchill became a county on November 25th, 1861. It is one of the first nine counties in the state of Nevada. The name derived from Fort Churchill, a post office in Lyon County, established on October 9, 1860. The Fort was named in honor of General Sylvester Churchill, of Vermont, a Mexican War hero Brigadier General (1783 - 1862). Churchill County covers approximately 4,913 square miles (12,725 square kilometers) and accounting for approximately 4.4 percent of Nevada's total surface area of 110,548, (286,297 square kilometers).

Churchill County is the center of honey production for Nevada. The county seat is the city of Fallon. The turn of the century brought new hope for Churchill County as it's arid desert land became the focal point for the nation's most ambitious reclamation projects - the Newlands Project of 1902, named after Senator Francis Newlands. A system of canals and dams was created diverting water to create thousands of acres of farmland. This project gave birth to Fallon, one of the few communities in the state founded entirely on farming. Fallon also started as a Post Office, July 24th, 1896, and was the fourth county seat.

At the turn of the century Fallon was a "dusty crossroads" between St. Clair and Stillwater. The local Native Americans referred to it as "Jim's Town." Jim Richards operated his store very near Mike and Eliza Fallon's ranch house and post office, which had been established in 1896.

Soon rumors flew about a project to build a dam and canal to irrigate, or "reclaim", desert lands. Following the assassination of President McKinley in 1901, longtime conservationist Theodore Roosevelt became President. He soon signed the papers which established the Reclamation Act of 1902 and a federal reclamation system began – financed from the sale of public lands. The Reclamation Act also created the United States Reclamation Service (USRS).

After this national event, Fallon's dusty crossroads would never be the same! Mike Fallon sold his ranch to Warren W. Williams, who proceeded to have the land platted and began advertising the sale of lots. Williams laid out the west side of the new town, and named the central street after his native state of Maine. Other streets like, Bailey, Allen and Taylor were named for his friends.

While Williams was busy on the west side of town, John Oats laid out and platted the east side.

In 1903, the State Senator Williams pushed through legislation that formally moved the county seat from Stillwater to the new town of Fallon. Stillwater residents were not particularly pleased with this turn of events, but ultimately conceded defeat. Construction of a courthouse for the new county seat was completed in 1903, and many Stillwater businesses moved to Fallon.

From the very beginning of the new irrigation project, Fallon grew and prospered. Work began on the Truckee River with the building of Derby Diversion Dam in June of 1903. Construction of the 36 mile long Truckee Canal was begun in 1905. Lahontan Dam was completed in 1914, and homesteaders flocked to the area, drawn by a national USRS advertising campaign.

Fallon was officially incorporated in 1908. It was the goal of the new city to provide the finest in services to its residents. With large groups of people expected to homestead the newly reclaimed farmlands, a population of 20,000 was projected in just a few years.

Unfortunately, the scope of the original reclamation project was never fully realized and the city's population grew at a slower-than-predicted pace. But grow it did, and in 1912 Fallon residents were thrilled when electricity, generated below the Lahontan Dam, reached the city.

The 1920s were the years in which "Hearts-O-Gold" cantaloupes were grown and shipped across the nation. For almost fifteen years, Newlands Project farmers had a near monopoly on cantaloupe sales in Nevada and northern California, for their jumbo-sized melons were of unmatched flavor and quality.

Turkeys raised on Churchill County farms gained a similar national reputation during these years. It was not uncommon for farmers to raise thousands of birds every year, some of which graced the Thanksgiving table at the White House!

Alfalfa has long been one of the most stable sources of income for area farmers. The altitude and moderately warm weather produce the high-protein hay favored by the dairies and feed lots. Today, the valley's farms produce an average of five tons per acre, with over 70% of the hay shipped out of state.

Fallon became the home of the Fallon Naval Air Station in 1942. In 1959, the runway was extended to 14,000 feet, and since 1972 the base has been a full-fledged Naval Air Station specializing in pilot training.

Fallon has long been known as the "Oasis of Nevada." This phrase was first used in 1948 by the Fallon Chamber of Commerce, and has stuck with the town since that time. Fallon and its surrounding countryside are truly lush agricultural and cultural havens in the rural Nevada desert.

1.1 Purpose

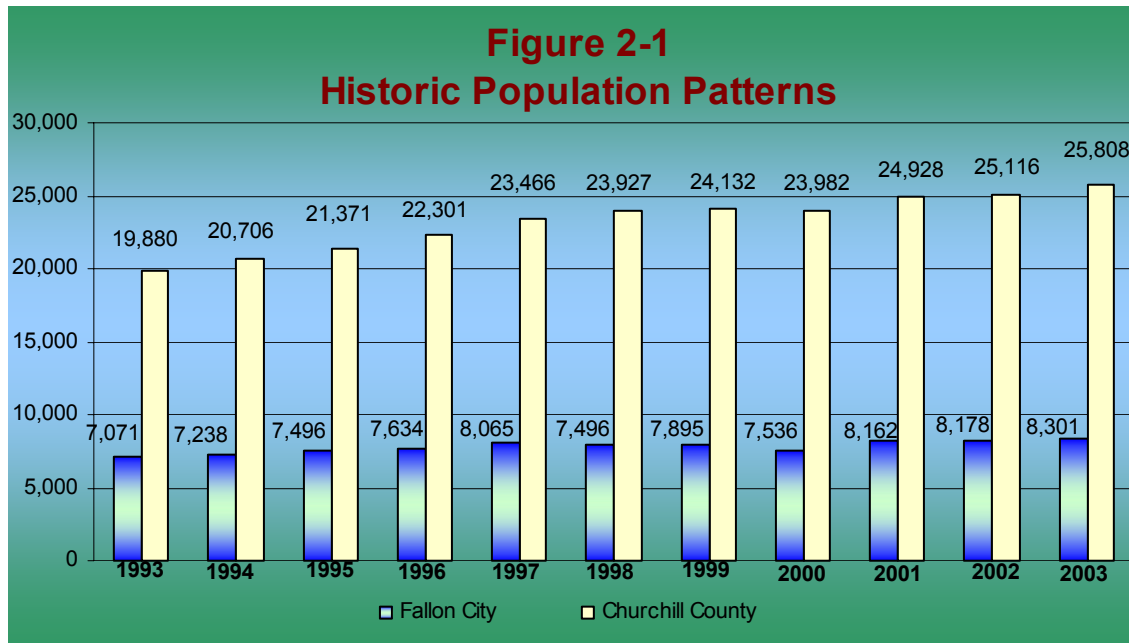
This report provides a baseline description of existing conditions in Churchill County as of 2004. The report provides information on social, economic, public services and facilities, and natural resources available in Churchill County and its communities. The report will be used to measure potential changes to Churchill County as a result of the high-level nuclear waste repository at Yucca Mountain and associated transportation activities. Additionally, material presented in the following chapters represents a

compilation of previous investigations by Churchill County for Yucca Mountain oversight activities such as the Transportation Baseline Report, 2004. The baseline report contains information about population, labor force, employment, wages, fiscal conditions, natural resources, and land uses. The Yucca Mountain draft and final environmental impact statement contained very little information about Churchill County. This report will help supplement the lack of information developed by DOE. The baseline report will be updated periodically as part of Churchill County's on-going efforts to assess potential impacts associated with the Yucca Mountain Project.

2.0 SOCIAL AND ECONOMIC CHARACTERISTICS

2.1 Population and Growth

In 2000, the Churchill County population was 23,982 accounting for 1.2% of Nevada’s total population of 1,998,257. Figure 2-1 shows historic population growth patterns for Churchill County and the City of Fallon. More recently, the Churchill County population is estimated to be nearly 26,000.



Source: US Census Bureau 2000

Table 2-1 contains the most recent forecast for Churchill County. The population forecast in Table 2-1 may be conservative given more recent growth occurring along the U.S. Highway 50 Corridor from Fernley, Nevada to Fallon. Since 2000, population growth has been accelerating in Churchill County and throughout areas adjacent to the U.S. 50 corridor. The community of Fernley, for example, has experienced rapid growth. From 2000 to 2003, the community of Fernley grew by 37 percent to 11,718 in 2003 according to the Nevada State Demographer’s office.

Table 2-1 Population Forecast for State of Nevada, Churchill County and Fallon			
Area	2005	2010	2012
State	2,448,201	2,806,940	2,939,782
County	29,970	34,442	36,540
Fallon	9,507	11,021	11,693
3% Population Forecast			
County	27,380	31,741	33,674
Fallon	8,807	9,867	10,367

Source: Nevada State Demographer, Nevada County Population Projections 2002-2022, April 2002

Much of the growth in the Fernley area is occurring adjacent to the U.S. Highway 50 corridor. This growth is residential development as well as industrial growth in the Fernley business park. Currently, the City of Fernley has a population nearly 12,000 (Nevada State Demographer) with approximately 7,500 approved but not built residential lots and an additional 7,500 lots in the approval process. Combined the Fernley area population could exceed 51,000 by the time Yucca Mountain shipments are scheduled to begin. Nearly all the growth in the Fernley area will take place near major transportation corridors (U.S. 50) extending east toward Churchill County.

In Churchill County, most of the new growth including commercial/retail sites, industrial development and higher density residential development is expected to occur west of the City of Fallon within 1 mile of either side of the highway corridor. More recent population forecasts developed for the Yucca Mountain Transportation Impact Report shows population by segments along U.S. Highway 50 (See Table 2-2).

	2004			2010-2015			2015-2020		
	Housing Units	Population	Pop. Density	Housing	Population	Pop. Density	Housing Units	Population	Pop. Density
Total									
Corridor-1/2 mile	3,760	9,067	449	7,653	19,254	953	10,640	26,963	1,335
Corridor-1 mile	2,695	6,604	327	4,895	12,741	631	6,729	17,515	867
Corridor-North 1/2 mile	2,257	5,420	537	4,110	10,031	993	5,422	13,382	1,325
Corridor-North Mile	1,937	4,645	460	3,204	8,339	826	4,469	11,633	1,152
Corridor-South 1/2 Mile	1,503	3,644	361	3,543	9,223	913	5,217	13,581	1,345
Corridor-South 1 mile	758	1,959	194	1,691	4,402	436	2,259	5,881	582
Corridor North	4,194	10,065	498	7,313	18,370	909	9,892	25,016	1,238
Corridor South	2,261	5,603	277	5,234	13,625	674	7,477	19,462	963
Total	6,455	15,668	388	12,548	31,995	792	17,368	44,478	1,101

Source: Yucca Mountain Transportation Baseline Report, 2004.

Both the Fernley area and Churchill County are experiencing very rapid increases in growth. New business relocation, retiree migration and lower housing costs are driving the new surge in growth. As of the fall of 2004 almost 30 new subdivisions are under construction between Fallon and Fernley.

Table 2-3 contains a comparison of population characteristics between Churchill County and the State of Nevada from 1990 to 2000. Overall, Churchill County remains consistent with the State of Nevada in terms of population comparisons.

Area	Churchill County 1990	City of Fallon 1990	State of Nevada 1990	Churchill County 2000	City of Fallon 2000	State of Nevada 2000
Population Estimates	17,938	6,432	1,201,833	23,936	8,190	1,998,275
% Pop. 0 - 4 yrs	8.4%	8.7%	7.7%	8.0%	8.5%	8.1
% Pop. Under 18	28.2%	26.8%	24.7%	20.0%	31.6	26.4
% Pop. 18 - 24 yrs	9.0%	10.0%	9.9%	8.3%	7.1%	9.0%
% Pop. 25 - 44 yrs	31.1%	31.8%	34.5%	29.8%	15.0%	31.5%
% Pop. 45 - 64 yrs	18.9%	16.0%	20.3%	22.7%	14.8%	23.0%
% Pop. 65 and over	12.8%	15.4%	10.6%	13.3%	12.2%	11.0%
% Pop. 85 and over	2.4%	3.5%	1.6%	6.1%	2.8%	2.2%
Median age	32.9	32.3	33.3	35.9	34.5	35

Source: US Census Bureau 2002

Table 2-4 shows a comparison of age distribution between Churchill County and the United States for 2000. Overall the population in Churchill County is very similar to the rest of the United States.

Geographic Area	Total Population	Percent of Total Population					Median Age
		Under 18 years	18 to 24 years	25 to 44 years	45 to 64 years	65 years and over	
U.S	281,421,906	25.7	9.7	30.2	22.0	12.4	35.3
Churchill County	23,982	28.9%	8.1%	28.7%	22.3%	11.9%	34.7

Source: US Census Bureau 2002

2.2 Economic Activity

2.2.1 Labor Force and Unemployment

Table 2-5 shows the employment status in Churchill County over the last 5 years. Although total employment in the County has remained relatively constant, many residents travel to areas just outside the County for employment, most notably the Fernley Industrial Area.

Table 2-5 Employment Status					
Population 16 years and over	2000	2001	2002	2003	2004
Labor Force	9,972	9,571	9,850	9,710	9,835
Total Employment	9,166	8,722	9,220	9,120	9,188
Unemployed	806	849	630	590	647
Unemployment Rate	8.1	8.9	6.4	6.1	6.6

Table 2-6 shows the migration to work patterns for Churchill County in 2000. As shown in the Table 2-6, the majority of workers commute to neighboring Lyon County (Fernley industrial area) and Washoe County. New industrial development sites are also slated for western Churchill County in Hazen (See land use section). The development of new industrial sites at Hazen will contribute to future employment and population growth in Churchill County. Most of this development will occur adjacent to the U.S. Highway 50 corridor.

Table 2-6 Migration of Workers Residing in Churchill County but work elsewhere	
Churchill	9,270
Douglas	64
Lyon	663
Mineral	53
Pershing	145
Washoe	504
Carson City	95
Other areas in Nevada	31
Areas Outside Nevada	144

Source: 2000 Census

Table 2-7 shows employment by type of industry. Employment opportunities in Churchill County are fairly well diversified across different industrial sectors.

Table 2-7 Employment by Type of Industry: Churchill County 2003		
INDUSTRY	Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	632	6.1
Construction	958	9.3
Manufacturing	854	8.3
Wholesale trade	244	2.4
Retail trade	1,315	12.8
Transportation and warehousing, and utilities	571	5.6
Information	306	3.0
Finance, insurance, real estate, and rental and leasing	343	3.3
Professional, scientific, management, administrative, and waste management services	750	7.3
Educational, health and social services	1,725	16.8
Arts, entertainment, recreation, accommodation and food services	1,002	9.7
Other services (except public administration)	512	5.0
Public administration	1,076	10.5
Total	10,288	100.0

Source: Nevada Department of Employment, Training and Rehabilitation.

Future increases in employment in Churchill County are likely to occur in manufacturing, construction, trade and services.

Major Churchill County Employers

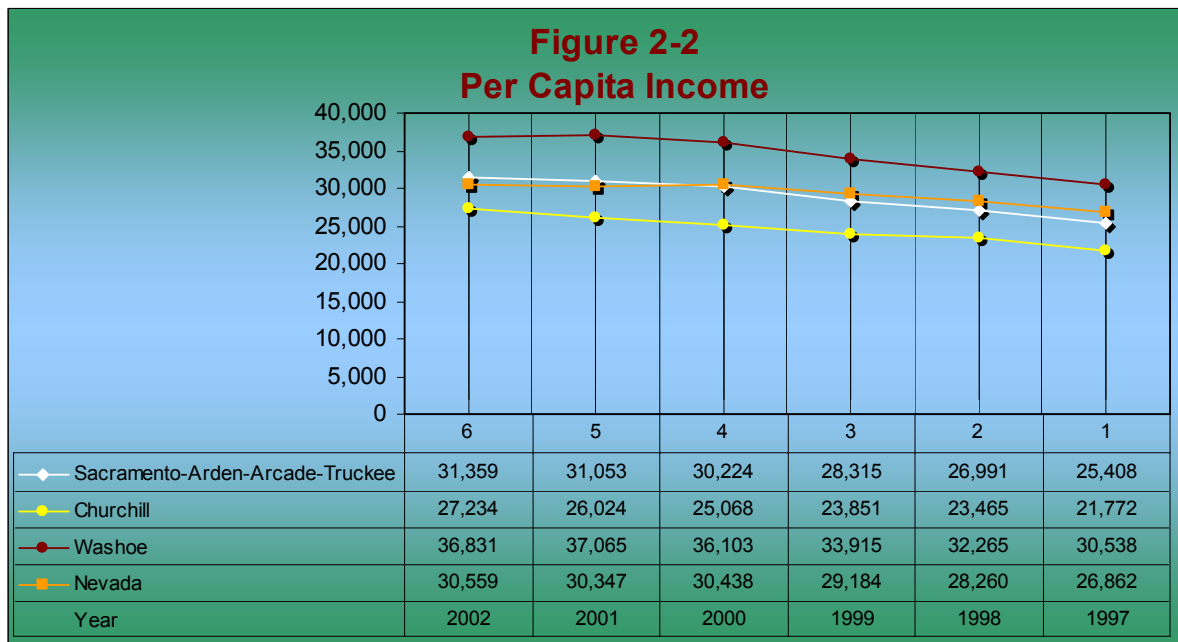
Major local employers in Churchill County include manufacturers, government (local and federal), Churchill Communications, health care (Churchill Banner Hospital), and Agriculture. The U.S. Department of Defense with the operation of the Fallon Naval Air Station maintains a significant military and contractor workforce. Major employers in Churchill County are shown in Table 2-8.

2.2.2 Wages and Income

Table 2-9 shows Churchill County wages as compared to those in the State of Nevada. One important difference in the wage levels is the service component. In Churchill County the wage levels in the service sector are influenced by support contractors operating at the Fallon Naval Air Station. Wage levels in other

industrial sectors tend to be just below those reported for the State. Figure 2-2 shows a comparison in per capita income between Nevada, Churchill County, and the Sacramento to Truckee Region from 1998 to 2002.

Churchill County School District	500 - 999
Banner Health Systems	250 - 499
Department of Defense Naval Air Station	250 - 499
Boeing Aerospace	100 - 249
Wal-Mart	100 - 249
Churchill County	100 - 249
SMI Joist	100 - 249
LM Support Inc.	100 - 249
Chugach Support Inc.	100 - 149
Kennametal Inc.	100 - 249
State of Nevada	100 - 249
Sikorsky Support Services, Inc.	100 - 249
Stockman's Casino	100 - 249
Del-Jenn Inc.	100 - 249
CC Communications	100 - 249



Per capita income for Churchill County remains below the overall State level. From 1998 to 2000 only small gains were made Churchill County's per capita income.

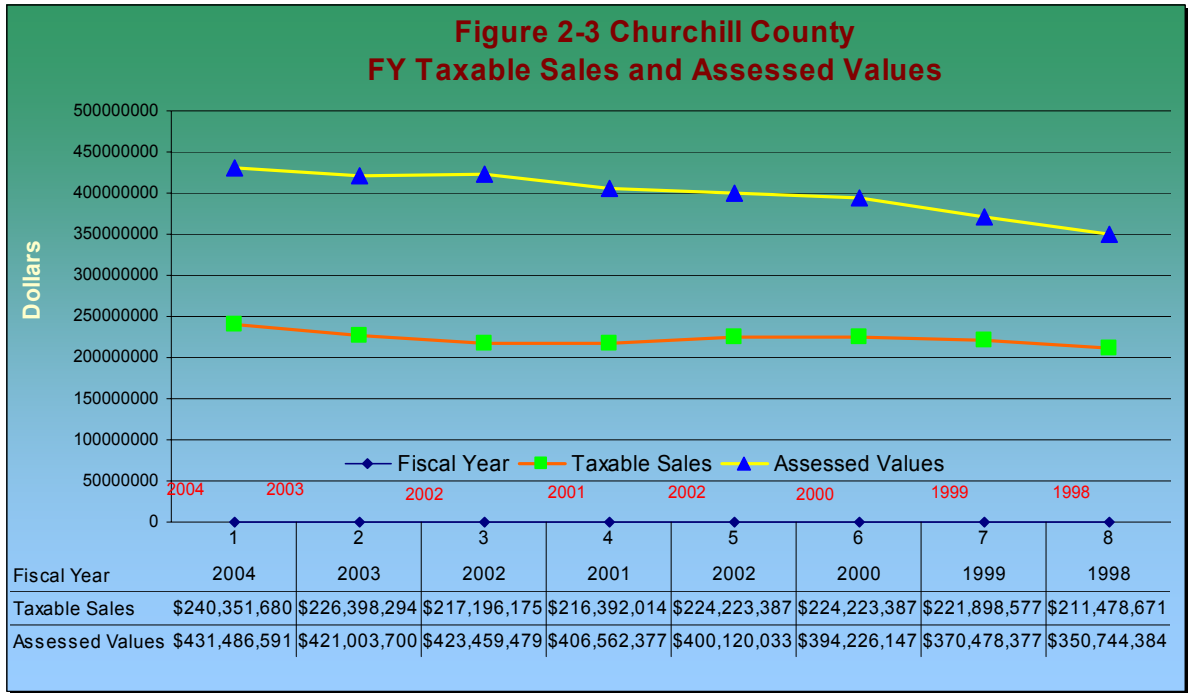
Table 2-9 Churchill County wages as compared to those in the State of Nevada.		
	Total wages March 2002	
	Churchill County	State of Nevada
Construction & Trades	\$42,365	\$42,046
Protective Services	\$27,563	\$30,095
Healthcare Support	\$22,592	\$31,590
Automotive Dealers & Service Stations	\$40,972	\$44,657
Goods	\$26,101	\$23,555
Trade	\$27,812	41,246
Services	\$30,019	\$19,700
Govt.	\$40,896	\$43,230
Total All Industries	\$33,004	\$31,552

Source: Nevada Department of Employment Security, 2002

The average service sector wage in Churchill County is substantially higher in Churchill County as compared to the State of Nevada. This difference is due to the federal private contractors performing support services at the Fallon Naval Air Station.

2.2.3 Taxable Sales and Assessed Value

After minor decreases in Churchill County taxable sales during the 2001-2002 recessions, taxable sales have begun to rebound. The increase in taxable sales in Churchill County is due to improved economic conditions and local population growth (Figure 2-3).



Source: Nevada Department of Taxation & Churchill County Comptroller

2.2.4 Tourism/Visitation to Churchill County

The Churchill County area attracts visitor to the area for a variety of activities. This section describes total visitation by visitor types.

- **Hotel/Motel Overnight Visitors**

There are approximately 577 motel rooms in Churchill County. Overall occupancy rates fluctuates throughout the year but averages approximately 45% for the year resulting in as many as 94,772 room nights per year. The occupancy rate is likely to fluctuate depending upon general economic conditions. The average number of persons per room is assumed to be 2 based upon visitor registration information collected from local motels. The total number of estimated overnight motel visitor's in Churchill County is 189,544, annually.

A portion of said visitors attend special events in the Fallon area each year (Table 2-10). It is important to make this distinction because visitors who attend special events tend to spend more and stay longer as compared to overnight travelers passing through the area. The figures in 2-10 include local residents and non-local visitors.

Event	Attendance
Churchill Arts Council Season	5,500
Top Gun Raceway Season	25,000
Rattlesnake Raceway Season	6,250
Fallon High School Rodeo	500
Rainbow Ridge Challenge	75
Spring Wings Bird Festival	850
Big 4 and 5 Roping Classic	875
Fallon Farmers Market	8,800
Silver State International Rodeo	2,500
Nevada Indian Days Rodeo and Pow Wow	2,000
Nevada Motocross Championships	1,250
Overland Hotel's Chili Cook-off	200
Hearts of Gold Cantaloupe Festival	18,000
Fallon Senior Pro Rodeo	2,500
Fallon Stockhorse Spectacular and Reining Fut.	575
Total Attendance:	74,875

Source: Churchill County Visitor and Convention Authority - 2003 numbers

- **RV Park Visitor**

There are two RV parks located adjacent to the Highway Corridor. Occupancy can vary depending on the time of year. U.S. 50/95 serves as a north/south migration route for snowbirds. On average the total number of RV's in the parks is likely to range from 40 to 70 per day. Total annual RV space use could be between 14,600 and 25,500. With an average of 2 persons per RV rental would result in 29,200 to 51,000 overnight RV occupants.

- **Recreational Users and Visitors**

There are three major visitor destinations in Churchill County for outdoor recreation activity. They include Stillwater National Wildlife Refuge, Sand Mountain Recreation area and Lahontan Reservoir.

- **Still Water National Wildlife Refuge**

The Stillwater National Wildlife Refuge reported a total of 21,163 total visitors (which also includes Stillwater Management Area). Hunters were counted at 4,010 which

could be some of the same person counted twice on one day (coming in the AM, leaving and coming back during the PM).

- **Sand Mountain**

Estimates of Sand Mountain recreation use vary significantly, but Sand Mountain is one of BLM's most well used recreation sites. Annual visitation ranges from 40,000 to 60,000 visitors. The majority of use is attributed to off-highway vehicles.

- **Lahontan Reservoir**

Lahontan Reservoir and State Park is second most used facility in the Nevada system. In 2003 there were 306,877 visitors and through October, 2004 the count was at 312,522 visitors who utilize the reservoir for water sports, fishing, camping and day use. Competitive water sports functions are also held at the reservoir. Visitation will vary with water levels in the reservoir.

3.0 Transportation, Land Use, Water Resources and Public Facilities

3.1 Transportation

3.1.1 Corridor and Facility Description

- **US 50**

U.S. Highway 50 is a four-lane highway with two lanes in each direction east and west of Allen Road. The speed limit is posted for 45 miles per hour west of Casey Road, 35 miles per hour from Casey Road to Whitaker Lane and 25 miles per hour east of Whitaker Lane. Roadway improvements include paved shoulders, a center two-way left turn lane and a mix of graded shoulders, curb and gutter, and curb, gutter and sidewalk.

3.1.2 Baseline Traffic Volumes

Existing traffic count data for U.S. 50 corridor was obtained from NDOT's Annual Traffic Report and is detailed in Table 3-1 below. NDOT has permanent count locations that track historical traffic data. Most of the historical traffic is for a 10-year period. Supplemental counts were gathered during the month of July 2004 and consisted of a.m. and p.m. peak hour traffic and 24-hour daily traffic counts. Vehicle classification and speed data was also gathered at each of the supplemental 24-hour daily traffic count locations (see Table 3-2). Table 3-3 shows peak hour traffic data at major intersection along the corridor.

3.1.3 Accident Data

Accident data was requested from NDOT and made available for the three-year period of October 2000 through October 2003. Two types of accident data formats were requested. The first type is road traffic count the second is road segment accident data shown in Table 3-4.

3.1.4 Corridor Travel Times

Table 3-5 contains a travel time study. The study estimates the total corridor transit times from the Churchill/Lyon County line to a point just south of the City of Fallon on U.S. 95. The study indicates that total travel time is about 24 minutes for the 19.2 miles of corridor.

Table 3-1 NDOT Traffic Count Data				
NDOT Count Location	NDOT Counter Number	Historical AADT (Year)		Annual Average Increase (%)
Allen Rd 0.1 mi N of SR-117 (Sheckler Rd)	0002	4,050 (1999)	3,900 (2002)	-1.25
US-50 0.4 mi E of the jct of US-50 & US-50A	0003	6,150 (1993)	9,950 (2002)	5.49
US-50A 0.5 mi W of the jct of US-50	0004	4,420 (1993)	7,100* (2002)	5.41
US-50 0.2 mi W of SR-117 (Sheckler Rd)	0005	6,750 (1993)	10,800 (2002)	5.36
SR-117 (Sheckler Rd) 0.1 mi S of US-50	0006	1,250 (1993)	2,100 (2002)	5.93
US-50 0.1 mi E of SR-117 (Sheckler Rd)	0007	7,200 (1993)	11,500 (2002)	5.34
US-50 300' W of SR-715 (McLean Rd)	0008	8,900 (1993)	14,000 (2002)	5.16
SR-723 (Soda Lake Rd) 0.1 mi N of US-50	0009	1,320 (1993)	2,200 (2002)	5.84
US-50 100' E of SR-715 (McLean Rd)	0010	9,300 (1993)	14,700 *(2002)	5.22
SR-715 (McLean Rd) 301' S of US-50	0011	1,410 (1993)	2,250 (2002)	5.33
US-50 0.1 mi E of Gummow Rd US-50	0012	11,600 (1993)	17,400 (2002)	4.61
Williams Ave 250' E of US-95 (S Taylor St)	0015	13,500 (1993)	15,000 (2002)	1.18
US-95 (S Taylor St) 150' S of US-50 (Williams Ave)	0016	9,000 (1993)	12,000 (2002)	3.25
US-95 (S Taylor St) 0.2 mi N of SR-117 (Sheckler Rd)	0053	6,520 (1993)	7,950 (2002)	2.23
US-95 0.3 mi S of SR-117 (Sheckler Rd)	0074	5,110 (1993)	5,700 (2002)	1.22
US-50 (Williams Ave) 0.1 mi E of Allen Rd	0126	16,300 (1993)	20,100 *(2002)	2.36
N Taylor St 340' N of US-50 (Williams Ave)	0134	4,700 (1999)	3,900 (2002)	-6.03

• = Data adjusted or estimated by NDOT.

Table 3-2 Supplemental Traffic Count Data, 24-Hour Road Segment Counts			
Road Segment Count Location	ADT (2004)	85 th Percentile Speed (mph)	Truck Percentage
Allen Road 200 Yards South of US 50 - 7/21/04	5,967	32	12.1
Bottom Road 300 Yards South of US 50 - 7/14/04	1,960	43	9.4
Casey Road 300 Yards South of US 50 - 7/14/04	1,011	42	8.0
Coleman Road 200 Yards North of US 50 - 7/28/04	1,323	44	11.1
Gummow Drive 300 Yards North of US 50	2,400	30	2.0
Rice Road 200 Yards West of US 95 - 7/28/04	2,021	41	7.1
Sheckler Road 200 Yards South of US 95 - 7/21/04	4,937	45	13.0

Source: Lumos & Associates, 2004

Table 3-3 Supplemental Traffic Count Data, Peak Hour Intersection Counts		
Intersection Location	A.M. Peak Hour (total intersection volume)	P.M. Peak Hour (total intersection volume)
Allen Road / US 50	1,343	1,955
Bottom Road / US 50	1,151	1,552
Casey Road / Coleman Road	1,114	1,714
Gummow Drive / US 50	977	1,568
McLean Road / US 50	901	1,256
Sheckler Road / Robertson Road	874	1,135
Soda Lake Road / US 50	833	1,193
Tedford Road / US 50	1,472	2,306
US 95 / US 50	1,314	1,020
US 95 (Maine Street) / US 50 (Williams Road)	1,020	1,661
US 95 (Schurz Road) / Sheckler Road	662	928
US 95 (Taylor Road) / US 50 (Williams Road)	1,314	2,164
Whitaker Road / US 50	1,214	1,918
York Lane / US 50	898	1,317

Source: Lumos & Associates, 2004

Table 3-4 US 50 Accident Data, October 2000 through October 2003

US 50 Road Segment Accidents		Injuries		Fatalities		Property Damage Only		Total Severity Index
		# Inj.	Severity Index	# Fat.	Severity Index	# PDO	Severity Index	
Lyon Co. to Hazen	2.3 mi.	8	24	3	24	2	2	50
Hazen to US50A/50	6.9 mi.	16	48	2	16	12	12	76
US 50A/50 to Sheckler	3.9 mi.	30	90	3	24	38	38	152
Sheckler to McLean Rd	1.2 mi.	34	102	1	8	18	18	128
McLean Rd to Bottom/Casey Rd	2.4 mi.	26	78	2	16	35	35	129
Bottom/Casey Rd to Allen Road	0.5 mi.	14	42	0	0	44	44	86
Allen Rd to S. Taylor St	1.0 mi.	32	96	0	0	105	105	201
S. Taylor St. (Sheckler to US50)	1.0 mi.	14	42	0	0	42	42	84
US 50A/US 50		0	0	0	0	2	2	2
US50 at Sheckler Cutoff		4	12	0	0	3	3	15
US 50 at Soda Lake Road		12	36	0	0	3	3	39
US 50 at McLean Road		14	42	0	0	1	1	43
US 50 at Allen Road		13	39	0	0	36	36	75
US 50 at S. Taylor St		10	30	0	0	23	23	53
S. Taylor St. at Sheckler		0	0	0	0	5	5	5

Source: NDOT 2003

Table 3-5 Travel Time Study

First Trial			
Boundary	Time (a.m.)	Distance	Posted Speed
Rte 50A near Hazen at Churchill County Line	6:09		65
Rte 50/50A Intersection	6:18	9.2 mi.	55
Rte. 50 at Sheckler cut-off	6:23	3.9 mi.	55
Rte. 50 at McLean Rd.	6:24	1.2 mi.	55/45



First Trial (continued)			
Boundary	Time (a.m.)	Distance	Posted Speed
Rte. 50 at Casey/Bottom/Coleman	6:27	2.4 mi.	45
Rte. 50 at Allen Rd.	6:28	0.5 mi.	35
Rte. 50 at S. Taylor Street	6:30	1.0 mi.	25/35
S. Taylor Street at Sheckler Rd.	6:33	1.0 mi.	25
Total	24 min	19.2 mi.	
Second Trial			
S. Taylor Street at Sheckler Rd.	6:34		25
Rte. 50 at S. Taylor Street	6:36	1.0 mi.	25/35
Rte. 50 at Allen Rd.	6:38	1.0 mi.	35
Rte. 50 at Casey/Bottom/Coleman	6:39	0.5 mi.	45
Rte. 50 at McLean Rd.	6:42	2.4 mi.	45/55
Rte. 50 at Sheckler cut-off	6:44	1.2 mi.	55
Rte 50/50A Intersection	6:48	3.9 mi.	55
Rte 50A near Hazen at Churchill County Line	6:58	9.2 mi.	65
Total	24 min	19.2 mi.	
Third Trial			
Rte 50A near Hazen at Churchill County Line	7:01		65
Rte 50/50A Intersection	7:10	9.2 mi.	55
Rte. 50 at Sheckler cut-off	7:15	3.9 mi.	55
Rte. 50 at McLean Rd.	7:16	1.2 mi.	55/45
Rte. 50 at Casey/Bottom/Coleman	7:19	2.4 mi.	45
Rte. 50 at Allen Rd.	7:20	0.5 mi.	35
Rte. 50 at S. Taylor Street	7:23	1.0 mi.	25/35
S. Taylor Street at Sheckler Rd.	7:25	1.0 mi.	25
Total	24 min	19.2 mi.	

Continued next page

Fourth Trail			
Boundary	Time (a.m.)	Distance	Posted Speed
S. Taylor Street at Sheckler Rd.	7:28		25
Rte. 50 at S. Taylor Street	7:32	1.0 mi.	25/35
Rte. 50 at Allen Rd.	7:33	1.0 mi.	35
Rte. 50 at Casey/Bottom/Coleman	7:34	0.5 mi.	45
Rte. 50 at McLean Rd.	7:37	2.4 mi.	45/55
Rte. 50 at Sheckler cut-off	7:39	1.2 mi.	55
Rte 50/50A Intersection	7:43	3.9 mi.	55
Rte 50A near Hazen at Churchill County Line	7:52	9.2 mi.	65
Total	24 min	19.2 mi.	Posted Speed
Fifth Trial			
Rte 50A near Hazen at Churchill County Line	7:56		65
Rte 50/50A Intersection	8:05	9.2 mi.	55
Rte. 50 at Sheckler cut-off	8:10	3.9 mi.	55
Rte. 50 at McLean Rd.	8:11	1.2 mi.	55/45
Rte. 50 at Casey/Bottom/Coleman	8:14	2.4 mi.	45
Rte. 50 at Allen Rd.	8:15	0.5 mi.	35
Rte. 50 at S. Taylor Street	8:17	1.0 mi.	25/35
S. Taylor Street at Sheckler Rd.	8:19	1.0 mi.	25
Total	24 min	19.2 mi.	

Source: Lumos & Associates 2004

3.2 Lands

Similar to most Nevada communities, the federal government controls over 82 percent of the land in Churchill County. Approximately 13 percent of the land in the County is on the tax roll. Data in the following table is as of March 2003.

Over the next several years the total amount of BLM land will likely decline. The BLM is preparing a new resource management plan for Churchill County. One of the key elements is to provide for the disposal of public lands primary west of the City of Fallon. As a result, all of the lands in and around the U.S. 50 corridor and

the U.S. 95 corridor will be privately owned. Nearly all of the lands along the corridor from Fernley to Fallon and south of Fallon on U.S. 95 are privately owned.

3.2.1 Corridor Land Use

Existing Land Use: Fallon to Leetville Junction

Lands along the highway corridor from Fallon to the Leetville junction are privately owned. There are a variety of land uses including residential, commercial, agricultural and industrial throughout the corridor. Residential along with commercial land uses dominate the corridor within the City of Fallon and immediately to the south and west. The County’s principal commercial activity is adjacent to the U.S. 50 and U.S. 95 corridor. The majority of the population lives within 1 mile of either side of the highway corridor. Commercial land uses along the U.S. 50 corridor extends several miles to the west of the City of Fallon. Open space agricultural lands are being converted to more intensive residential and commercial use. Recent efforts by Churchill County to develop municipal water and wastewater utility will result in more intensive commercial and residential land uses resulting in higher density development along the U.S. 50 corridor. Some industrial land uses occur in the Trento Lane area associated with two existing manufacturers who are major employers in Churchill County.

Land Area	Acres	Percent of County
Federal	2,705,841	86%
BLM	2,608,958	83%
Bureau of Reclamation	8,347	.27%
Military and Other	13,817	.44%
US Government (Including Postal)	45,620	1.45%
Tribal	50,890	1.62%
State	8,113	.25%
Local Government	35,349	1.12%
TCID	4,275	.14%
Private Lands	423,346	13.46%
Total County	3,144,320	

Source: Churchill County Master Plan 2003.

By the time Yucca Mountain shipments are scheduled to begin (after 2010), the U.S. 50 corridor will probably experience significant development between the City of Fallon to Leetville Junction (See Figure 2-1). Figure 2-2 shows general land uses adjacent to the highway corridor.

Hazen Area Land Use and Zoning

Much of the current land use from Leetville Junction to the County line is open space undeveloped, agricultural lands and very low density residential development. However, major changes are planned for this area with the proposal for an industrial park and major residential subdivision of approximately 2,500 homes east and north of Hazen. This new development will occur adjacent to the U.S. Highway 50 corridor. Hazen Townsite is also located adjacent to the highway.

The Townsite area is 157.41 acres. This includes approximately 74 acres of railroad and highway right of way leaving approximately 83 acres for development and streets. The area of 33 block is divided into small parcels, the configuration and size of these parcels varies due to the irregular shape of the Townsite and dissection by the railroad and highway, but the majority of parcels are rectangular with a standard size of 50' x 130'. With the exception of parcels 10-284-01 and 10-284-02 (bounded by Tahoe, Utah, Canal, and Townsend), which are zoned M1 - Industrial, the remainder of the Townsite is zoned A3 - Agricultural. Contiguous property to the north of the Townsite is zoned M1. The remaining property to the north is zoned RR - Rural Reserve. Property to the south is zoned either A3, where ranching is in operation, or RR. To the northeast are sections zoned RR, and in the southeast are large parcels zoned RR and M1. With the exception of the existing ranches and the remaining homes of the Townsite, the vast majority of land in the Hazen area is undeveloped.

With the expansion of U.S. 50 alternate to four lanes from Fallon to Fernley more growth can be expected. Eventually the corridor is likely to have very limited areas of open space by the time Yucca Mountain shipments begin. Much of the open space is likely to be converted from undeveloped lands to residential, commercial and industrial applications.

3.3 Water Resources

3.3.1 Existing Water Resources

Surface Water: The sole source of surface water for Lahontan Valley is provided by the Truckee and Carson rivers. Historically during a 43 year period (1925 - 1967), the Truckee River, with large yearly fluctuations, furnished on an average 51% of the water stored in Lahontan Reservoir. The remaining amount was supplied by the Carson River.

In more recent times (1983 - 1995), due to court decisions and Federal mandates, the Truckee River contribution to Lahontan Reservoir has been reduced to about 38%. During drought years (1988, 1990, 1991, 1992 and 1994), however, the

Truckee River contributed an average of 62% of the water received by Lahontan Reservoir. In 1988 the Truckee River provided 81% of the water received by Lahontan reservoir. Upon recognizing current and future upstream demands (Cui-Ui spawning flows and Truckee Meadows M & I growth) on the Truckee River, the diversion into the Truckee Canal may be further reduced. The impact of these threatened reductions in diversions from the Truckee River will be especially severe during drought years due to Lahontan Valley's dependence upon the supplemental flows from Truckee River in drought years when Carson River flows are low.

Upon the enforcement of the elements of P.L. 101-618 (OCAP, Cui-Ui Recovery, Wetlands Acquisitions of water rights, Naval Air Station Conservation, Project Delivery Efficiency increase, etc.) in addition to the effects of the Truckee River Water Quality Agreement, Bench & Bottom Decision and Transfer/Petition (A.B. 380) actions, Pyramid Lake Paiute Tribe's application for Truckee River Decree Claim Nos. 1 and 2 water rights, the potential cumulative reduction in irrigation diversions into the Project may vary from 381,000 to 437,000 acre feet (AF). Based upon a diversion rate of 406,000 AF as set forth in the 1967 OCAP, these respective reductions represent a 94% to 108% reduction in Project diversion for irrigation. According to U.S. Fish & Wildlife Service estimates for preserving the wetlands in Lahontan Valley, about 100,000 to 147,000 AF irrigation rights may be acquired. These wetlands acquisitions alone represent an agreement of about 53% to 79% of the irrigated acreage within the Carson Division. Assuming all of these actions will act in a cumulative manner, the demand reduction threatens to exceed the total available water supply of the Project. The potential impacts of reducing Lahontan Reservoir storage capacity by 56% as supplied by the Truckee River, Recoupment of 1,500,000 AF from the Project, granting the Pyramid Lake Paiute Tribe (PLPT) Truckee River un-appropriated water and the Truckee River Operating Agreement (TROS) will further reduce the water supply of the Project and Lahontan Valley.

Lahontan Valley Ground Water: Ground water recharge, resulting directly from precipitation (rain and snow) within the Carson Desert Basin (Lahontan Valley) is estimated at about 1,300 AFA (Glancy & Katzer, 1975). This recharge from the Stillwater Mountain range is estimated to occur only on the eastern side near the Stillwater Wildlife Area. This recharge, therefore, does not contribute to the recharge of the western and central portions of the Valley where the majority of potable wells are located. The estimated ground water recharge resulting from infiltration of Project irrigation water varies from 50,000 AFA to 1000,000 AFA (Maurer, 1994).

If P.L. 101-618 is fully implemented thereby reducing the Project diversions for irrigation by conservatively 94%, the amount of recharge to ground water may be decreased by about 47,000 AFA to 94,000 AFA, leaving only about 3,000 AFA to 6,000 AFA for recharge. (Note: $50,000 \text{ AFA} \times 0.94 = 47,000 \text{ AFA}$, leaving 3,000 AFA for recharge to $100,000 \text{ AFA} \times 0.94 = 94,000 \text{ AFA}$, leaving 6,000 AFA for recharge.) The State Engineer has permitted about 20,000 AFA of ground water in Lahontan Valley and another 11,000 AF is consumed by statutorily permitted approximates

31,000 AFA. The ground water resource may therefore be significantly over-drafted by approximately 25,000 AFA to 28,000 AFA (31,000 AFA - 6,000 AFA to 31,000 AFA - 3,000 AFA). Due to the uncertainty surrounding future Project diversions and the proposed wetlands buy-out and their effects on ground water recharge, the State Engineer in August of 1995, curtailed (Order No. 1116) further development of ground water in the Lahontan Valley, excepting small, quasi-municipal wells pumping 4,000 gallons per day or less. This order has essentially curtailed any further large-scale, quasi-municipal or commercial development within the Valley. Small subdivisions relying upon single dwelling domestic wells, however, are still permitted in the County at this time.

Surface Water Quality: The water quality of Lahontan Reservoir is generally good, having turbidities ranging from 5.5 to 14.0 NTU and total dissolved solids (TDS) less than 300 milligrams per liter (MG/L) with moderate color and alkalinity. Limitations include seasonal algae accumulations, an arsenic concentration of about 17 part per billion (ppb), the presence of trihalomethanes that are precursors to carcinogenic trihalomethanes, and pathogenic organisms including *Cryptosporidium*, *Giardia*, and others which can be deactivated and/or removed by conventional treatment, including ozone. The Truckee Canal water supply is also of good quality, having average measured turbidities of 7.0 NTU, total dissolved solids of 200 ppm and arsenic concentrations 14 ppb (NDEP, 2000).

Lahontan Valley Ground Water Quality: the basaltic aquifer meets current State of Nevada drinking water standards, excepting for arsenic, which typically occurs in concentrations of about 100 ppb. The maximum contaminate level (MCL) for arsenic is now set at 50 ppb. This MCL however, has lowered to 10 ppb, effective in 2006. Arsenic can be removed by wellhead treatment using a relatively expensive process of a modified coagulation/filtration process.

The shallow and intermediate aquifers in the Valley may have arsenic concentrations of 20 to 333 ppb and manganese concentrations of 0.24 to 1.22 ppm. The current MCLs for arsenic and manganese are 50 ppb and 0.10 ppm, respectively. Both constituents can be removed on a wellhead basis by the MCF system or for larger plant capacities by conventional treatment methods similar to those for surface treatment.

About 34% of the domestic wells sampled in the valley exceed the current MCL (50 ppb) for arsenic, while about 29% of the wells exceed the MCL for manganese. Since the MCL for arsenic will be reduced to 10 ppb, however, about 68% of all wells will exceed this newly adopted MCL.

3.4 Public Facilities

The effective population density within the corridor generally increases due to a number of public facilities (Table 3-7). There are six elementary schools, one middle school, and one high school within 1-mile of the highway. There are approximately 4,500 children enrolled in schools within 1-mile of the highway

centerline. Of the 21 facilities listed in Table 3-7 most are located within one-quarter mile of the highway corridor.

Table 3-7 Public Facilities Adjacent to Highway Corridor	
Fallon Urban Area	Number in Corridor
Elementary Schools	6
Middle/Secondary Schools	1
High School	1
Fire Station	1
Library	1
Community College	1
Hospital	1
Courthouse & City Planning	2
Community Center	1
Museum	1
County Fairgrounds	1
Parks	3
Total Facilities	21