

**CHAPTER 2**  
**WHITE PINE COUNTY ECONOMIC TRENDS,**  
**PROJECTIONS, AND WATER USE**

**I. INTRODUCTION**

Future population and future economic activity in White Pine County will determine future water use, therefore a careful description of the current economy and population, and identification of changes and emerging trends in economic activity and population are important for water resources planning. This chapter presents information on the economy, population, and water use of White Pine County. It is organized into three sections covering the history, the recent past and present (1975-2006), and potential future economy and population of the county (2006-2056). Attachment 2 provides a current demographic profile as well as detailed analysis of the County's historic socio-economic trends. Trends in employment, in the mix of industries, and in population were identified through an evaluation of data gathered from various sources including the Nevada Department of Employment, Training, and Rehabilitation, the Nevada State Demographer, the U.S. Department of Commerce, and White Pine County.

**II. ECONOMIC HISTORY**

White Pine County's economic prosperity has traditionally been tied to the mining industry. In its earliest history, the County's settlements were gold and silver mining camps and boomtowns. In the early 1900's, copper mining and the construction of the Nevada Northern Railroad changed the pattern of employment. After initial development by a series of owners, copper resources in White Pine County were acquired by Kennecott Copper, which became the County's largest employer. From 1906 to 1978, White Pine County's economy was dominated by the copper industry. For many years, the value of White Pine County's mineral production was higher than all of the other counties in the state combined. Total production of the Robinson Mine during this period was more than 5 billion pounds of copper, 8 million pounds of lead, 14 million pounds of zinc, 15 million ounces of silver, and 3 million ounces of gold.

Kennecott provided more than simply jobs and revenue. The company developed and operated local housing including the company towns of Ruth, near the Robinson Mine, and McGill, near the smelter operation in the Steptoe Valley. Kennecott management provided leadership for local government and community activities. The company provided transportation, maintenance, recreation, and employee training.

In 1978, Kennecott closed the mine and began to cut the work force at the smelter until the smelter and the railroad closed in 1983. During this period White Pine County lost 1,600 jobs, an \$18 million annual payroll, 25 percent of its population, and 24 percent of local tax revenue.

The loss of Kennecott operations led to deep and long-lasting changes in the economy of White Pine County. The local economy continues to evolve today, partly as a result of economic diversification efforts undertaken by County leadership, partly as a result of region-wide economic development and population trends.

Throughout the 1980's and 1990's, White Pine County's prosperity continued to fluctuate with the boom and bust cycle of the mining industry, but at the same time the County began to find ways to diversify its economy. Early projects to diversify the economy did not always provide immediate success, but provided the groundwork for an eventual transition to a local economy less dependent upon mining.

The community worked closely with Los Angeles Department of Water and Power to develop a coal-fired electrical power plant in North Steptoe Valley. The project secured critical permits including water rights, air quality, and a Record of Decision to use BLM land for the project site and transmission corridor. A changing demand picture and regulatory climate in California brought the project to a close in 1997. However, water rights, community knowledge and support, and background information collected for the project provided resources for future power project efforts.

During the early 1980's the County established an industrial park and pursued location of a state medium security prison in the area. Early land sales in the industrial park were slow, and businesses locating in the park did not necessarily generate new jobs for the community. The medium security prison was eventually sited in Jean, but the effort prepared the

community to pursue the location of a maximum-security prison in the county, and the Ely State Prison was built in White Pine County in 1989. The prison now provides a stable source of 380 jobs, purchases products and services locally, and its workforce contributes to the tax base.

In 1987, a cooperative effort of local, state, and federal officials led to the designation of Great Basin National Park. The donation of Nevada Northern Railroad historic buildings, twenty-eight miles of track, and rolling stock to the City of Ely provided the basis for a historic railroad museum and tourist train ride. Both projects provided media exposure, increased visitorship, and established White Pine County as a tourist destination. These initial efforts to increase tourism in the area resulted in new special events and private sector investment.

In 1993, Magma Copper from Arizona purchased Alta Gold's interests in the East Robinson copper mine and began the permitting process to reinstate copper mining at the site. Magma began copper mining in 1994, projecting a 17-year mine life. Businesses invested in expansion and renovation and the area experienced its first major new housing construction in forty years. Rail freight service was reinstated to haul copper concentrate from the mine to Magma's smelter in Arizona. In 1996, the mine was sold to Broken Hill Properties (BHP) from Australia. By 1998, there were concerns about the stability of the copper market and in mid-1999 BHP closed all of its North American properties, laying off 433 employees at the Robinson site, but effects on the local economy were less extreme than when Kennecott closed the mine and smelter twenty years before. With the closure of the copper mine, the lease to operate on the Nevada Northern track was terminated. The community was concerned that the owner of the track, Los Angeles Department of Water and Power, might sell the track for scrap and the potential for future power project and industrial development requiring access to rail service would be lost. The community began to work with Los Angeles Department of Water and Power, state and federal officials, and granting agencies to negotiate a purchase price and develop the funds to purchase the track.

The County focused industrial development activity on its local entrepreneurs and its Home Grown Jobs program identified over forty local businesses creating products and services that were being marketed outside the area. Private civic and business improvement organizations also began to play a role in the effort towards economic diversification in White Pine County. The Ely Renaissance Society was established in 1999 to "bring about the introduction of culture and fine art into the community of Ely," and has directed the production of several outdoor murals and sculptures in Ely's downtown.

The energy crisis in 2000 and 2001 generated new interest in the area's potential as a site for a coal fired electrical power plant. Several energy producers expressed interest in the area, and in 2001, the County signed an agreement for the use of its permitted water rights with PG & E, Energy Development. The proposed project did not move forward and the agreement expired in 2003. Later that year, the County began to work with LS Power Development, LLC and in early 2004, it entered into a similar agreement for the use of the permitted water rights with LS Power to develop and construct a 1600-megawatt plant.

#### **Historic Water Demand:**

Estimated annual water use by type, by acre-feet per year shows that the primary use of water from 1985 through 1995 was irrigation followed by mining and domestic uses. Between 1990 and 1995, use of water for mining increased dramatically with the reinstatement of activity at the Robinson Copper mine at Ruth.

**Table 3  
Historic Water Demand**

| <b>Category</b>                      | <b>1985</b>    | <b>1990</b>   | <b>1995</b>   | <b>Percent</b> |
|--------------------------------------|----------------|---------------|---------------|----------------|
| Domestic (including public Supplies) | 2,543          | 2,856         | 3,148         | 3.16%          |
| Commercial                           | 280            | 3,271         | 246           | .25%           |
| Industrial                           | 0              | 0             | 0             | 0              |
| Thermoelectric                       | 0              | 0             |               |                |
| Mining                               | 1,098          | 3,831         | 11,560        | 11.60%         |
| Livestock                            | 3,562          | 269           | 269           | .27%           |
| Irrigation                           | 99,223         | 89,276        | 84,187        | 84.47%         |
| Public Use & Losses                  | 314            | 314           | 258           | .26%           |
| <b>TOTAL</b>                         | <b>107,019</b> | <b>99,817</b> | <b>99,668</b> | <b>100.00%</b> |

1999 Nevada State Water Plan

### **III. CURRENT ECONOMIC CONDITIONS:**

#### **Mining and Industrial Activity:**

In 2004, the BHP interests in the Robinson Copper mine were purchased by Quadra Mining, of British Columbia. Mining activity was reinstated in July and it is currently at full operation with total employment of 500. The company is processing molybdenum as well as gold and copper and it is exploring potential to increase processing activity and projected mine life.

By 2006, the White Pine Energy Station, LS Power Development, has completed several of the critical steps in its development phase: the Draft Environmental Impact Statement is due for release in late November, 2006; the air quality permit application has been accepted by Nevada Division of Environmental Protection, and the Utility Environmental Protection Act application for the project has been submitted to the state's Public Utilities Commission. Construction is anticipated by mid-2007. In addition, LS Power has purchased the permitted right-of-way for the Southwest Intertie transmission line from Twin Falls, Idaho through Las Vegas, and it is a partner in a 200 megawatt wind energy project proposed for the Egan Range on the West side of north Steptoe Valley. In early 2006, Sierra Pacific Power Company announced its intention to site a 1500-megawatt coal fired plant in North Steptoe Valley with the option to construct an additional 1000-megawatt coal gasification plant in the future.

Also in early 2006, the City of Ely reached an agreement with the City of Los Angeles and through a provision in the federal Transportation Bill, it acquired the land under the track from the Bureau of Land Management. Funds are in place to begin renovation of the track so that rail freight service can be reinstated. The acquisition of the rail line is a critical step in providing the infrastructure needed to support the coal fired electrical power plants, meet the needs of the mining and oil industry, and open the door for increased industrial development and diversification.

The County is beginning to attract new small, industrial firms to the area due to its resources and quality of life including two metal fabrication businesses located at the Industrial Park and they are manufacturing products for worldwide

markets. A wood pellet manufacturing is locating in the area to utilize waste wood from fuels reduction projects on federal lands, a metal building contractor, and an electrical supply house are locating in the Park. New activity at the Industrial Park represents 45 to 50 new jobs in manufacturing and construction. There are only sixteen acres remaining for sale in the developed portion of the Park and the County is working with the Bureau of Land Management and Congressional Delegation for expansion of industrial property at the Industrial Park, Airport, and along the Nevada Northern track.

### **Agriculture:**

Agriculture has been the most constant of White Pine County's economic sectors. The primary form of agriculture in the County is livestock grazing and irrigated hay land and pastureland. Agriculture makes a significant contribution to the area's economy and quality of life. It represents total annual sales of \$14,264,704. An analysis of cattle farming and ranching by University of Nevada estimates it has a total direct and indirect economic impact of \$14,700,000. Limiting factors that control the acreage under irrigation are the availability of land and pumping costs. Under today's economic factors, the cost of electricity for pumping water are moderately beneficial and according to Mt. Wheeler Power's Public Services Director, new equipment and improved efficiency will encourage ranchers to increase irrigation by pumping groundwater. According to the Bureau of Land Management, there are forty-eight Desert Land Entry applications pending in White Pine County for a total of 14,770 acres.

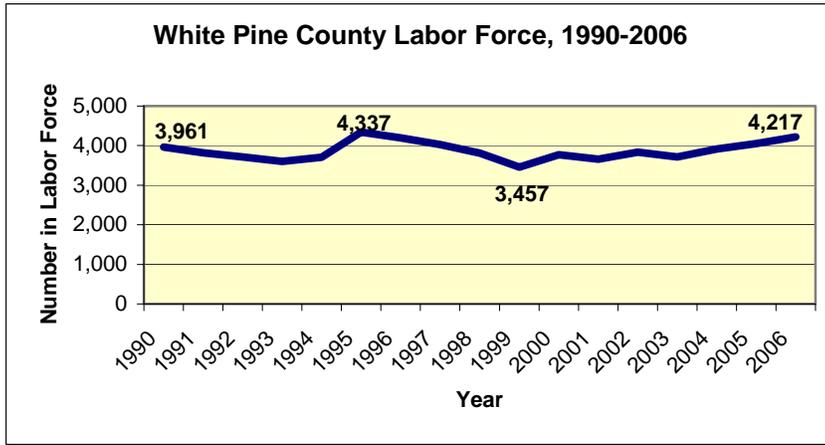
### **Tourism, Travel, Retirement and Leisure**

Based on estimates from White Pine County Room Tax Revenues, visitation at Great Basin National Park and Cave Lake/Ward Charcoal Ovens State Park, and reports of angler and hunter days, tourism and travel generates between \$25 and \$30 million in revenue for White Pine County annually. Both the National and State Parks report 80,000 visitors per year. The Tourism and Recreation Board reports \$481,500 in room tax revenue in 2005 that equates to approximately 96,000 visitors staying in motels in the County each year. Based on the Employment Security Department records, Leisure and Hospitality Industries accounted for 500 jobs in White Pine County in 2005.

The County has identified a developing leisure and retirement industry with the increased purchase of retirement and summer homes by southern Nevada residents wanting to take advantage of the area's outdoor recreation, cool climate, and quality of life. The County Assessor reports an increase in 123 housing units between 2003 and 2005, with over half of the buyers listing Clark County addresses. The average price for property purchases in the county has doubled since 2003, and the average three-bedroom home in White Pine County is now selling for \$150,000. Land sales have almost tripled and land division activity has quadrupled between 2000 and 2004. Taxable sales in home improvement categories also increased, as new owners remodeled older homes purchased as second and retirement homes.

### **Employment Patterns:**

As the line graph below shows, the labor force in White Pine County rose from 3,961 in 1990 to 4,270 in 2006, as of May 2006, the unemployment rate was 3.4 percent with 147 people unemployed and a total of 4,123 employed. The largest single employment sector is Public Employment with 1,474 employees representing 34 percent of the workforce. Public employment includes the regional offices of Bureau of Land Management and U.S. Forest Service in Ely, Great Basin National Park, Ely State Prison and Ely Conservation Camp, multi-county offices of federal and state agencies, White Pine County, City of Ely, and White Pine County School District. Services are the second largest sector with 1,379 employees for 32 percent of the workforce. Mining ranks third with 628 employees (14.5 percent); Trade, 567 employees (13 percent); Construction, 152 employees (3.5 percent); Finance/Insurance/Real Estate, 90 employees (2.3 percent); and Manufacturing, 30 employees (.7 percent).



SOURCE: Nevada DETR

**Population**

The table at right and the line graph below show the Nevada State Demographer’s official population estimates for White Pine County from 1986 to 2006. The Nevada State Demographer annually estimates the population of Nevada cities and counties using one of two methods identified in the Nevada Administrative Code: a housing unit model or a regression model. (NAC 360.335 and NAC 360.340)

The line graph and chart show that the estimated population of White Pine County has fluctuated over the 1986-2002 period, reaching a high for the period of 10,185 people in 1997. While the population has fluctuated over the period, a trend line fitted to the data shows that the overall trend in population over the period is slightly upward.

Population estimates for 2003 through 2005 show a slight decline to 8,842, a .2 percent decrease followed by an increase to 8,966 in 2004 (1.4% increase) and 9,275 in 2005, a 3.4% increase. By mid-2006, White Pine County had been identified as the fourth fastest growing County in Nevada and the forty-sixth fastest growing County in the nation. And, White Pine County has been named the next boomtown by the National Association of Residential Real Estate Executives. The County is experiencing workforce and housing shortages, and its local governments are struggling with issues related to growth and development.

| White Pine County Annual Population Estimates |       |             |        |
|---|-------|-------------|--------|
| <b>1986</b>                                   | 7,890 | <b>1995</b> | 9,609  |
| <b>1987</b>                                   | 8,000 | <b>1996</b> | 10,134 |
| <b>1988</b>                                   | 8,390 | <b>1997</b> | 10,185 |
| <b>1989</b>                                   | 8,650 | <b>1998</b> | 9,991  |
| <b>1990</b>                                   | 9,410 | <b>1999</b> | 9,767  |
| <b>1991</b>                                   | 9,296 | <b>2000</b> | 9,181  |
| <b>1992</b>                                   | 9,141 | <b>2001</b> | 8,783  |
| <b>1993</b>                                   | 8,953 | <b>2002</b> | 8,863  |
| <b>1994</b>                                   | 8,881 | <b>2003</b> | 8,842  |
|   |       | <b>2004</b> | 8,968  |
|   |       | <b>2005</b> | 9,275  |

SOURCE: Nevada State Demographer

**Current Water Demand and Commitments:**

The current demand for water in White Pine County is not known precisely and has been estimated on the basis of information that is available. Water commitments have been compiled from the Division of Water Resource Data Base for Underground and Surface Water. Current water use falls into seven categories: Public Water Supply Systems, domestic wells, mining, agriculture (both livestock grazing and irrigation), business and industry, recreation and tourism, and environmental quality. Estimates of current water use have been derived from updating water use to current populations, contacting the mines and public water systems operators for current water use, and identifying environmental factors and uses on public lands.

According to the records of the Nevada Bureau of Health Protection Services, there are twenty-four public water supply systems in the County. There are three municipal public water supply systems serving the needs of residents in the County.

The Ely Municipal Utilities System provides water and sewer services to residents of Ely and the immediate vicinity as well as operating the County's landfill; the McGill Ruth Consolidated Water and Sewer General Improvement District provides services to the communities of Ruth and McGill, and the Baker General Improvement District provides water and sewer services to the residents of Baker. The Ely municipal system serves approximately 2,000 residences and 180 businesses. This includes 209 connections outside the City limits, 176 of which are residential. The Ely system serves the County's Industrial Park, Airport, and Fairgrounds, all located outside the City limits. Ely's primary water source is Murry Springs which is supplemented by three high volume wells. Five tanks provide water storage, each with a capacity of 1.4 million gallons and a total storage capacity of over 7 million gallons. According to the quarterly reports to the Division of Water Resources, Ely Municipal Water system pumped 4,833 acre feet in 2004. The system is linked to the Ruth water system to provide back up water supplies as needed to meet peak demand. The City of Ely holds permits for over 14,000 acre-feet of water. There are two privately owned public water supply systems in Ely. The Valley View Trailer Park reports 40 service connections and a total population served of 100 people with an annual use of 48 acre feet or a per capita water use rate of 425 gallons per day. The Dautre Trailer Park has 22 service connections and serves a population of 50 with a per capita water use rate of 200 gallons per day and reports that it used approximately 13 acre feet in the past year.

The McGill Ruth General Improvement District (GID) serves 719 residential and 45 business customers in McGill. The McGill system uses two wells with a combined capacity of 1.5 million gallons per year and the system operator reports that the community used approximately 400 acre feet in the past year. The community of Ruth draws its water from four springs on Ward Mountain. Although Ruth is located in the Steptoe Hydrographic Basin, its water source is in the Jakes Valley hydrographic basin. The system has 163 service connections and reports water use of 390 acre-feet per year. The community of Ruth cannot meet water demand at peak periods requiring severe watering restrictions in the summer and causing concerns for fire protection. A back up system is in place to allow the City of Ely to assist Ruth with water from Murry Springs.

The Baker General Improvement District provides water and sewer services to Central Baker and water to residents of South Baker. The District serves 72 connections or 180 people. Expansion of the water system to serve 17 existing homes and 32 home sites in the Lehman Creek residential area has been funded but the GID has not been able to secure water rights. Based on reported use by the operator, Baker GID customers used 34 acre-feet of water in the past year.

The community of Cherry Creek is served by a privately owned water system and has approximately 23 connections. The Cold Creek Mobile Home Park, located in the northern portion of the County and housing employees of the Bald Mountain Mine serves 35 people and reports water use of 8 acre feet per year. The Lund Elementary School and High School serve 125 students ten months of the year. Great Basin National Park serves a population of 90,000 visitors per year and visitation is concentrated in a three to four month period during the summer. The park employs 45 FTE's which represent 30 full time, year round employees and approximately 36 seasonal employees. Park facilities include its shops, office building, the visitors' center at the park, campgrounds, and picnic area as well as employee housing and the Lehman Caves Café, a commercial venture housed in the Visitors' Center. A new Visitors' Center in Baker opened in 2005 and is served by the Baker General Improvement District. Total water use is estimated at 16 acre-feet per year and water supplies at the Park have been insufficient to meet peak summer demand. The park has adjudicated water rights of 109.5 acre-feet per year from Cave Creek.

The majority of the County's business and industrial use including tourism is accounted for under the public water systems. Recreational use includes the area's reservoirs: Cave Lake (320 surface acres, 784 acre feet storage capacity), Comins Lake (400 surface acres, 290 acre feet storage capacity), Illipah Reservoir (15 surface acres, 300 acre feet storage capacity) and Bassett Lake (120 surface acres, 1,300 acre feet storage capacity). According to the Nevada Division of Water Resources, there have been at least seventeen water wells drilled for industrial and commercial purposes since 1983. At an assumed rate of 3 acre feet per year, the total demand outside of public water supply systems is approximately 50 acre feet per year for the County.

Environmental use of water resources includes consumption attributable to wildlife, evaporation from surface water, and transpiration from plants. The Nevada Department of Wildlife estimates 2,500 elk, 27,000 mule

deer, and 5,000 antelope live in White Pine County and the Bureau of Land Management estimates the wild horse population in the Ely District is approximately 1,100. Assuming that water consumption is approximately equal for cattle, elk, and wild horses and for sheep, mule deer, and antelope, wildlife consumption in the County is approximately 350 acre feet per year. The evaporation rate estimated for surface water in the County is 42 to 609 inches per year. Evapotranspiration rates in the County vary widely by vegetation types from a few inches to over three feet, but in most areas it is limited by lack of water available.

Ely State Prison and Ely Conservation Camp both operate public water systems for inmates and staff. The Prison houses 1,030 inmates and 370 staff while the Conservation Camp houses 150 inmates and employ 12 staff. Water use is estimated at 366 acre-feet per year.

The KOA campground near Ely operates a public water system for 17 residential service connections and 80 RV hook ups. The operator reports use of approximately 26 acre-feet per year.

There are 522 domestic water wells in the County including those serving the residents of Lund and Preston. The communities of Lund and Preston, 35 miles south of Ely, are zoned for one-acre parcels and the 450 residents rely on 58 domestic wells and septic systems. The Division of Water Resources Water Planning Section estimates 2.02 acre-feet annually per active well for 1,106 acre-feet for domestic well use in 2005. Based on contacts with the environmental staff at Quadra Mining Company, it uses 10,000 acre feet of water per year for mining operation and personnel and the State Engineer's office reports Bald Mountain Mine pumped 290 acre feet of water in 2004. Kennecott reports that its water use to irrigate the tailings has dropped from 420 acre feet per year reported in 1999 to 18 acre-feet per year. Total mining use is approximately 10,308 acre- feet per year.

Agriculture represents the largest single water use in the County. Figures on agricultural acreage, acreage under irrigation, and pumpage vary widely from agency to agency. White Pine County is working with the County Assessor, USDA Natural Resource Conservation Service, and the State Engineer's Water Planning Division to develop an accurate estimate of water use and water commitments for agricultural uses. According to N.R.C.S., the county has 231,000 irrigated acres for a withdrawal of 113,900 acre-feet per year and consumptive use at 70,350 acre-feet. According to the 2002 Census of Agriculture the County has 33,592 irrigated acres. According to the State Engineer, the USGS estimate for irrigation and stock water pumpage in 2000 was 41,470 afa, representing 19 percent of the total current underground commitments. The 1999 Plan reported that County's livestock industry has 24,000 head of cattle, 14,000 head of sheep, and 2,000 head of horses. In water use this converts to 562 acre feet per year for cattle, 146 acre feet per year for sheep, and 38 acre feet per year for horses, for a total of 746 acre feet per year for all livestock. The State Engineer's office estimate based on the 2002 Agricultural Census is 390 afa, only 5 percent of the underground stock commitments. Lack of reported data and the variables in precipitation, agricultural use, and efficiency of application makes it difficult to identify a specific water demand for the County's agricultural industry.

Surface Water Right Commitments

Table A 3-2 Estimate of Active Surface Water Commitment

| No.  | Basin Name              | NV Counties/<br>State** | Data<br>Source | Duty, AFA             |        |         |        |        |     |        |        |       |     |                  |        |        |         |        |       |                |          |        |       |       |        |         | Total<br>Rights | Total<br>Demand | Yield      |      |                    |                        |                    |                  |         |
|------|-------------------------|-------------------------|----------------|-----------------------|--------|---------|--------|--------|-----|--------|--------|-------|-----|------------------|--------|--------|---------|--------|-------|----------------|----------|--------|-------|-------|--------|---------|-----------------|-----------------|------------|------|--------------------|------------------------|--------------------|------------------|---------|
|      |                         |                         |                | By Water Right Status |        |         |        |        |     |        |        |       |     | By Manner of Use |        |        |         |        |       |                |          |        |       |       |        |         |                 |                 |            |      |                    |                        |                    |                  |         |
|      |                         |                         |                | CER                   | PER    | VST     | RES    | DEC    | APP | RFA    | RFP    | COM   | CON | DOM              | ENV    | IND    | IRR     | MM     | MUN   | PWR            | QM       | REC    | STK   | STO   | WLD    | OTH     |                 |                 |            | DEC  | IRD                |                        |                    |                  |         |
| 047  | Huntington Valley       | WP, EL                  | Basin<br>WPC   | 3904<br>318           | 725    | 11      | 3      |        |     |        | 315    |       |     | 24               | 2      |        |         |        |       | 4038           |          |        |       |       |        |         |                 | 557<br>318      | 19         | 3    | 315                |                        | 4,643<br>318       | 4,957<br>318     | 25000** |
| 154  | Newark Valley           | WP                      | Basin<br>WPC   | 21359<br>21352        |        | 1538    |        | 5580   |     |        |        |       |     |                  |        |        |         |        |       | 27643<br>27643 | 61<br>61 |        |       |       |        |         |                 | 288<br>281      |            |      |                    | 485                    | 28,457<br>28,450   | 28,457<br>28,450 | 18000   |
| 155A | Little Smoky Valley (N) | WP, EU, NY              | Basin<br>WPC   | 6483<br>291           | 1536   | 43      | 454    |        |     |        |        |       |     |                  |        |        |         |        |       | 7508<br>200    | 82       | 80     |       |       |        |         | 393<br>92       |                 | 454        |      | 291                | 8,516<br>291           | 8,516<br>291       | 5000             |         |
| 173B | Railroad Valley (N.)    | WP, NY, LI              | Basin<br>WPC   | 10238<br>179          | 22158  | 11843   | 87     |        |     |        |        |       |     |                  |        |        |         |        |       | 40504<br>8188  | 499      |        |       |       |        |         | 631<br>123      |                 |            |      | 2811               | 44,306<br>8,337        | 44,308<br>8,337    | 75000            |         |
| 174  | Jakes Valley            | WP                      | Basin<br>WPC   | 2199<br>2196          |        | 68      |        |        |     |        |        |       | 2   |                  |        |        |         |        |       | 783<br>783     |          |        |       |       |        |         | 8<br>6          |                 | 174<br>172 | 1301 |                    | 2,267<br>2,263         | 2,267<br>2,263     | 12000            |         |
| 175  | Long Valley             | WP, EL                  | Basin<br>WPC   | 286<br>286            |        |         |        |        |     |        |        |       | 132 |                  |        |        |         |        |       | 132            |          |        |       |       |        |         | 155<br>155      |                 |            |      | 286                | 286                    | 8000               |                  |         |
| 176  | Ruby Valley             | WP, EL                  | Basin<br>WPC   | 10675<br>29           | 23     | 289447  | 94240  | 4241   |     |        | 27403  | 66727 |     |                  |        |        |         |        |       | 310805         |          |        |       |       |        |         | 27              | 62720           | 834        |      | 94233              | 4137                   | 378,626<br>56      | 472,756<br>56    | 53000   |
| 178B | Butte Valley (S.)       | WP, EL                  | Basin<br>WPC   | 1315<br>1315          | 2803   | 1619    |        |        |     |        |        |       |     |                  |        |        |         |        |       | 5556<br>4971   |          |        |       |       |        |         | 3<br>3          |                 |            |      |                    | 5,737<br>5,153         | 5,741<br>5,157     | 14000            |         |
| 179  | Step toes Valley        | WP, EL                  | Basin<br>WPC   | 69617<br>69700        | 54267  | 6202    | 23     |        |     | 3288   |        |       |     | 42714            |        |        |         |        |       | 60298<br>60164 | 10305    | 6924   | 4706  | 323   | 2069   | 986     | 290             | 25072           | 31         |      |                    | 150,409<br>150,189     | 153,697<br>153,458 | 70000            |         |
| 180  | Cave Valley             | WP, LI                  | Basin<br>WPC   | 775<br>10             | 80     | 47      |        |        |     |        |        |       |     |                  |        |        |         |        |       | 787            |          |        |       |       |        |         | 115<br>57       |                 |            |      | 901                | 901                    | 2000               |                  |         |
| 183  | Lake Valley             | WP, LI                  | Basin<br>WPC   | 4075<br>815           | 50     | 4440    |        |        |     |        |        |       |     |                  | 7038   |        | 977     |        |       | 1974           |          |        |       | 10    |        |         | 540<br>74       |                 |            |      | 8,565<br>2,048     | 8,565<br>2,048         | 12000              |                  |         |
| 184  | Spring Valley           | WP, LI                  | Basin<br>WPC   | 48266<br>48257        | 862    | 173890  | 467    | 1396   |     | 3524   | 9617   |       | 1   |                  | 234299 | 2865   |         |        |       | 3              |          |        |       |       |        |         | 3               |                 |            | 467  | 224,900<br>224,858 | 238,240<br>238,199     | 100000             |                  |         |
| 185  | Tippett Valley          | WP                      | Basin<br>WPC   | 475<br>475            |        | 12      |        |        |     |        |        |       |     |                  | 384    |        |         |        |       |                | 384      |        |       |       |        |         |                 | 103<br>103      |            |      |                    | 487<br>487             | 487<br>487         | 3500             |         |
| 186A | Antelope Valley (S.)    | WP, EL                  | Basin<br>WPC   | 96<br>72              |        | 119     |        |        |     |        |        |       |     |                  | 56     |        |         |        |       |                | 56       |        |       |       |        |         |                 | 159<br>135      |            |      |                    | 191                    | 191                | 800              |         |
| 186B | Antelope Valley (N.)    | WP, EL                  | Basin<br>WPC   | 498<br>40             |        |         | 6      |        |     |        |        |       |     |                  | 40     |        | 326     |        |       |                | 40       |        |       | 11    |        |         |                 | 121             |            | 6    |                    | 504                    | 504                | 1700             |         |
| 193  | Deep Creek Valley       | WP, EL, UT              | Basin<br>WPC   | 711<br>711            |        |         |        |        |     |        |        |       |     |                  | 682    |        |         |        |       |                | 682      |        |       |       |        |         |                 | 28<br>28        |            |      |                    | 711<br>711             | 711<br>711         | 2000             |         |
| 194  | Pleasant Valley         | WP, UT                  | Basin<br>WPC   | 924<br>924            | 180    | 236     |        |        |     | 1600   |        |       |     |                  | 2793   |        |         |        |       |                | 146      |        |       |       |        |         |                 | 146<br>146      |            |      |                    | 1,340<br>1,340         | 2,940<br>2,940     | 1500             |         |
| 195  | Snake Valley            | WP, UT                  | Basin<br>WPC   | 11141<br>11141        | 800    | 3694    | 26     | 16319  | 638 | 12670  |        |       |     |                  | 14564  |        |         |        |       |                | 14164    |        | 5430  | 14    | 109.6  | 215     | 5792            | 7266            | 11899      |      |                    | 31,980                 | 45,289             | 25000            |         |
| 196  | Hamin Valley            | WP, LI, UT              | Basin<br>WPC   | 400<br>400            | 270    | 90      |        |        |     |        |        |       |     |                  | 562    |        |         |        |       |                |          |        |       |       |        |         |                 | 178             |            |      |                    | 759                    | 759                | 5000             |         |
| 207  | White River Valley      | WP, NY, LI              | Basin<br>WPC   | 44838<br>28001        | 3137   | 23463   |        |        |     | 3      | 836    |       | 9   | 840              | 59467  | 72     |         |        |       |                | 3        | 36     |       |       |        |         |                 | 2172<br>2172    | 728        |      | 2821               | 6070                   | 71,438<br>35,233   | 72,277<br>35,273 | 37000   |
|      | Total                   |                         | Basin<br>WPC   | 258,593<br>204,112    | 86,860 | 498,760 | 95,265 | 27,516 | 638 | 48,803 | 77,394 | 24    | 0   | 13               | 0      | 43,554 | 777,957 | 13,894 | 8,307 | 12,308         | 1,125    | 64,898 | 9,289 | 1,591 | 36,959 | 102,514 | 16,351          | 3,098           |            |      | 985,045<br>491,868 | 2,056,917<br>1,015,318 | 468500             |                  |         |

\*DOML is the duty committed to DOM wells w/o an appropriate right issued based on well log data.

\*\*Basin totals are for NV PODs only.

\*\*\*Combined Yield for basins 46, 47, and 48



**Table 4  
Estimated Current Water Demand**

| Water Use   | Estimated Acre Feet/Year | Source    |
|---|--------------------------|-----------|
| <b>Public Water Systems</b>                                   |                          |           |
| City of Ely, Municipal Water System                           | 4,833                    | DWR       |
| Valley View Trailer/RV Park                                   | 48                       | Est./Pop. |
| Doutre's Trailer Park   | 13                       | Operator  |
| Ruth Water System, McGill Ruth GID                            | 390                      | Operator  |
| McGill Water System, McGill Ruth GID                          | 400                      | Operator  |
| Baker GID   | 34                       | Operator  |
| Cherry Creek Private Water System                             | 31                       | Est./Pop  |
| Cold Creek Mobile Home Park                                   | 8                        | Est./Pop  |
| Dept. of Corrections, Ely State Prison, Ely Conservation Camp | 366                      | Operator  |
| KOA Campground  | 26                       | Operator  |
| Great Basin National Park                                     | 16                       | Operator  |
| Lund Elementary and High Schools                              | 21                       | Est./Pop  |
| Total   | 6,086                    |           |
| <b>Business, Industry Outside Private Water Systems</b>       |                          |           |
| <b>Domestic Wells Including Lund and Preston</b>              | 50                       | Est./Pop  |
| <b>TOTAL</b>  | 1,106                    | DWR       |
| <b>7,101</b>  |                          |           |
| <b>Mining</b>   |                          |           |
| Quadra  | 10,000                   | Operator  |
| Bald Mountain Mine  | 290                      | DWR       |
| Kennecott   | 18                       | Operator  |
| Total   | 10,449                   |           |
|   |                          |           |
|   |                          |           |
|   |                          |           |
| <b>Agriculture</b>  |                          |           |
| Irrigation  | 70,350                   | NRCS      |
| Stock Watering  | 746                      | 1999 Plan |
| Total   | 71,096                   |           |
|   |                          |           |
| <b>Wildlife/Environment</b>                                   |                          |           |
| Wildlife  | 350                      | BLM/NDOW  |
| Total   | 350                      |           |
|   |                          |           |
| <b>TOTAL DOCUMENTED WATER DEMAND</b>                          | <b>88,971</b>            |           |

Current water commitments total 561,117 acre feet per year with 67 percent of the water appropriated for irrigation, 12 percent for Industrial, and 8 percent for mining and milling. Surface water commitments are known to be overstated because the basins are not supplementally adjusted. See Table 5.

**Table 5**

**CURRENT WATER COMMITMENTS, UNDERGROUND AND  
SURFACE WATER IN WHITE PINE COUNTY, 2005**

| Use                       | Ground Water   | Surface Water  | Total          | Percent of Total |
|---------------------------|----------------|----------------|----------------|------------------|
| Commercial                | 25 AFA         | 0 AFA          | 25 AFA         | --               |
| Construction              | 0              | 0              | 0              | --               |
| Domestic Use              | 8              | 12             | 20             | --               |
| Domestic Use Well<br>Logs | 1,107          | 0              | 1,107          | .20%             |
| Environmental             | 146            | 0              | 146            | .03%             |
| Industrial                | 25,000         | 43,272         | 68,341         | 12.21%           |
| Irrigation                | 133,110        | 235,044        | 373,154        | 67.22%           |
| Mining/Milling            | 28,722         | 14,779         | 43,501         | 7.88%            |
| Municipal                 | 5,066          | 6,924          | 11,990         | 2.09%            |
| Power                     | 0              | 8,676          | 8,676          | 1.58%            |
| Quasi Municipal           | 1,626          | 1,072          | 2,698          | .49%             |
| Recreation                | 32             | 2,178          | 2,210          | .40%             |
| Stock Watering            | 1,741          | 7,292          | 9,033          | 1.73%            |
| Storage                   | 0              | 1,591          | 1,591          | .29%             |
| Wildlife                  | 24             | 32,095         | 32,119         | 5.80%            |
| Other                     | 0              | 495            | 495            | .08%             |
| Total                     | 196,676        | 353,418        | 550,094        |                  |
| As Decreed                |                | 11,023         | 11,023         |                  |
| <b>TOTAL</b>              | <b>196,676</b> | <b>364,441</b> | <b>561,117</b> | <b>100.00%</b>   |

Based on Division of Water Resources, Water Rights Database

**IV. ON-GOING DEVELOPMENT, POTENTIAL POPULATION GROWTH, 2006-2056**

While it is difficult to accurately forecast economic and population growth and changes over a fifty-year planning period, trends in White Pine County over the almost thirty years since the Kennecott closure do indicate possible future directions for the county. Potential economic and population growth are based on projects that are currently in place and expanding as well as those in the development phase.

The County economy has diversified away from mining, and will probably continue to do so. Mining will remain important, however, for the County has documented mineral resources that will be developed as the regional and world economies and the demand for commodities and precious metals continue to grow. The two major mining operations in White Pine County continue to explore for new ore bodies and expand existing operations to use new technology for extraction and processing. The Nevada Bureau of Mines and Geology reports moderate oil production potential throughout the County and strong potential on the southwestern border of the County including Railroad and White River Valleys. Several exploration wells have been drilled in White Pine County in the past year and the County's service sector is responding to the need for services to oil rigs and operations. Mineral and oil exploration and production will continue to play a significant role in the County's economy, they will always be volatile sectors with defined production life, and as the economy diversifies, the economic impact of mine and oil field closures will be less severe.

Tourism markets and resulting recreation and leisure activities have increased steadily during the last twenty years with the development of the railroad and museum, the establishment of Great Basin National Park, and growing populations in western states. Travel, tourism, and leisure should continue to grow in White Pine County. Over the past ten years room tax revenues have increased and local hotels and motels often are full. Current projects include expansion of two existing motels that will generate thirty to forty new jobs depending on the season and construction of a new sixty-unit motel and restaurant resulting in over eighty new jobs. The County and City building inspectors report 18 building permits for homes in progress and four housing projects are in varying stages of review by the Regional Planning Commission, County Commission and City Council. The total projected housing construction for all four projects is 170 homes. New construction and sales include housing for employees and their families as well as increasing home sales as second or retirement homes for southern Nevada residents. As visitors and new residents travel to or move to the County, business opportunities to provide the visitors and new residents with recreation, health care, cultural events, education, and other services will develop. New home construction and renovation of existing homes will offer increased opportunity for construction employment and increased demand for building supplies.

Perhaps the biggest impact on the future economy and population of the county will be from energy development. White Pine County is advantageously situated for coal and wind energy generation.

LS Power Development, LLC is in the final stages of development for the White Pine Energy Station, a coal-fired power plant to be located in North Steptoe Valley, 500 mile 500 Kv Transmission line from Twin Falls, Idaho to Las Vegas, and a 200-megawatt wind farm. Construction on the three projects is slated to begin in 2007. Sierra Pacific Power and Nevada Power have proposed another coal-fired plant and another wind farm in Steptoe Valley before 2020. County economic development officials expect that with the development of this “energy cluster,” support industries will locate in the area. Construction for each of the coal fired power projects is based on a four-year construction phase with an average of 600 workers in the community throughout the project and a peak workforce of 1,300. Operations are estimated at 100 to 135 employees for a forty-year operating life. This is for direct employment and a fiscal analysis completed by the Commission on Economic Development estimates rail operation, maintenance, and indirect employment will total an additional 150 jobs. The wind energy project is based on a six-month construction time frame with 150 construction employees and an operations workforce of 55.

The County’s Industrial Park has fourteen tenants (including sales in progress) for a workforce of 125 to 130 year round with an increase for seasonal employment during the summer. White Pine County has access to 200 additional acres of land for the Industrial Park through administrative processes and has requested the 200 acres plus an additional 800 acres through the Public Lands Bill. The initial 200-acre expansion will house up to forty new industrial sites of five acres each. With an average of five to ten employees per business, the expansion of the park will accommodate up to 400 new employees.

Agriculture will continue to play a significant role in the local economy. Based on continued operation at the levels report in the 2002 Census of Agriculture data for White Pine County, sales of all hay and livestock production will continue to add approximately \$15 million to the County’s economy annual and generate up to 200 jobs in the County. The Ely District of the Bureau of Land Management reports 48 applications for Desert Land Entries on file for a total of 14,770 acres. Using applications for Desert Land Entries as a guide, if they were granted water permits and approved, annual alfalfa production would translate into an additional \$7,000,000 in direct sales per year and use 50,200 acre feet of water (based on 3.4 acre feet per acre, State Division of Water Resources). Emerging markets that can potentially be met by White Pine County farmers or ranchers include raising organic, range-fed beef, seed oils for bio diesel fuels, and growing native plants and seeds for mine and other revegetation projects. The Cooperative Extension Service Office in Ely reports that it is already working with area ranchers to determine appropriate crops for seed oils for the County’s soil conditions and climate. The draft White Pine County Lands Bill includes potential funding for a feasibility study for an Agriculture Research Center in the County. This facility may make the area a center for research and development of innovative agricultural products and techniques.

**Relationship of On-going Development to Population Growth:**

Since the population of White Pine County has historically fluctuated with mine openings and closing, projections of future county population that rely on past population numbers may not show a true picture of long term trends. This may be especially true as the industry mix in the county changes, and the new industries providing jobs and behave differently than past industries. For example, state and federal public employment like the Ely State Prison is likely to keep a steady workforce for many years, unlike mines that open and close, hiring and laying off workers more frequently. Total new job generation based on projections underway or under development is 2,448. Using a multiplier of .74 for new indirect jobs generated for each direct new job created (based on UNR, Center for Economic Development Implan Model) total job generation is anticipated at 4,260. With an average household size of 2.58 (based on 2000 Census), the total new population due to job generation from potential projects will range from 7,327 to 10,992 depending on the number of dual income households. The University of Nevada, Las Vegas, Center for Economic Development reports a 1.67 multiplier for both indirect (industry related support services) and induced (increased public and private sector services) job generation for every direct job generated (Riddel, Schwer, “The Potential Economic Impact of Nevada’s Renewable Energy Resources”) Using the figure of 1.67 for indirect and induced jobs, potential economic development projects could add up to 6,533 new jobs and a population of 11,237 to 16,800 the county’s base population as defined by the Nevada State Demographer.

The Nevada State Demographer's office is responsible for producing population estimates and projections for Nevada counties on an annual basis. These population projections are used in rural Nevada counties for a range of planning

purposes. The projections are based on a statistical analysis of previous population trends, employment patterns, and housing patterns. The State Demographer's most recent population projections for White Pine County, issued in July, 2006, show the County losing population over the years 2006 to 2026. If this rate of population loss were projected out to 2056, the County would have a population of only 5,256 people. The estimates used in the earlier State Demographer's projection, which was used in the 1999 Water Resources Plan, showed the County's population increasing to 25,205 by 2056. The projection used in the State's 1999 Water Resources Plan showed the County's population starting in 2006 at 11,616 and decreasing to 11,263 by 2020. The projections, based as they are on past trends, do not take into account the potential new jobs and population that will be added in the county by the changing mix of industries the County has experienced during the past two decades. In addition, the projections do not take into account the change in the County's employment to housing unit ratio. In 2005, the County Assessor showed 4,310 housing units compared to a total employed labor force of 4,123. The fact that the number of occupied housing units exceeds the number of jobs supports the trend toward increasing relocation to White Pine County for retirement.

The State Demographer's estimates from 1999 to 2006 show that there was a 17 percent loss in population between the State estimate of 11,150 in 1999 and the 2000 Census population of 9,181, creating a significant population decrease due to the difference between the two resources. Starting in 2000 with the Census population of 9,181, the County's population fell to 8,783 in 2001, rose to 8,863 in 2002, fell again to 8,842 in 2003, rose to 8,966 in 2004 and 9,275 in 2005 for a net gain of 1.18 percent. Using this figure as a guide, the County's population would increase to 15,000 by 2056. In the following tables, the potential population increase associated with specific development projects and on-going development trends, called "Economic Growth Population," is added to two different "Baseline" populations – one from the 1999 projection, and one from the 2006 projection. The totals shows what the range of population in White Pine County might be over the fifty-year planning time frame. Potential water use associated with specific economic development projects, as well as with general population growth, also are presented in these charts. The State Water Plan projected that in 2006, the County's population of 11,616 would use 4,222 acre-feet in non-agricultural uses. Based on actual experience, the County's current population of 9,275 uses 7,101 in non-agricultural activities. According to the projections of the Water Plan, when the County's population reaches 15,000 it would use 5,452 acre feet in non-agricultural activities but based on current usage, the use would be approximately 11,450 acre feet.

In addition, projections of water use for on-going economic development shows that the County would support 30,000 to 35,000 acre feet of water annually for operations phases of major projects outlined in the following table.

| White Pine County Potential New Employment and Population From Future Economic Development, 2008-2056   |                       |                         |                  |  |  |   |  |
|---|-----------------------|-------------------------|------------------|--|--|---|--|
| Project/Development   | Number of Direct Jobs | Number of Indirect Jobs | Total Employment | Potential Added Population over baseline | Time Frame of project                          | Estimated water use                     | Source of water Use Estimate                 |
| <b>Energy Development</b>   |                       |                         |                  |  |  |   |  |
| <b>LS Power Coal-burning power plant</b>  | Construction 650      | 444                     | 1094             | 2634                                     | Construction 2007-2011                         | 12.2 AFA                                | LS Power thru Karen                          |
|   | Operations 160        | 118                     | 278              | 718                                      | Operations 2011-2051                           | 8,500 AFA                               |  |
| <b>Wind Farm: 200 megawatts</b>   | Construction 150      | 111                     | 261              | 673                                      | Construction 2009 - ?                          | 17.7 AFA                                |  |
|   | Operations 50         | 41                      | 96               | 247                                      | Operations 2009 - ?                            | 1.8 AFA                                 |  |
| <b>Southwest Intertie Project (powerline) (LS Power)</b>  | Construction 100      | 74                      | 174              | 449                                      | Construction 2006-2011                         | 13.4 AFA                                |  |
| <small>(This is a line between Boise and Las Vegas currently in planning stage. Developer is LS Power. WPC had no workforce estimates available yet. So the estimate of 100 construction workers, given here, is very approximate.)</small>   |                       |                         |                  |  |  |   |  |
|   | Operations 150        | 111                     | 261              | 673                                      | Construction 2020                              | 17.7 AFA                                |  |
| <b>Potential 2nd Wind Farm: 200 megawatts</b>   | Construction 50       | 41                      | 96               | 247                                      | Operations 2021-9                              |   |  |
|   | Operations 160        | 118                     | 278              | 718                                      | Construction 2008-2012                         | 17,000 AFA                              |  |
| <b>Potential 2nd coal-fired plant: Sierra Pacific</b>   | Construction 600      | 444                     | 1044             | 2884                                     | Construction 2008-2012                         | 17,000 AFA                              |  |
| <small>(Only in preliminary planning stages. Employment estimates are taken from LS Power estimates.)</small>   |                       |                         |                  |  |  |   |  |
|   | Operations 160        | 118                     | 278              | 718                                      | Operations 2013-2052                           | 16,000 AFA                              | Karen  |
| <b>Biomass: pinyon-juniper pellets</b>  | Construction 60       | 44                      | 104              | 269                                      | 2008-2020                                      | 100 AFA                                 |  |
| <small>(Estimate about 4 small businesses using waste wood from federal pinyon-juniper burning program, assume of about 10 employees per business, based on current employment in one existing business.)</small>   |                       |                         |                  |  |  |   |  |
| <b>Oil exploration and development</b>  | 1                     | 60                      | 44               | 104                                      | 269  | 2015                                    | Part of Division of Mines.                   |
| <small>(There are 60-63 jobs currently in White Pine County in oil exploration. There is a recognized resource in the County, but it is difficult to exploit due to geology. However, it is assumed that as global resources, including those of White Pine, will eventually be required as other more easily available sources worldwide diminish, and prices continue to rise. So assume that over the 50-year planning horizon the current workforce in oil exploration and development in White Pine County will at least double.)</small>    |                       |                         |                  |  |  |   |  |
| <b>Energy Development Cluster</b>   | 800                   | 502                     | 1392             | 3591                                     | 2020   | 1.0 AFA per Acre of under roof          |  |
| <small>(As White Pine County becomes a center of energy development with a potential 4 or more power plants and the Southwest Intertie Line, it is probable that energy-related support industries will locate in the area. Assume location of one energy manufacturing wind turbine components. This scenario could employ 600-1000 people.)</small>   |                       |                         |                  |  |  |   |  |
| <b>Mining</b>   |                       |                         |                  |  |  |   |  |
| <b>Robinson Mine</b>  | Additional 31         | 23                      | 54               | 139                                      | add. emp. by projects first 11 years 2006-2017 | 10,000 AFA                              | Sally McLeod provided water use.             |
| <small>(301 employees now with potential to expand to 340 within next few years.)</small>   |                       |                         |                  |  |  |   |  |
| <b>Bald Mountain Mine</b>   | Additional 60         | 59                      | 139              | 359                                      | 2006-2017                                      | 850 AFA                                 | Heap Leach Operation (Data from Hound Mt)    |
| <small>(Currently Bald Mountain Mine is engaged in several development projects on the east side and southern end of the property, and once all approved to contemporaneously operate the Hound Mountain - Faded Dome resources.)</small>   |                       |                         |                  |  |  |   |  |
| <b>Other gold/silver mine</b>   | 200                   | 140                     | 340              | 880                                      | 2010-2030                                      | 400 AFA                                 | Heap Leach Operation (Data from Hound Mt)    |
| <small>(There was exploration work carried out in 8 White Pine County mining districts in 2004. Gold and silver exploration in Nevada has continued and accelerated as the price of gold has increased. Assume that the price of gold will continue to rise as with worldwide economic development, especially in China and India, and that continued exploration results in development of one new gold mine in White Pine County.)</small>  |                       |                         |                  |  |  |   |  |
| <b>Tourism and leisure</b>  |                       |                         |                  |  |  |   |  |
| <b>Second Home development</b>  | 30                    | 23                      | 53               | 139                                      | 2010   | 1.12 AFA per RV                         |  |
| <small>(New home construction in general as second home owners, retirees, and new workers use up WPC's existing 1 county stock, either remodel or build new houses. Assume equivalent of one moderate-sized homebuilding company located in White Pine County by 2010.)</small>   |                       |                         |                  |  |  |   |  |
| <b>2 resort hotels</b>  | 150                   | 111                     | 261              | 673                                      | 2018   | 40 AFA                                  |  |
| <small>(Local economic development officials identify critical need for more hotel rooms in Ely - vacancy rates very low. Also assume development of "border town" on Hwy 50 east of Ely to serve Great Basin National Park visitors. Each assumed to have 100 rooms, 50 rooms, 50 rooms. Assume 1.8 employees per room. Assume both hotels open by 2018.)</small>  |                       |                         |                  |  |  |   |  |
| <b>Additional motel/hotel rooms</b>   |                       |                         |                  |  |  |   | Used future counts for water use.            |
| <small>(Assume about 50 new rooms every 5 years to meet demand, 1.8 employees per each additional room.)</small>  |                       |                         |                  |  |  |   |  |
|   | 75                    | 56                      | 131              | 337                                      | 2020   | 12 AFA                                  |  |
|   | 75                    | 56                      | 131              | 337                                      | 2025   | 12 AFA                                  |  |
|   | 75                    | 56                      | 131              | 337                                      | 2030   | 12 AFA                                  |  |
|   | 75                    | 56                      | 131              | 337                                      | 2040   | 12 AFA                                  |  |
|   | 75                    | 56                      | 131              | 337                                      | 2045   | 12 AFA                                  |  |
|   | 75                    | 56                      | 131              | 337                                      | 2050   | 12 AFA                                  |  |
|   | 75                    | 56                      | 131              | 337                                      | 2055   | 12 AFA                                  |  |
| <b>Expanded Air Service</b>   | 10                    | 13                      | 23               | 61                                       |  | 1.5 AFA                                 |  |
| <b>Other industrial development</b>   |                       |                         |                  |  |  |   |  |
| <b>Metal fabrication</b>  | 40                    | 33                      | 73               | 200                                      | 2020   | 1.0 AFA per Acre of under roof          |  |
| <small>(Small businesses related to metal fabrication have recently opened in the WPC industrial park. WPC zone development officials expect 40-50 new jobs in this sector in next 10-15 years.)</small>  |                       |                         |                  |  |  |   |  |
| <b>Other industry</b>   | 100                   | 74                      | 174              | 449                                      | 2030   | 1.0 AFA per acre of under roof facility |  |
| <small>(200 more acres will be added to industrial park by opening White Pine County public lands in. Assume 20 businesses with 5 employees per business.)</small>  |                       |                         |                  |  |  |   |  |
| <b>Agriculture</b>  |                       |                         |                  |  |  |   |  |
| <b>Agriculture Research Center</b>  | 23                    | 17                      | 39.2             | 101                                      | 2020   | 150 AFA                                 | Assume a 40 acre facility similar to UNR off |
| <small>(White Pine County public lands bill includes development of agricultural research center. Assume base staff of 10-20, with 10-20 seasonal. Assume center will be open and fully staffed by 2020.)</small>   |                       |                         |                  |  |  |   |  |
| <b>Increased irrigated agriculture and agricultural support industry</b>  | no                    | 84                      | 139              | 369                                      |  | 4.6 AFA per acre of irrigated land      |  |
| <b>Services</b>   |                       |                         |                  |  |  |   |  |
| <b>Health assisted living facility</b>  | 50                    | 37                      | 87               | 224                                      | 2020   | 0 AFA                                   | Used future counts for water use.            |
| <small>(Estimate based on current employment in similar facilities. The White Pine Care Center employs 60 to 70 people. The assisted living facility in Ely employs 30 people.)</small>   |                       |                         |                  |  |  |   |  |
| <b>Education: expansion of Ely campus of Great Basin College</b>  | 3                     | 2                       | 5                | 13                                       | 201,500,252,035                                | 6.6 AFA                                 | Flowers and landscape irrigation             |
| <small>(Estimate from Great Basin College: "Great Basin College employs just over 200 people and that includes the off campus centers in Ely and Winnemucca. Based on our current employment and the potential for growth, I would guess we could say up to 30 full time employees in the next 20 years and up to 100 full time employees in the next 50 years." Count of current employees (May 2006, website employee listing) is 180: 6 of them in Ely, or about 3.0%. So assume 1 new employee in Ely in 2016, 1 in 2025, 1 in 2036.)</small> |                       |                         |                  |  |  |   |  |
| <b>Telecommuting</b>  | 76                    | 58                      | 131              | 337                                      |  | 1.0 AFA per acre of                     | Low water use                                |
| <small>(from July 1999 Water Plan)</small>  |                       |                         |                  |  |  |   |  |
| Employment and population multipliers taken from 1999 Water Plan as follows: Each direct job would cause 0.74 indirect jobs. Population effects based on 2.50 persons per created job.  |                       |                         |                  |  |  |   |  |

**PROJECTED EMPLOYMENT, POPULATION GROWTH, AND  
WATER USE BASED ON ECONOMIC DEVELOPMENT ACTIVITY**

| <b>Economic Activity</b>  | <b>2010</b>   | <b>2015</b>   | <b>2020</b>   | <b>2025</b>   | <b>2030</b>   | <b>2035</b>   | <b>2040</b>   | <b>2045</b>   | <b>2050</b>   | <b>2055</b>   |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| LS Power: Coal-burning power plant                                | 2694          | 718           | 718           | 718           | 718           | 718           | 718           | 718           | 718           | 718           |
| Wind Farm: 200 megawatts  | 920           | 247           | 247           | 247           | 247           | 247           | 247           | 247           | 247           | 247           |
| Southwest Intertie Project (powerline) (LS Power)                 | 449           |               |               |               |               |               |               |               |               |               |
| Potential 2nd Wind Farm: 200 megawatts                            |               |               | 920           | 247           | 247           | 247           | 247           | 247           | 247           | 247           |
| Potential 2nd coal-fired plant: Sierra Pacific                    |               | 2694          | 718           | 718           | 718           | 718           | 718           | 718           | 718           | 718           |
| Biomass: pinyon-juniper pellets                                   | 269           | 269           | 269           | 269           | 269           | 269           | 269           | 269           | 269           | 269           |
| Oil exploration and development                                   |               | 269           | 269           | 269           | 269           | 269           | 269           | 269           | 269           | 269           |
| Energy Development Cluster  |               |               | 3591          | 3591          | 3591          | 3591          | 3591          | 3591          | 3591          | 3591          |
| Robinson Mine   | 139           | 139           |               |               |               |               |               |               |               |               |
| Bald Mountain Mine  | 359           | 359           | 359           |               |               |               |               |               |               |               |
| Other gold/silver mine  | 898           | 898           | 898           | 898           |               |               |               |               |               |               |
| Second Home development   | 135           | 135           | 135           | 135           | 135           | 135           | 135           | 135           | 135           | 135           |
| 2 resort hotels   |               | 673           | 673           | 673           | 673           | 673           | 673           | 673           | 673           | 673           |
| Additional motel/hotel rooms                                      |               |               |               | 337           | 674           | 1011          | 1348          | 1685          | 2022          | 2359          |
| Expanded Air Service  |               |               | 81            | 81            | 81            | 81            | 81            | 81            | 81            | 81            |
| Metal fabrication   |               |               | 202           | 202           | 202           | 202           | 202           | 202           | 202           | 202           |
| Other industry  |               |               |               |               | 449           | 449           | 449           | 449           | 449           | 449           |
| Agriculture Research Center                                       |               |               | 101           | 101           | 101           | 101           | 101           | 101           | 101           | 101           |
| Increased irrigated agriculture and agricultural support industry | 50            | 62            | 78            | 96            | 120           | 150           | 186           | 232           | 289           | 359           |
| Health: assisted living facility                                  |               |               | 224           | 224           | 224           | 224           | 224           | 224           | 224           | 224           |
| Education: expansion of Ely campus of Great Basin College         |               |               |               |               |               | 13            | 13            | 13            | 13            | 13            |
| Telecommuting   | 50            | 62            | 76            | 94            | 117           | 144           | 178           | 220           | 272           | 337           |
| <b>Total Economic Growth Population</b>                           | <b>5,963</b>  | <b>6,525</b>  | <b>9,559</b>  | <b>8,901</b>  | <b>8,835</b>  | <b>9,242</b>  | <b>9,649</b>  | <b>10,074</b> | <b>10,520</b> | <b>10,992</b> |
| Baseline Population estimate A*                                   | 12,200        | 12,970        | 13,918        | 15,216        | 16,636        | 18,188        | 19,885        | 21,740        | 23,769        | 25,205        |
| Baseline Population estimate B**                                  | 8,545         | 7,816         | 7,445         | 7,084         | 6,740         | 6,413         | 6,102         | 5,806         | 5,524         | 5,256         |
| <b>TOTAL Baseline Plus Economic Growth, estimate A</b>            | <b>18,163</b> | <b>19,495</b> | <b>23,477</b> | <b>24,117</b> | <b>25,471</b> | <b>27,430</b> | <b>29,534</b> | <b>31,814</b> | <b>34,289</b> | <b>36,197</b> |
| <b>TOTAL Baseline Plus Economic Growth, estimate B</b>            | <b>14,508</b> | <b>14,341</b> | <b>17,004</b> | <b>15,985</b> | <b>15,575</b> | <b>15,655</b> | <b>15,751</b> | <b>15,880</b> | <b>16,044</b> | <b>16,248</b> |

\*This baseline population estimate is taken from the 1999 Water Plan, which is "based upon average annual growth rate (1.18 percent) derived from 2010-2018 growth forecasted by Nevada State Demographer"

\*\*This baseline population estimate is taken , for the years 2010-2020, from the Nevada State Demographer's Office April 20, 2004 population projections. For the years 2025-2055, the estimate is based on the average annual population loss projected by the State Demographer for the years 2003-2024, which is -0.99%

## ***V. POTENTIAL ECONOMIC DEVELOPMENT, 2006-2056***

In planning for a fifty year period and taking into consideration the potential for changes in local, state, national, and global issues, the County has identified potential areas of economic development based on known resources, climate, soil conditions, and location.

The potential has been identified countywide and for those basins with primary development

The County has identified three levels of analysis:

- 1) Primary Analysis will be conducted in those basins which are entirely or primarily within White Pine County, house current municipal or economic activity, and offer potential for economic development due to their resources and location:

Steptoe Valley  
Butte Valley  
Spring Valley  
Snake Valley  
White River Valley

- 2) Secondary Analysis will be conducted in those basins which are entirely or primarily within White Pine County and do not demonstrate immediate economic development potential beyond current activity:

Jakes Valley  
Long Valley  
Newark Valley  
Tippett Valley  
Pleasant Valley  
Railroad Valley

- 3) Peripheral Basins are those basins which are primarily in another County and activity will not substantially impact White Pine County unless changes in conditions within White Pine County or in the basins will impact activity in White Pine County. Basins identified as peripheral will not be analyzed in the 2006 plan.

Huntington Valley  
Ruby Valley  
Antelope Valley  
Deep Creek Valley  
Hamlin Valley  
Lake Valley  
Cave Valley  
Little Smokey Valley

### Primary Basins:

For the basins identified for *Primary Analysis*, the plan considers location, the acres of private land and land use; acres of public land identified for disposal; climate; population; current and potential economic activity including agricultural production, property subdivided for development, transportation and transmission corridors, known mineral resources and oil exploration activity, and possible industrial development. Water resources were reviewed for each basin including the perennial yield, water commitments, and water commitments by manner of use. The Hydrographic abstracts were reviewed for manner of use for applications Ready for Action and applications denied in the past forty years to give an idea of the interest in development requiring water. Vested water rights were reviewed to provide an idea of the uses and number of vested rights still needing verification in each basin.

### Basis for Consideration of Potential Economic Activity:

Identification of potential economic activity will be based on the following conditions:

1. Agriculture: current production, potential production based on climate and soil conditions, potential for processing agricultural produce, and agricultural activity displaced from more urban areas (dairies, for example).
2. Mining and Oil Exploration and Production: Known mineral deposits and previous mining activity, oil exploration and production activity as reported to the State Division of Mineral Resources.
3. Residential Development: Current land ownership and use patterns, recent trends in land divisions, property sales and development and growth patterns in surrounding areas.
4. Recreation and Tourism: Current and potential recreation and tourism use of the area based on existing attractions, and those attractions and activities with potential for recreational development
5. Industrial Development: potential projects under discussion, transportation corridors, and potential for production based on natural resource development and displaced industrial activity no longer desired near urban areas
6. Energy Development: potential projects in the development phase, transmission corridors
7. Public Sector Projects: projects under discussion, areas identified for projects in the future.
8. Regional Transportation Services: projects utilizing highway, airport, and rail services for the inter-mountain west.

If changes in conditions or activity in the secondary or peripheral basins warrant additional analysis and discussion, they may be added to the Primary Basins during the annual plan evaluation and recommendations.

### Steptoe Valley:

Steptoe Valley is located in central White Pine County. It is bordered on the west by the Egan Range, on the east by the Schell Creek Range, on the south by Cave Valley, and it extends north into Elko County. Steptoe Valley has 47,436 acres of private land, excluding the communities of Ely, Ruth, and McGill. Of that, 41,495 are taxed as agricultural land and 5,941 are taxed in categories related to single family housing.

Water Resources:

The Nevada Department of Water Resources estimates the perennial yield in Steptoe Valley to be 96,518 acre feet per year. Commitments of water (in acre feet annually) include:

| Status             | Surface Water | Ground Water | Total   |
|--------------------|---------------|--------------|---------|
| Certificated       | 89,700        | 45,644       | 135,344 |
| Permitted          | 54,267        | 50,103       | 104,370 |
| Vested*            | 6,202         | 49           | 6,251   |
| Reserved           | 0             | 0            | 0       |
| Decreed            | 0             | 0            | 0       |
| Domestic Well Logs | 0             | 723          | 723     |
| Applications       | 0             | 20,313       | 20,313  |
| RFA/RFP            | 3,289         | 2,054        | 5,343   |
| TOTAL              | 153,458       | 118,886      | 272,344 |

- Unverified

According to the Division of Water Resources database, Steptoe Valley has the most diversified water use of any basin in White Pine County. Committed water rights include: 67,770 afa in industrial uses, 27 percent; 101,833 afa in irrigation, 41 percent; 31,585 afa in mining, 12.5 percent; 25,074 for wildlife, 10 percent; 11,990 afa in municipal uses, 5 percent; 4,706 afa in power, 2 percent; 2,806 afa in quasi-municipal uses, 1 percent; 1,054 afa in recreation, 1 percent; 1,054 afa in stock watering, .5 percent; and 290 afa in storage, 18 afa in commercial activity, 4 afa in domestic uses, 723 afa recorded in domestic well logs (with no appropriative right), 146 afa in environmental uses, and 8 afa in other uses ( all less than 1 percent). Of the fifty permits Ready for Action, nineteen are for irrigation. (Based on the information in the Division of Water Resources, Hydrographic Abstract they represent the potential for 3,600 acres of irrigated crop land), eleven are for quasi-municipal uses, eight are industrial and represent the filings of Nevada Power on the points of diversion for White Pine County’s permitted rights for a coal fired plant, seven are for stock watering, 2 are filed for municipal uses by McGill Ruth General Improvement District, one is for mining and one is for recreation. Over one hundred applications have been denied since 1960. They include thirteen applications for mining activity; thirteen for industrial activity which includes one from Kennecott and twelve from Duke Energy for a coal fired power plant they proposed in 2001; eight for stock watering, four for quasi-municipal uses, two for recreation, two for power, and sixty-three for irrigation (based on the information provided in the Hydrographic Abstract the applications would support at least 10,700 acres of irrigated crop land.) The State Engineer’s abstract lists almost one hundred vested water rights. Of those, fourteen are for irrigation, one is for wildlife, one for domestic, and one is for quasi-municipal uses, and eighty are for stock watering. All but one of the vested rights is for surface water.

Historical and Current Economic Activity:

Steptoe Valley houses the County’s primary municipal, commercial, and industrial activity as well as mining, agriculture, and tourism attractions. It is home to the communities of Ely, McGill , Ruth, and Cherry Creek. It houses the Robinson Copper Mine at Ruth. The Ely State Maximum Security Prison is in Smith Valley immediately

west of Steptoe Valley and the Ely Conservation Camp, minimum security facility is located in south Steptoe Valley. The White Pine County Industrial Park is located between Ely and McGill and houses fourteen tenants including an emerging metal fabrication industrial cluster. Steptoe Valley has known mineral deposits of gold, copper, silver, tungsten, iron, lead, garnet, gypsum, molybdenum, and barite and the Robinson copper mine is in full production for copper, gold, and molybdenum. And, there have been several oil exploration wells drilled in the area in the past year. The Valley supports traditional agricultural activity of alfalfa and livestock production; it has one bottled water plant in operation; and it has a microbrewery in the development stages. The Ely area has over 600 motel rooms, and the Chamber of Commerce reports that they are full most of the summer and many of the weekends throughout the year due to business travel, providing transitional housing for the area's growing workforce, visitors to the Cave Lake State Park and Steptoe Valley Wildlife Management Area, visitors to the White Pine Historical Railroad museum and tourist train ride, and participants in conventions and special events. Nevada State Parks reports over 80,000 visitors per year to both Cave Lake and Ward Charcoal Ovens. Nevada Department of Wildlife reports that Steptoe Valley supports approximately 3,250 hunter days of activity during mule deer, antelope, and elk seasons adding \$250,000 in direct sales for the County. In addition, the valley supports upland game and migratory bird hunting. Nevada Department of Wildlife reports that the three reservoirs, Cave Lake, Comins Lake, and Bassett Lake represented 59,825 angler days in 2004 of which 2,776 were from out of state. There is no way to distinguish from the records whether the resident fishermen are from White Pine County or out of the area. Assuming even local fishermen are spending money for gas, fishing supplies, and incidentals, the angler activity in Steptoe Valley represents over \$4 million in direct sales. The urban interface area in Steptoe Valley is experiencing substantial growth and new housing development now extends north of McGill to the Indian Creek and Mattier Creek areas and south to the Ward Charcoal Ovens State Park. The growth is also extending east into Duck Creek Basin and west into Smith Valley.

*Potential Economic Development:*

Primary development potential in Steptoe Valley includes the two proposed coal fired electrical power plants that promise creation of substantial job generation, investment, and tax revenue. The state's Renewable Energy Task Force has identified the Egan Range as a strong potential for wind energy development. Steptoe Valley has both warm and hot geothermal resources. The rail corridor has the potential to support additional development in metal fabrication, production utilizing geothermal warm water, services to the coal and wind energy plants, and processing of auxiliary products for the oil industry. In addition to the potential growth identified in the on-going development, Steptoe Valley can support industrial development along the rail corridor as rail freight service is reinstated. The County has already worked with development of a fire log wax production plant near Ely using the oil production from Railroad Valley and was not able to acquire the railroad in time to locate the plant. The City of Ely has the water resources needed to support additional bottled water operations. The County's airport is in the process of securing land to expand and extend the runway and will be able to support aviation related industry as well as regional air passenger and cargo services. In the area of energy development the Valley can support the proposed coal fired electrical power plants and the wind energy project as well as having potential for biomass development. Steptoe Valley has the potential to continue residential development

including second homes, retirement homes, and assisted living facilities; commercial development; tourism and travel facilities including motels, restaurants, microbrewery/winery development, and convention facilities. The Ely Campus of Great Basin College is one of the fastest growing segments of the college and provides the opportunity for future expansion of educational activity. The draft White Pine Public Lands Bill proposes a feasibility study on an Agricultural Research Center that can provide additional opportunities for development of educational facilities and economic activity. The Ely State Prison has land for additional expansion. Steptoe Valley can support expansion of traditional economic sectors including mining and agriculture.

Steptoe Valley is a closed basin and future development to meet the needs of White Pine County residents may depend on water resources available. The County’s goal is to maintain the balance of development, agriculture, and outdoor recreation in the Valley and it has identified the possibility that in the future it will need to consider importation of water from adjacent basins to help support the growth and development opportunities in Steptoe Valley. The primary basins that could export water to Steptoe Valley are Spring, Butte, and Cave Valleys.

**Spring Valley:**

Spring Valley is located in eastern White Pine County and is bordered on the west by the Schell Creek Range and Steptoe Valley, on the north by Antelope Valley, on the east by the Snake Range and Snake Valley, on the southwest by Lake Valley, and it extends south into Lincoln County. Spring Valley has 43,538 acres of private land, 40,406 acres taxed as agricultural land and 3,132 acres taxed in categories related to single family housing.

**Water Resources:**

The State Division of Water Resources estimates the perennial yield in Spring Valley is 224,858 acre feet per year. The water commitments (in acre feet annually) include:

| Status         | Surface Water  | Ground Water   | Total          |
|----------------|----------------|----------------|----------------|
| Certificated   | 48,257         | 10,286         | 58,543         |
| Permitted      | 862            | 9,725          | 10,587         |
| Vested*        | 173,882        | 0              | 173,882        |
| Reserved       | 461            | 0              | 461            |
| Decreed        | 1,396          | 0              | 1,396          |
| Applications   | 0              | 1,280          | 1,280          |
| Dom. Well Logs | 0              | 32             | 32             |
| RFA/RFP        | 13,342         | 253,835        | 267,176        |
| <b>TOTAL</b>   | <b>238,199</b> | <b>275,158</b> | <b>513,357</b> |

\*Unverified

Committed water rights include: 252,538 afa, irrigation, 97.5 percent; 4,226 afa, mining, 2 percent; 883 afa, stock watering, .3 percent; 467 afa, Other, .2 percent; 82 afa, quasi-municipal uses, 32 afa, domestic well logs (without appropriative rights), 20 afa, wildlife, and 1 afa, domestic uses, all less than one-tenth of a percent. Spring Valley represents the most active basin for applications denied, ready for action, and vested water rights in White Pine County. Of the 74 applications Ready for Action, nineteen are for exportation to southern Nevada for municipal uses, one is for power, one for stock

watering, one for quasi-municipal uses, one for mining activity, and fifty-one are for irrigation. (Based on the information filed with the Hydrographic Abstract, the applications would support 19,552 acres of irrigated crop land and at 3.4 acre feet per acre would represent 66,476 acre feet of water annually). Over two hundred applications have been denied in the White Pine County portion of Spring Valley since 1960. Of these, seven were for mining activity, eight were for stock watering,, eight were for power, and two hundred twelve were for irrigation. The Division of Water Resources hydrographic Abstract lists ninety-four vested water rights, three for mining activity, thirty-one for stock watering, and the remainder for irrigation.

*Historical and Current Economic Activity:*

While there are no communities in Spring Valley, it houses several ranches and single-family homes. Historically, Spring Valley has supported agriculture including alfalfa and livestock production and mining. According to the County Assessor's records, there are 40,406 acres of private land taxed as agricultural property in Spring Valley. Based on the Census of Agriculture and the Natural Resource Conservation Service records, Spring Valley represents 38 percent of the County's alfalfa production and generates \$2.6 million per year through direct sales. In addition, according to the Bureau of Land Management and reports of individual ranchers, Spring Valley represents approximately 20 percent of the County's cattle production and 60 percent if its sheep production for a total direct sales of \$1.6 million. Based on the University of Nevada, Reno, Cooperative Extension Service report on the impact of cattle ranching and farming, the total contribution of livestock production in Spring Valley is \$2.8 million in total output and thirty-eight jobs.

There are known mineral deposits and historical mining activity for gold, silver, lead, zinc, tungsten, and copper; there is a small active gold mine; and there has been limited oil exploration activity; and Spring Valley is identified by the Bureau of Mines and Geology as having moderate potential for oil production.

Recreational activity includes big game (mule deer, elk, and antelope) and bird hunting, fishing in the streams, and camping and hiking in the Cleve Creek Recreational site and the Mt. Moriah Wilderness Area. Based on a review of Nevada Department of Wildlife's Big Game Status Book, Upland and Migratory Bird harvest data, and Angler Census data as well as visitor data from Great Basin National Park, U.S. Forest Service, and Bureau of Land Management, Spring Valley supports approximately \$5.3 million in recreational expenditures in the County each year.

Spring Valley has been selected for development by the Long Now Foundation and they have purchased property in south Spring Valley at Mt. Washington for their Millennium Clock project with the potential for future development in the Valley. Spring Valley is beginning to attract investment for second and retirement homes and according to the County Assessor, there are over 3,000 acres of private land in Spring Valley that are currently taxed for single family residences.

*Potential Economic Development:*

Two major transportation routes cross Spring Valley, east/west on US Highway 50 and north/south on US Highway 93. It is also crossed by two 230 Kv transmission lines. The state's Renewable Energy Task Force has identified Spring Valley as an area with wind

energy development potential and there are wind energy companies exploring the potential of development in that area. Spring Valley is the only location in White Pine County with potential for wind energy development in the valley floor rather than ridge tops. New activity can include renewed mining activity based on market and technology; expanded agricultural activity for traditional and new crops including seed oils, native seeds for revegetation projects, orchards, hops, or vineyard development; feed lots, and processing plants based on the agricultural produce. Water resources could be used for a bottled water plant. According to the Department of Agriculture, the trout farming industry is growing at a rate of 5 percent per year and cold-water aquaculture would be compatible with existing ranching activity. Spring Valley has the potential to attract new residential development in South Spring Valley from southern Utah and Nevada, and in the north from Steptoe Valley. There has been a proposal for a condominium project in north Spring Valley, and the area could support tourism development through lodge or motel development, guide services, and historic ranches. Energy development could include wind, solar ponds and/or pumped storage projects, and biomass projects using the pinyon juniper resources.

Spring Valley has been identified as a potential source of additional water for Steptoe Valley if development of industrial and municipal projects creates a shortage of water resources.

**Snake Valley:**

Snake Valley is on the eastern border of White Pine County and houses the community of Baker and Great Basin National Park. The Valley is bordered on the north by Pleasant And Tippet Valleys, on the South by Hamlin Valley, and on the West by Spring Valley. Snake Valley has 16,641 acres of private land excluding the community of Baker. Of that 12,551 acres are agricultural, 1012 are taxed as single family residential uses, and 78 are classified as commercial.

**Water Resources:**

The Division of Water Resources estimates the perennial yield in Snake Valley at 25,000 acre feet per year. Total water commitments include:

| Status        | Surface Water | Ground Water | Total   |
|---------------|---------------|--------------|---------|
| Certificated  | 11,141        | 3,212        | 14,353  |
| Permitted     | 800           | 7,200        | 8,000   |
| Vested*       | 3,294         | --           | 3,294   |
| Applications  | 638           | --           | 638     |
| Dom Well Logs | --            | 81           | 81      |
| RFA/FRP       | 12,670        | 56,513       | 69,183  |
| Total         | 44,888        | 67,006       | 111,894 |

\*Unverified

Committed water rights include 24,489 afa for irrigation, 56 percent; 5,430 afa, power, 12.5 percent; 5,792 afa for wildlife, 13.3 percent; 7,266 afa for other, 16.7 percent; 244 afa for stock water, .5 percent; 70 afa for quasi-municipal uses, 110 afa for recreation, 2 afa for domestic uses, and 81 afa for domestic wells (without appropriate

rights). Three fourths (32,991 afa/43,484) of the committed resources are surface water. A substantial portion of the basin extends into Utah on the east. There are 11,899 afa allocated by decree. There are nineteen applications Ready for Action or Ready for Action with protest. Of those, eight are for irrigation, two are for municipal and quasi-municipal uses for the Baker Water and Sewer General Improvement District; and nine were filed for municipal uses by the Las Vegas Valley Water District. Of the applications denied since 1960, seven were for mining activity; two were for quasi-municipal activity; one was for stock watering; and fort-eight were for irrigation and based on those applications where the database specified acres, they would have supported at least 7,800 acres of irrigated crops. Earlier water rights applications denied by the state engineer (prior to 1960) were primarily for mining and power generation. Vested water rights in Snake Valley are primarily for stock watering and irrigation.

*Current and Historical Economic Activity:*

Historically economic activity has been based on agriculture, services to travelers and tourists, and mining. Agricultural uses have included alfalfa production and livestock. In the past there was an apple orchard near Baker. The area also supports commercial pine nut collection. There are known mineral deposits of gold, lead, silver, copper, and tungsten; there have been some oil exploration wells drilled in the valley, and there has been limited production of its substantial resources for crushed and dimensional stone production. The Great Basin National Park draws almost 90,000 visitors per year, primarily in the summer months. The Park has never had the funding to develop additional facilities as outlined in the development plan. With increased visitor accommodations, the Park would increase in visitation. Additional tourist activity includes big game and bird hunting and the Mt. Moriah and Marble Canyon Wilderness areas. According to the Nevada Department of Wildlife, the Snake Valley area is responsible for 4,000 hunter days and fishing activity includes Silver Creek Reservoir as well as numerous creeks. The valley supports the business community at Baker including two restaurants, a food market, two convenience stores, two motels, a campground, arcade, art and antique store, and a service station; the Border Inn motel, service station, convenience store, restaurant and bar, gift shop, and meeting facilities; and the Hidden Canyon Ranch resort, space, convention facilities, campground, and native trout restoration facility. Residential development is active and growing in Snake Valley due to services available and the National Park. Industrial activity includes the Horns-a-Plenty and D-Bar-X production of antler art and wrought iron decorative products as well as several home based business producing a variety of arts and crafts.

*Potential Economic Development:*

Snake Valley has the resources to support a wide range of dispersed recreation including rock climbing, mountain biking, hiking and backpacking, and cross-country skiing. The area has the potential for continued residential development from both southern Utah and southern Nevada. Washington County, Utah is one of the fastest growing counties in the United States and Snake Valley offers a cooler climate and mountain scenery for retirement and summer homes. Potential tourism development includes lodge/motel developments, guide services and historic ranches. The community of Baker has available land and capacity to support additional commercial development on its water and sewer system. New motel and restaurant services are proposed in the Valley and as the National Park continues to increase its visitorship, there will be the demand for services. There is a strong potential for development of stone quarries and production of

crushed and dimensional stone for building materials. Potential for economic development includes alternative crops including seed oils for biodiesel fuels, biomass, orchard development, and food processing based on agricultural production. Water resources could be used for cold-water aquaculture, trout farming, which would be compatible with existing ranching activity. The area could also support a bottled water plant and in conjunction with agricultural production and tourism development, possibly a winery and/or microbrewery. Mining exploration and development will depend on market conditions. Two critical aspects to Snake Valley's development and its use of water resources are the developments in the Utah portion of the basin and the natural transportation of water into and out of the basin.

**Butte Valley:**

Butte Valley is located west of Steptoe Valley and extends south to US 50 and north into Elko County. It is bordered by Long Valley on the west, the Egan Range on the east and Jake's Valley on the south. Butte Valley is included in the primary basins because of the potential for residential development and the proximity to Steptoe Valley. Butte Valley has 4,056 acres of private land (in White Pine County) of which 3,736 are taxed as agricultural and 320 are classified for single family homes.

**Water Resources:**

The Division of Water Resources estimates the perennial yield in Butte Valley at 14,000 acre feet a year. Total water commitments include:

| Status       | Surface Water | Ground Water | Total   |
|--------------|---------------|--------------|---------|
| Certified    | 1,315         | 284          | 1,599   |
| Permitted    | 2,803         | .4           | 2,803.4 |
| Vested*      | 1,035         |              | 1,035   |
| Applications |               | 15,204       | 15,204  |
| RFA/RFP      | 3             | 26,064       | 29,064  |
|              |               |              |         |
| Total        | 5,156         | 41,552       | 46,708  |

\*Unverified

Committed water rights include 4,971 for irrigation, 91.3 percent; 294 acre feet annually for stock, 5.5 percent; 172 acre feet annually for mining, 3.3 percent; and 3 acre feet annually for quasi-municipal. The primary use for applications ready for action is industrial/power generation by White Pine County and Nevada Power Company/Sierra Pacific Power Company. Applications that have been denied in the recent past include applications to support 520 acres of irrigated cropland, denied in 1961 and an application for stock water denied to the BLM in 1994. Early history shows eight applications denied for stock water, 1 for irrigating 320 acres in 1921, and one denied for mining in 1906. Vested rights include surface water for stock and 1,035 acre feet annually of surface water to irrigate 481.52 acres of cropland.

**Current and Historical Economic Activity:**

While Butte Valley does not house any communities, it is included in the group of Primary Basins because it has experienced some activity sub-dividing land for residential development. Historic uses have been ranching, particularly livestock, cattle and sheep.

Butte Valley has been the site of ten oil exploration wells, but none have gone into production. The Hunter Mining District is located in the northern portion of Butte Valley in White Pine County and recorded production of Lead, Copper, and Silver in the late 1800's. In addition, there are known deposits of uranium and fluorspar that have not been mined.

*Potential Economic Activity:*

The Nevada Bureau of Mines and Geology defines Butte Valley as an area with moderate potential for oil production; in the areas identified for greatest potential for geothermal resources, likely mineral resource development.

Butte Valley has access to the Falcon Gondor transmission line on the southern boundary of the basin and will house transmission lines and the Robinson Substation for the White Pine Energy Station. The County has applications for 25,000 acre feet of water for power generation in Butte Valley as the alternate site for the original White Pine Power Project and Sierra Pacific Power/Nevada Power have filed applications for the same points of diversion for the proposed Ely Energy Station. The Companies have suggested the potential of negotiating an agreement for the use of its applications for that project. Recreational use in Butte Valley centers on hunting including mule deer, antelope, elk (in the northern portion of the Valley in White Pine County), and bird hunting. Nevada Department of Wildlife reports there are no bodies of water in Butte Valley that support fishing activity. Big Game hunting is divided between hunt units 104 and 121 and represents approximately 1,450 hunter days' of activity, generating approximately \$102,000 in direct economic benefit. In previous industrial development activity, the Economic Diversification Council has worked with inquiries regarding potential use of ranch property for a hunting lodge. Potential development in Butte Valley includes agricultural use, residential development for commuters to Ely as well as retirement and second homes.

Butte Valley could export water to Steptoe Valley for coal fired electrical power development that could be located in Steptoe Valley to access the rail line, support, mining activity in adjacent valleys, and growth of municipal and industrial activity in North Steptoe Valley.

*White River Valley*

White River Valley is located in south central White Pine County and extends into both Nye and Lincoln Counties. It is bordered on the west by Railroad and Jakes Valleys, on the north and east by Steptoe Valley, and on the southeast by Cave Valley. White River Valley houses the communities of Lund and Preston. White River Valley has 31,346 acres of private land which includes the communities of Lund and Preston because the single-family residence, commercial, and agricultural uses are mixed throughout the assessor's records. The Valley has 19,423 acres of agricultural land, 11,530 acres of residential uses, and 393 acres classified as commercial or other uses.

*Water Resources:*

The Division of Water Resources estimates the perennial yield in White River Valley at 37,000 acre-feet. Total water commitments (in acre feet annually) include:

| Status         | Surface Water | Ground Water | Total  |
|----------------|---------------|--------------|--------|
| Certified      | 26,001        | 18,163       | 44,164 |
| Permitted      | 62            | 4,777        | 4,839  |
| Vested*        | 9,170         | 0            | 9,170  |
| Decreed        | 0             | 0            | 0      |
| Domestic Wells | 0             | 244          | 244    |
| Applications   | 0             | 0            | 0      |
| RFA/RFP        | 39            | 24,081       | 24,120 |
| TOTAL          | 35,272        | 47,265       | 82,537 |

\*Unverified

Committed water rights include 50,022 afa for irrigation, 85.5 percent; 3,097 afa for stock watering, 5 percent; 2,172 afa for power, 3.5 percent; 1,230 afa for wildlife, 2 percent; 840 afa for industrial uses, 1.5 percent; 764 afa for quasi-municipal uses, 1 percent, 72 afa for mining activity; 9 afa for domestic uses; and 7 afa for commercial uses. Of the forty-four applications that are ready for action, forty-two are for irrigation and based on the information provided in the abstract, would support 11,000 acres of irrigated crop land. The other two applications ready for action are for stock watering. Three applications have been protested. Applications denied in recent years include twenty-seven for irrigation, twenty-six of which were for underground sources and one was for surface water. Based on the information provided, they would have supported 6,300 acres of irrigated crop land if approved. In addition, four applications for stock water, one for commercial, and one for quasi-municipal activity have been denied. Vested water rights in White River Valley are primarily surface water and primarily for stock watering (eleven of the thirteen). Two are for irrigation and one of them is for underground sources.

*Historic and Current Economic Activity:*

Historically, primary economic activity has been farming, including alfalfa production and livestock. The commercial activity in Lund and Preston includes agricultural equipment and supplies and transportation services. White Pine County School District maintains an elementary school and a newly constructed high school in Lund. The Lund/Preston area is attractive as a residential community because of its small town, rural lifestyle and the quality of the school programs. The community does not have water and sewer services and residents of both Lund and Preston depend on wells and septic systems. White River Valley has begun to attract new property ownership by retirees and for projects including a guest ranch and a proposed youth ranch. With an increase in population concentration, the communities may need to begin to plan for funding and development of a water and/or sewer system. White River Valley supports some big game hunting and according to the Nevada Department of Wildlife, in 2005, the area supported 1,700 hunter days for big game hunting (mule deer and antelope) generating approximately \$120,000 in direct sales in White Pine County. The reporting systems for Department of Wildlife make it difficult to identify upland game bird, waterfowl, mountain lion, and small game hunting activity by basin, but the area supports additional hunting, activity in these categories as well as benefit from fishing activity at the Krch Wildlife Management Area in Nye County immediately south of the White Pine County border.

*Potential Economic Activity:*

White River Valley is crossed by US Highway 6 to the south and State Route 318, which is the shortest north/south highway route to Las Vegas. The Lund/Preston area has housed dairies. There are known mineral deposits for copper, lead, gold, and silver, there have been several oil exploration wells drilled and the southern portion of the Valley in White Pine County is in the area identified by the Nevada Bureau of Mines and Geology as high potential for oil production. Potential for economic development includes agricultural production including alternative crops and processing activity including dairies as supported by changing market conditions, oil production and services for oil production in White River and Railroad Valleys, transportation services, residential development, and tourism development capitalizing on proximity to fishing at the Krch Wildlife Management Area in Nye County immediately south of Lund, the White River/Ellison/Hamilton historic mining area to the west, and the southwestern portion of Ward Mountain.

**Secondary Analysis:**

Jakes, Long, Newark, Tippett, Pleasant, and Railroad Valleys are all considered for secondary analysis. Primary historic economic activity includes mining with known mineral deposits of gold, copper, lead, and silver; oil exploration; and agriculture including alfalfa and livestock production. In addition, Railroad Valley is located in the area identified by the Bureau of Mines and Geology as strong potential for oil production and Bald Mountain Mine is located at the northern end of Newark and Long Valley in the southern portion of the Ruby Mountains. The mine maintains an RV and Trailer Park for its employees and the small residential area of Cold Creek now maintains its own volunteer fire department. US Highway 50 crosses through Jakes and Newark Valleys. Economic development potential includes continued and increased agricultural activity including the potential for alternative crops as market trends dictate, expanded mining activity depending on exploration and market conditions, development of geothermal warm water resources, and expanded oil exploration and production.

LONG TERM POTENTIAL BENEFICIAL USE OF WATER IN WHITE PINE COUNTY

|             | Ag/Trad'l | Ag/Altern. | Mining | Oil | Energy | Res | M&I | Rec | Geo | Ag Proc | Export | Import |
|-------------|-----------|------------|--------|-----|--------|-----|-----|-----|-----|---------|--------|--------|
| Huntington  | X         | X          | X      | X   |        |     |     |     |     |         |        |        |
| Ruby        | X         | X          | X      | X   |        |     |     | X   |     |         |        |        |
| Antelope    | X         | X          | X      | X   |        |     |     |     |     |         |        |        |
| Deep Creek. | X         | X          | X      | X   |        |     |     |     |     |         |        |        |
| Lt'l Smokey | X         | X          |        | X   |        |     |     |     |     |         |        |        |
| Cave        | X         | X          |        | X   |        |     |     | X   |     |         |        |        |
| Lake        | X         | X          | X      | X   |        |     |     |     |     | X       |        |        |
| Hamlin      | X         | X          |        | X   |        | X   |     | X   |     | X       |        |        |
| Long        | X         | X          | X      | X   |        |     |     |     |     | X       |        |        |
| Pleasant    | X         | X          | X      | X   |        |     |     |     |     |         |        |        |
| Tippett     | X         | X          | X      | X   |        |     |     | X   |     |         | X      |        |
| Jakes       | X         | X          | X      | X   |        |     |     |     |     | X       |        |        |
| Newark      | X         | X          | X      | X   |        |     |     | X   |     | X       |        |        |
| Railroad    | X         | X          | X      | X   |        |     | X   |     |     |         |        |        |
| Steptoe     | X         | X          | X      | X   | X      | X   | X   | X   | X   | X       |        | X      |
| Spring      | X         | X          | X      | X   | X      | X   | X   | X   |     | X       | X      | X      |
| Snake       | X         | X          | X      | X   | X      | X   | X   | X   |     | X       |        | X      |
| Butte       | X         | X          | X      | X   | X      | X   |     | X   |     | X       | X      | X      |
| White River | X         | X          | X      | X   |        | X   | X   | X   | X   | X       |        |        |

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